

Sawbones 276: The World of Warcraft Plague

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

[theme music plays]

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

Sydnee: And I'm Sydnee McElroy.

Justin: I was so excited to hear about this week's episode from Sydnee, 'cause she said this one's got video games in it.

Sydnee: That's true. This was like a special present. It's not your birthday. It's not... it's almost fathers' day. Could this be your fathers' day present that I don't—

Justin: This is not. Does not count. Does not count.

Sydnee: Oh. Alright.

Justin: Um, I was excited, 'cause y'know, at work, they all call me the game master. I'm kind of a video game head.

Sydnee: Is that what they call you all? Video game heads?

Justin: Video game heads is what they call us.

Sydnee: Right.

Justin: And I'm the game master.

Sydnee: You're the game master?

Justin: Yeah, that's one of the nicknames I have, 'cause I love video games so much. And then, Sydnee told me it was World of Warcraft, which... is not the worst possible thing. The worst possible thing would've been a game that I've never played in my entire life. But WoW—

Sydnee: By worst, you don't mean in quality. You mean like, in terms of being relevant to your expertise.

Justin: Right.

Sydnee: Yes.

Justin: You could've done like, 4X strategy games, or fighting games, or sports games, or... there's a lot of games I don't know about. I'm sitting here... For the game master, I've got some pretty large swaths of ignorance.

Sydnee: Well, you focused on FMV games so much.

Justin: That's my problem.

Sydnee: Y'know? That you've ignored all these other games.

Justin: Uh, World of Warcraft is something I have played a lot, but not for a long time. I have what the eggheads call a kind of addictive personality. So when I get into a game like World of Warcraft that has no linear end in the way that we all understand it, uh, it can be a little bit of a time suck for your boy Hoops.

Sydnee: Sure. Sure.

Justin: I ignore the old kids. The ol' ball and chain and kids and the bathroom.

Sydnee: Hm. That's not there. Yeah.

Justin: And the eating things that aren't Hot Pockets.

Sydnee: I can't—it makes you ignore the bathroom?

Justin: Yeah. We used to have an expression for that. When you had to review a game really quickly without stopping, because of the embargo. Y'know, they do embargos for video games reviews?

Sydnee: Yes. Yeah.

Justin: We used to have an expression if you had to review a game really quickly. Y'know what we'd call it?

Sydnee: What?

Justin: Poop sockin' it. You'd have to poop sock through the game. The implication being that you would poop in a sock, rather than stop.

Sydnee: Please, it—

Justin: Playing. You'd just keep playing, and you'd poop sock your way through.

Sydnee: Let's never discuss this again, because then, inevitably, I'd have to ask you if you have, and I don't... I can't...

Justin: It's a—Sydnee, Sydnee, Sydnee, Sydnee.

Sydnee: I plan on staying married to you forever. I don't want to know.

Justin: Sydnee. Sydnee. I've never yelled at you on this program before.

Sydnee: [laughs]

Justin: Poop sock is a term of art, and you couldn't possibly understand.

Sydnee: Okay. Well, this is the first time on Sawbones that I've ever been disgusted, so...

Justin: Well, there you go. It happened.

Sydnee: There's that. No, you might—

Justin: World of Warcraft.

Sydnee: You might be wondering why we would be talking about World of Warcraft on a medical history podcast. Well, it was brought to my attention by a wonderful listener who did not sign their email, or else I would thank you by name, that there was a time when World of Warcraft helped medicine, in a way. Helped epidemiologists, uh, through the investigation, the study of a virus that spread in the world.

Now, I am not—I've never played World of Warcraft. I'm familiar with it in that I know what it is. You've told me some things about it. But I'm gonna rely on you, Justin, for a lot of the context for these things when it comes to the game part. And then, I'll talk about the medicine part.

Justin: I have—just to give—if you're a WoW head, I just put head at the end of everything now.

Sydnee: A WoWzer.

Justin: If you're a WoWzer, um, I made it through... uh... like, Wrath of the Lich King. And Cataclysm. And that's about where I bailed. I didn't get to like, Mists of Pandaria, or Warlords of Draenor, or Nights of Azaban, or Legion, or Battle for Azaroth. Which one of those do you think I made up?

Sydnee: Don't—I don't—

Justin: [laughs] It was the nights one. I made that one up.

Sydnee: Alright. So, this was in 2005 that this incident occurred. So—

Justin: Yes. I was still—yes, I was still playing. I was still in.

Sydnee: But you have not heard of this is what you told me.

Justin: No, I am not.

Sydnee: So on September 13th, 2005, Blizzard, who makes WoW, I guess.

Justin: Yep.

Sydnee: Uh, introduced a new raid called Zul’Gurub. Now, what—what does that mean, a new raid? Is that a bad guy, or is that like a level?

Justin: So a raid is, um... uh, it’s like a big team activity. A raid is something where you bring in a bunch of people, and it can last for many hours, and you usually have to be part of a guild, which is a large group of players, that persistently work together.

Sydnee: So it’s like a task.

Justin: No. A raid is like... Everything in World of Warcraft is tasks. It’s like, a raid is like a big, um... like a big—

Sydnee: Heist.

Justin: Hmm, heist is better. If instead of like, sneakily doing stuff, it was just like a huge battle that you had to like—

Sydnee: Okay, so it’s like a battle.

Justin: Multi-tiered battle, mini-bosses, like a big... like, if you think of it, it would be sort of like a level, in a traditional game.

Sydnee: A level.

Justin: Except, you have to bring a huge amount of people in, and there’s challenges all throughout. It’s supposed to be the things that people do repeatedly at the end of the game to like, get new armor and weapons and stuff.

Sydnee: Alright. So, the end boss, Hakkar, could use something called Corrupted Blood.

Justin: Okay.

Sydnee: On players. And that was a spell, or something. Some sort of attack.

Justin: Probably a spell. AoE attack, probably.

Sydnee: Which would drain... You would have like, an initial damage that it would cause, and then, it would slowly drain you of points over time.

Justin: Right.

Sydnee: So it was sort of like an infection. It was like a disease kind of thing, right? So, and you could also pass it onto other characters. So it was infectious.

Justin: That's uncommon in... that's not a common video game idea.

Sydnee: Really? Well, that's—see, I didn't know if this was—

Justin: Yeah. You don't really see that that often, because you... in game design, especially with a massively multiplayer online game, you want to give people as few chances to like, grief each other as possible. Y'know what I mean by grief? You can probably like—

Sydnee: I getcha. Context.

Justin: Like, mess up the gameplay experience. So giving the ability to like, make other people sick is not particularly common in online games.

Sydnee: So, you could make other people sick, and this was really bad for... I guess if your character is a lower level character, it could kill you in a few seconds.

Justin: Woof.

Sydnee: If you're a higher level character, you probably could sustain the initial damage, and maybe stay alive. Eventually, it would go away, or you would die, is the more common result for a lot of players. Because it did like, between 250 and 300 points damage, typically, which I guess is a lot.

Justin: It all depends on what your level is. Pursuant to what we were talking about, though, that attack makes sense in a raid type encounter, because everyone in there is supposed to be high level. A lot of raids are even gated, so like, you can't get in unless you're a high enough level.

Sydnee: And this is... I think this was—part of the idea was that this was supposed to be restricted to the raid.

Justin: Mm-hmm.

Sydnee: It was not supposed to be something that like, was carried outside. It was supposed to be just something, so only higher level players would encounter it. That was the idea.

Justin: Right.

Sydnee: Now, there was an error where, apparently, pets could also get this. And if you dismissed your pets, which is something that you can do... So you can have a pet in the game, and then you can like, tell it to go away, I guess?

Justin: Hey, you got that just from context clues.

Sydnee: Um, if you summoned it again, it—the pet would still have the illness.

Justin: Okay. Yes. Got it.

Sydnee: So you dismiss your sick pet, and when it comes back, it's still sick.

Justin: Right.

Sydnee: Which is realistic, but I suppose, bad for gameplay.

Justin: Right.

Sydnee: Also, NPCs could get it.

Justin: Okay, that's interesting.

Sydnee: Non-playable characters. I knew what that was.

Justin: Yes.

Sydnee: And they were not killed by it the way that your character may be. But they still can spread it.

Justin: Interesting. Okay, see, a lot of times in these games, um... okay, so, World of Warcraft is interesting, because there are two sides. There's Horde and Alliance. And the Horde can bust into like, Alliance territories, and mess people up. But as I understand it, at least when I was playing, um, there's a lot of NPCs that can't be killed, because you don't want to break the game for people. So there would be like, there as a, uh... what's the word for that? Something where disease rests.

Sydnee: A disease carrier.

Justin: Yeah.

Sydnee: They're a disease vector. They're an asymptomatic carrier.

Justin: A vector. Yeah.

Sydnee: Yeah, they're a vector of the disease. Similar to what we've done in an episode before on Typhoid Mary, who was an asymptomatic carrier of the disease, and could give people typhoid, but did not suffer from the symptoms herself. So, these NPCs could give you the disease. The pets could spread the disease. And then, you could spread the disease to other

players as well. And it should've, again, it should've been limited by the fact that only high level characters could get into this raid, and you were only supposed to get it in the raid.

But, three of the servers were affected by the kind of programming, I guess, errors, or whatever, that led to this. And so, what happened was, this Corrupted Blood disease spread throughout the world.

Justin: Of Warcraft.

Sydnee: Of Warcraft. What is the name of the world?

Justin: What? The World of Warcraft.

Sydnee: Is it a—is there a name for it? Does it have like, a fanciful name?

Justin: New Jersey.

Sydnee: Okay.

Justin: Weirdly enough.

Sydnee: And there were bodies laying in the streets, according to posters—

Justin: Azaroth.

Sydnee: Thank you. During the time. People who were talking about it on forums, and trying to figure out what to do, described like, bones littering the streets of the cities, because so many people were dying so quickly, and it was spreading so far. And my understanding is that, while, if you die in WoW, it's not a permanent death, but it is not advantageous.

Justin: If you die in WoW, you die in real life. That's what's actually at stakes here.

Sydnee: WoW is the Matrix.

Justin: WoW is the Matrix. Oh my gosh. Sydnee, I haven't been making a lot of jokes this episode, and I just want to warn everybody. I'm gonna continue to do this. Not make jokes. Me talking to you about video games, and for the first time in our marriage, I think, actually having you listen to what I'm saying and process it, is giving me an intense pleasure that I have not experienced before in my adult life. And I'm really trying to savor every moment of it. I don't—I've turned off the part of my brain that does jokes. I just want to talk to you about video games and have you listen to me with an open heart. And it is—it is blowing my mind right now.

Sydnee: Well, live it up, boyfriend, because—

Justin: I am living it up. I am loving every second of it. No jokes, just pleasure.

Sydnee: Alright, so, because of this, the normal way that players would engage with the game was obviously disrupted. Because, y'know, there were... and I want to talk about the way everybody reacted to it. There was a lot of panic. Blizzard tried to address it with like, a voluntary quarantine.

Justin: Oh, that's so cool.

Sydnee: Within the game. Um, but like—

Justin: Except that it would require—

Sydnee: It was voluntary. And so—

Justin: Then it's never gonna happen. Not in a million years. I mean, this is like—this is a world where people can't even have like, an online... what was it... there was once a... I'm not gonna remember all the specifics, because it was, I mean, more than a decade ago. But some characters tried to have an online funeral, because the players—

Sydnee: I remember this. You talked about this.

Justin: Person had like, died in real life. And it was raided by... not raided in the sense that we think of. Not raided like we were just talking about, but

like, attacked by the Horde. I can't even ruin the... [wheezes] I shouldn't laugh. It was terrible. It was a terrible thing. I'm laughing because that's online worlds. No one's gonna do a voluntary quarantine. No one's gonna do anything they don't want to.

Sydnee: Well, it's—

Justin: Half the people are gold farming bots.

Sydnee: But what you're talking about is what's so interesting about this, is that, much like in real life, some people obeyed the quarantine. Some people said, "Yeah, whatever, I'm not taking that serious. I'm not gonna do that." And then there were some people who were like, "Alright, panic. How can I use this to my advantage?"

And uh, even as they tried to put different security measures in to stem the spread of the disease, the pets thing, the idea that you could summon a pet who would have the disease, and you didn't necessarily know that, or the people around them didn't, kept spreading it. The animals really acted as vectors for the disease, too.

So, the problem was finally fixed by what is, I guess, is called a hard reset.

Justin: Mm-hmm. Yes.

Sydnee: Like the world was set back a week, or something, essentially.

Justin: Yes.

Sydnee: What happened was vanished.

Justin: It's probably, they reverted to... Online games get patched as they go. And what I'm guessing that is, was that they reverted to the version of the game that existed before this thing was added, would be my guess, when thinking about hard reset, there. Because they're not gonna reset everybody's like, players, and characters, and levels, and everything.

Sydnee: Yeah. And they also, um... It ended, by the way, on October 8th. And it also made pets unable to be affected. And that was a big key in stopping it. Now, as a result of this, there were major towns and cities that had been abandoned in the game. People were like, spreading out to the countryside. There was a lot of debate after it, like, was this intentional? Was this a stunt? Was this to get a lot of press? Blizzard has always maintained, "It was an accident, and we're sorry, and we just wanted to fix it." And that was it.

They also maintain this is just a game. 'Cause everything I'm gonna talk about next, all the stuff, the real life stuff that has stemmed from it, uh, Blizzard, I don't think, wants a part of. As they will tell you over and over again, "WoW is a game. The stuff that happens is a game. We're just playing. It is not real life, and we, in no way, are trying to mimic real life."

Justin: Right.

Sydnee: But, this situation has now been used as a model for disease outbreaks by real life, actual scientists, and doctors, and epidemiologists who study the spread of disease. Because what's interesting about studying the spread of disease is that there's a lot of stuff we can account for and predict using mathematical models. One of the things that's really difficult to predict with a mathematical model is human behavior. Because humans do...

Justin: What they gonna do. Yeah.

Sydnee: Weird things, when encountered with some sort of challenge, or struggle, or something frightening. And so, what they saw in this outbreak online was a good model for exactly how a diverse group of humans from all over the place, all different walks of life, might react to a situation like that.

So, and I mean, this would be the only way you could study something like this very well. Because if you think about it, the alternative would be, well, let's give a bunch of people a disease and then write down what they do. Well...

Justin: That's... no, you're not gonna get funding for that.

Sydnee: No. That's unethical. I don't think you're gonna get IRB approval for that kind of study. So, and also, like, that's bad. Like, that's just human bad, not just scientist bad. That's human bad. We don't do that.

So, epidemiologists and anti-terrorism experts – this we'll get into – have studied this WoW Corrupted Blood incident, and they've published papers on this, to try to predict the way an outbreak might occur in real life. And I want to talk about some of their ideas.

Justin: Okay.

Sydnee: But before we do that...

Justin: No.

Sydnee: Let's head to the billing department.

Justin: Ah, let's go.

[theme music plays]

Justin: Folks, our first sponsor this week is Quip. If your teeth are in need of a brushing, and many people's are, there is no better way to do the teeth than Quip. I don't know why I'm talking about teeth brushing like it has just been invented.

Sydnee: Yeah, you should do this every day. I hope you already are.

Justin: Oh yeah. At least... at least once a day.

Sydnee: Twice.

Justin: I mean, at least once, for sure, at night time.

Sydnee: Twice. At least twice.

Justin: I didn't eat anything at night. I didn't eat anything while I slept. And Quip...

Sydnee: Go ahead.

Justin: ...is a toothbrush. But it's so much more than that. It's a toothbrush company that is a total tooth brushing solution. I just admitted that. What does it mean? Well, it means that they're gonna send you a motorized brush. And it's great. It really—if you've been brushing with a standard brush, and then you switch over to electric, oh my gosh. It is like, a new day for your teeth.

They're also gonna send you new brush heads, automatically, on a dentist recommended schedule every three months, for just five bucks. Which, like, you may not think about switching them frequently enough. But now you don't have to think about it at all, 'cause Quip has got your back.

Now, this is new, Syd. We gotta try this. There's a new brush for kids. It's the same as the original version, it's just smaller, for smaller mouths. And kids are inspired to brush better and more often with oral care that looks and feels just like the products the adults in their lives use.

Sydnee: Charlie would like that.

Justin: So it looks like our toothbrushes, but it's tiny. We gotta get one. Uh, there is over one million—there are. Excuse me. Over one million healthy, happy mouths that love Quip. Starts at just \$25, and if you go to [GetQuip.com/sawbones](https://www.getquip.com/sawbones) right now, you can get your first refill pack for free. That's right, your first refill pack is gonna get to you for zero dollars. Just head over to [GetQuip.com/sawbones](https://www.getquip.com/sawbones) and try it today.

Uh, we have been uh, Blue Apron customers for... how long, Syd? Years, right?

Sydnee: Years and years.

Justin: More than years. It has changed the way we eat. It has changed the way we cook. And it has changed, like... I would even say, my pal—like, I eat more things than I would have. I'm much more... y'know, I've never really thought about that. But like, I'm much less of a picky eater than I was

when we started with Blue Apron. A lot of the things that I thought I didn't like were things that maybe I had just not had well. Y'know what I mean?

Sydnee: Mm-hmm.

Justin: Like, I used to be very... When we first started, there would be recipes... if you're not familiar with Blue Apron, they mail you a box with all the things you need to make delicious meals, and you can make them yourself.

Sydnee: Easy to follow instructions.

Justin: Yeah. Pictures on there. They're not—it's not challenging.

Sydnee: They don't take a lot of time, usually. Usually around 30 minutes or less.

Justin: At first, when stuff would have vinegar in it, I would say we should take out the vinegar. And then like, I just started having it with the vinegar. And then, like, I developed a taste for it. So I like that kind of stuff now.

Sydnee: And I've really become a better cook, I think. I have a lot better understanding. I mean, it's following directions. So, it's not hard to do, but I have a lot better understanding of the process now that I've done it so many times.

Justin: In our house, Blue Apron time is Sydnee time, where dad takes the girls downstairs to play with them, and Sydnee gets to watch Fringe, or listen to music, and make dinner. It's a calming time for you.

Sydnee: It's a very calming time.

Justin: But y'know what I will say, though, Blue Apron? You have not made me like capers yet. No one can make Sydnee and I like capers. Please stop sending capers. We'll never put them in the meals. And that's a personal message from us to Blue Apron.

Sydnee: If Blue Apron can't do it, no one can.

Justin: Yes. No one is gonna make us like capers ever. Or olives. To start making delicious brag-worthy meals at home, without the hassle or the capers, try Blue Apron. Check out this week's menu and get \$60 off when you visit [BlueApron.com/sawbones](https://www.blueapron.com/sawbones). That's [BlueApron.com/sawbones](https://www.blueapron.com/sawbones). Blue Apron: a better way to cook. Without capers.

Sydnee: So, Justin.

Justin: Yes, Sydnee?

Sydnee: A lot of the players in the game responded to the outbreak, to the epidemic, in ways that I think it's fair to say, humans respond to real world outbreaks. Some of these we know. They're documented ways. People respond, and then, others were interesting observations. So, some characters tried to heal others. I guess some characters have healing abilities. And so, some would rush to the aid of infected players. Some, who were lower level characters, and maybe that would put them at great risk, would like, volunteer to direct people away from those areas. Would like, I guess, stand somewhere where they could say like, "Don't go there. It's dangerous over there. You could die over there."

Justin: It's a fascinating thing, because these are... The second half of MMORPG is RPG, and that's roleplaying games. And I think that a lot of times, when you see unusual activities, and sometimes there's stuff that's in the game, sometimes they're not. Players will often play roles that aren't necessarily gameplay mandated, right? Like, the healers. Characters healing, right? There's not really a big penalty for dying in WoW. And I don't know, at this time, there may be. I don't know. But it wasn't a big deal. At least, it wasn't like EverQuest, where your experience is gonna get knocked down.

Anyway. It wasn't as big of a deal. But the characters who could heal had a real world application for that healing that wasn't, we're fighting a dragon, let me heal you so we can kill the dragon, right? People really respond to that. Like, people really like, like, in EverQuest, I remember, people who could teleport, druids and some other classes, would open up like, transportation taxi services, basically. Where it's like, I will port you to this

place, if you give me this amount of gold or platinum. Probably platinum. It was an expensive service. But like, I will port you around.

And like, people will respond really well to that. Players will like, um, create their own gameplay when stuff like this happens.

Sydnee: Well, that's what made this interesting to a lot of epidemiologists, is that they saw some characters do what you would kind of predict in an outbreak is, they would flee to somewhere that didn't have the infection, right? I'm gonna get out of the city. I'm gonna go where there's no sickness. Um, there were some characters who actually seemed to be attempting to spread the disease intentionally. But a lot of people reacted as if this was a real disease. Like, as if their life was actually at risk. Their character reacted in such an intense way that kind of transcended the idea of a game.

So, because of all these correlations, there were some epidemiologists, Ran Balicer, Eric Lofgren, and Nina Fefferman, who, between the three of them, wrote a collection of different papers and studies, all in the same year, that advocated this as a model for using virtual worlds to predict human behavior in actual outbreaks. So kind of using, not saying that we should do all of our research based on this one incident, but look how well this worked as a model. We should do this to model disease outbreaks, so that we can better understand the way that people might react, so we can better assist in these kinds of situations.

So, as an example, Balicer published a paper and mentioned the correlations between the Corrupted Blood incident and avian flu and SARS. You can find correlations, because the bird flu was spread by asymptomatic ducks, much like this was spread by pets. In the case of the Corrupted Blood, it was a very similar kind of... You could follow that model, where the ducks went and spread the disease, and where the pets went and spread the disease.

In both cases, they tried to quarantine the thing, and it didn't work. And they compared airplanes as a source of spreading the disease globally in actual outbreaks, things like SARS and avian flu, to teleportation in World of Warcraft. Where they both demonstrate how we now have an ability in the real world to get from one place to another place that's very far away, and spread the disease there, that we didn't used to have.

Justin: Hm. Yeah, that's true. Well, it seems like a cool way of doing this, because you... it's like the perfect balance between like, people do care. Like, you couldn't set this up as an experiment, almost, right?

Sydnee: No.

Justin: Because no one would ever care about like, their squiggly line person, y'know what I mean? Like, without any stakes, no one would react in the way that they normally would.

Sydnee: The only reason it worked is because... and they talk about this a lot as you get into - uh, especially Fefferman - her papers. As you get into that, she talks about the connection that people have with their characters in World of Warcraft, and probably in a lot of other games, too. But specifically, in this world, it's not just... It is just a game, but it's not just a game. And it is that investment that players have in their character that makes it a good model.

If they didn't, you're exactly right, it wouldn't work. 'Cause you would do things that you wouldn't do in real life. But uh, people tended to react in ways that were more consistent with how you would react to a real outbreak. So, in Fefferman and Lofgren's papers, they kind of talk about the things that math can't predict. 'Cause even the animal spread, we could still do mathematical models for, or airplane travel, that kind of thing. But when you look at irrational behavior, that's a whole other matter.

So, as a result of this, Fefferman has started using like, simulations that are built on, like, in her epidemiological studies, that are built on things she observed in this Corrupted Blood incident. Making virtual pandemics. She even was trying to get Blizzard to work with her to make games that would model this.

Justin: [laughs]

Sydnee: As a great way for like, us to study this. She spoke at the 2008 Games for Health Conference, and the 2011 Game Developers Conference about this.

Justin: GDC, in the biz.

Sydnee: Yes.

Justin: We call it.

Sydnee: Again, some of the things that she talks about specifically are players putting themselves at risk because they're trying to heal people, and then getting infected, which is a great model for healthcare workers. But also, for in disease outbreaks, it's not just healthcare workers, or people with some sort of medical background who might go to assist, and then become exposed. Family members take care of each other, or friends, or community members, y'know, who care for the sick, and then become infected.

And so, you have that very, y'know, clear correlation between real life and the game. The other thing is that, what they found in the game is that, by extending the lives, by healing these players who were sick, by trying to help them, you were actually furthering the spread of the disease.

Justin: Oh, wow.

Sydnee: Because they're staying alive longer to keep spreading it more.

Justin: Oh, interesting.

Sydnee: Which was another thing that they had not accounted for or predicted before. Um, as I mentioned, anti-terrorism experts became interested in this, because there were some players who intentionally went and infected other players. And uh, they began thinking, like, could this be a good model for a biological weapon, for how you might spread a biological weapon? How someone might intentionally try to infect other people?

So, Charles Blair, the deputy director of the Center of Terrorism and Intelligence Studies, was really interested in this and wanted to analyze this as a way to explore how a biological weapon might be spread. They even—this was such a problem that, initially, infected players were asked to flag

themselves to try to prevent the spread of the disease. Like, if you're infected, just... I don't know how you flag yourself. There's probably a thing that appears on the screen that shows...

Justin: [sighs] Yeah, maybe. I don't know what to... like, you could—

Sydnee: But some uninfected players started flagging themselves as infected, so that people wouldn't intentionally make them sick.

Justin: I don't know how you would do that. Maybe like... you can do the clothing. There's like, labels and stuff. But the labels, I think, are stuff that Blizzard makes.

Sydnee: Well, they may have made something.

Justin: Yeah, maybe. Yeah.

Sydnee: Um, some uh, some of the users would still have their infected characters go to work. 'Cause I guess you work in World of Warcraft. You can, in like, the market?

Justin: Um... y'know what, it might've been in the bazaar. You could like, set your character to like, be in a centralized trading location.

Sydnee: That's what they said. In the market, you could work there. And they said, this was a really interesting thing, because in disease outbreaks, there is a percentage of people who are going to go to work sick and infect others as a result. And this was something—

Justin: Like there is still—yeah. That's interesting.

Sydnee: And then you add onto, especially this is a big problem in the US, people who don't have sick days, who can't get off work just because they're ill, who are going to go to work because they have no other choice. And so, these are all things that they could model. They found that some players were attempting to sell fake cures to other players, to take advantage of it and benefit off of it.

Justin: Ahh, now... now you're in our wheelhouse, for sure.

Sydnee: I thought that was perfect for Sawbones. The idea that, even in a virtual world, there are just some people who can't help but sell snake oil when they get the opportunity.

Justin: Yeah. That's hilarious.

Sydnee: And then, there was the other observation that the epidemiologists made, is what... [sighs] Fefferman likes to call the stupid factor. I don't—I hate that. I don't like that term.

Justin: Yeah.

Sydnee: I don't think... I think that this is a very normal... I don't know. I have a lot of sympathy for this. This is a very normal human reaction. There were a lot of people who logged on to go check out the epidemic, because they heard about it, and they were interested to see what was happening. I guess it's what people would call, um, I've heard, like other people call 'looky-loos' at like, accidents.

Justin: Okay. That's a little kinder. Yeah.

Sydnee: Yeah. People who just want to kind of see what happened, and as a result, because of that curiosity, they would get infected, and then spread the disease as well.

Justin: It's like a misunderstanding, though, of why people... Like, if you heard about something like this happening, right? And you weren't currently playing World of Warcraft...

Sydnee: You'd log on and check it out.

Justin: You'd log on and check it out. And mainly, because people want to be like... these are worlds with histories. And like, you want to be someone who said, like, yeah, I was there for the Corrupted Blood epidemic, and yeah, I got it, and it was wild, and you should've been there. Like, people like to be a part of big happenings in MMOs, for sure.

Sydnee: And this also accounts for, not just people who are curious, but it accounts for, in real life, there are a lot of people who are going to go into disease outbreak sites, who put themselves at risk. For example, journalists. Journalists often are reporting on these matters, and might be exposed. And that is not out of, y'know, unintelligence. That is their job.

Justin: That exact thing that you described probably happened. Because I imagine, anybody... everybody was covering WoW back then, pretty closely. So, like, there were probably sites like, Joystiq at the time, or Kotaku, or what have you, that sent in people.

Sydnee: In an outbreak, we'll send in teams of epidemiologists, people who research outbreaks, to try to figure out the best way to control it. Those are people who are put at risk, too.

Justin: Mm-hmm.

Sydnee: In addition to, obviously, the healthcare workers who might be caring directly for people, there are people that are studying the outbreak who are put at risk. And this was an interesting model for that, as well. People who didn't necessarily have to be infected, but put themselves into a position where they could become infected.

The other thing that they noted was that there was not a lot of information or guidance given, initially, from the game developers. So, as they tried to figure out how to stop it, a lot of players were left to try to figure it out on their own. And the kind of confusion and panic that resulted from no information coming from the authorities is a very instructive tool for epidemiologists, who will tell you that that is a problem in real world outbreaks.

If they're occurring, and there is no information or guidance being given by government bodies or health organizations, that kind of thing. It's really crucial that you get on top of that and inform people. Because people who are uninformed and feel like something is happening and nobody knows about it, are much more likely to react in less than advantageous ways.

Justin: That makes sense.

Sydnee: Irrational ways. Um, now, there are other researchers who took exception to all this and said, yeah, that's all really neat, and those are cool papers you wrote, and of course, they're gonna get published, because it's about a video game outbreak, and y'know, journals are gonna love that, and scientists are gonna think it's really neat. But this is not real. This is a game. There was this, uh, terrorism expert, Stuart Gottlieb at Yale, who said, "Death in World of Warcraft is a nuisance at most." His point being that like, it's not like real death. It's just... y'know?

Justin: [laughs] Right.

Sydnee: Why would we even begin to think that, y'know, real morality and real fear of death and all that would apply to a game? But, again, other scientists, Dr. Sherry Turkle of MIT says, y'know, but it becomes part of... for some players, it becomes part of their real life. Their WoW life and their real life are very closely entangled. And so, it's totally valid to use these kinds of, y'know, virtual models to discuss how actual humans in real life, y'know, might respond.

Justin: It's hard, because the answer is somewhere in between both of them, right? And this is the problem with like, if you're not someone who is engrained in this, the truth is in the middle. Because the level of... and maybe this, like, the level of player investment is gonna differ from person to person. Like, some people get onto these games just to grief people, and just to be agents of chaos, and just to like, mess stuff up. Some people are very invested, and want to do the best for, like... want to breathe life into their characters, and do things the way they would do them, et cetera.

Which is, probably, a good model for humanity. We are varied in that same way, I think.

Sydnee: Exactly.

Justin: But I think, since you can't account for that, you're not... it's hard to use it, I think, as a one to one comparison for like, how people would react in their day to day life. 'Cause like, there are probably some people... not

everybody who likes griefing players would probably enjoy that in the real world.

Sydnee: That's exactly what the—

Justin: And vice versa, honestly.

Sydnee: Right. And that's what Gottlieb was making the point. Just because somebody might gleefully spread Corrupted Blood to other players in World of Warcraft does not mean that they are going to go out and cause a bioterrorism event. That would be a wild extrapolation. And I agree with that completely.

But, I do think, if you have something like human behavior that you can't easily map out with algorithms, seeing these kinds of things play out can be very instructive. Because when outbreaks happen, people do irrational things. And some of those things are irrational behaviors that can be predicted, that we could guess are gonna happen. And then, sometimes, we don't see them coming. I don't think we would assume that in an outbreak, there will be a group of people who would sell fake cures for the outbreak, necessarily. But after I read that, I thought, "Oh, well, that would definitely happen."

Justin: Oh, for sure. Yeah, 100%. Of course.

Sydnee: Of course that would happen.

Justin: Of course.

Sydnee: And if you think about what is a result of that, other than that it's horrible, and it's immoral, and it's dangerous, and it's mean. Other than all that, if people think they're being cured, what are the... I mean, what do they do, then? Do they tell other people? Do they avoid other cures? Do they get sicker? Do they spread it further? Do we... I mean, y'know, there are all kinds of repercussions of these behaviors. And so, I think it's a really interesting thing. Blizzard disagrees. They're just, again, they're like, "It's a game. It's a game."

Justin: It's a game.

Sydnee: "So, don't—please do not put all this science stuff on us. We're just trying to make a fun game for you." But the epidemiologists persist. They still are trying to work through, y'know, the CDC and various institutions to use these things a little more effectively, these virtual models, as a way to chart epidemics. And a lot of it stems from this WoW Corrupted Blood incident.

Justin: There's a... there are other examples of this. There's a game called EVE Online, which is absolutely gigantic, that has its own in-world economy. It's a space ship game. Has its own in-world economy, where like, players can amass real wealth that is like, substantial, actual wealth that does map to our money. That can be, like, people can sell stuff off, and stuff like that. And there's been a lot of studies done on the economy of EVE Online, because it is so gigantic and deep that like, it goes through dips. Like, there are crashes and stuff like that.

So, it's an interesting way of being able to study this stuff in a little bit of a vacuum, I think.

Sydnee: Mm-hmm. Absolutely.

Justin: Not... can I tell you the side effect of this episode?

Sydnee: What?

Justin: You know what I want to go do right now?

Sydnee: You want to play WoW?

Justin: I want to play WoW, Sydnee. Don't you miss it?

Sydnee: I—I never played it.

Justin: Remember when you would go to sleep, and I would get the laptop on, and just play WoW? Remember how young I was back then? I didn't have kids. I just had WoW.

Sydnee: You do now. You're not playing WoW. I love you.

Justin: I'm just—[yelling] I'm just gonna dip in!

Sydnee: No. You can't.

Justin: I just want to dip in.

Sydnee: No. It's the same reason we have to be careful about keeping boxes of cereal in the house, honey.

Justin: Mmm, I'm just gonna dip in. Real quick. Um, thank you so much for listening to this episode, and thank you, Sydnee, for listening to me talk about video games with an intensity that is unmatched for the rest of our marriage. Um, hopefully we can do it again real soon. [laughs]

Sydnee: [laughs] Thank you for the context, so that I understood this interesting scientific episode.

Justin: Thank you to the Taxpayers... y'know, I should play. What if it happens again, or something like it? Don't you want your first hand reporter, Justin "Scoops" McElroy, on the scene? I should be playing in case something else like this happens.

Sydnee: If we hear about this happening, then I'll allow it.

Justin: Okay. Thanks to the Taxpayers for the use of their song, Medicines, as the intro and outro of our program. Thank you to the Maximum Fun network that has had us as a part of their family for quite a while, now. And uh, we uh, we are so happy to be here. Um, thank you to you. Hey, we have a book. Sawbones the book, they call it.

Sydnee: Yeah. 'Cause it's a book.

Justin: Yeah. 'Cause it's a book. It's on Amazon. You can get it on book. And there's also an audiobook version, if you want Sydnee and I to...

Sydnee: [laughing] Get it on book. That's how humans talk.

Justin: Y'know, Amazon. And there's an audiobook version if you want to buy CDs of Sydnee and I reading our book. Uh, go for it. It's all there for you.

Sydnee: Yeah.

Justin: Uh, folks, that is gonna do it for us this week. So until next week, my name is Justin McElroy.

Sydnee: I'm Sydnee McElroy.

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

[theme music plays]

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