

Sawbones 569: Tear Gas

Published February 3rd, 2026

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["Medicines" by The Taxpayers 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: Sorry, Syd. I'm really leaning into the voice, I know, it's irritating.

Sydnee: You do that sometimes.

Justin: Yeah, I'll be honest with you, I genuinely do not like the timbre of my voice in a general sense. And when I am experiencing cold symptoms like I am right now, it makes me feel like I have the voice I've always dreamed of.

Sydnee: Why do you think if you don't appreciate the timbre of your own voice, why do you think you went into podcasting?

Justin: Well, if I'm to understand the science of it, it's the way my own bones reverberate in my head as I speak. It changes the tone in my own brain, right?

Sydnee: No, I'm not—I'm not questioning whether or not your voice is pleasant to listen to. I think it is. And obviously, I assume other people do.

Justin: So, okay, yeah.

Sydnee: I assume. But if you had that sort of concern or like hang up, anxiety for yourself, why do you think you chose...

Justin: I had a lot of important ideas to share.

[both chuckle]

Justin: I mean, just because your instrument isn't perfect, it doesn't mean that the ideas, you know, aren't worth getting out there. A lot of important ideas to share.

Sydnee: It's just—it's just, it would be like saying I've always been really self-conscious about my feet, like I don't like my feet. I'm not comfortable with my feet. But I did go into a career of like... foot modeling,

Justin: Yeah, no, but it's like, you sometimes hear that with like, I think—you think about some of the great, famous composers, the one that was deaf that we know about, and some others that have had that, I—so, okay, I'm on a—

Sydnee: No, but this is—

Justin: Good amount of DayQuil. So normally, the good ideas that I have are like, I feel like they're better than ever. I feel like I'm really on a different wavelength.

Sydnee: This isn't about the skill, whether or not you could do the thing you wanted to do, it's about—

Justin: Foot modeling is what you—

Sydnee: No, like I am uncomfortable about this, and I am going to go into a career that will—

Justin: That will highlight it.

Sydnee: That will highlight it. That is—it's just an unusual—

Justin: So that's—but that was because my dad forced me into it.

Sydnee: [laughs] Into podcasting?

Justin: Into radio, which is the podcasting of today, then, you know.

Sydnee: I was gonna say—

Justin: He forced me out on the stage, like in the vaudeville, like I was like really the Brooklyn Beckham of my time, you know? He really shoved me out there into the public eye.

Sydnee: He was a real Mama Rose kind of figure, yeah.

Justin: [chuckles] He was! I didn't have a choice, papa! I had to get out there and do radio!

Sydnee: Justin, there's a lot going on in the news.

Justin: Yeah.

Sydnee: And I thought it would be helpful, one of our listeners wrote in, Angie, thank you, Angie, and asked about in light of the—all of the protests and the violence that we're seeing in many parts of the country, but specifically in Minneapolis I think has been highlighted the most lately.

Justin: Mm-hm.

Sydnee: And let me just say, on that note, these—ICE is arresting people all over the country. I know it's happening in West Virginia, even in our hometown, so not just there, but I think that's what's been most covered—to talk about tear gas. The implications of tear gas for our health. Where did tear gas come from? What is tear gas? Why do we use it in like, I mean, not times of war, I guess, right?

Justin: Right.

Sydnee: Like not in a military sense, what is the history of tear gas? And what can you do if you're exposed to tear gas? I thought that might be a really useful thing to talk about, both from a historical perspective and then sort of now.

Justin: Yeah, I think it's—as somebody who is, you know, I'm rarely educated about something until you tell me about it when it comes to this kind of stuff. So, I base most of my understanding, like a lot of people, I guess, doing like, culture and how it's used.

I think tear gas is like one of those narrative things you see employed a lot, that could either be, you know, maybe it clears a building full of people, or maybe you like cover your mouth and like run out. You know what I mean? It's depending on whatever the script writer I think needs tear gas to be in that moment.

Sydnee: What you—yes.

Justin: Is most of our understanding, based on that, you know?

Sydnee: Well, and then I think it like, in my head, tear gas was a step above like pepper spray, right? Like, I understand that some people carry pepper spray or mace even to defend themselves. But then tear gas, to me, was a whole other thing.

Justin: Yeah, right.

Sydnee: And so I—but I also, it occurred to me, I didn't—I didn't even know what tear gas was. Like chemically, what is tear gas? So, first of all, I assumed that tear gas was a specific chemical that I would google, "What is tear gas?" And I would get an answer that was a long, complex chemical name, and that did certain things to your body, and was invented in this time and used this way. Tear gas is not one thing.

Justin: Okay?

Sydnee: Tear gas is a catch all term for a bunch of different chemicals.

Justin: Okay.

Sydnee: Did you know that?

Justin: No, I didn't know that, Sydnee.

Sydnee: No, I thought that that was really interesting to start with, because when people say—when you hear on the news, they're using tear gas to try to, you know, end the protest, to try to send everybody scurrying away, to try to stop whatever, they could be using a lot of different substances. Generally speaking, the reason they're grouped under "tear gas" is that we consider these lachrymatory agents, these chemicals.

Justin: Lachrymatory. Now, I know lachrymose is related to tear ducts, right? Because I know, I've heard of, what is it, al—they called it on Kermode and Mayo's Film Review show, they called it altitude induced lachrymosity syndrome.

Sydnee: Mm-hm.

Justin: The idea that when you're watching movies on a plane, you tend to tear up a lot easier than you do on the ground. [chuckles]

Sydnee: Yeah, okay.

Justin: Yeah.

Sydnee: And lac—you're exactly right, lachrymatory agents are going to make you tear up, that's the idea. They stimulate your lacrimal glands, your tear glands, and you're going to make tears. And I think even that maybe is a—it's a misnomer in the sense that that does not tell you everything you need to know about these agents.

Justin: Mm-hm.

Sydnee: Do they make you tear up? Yes. They do irritate your eyes. Is that all they do? Absolutely not. I'm sure anybody exposed to tear gas can attest to that. But I want to talk about some of the common ones, where did these

come from, and why do we use them? So, one common lachrymatory agent is pepper spray.

Justin: Mm-hm.

Sydnee: That is considered a form of tear gas. We don't usually call it that. And those are usually based on capsaicin, right?

Justin: Mm-hm.

Sydnee: The thing that makes chili peppers hot, right? So, that is in there. But that is not—and then, of course, there's mace, which is also. But then there's a whole bunch of other chemicals that I want us to talk about, that are probably what you're thinking of when you think of tear gas.

So, the earliest use of something that we would call tear gas probably dates back to pre-World War I, sporadically. I think the large-scale use was in and then following World War I, that's when the technology was kind of being perfected. But we actually see a lot of French scientists developing these agents prior to the war, and it's sort of being used by French police before it's deployed in a military setting.

Justin: Okay.

Sydnee: And you start to see its use in World War I, and that really sort of spurred a bunch of like chemists and, well, I wouldn't say the chemists themselves, perhaps companies with an interest in creating chemical weapons—

Justin: Mm-hm.

Sydnee: To investigate what are these things we could use to deploy on large crowds of people, to dispel the crowd without having to cause like direct bodily harm.

Justin: Right.

Sydnee: Does that make sense?

Justin: Well, the idea being, I guess, that you're trying to, I mean, at least conceptually, right, the idea would be de-escalation, right? So, rather than—

Sydnee: Yes, conceptually.

Justin: If you attack someone directly or kill that person, then you have just raised the stakes of this. The idea of this being that if you can scatter people non-lethally, then you can de-escalate without—you can de-escalate the situation, again, conceptually.

Sydnee: Conceptually, yes, this would be a way to stop a large crowd of people without having to run in there with, you know, if we're thinking of a police action, like a night stick or something, you know?

Justin: Right.

Sydnee: Or without having to actually shoot people.

Justin: Right.

Sydnee: So, that's exactly the idea. One of the first substances used as tear gas in the US is commonly called CS gas, which is actually named for the two people who synthesized it, Ben Corson and Roger Stoughton. So, Corson, Stoughton, CS, CS gas. Which is probably easier than the very long chemical compound that I could read to you, but I don't think would be very interesting.

The point is, it is a gas, it's mainly a cyanocarbon. It is a lachrymatory agent, it's going to stimulate your tear ducts, you're going to start crying, it's going to irritate your eyes. And this was one of the first like widespread chemical agents that we see used, CS gas. And is used today, I believe, some, not as popular. Part of as we see like the evolution of tear gas, the idea is that we're continuing to try to make it "safer."

Justin: Okay.

Sydnee: I don't—I think that, again, might be a little misleading, the idea that it's ever "safe." But after World War I, you see all of these different chemists creating different kinds of chemical weapons. And why? Because the war has ended.

Justin: Mm-hm.

Sydnee: We made these substances sort of towards the end of World War I.

Justin: Okay.

Sydnee: And they were effective. But then now you have all these stores of this product, and you are refining how to make this product better. But your market has disappeared.

Justin: Mm-hm.

Sydnee: But does it have to?

Justin: Ah.

Sydnee: Yes, and so really, what you see after World War I is an effort—and I'm gonna stick with the United States. Tear gas is used all over the world, obviously, but I'm gonna stick with the history in the US. The Chemical Warfare Service, which was, you know, active during the war, making chemicals to be used as weapons in the war.

Justin: Mm-hm.

Sydnee: Which, as I'm saying this, I know probably you're listening thinking, I thought we weren't allowed to use chemical weapons, right?

Justin: Yeah, that was part of the Geneva Convention.

Sydnee: Mm-hm, yeah, we're gonna get to that.

Justin: Okay.

Sydnee: So, the Chemical Warfare Service is making these chemical agents to be used in military settings. The war ends, and General Amos Fries, who is in charge of the Chemical Warfare Service, decides we've got too good of a product here to let it go to waste. And if we're going to continue to refine it, we need money coming in from it. So, we're going to go around to police departments and do displays and ads, and we are going to market it—

Justin: Oh, create the market.

Sydnee: Instead of it being a military weapon—

Justin: Right.

Sydnee: This is going to be something that police departments can use as part of their like defensive operations. So, the—and this is a really important distinction. In a military setting, this was being used as an—as a weapon, offense.

Justin: Right.

Sydnee: We're deploying it on a group of people to try to make them—you know, not because we're worried about our safety, because we want to attack them.

Justin: Right.

Sydnee: Police departments, the way it's being marketed to them is that, hey, when you have a riot that's getting out of hand and you are worried about your safety, this would be a much safer way of dispersing that crowd than beating them or shooting them, right?

Justin: Right.

Sydnee: So, it's safer for you and it's better for the people you're deploying it on. And this is especially important as we move into the '30s, because then you start to see the labor movement. So, you see these people, you know, organizing and marching and striking, and police forces are deployed to stop them.

Justin: Mm-hm.

Sydnee: This is a great—I mean, the—so you really see it take off at this point.

Justin: An ideal use case for this sort of tool, as it were.

Sydnee: It was most famously, in 1932, there was what was called the Bonus Army March. And it was a bunch of World War I veterans who gathered in D.C. because they had been promised money as veterans, and they weren't given it. Which, I cannot imagine the United States breaking a promise to the people, but anyway. So, people were obviously broke. This is the Depression.

Justin: Right.

Sydnee: They march to get their money that they're owed, they're all veterans, and they deployed tear gas on them en masse to make them, you know, go away. And they were, I mean, it was basically, it was awful. Everybody was screaming and crying, they couldn't breathe, it was... it very effectively ended the march. And on one side of this, you're thinking, this is horrible. Surely, everybody was outraged. But if you are the people who are interested in buying a product that could do exactly this, you see this well-publicized event and you think, "Perfect."

Justin: It's a success, right? Yeah, it's worked exactly as intended.

Sydnee: Yes, it was the best commercial that you could possibly have for tear gas. And the idea is that, and this is exactly what the ads would say, make a mob terrified and cry screaming. And that was the goal. I mean, that is the goal of tear gas. Like I said, there are lots of other ones that were developed after these early formulas.

There's CR gas, which is again named for different people who have created it. All of these are—I'm not going to go through like chemically what these are, just think about them similarly. They're going to irritate your eyes, they're going to irritate your airways, they're going to irritate your skin.

Justin: Mm-hm.

Sydnee: They are uncomfortable, painful, I think. Specifically, a report on CR gas when it was used in the '50s and '60s, you really see a lot of this start to be used, especially as we go into the civil rights era, it was like being thrown blindfolded into a bed of stinging nettles.

And that one earned the nickname "fire gas." There's CN gas, which is sometimes used because it is thermally stable and it can be distillable. A lot of these are technically powders, they're not gasses, so they have to be like dissolved in a solvent and then aerosolized.

Justin: And then aerosolized.

Sydnee: Yeah. And so, it's not technically a gas. There's also, bromoacetone is another one. It is the essential oil of a seaweed from the Hawaiian Islands, which sounds very pleasant. But it is also a chemical weapon that was called BA, and used during World War I, and it was so toxic that we actually don't see that used anymore. There's another one, substance T, that was used as tear gas, and smells like lilac.

Justin: Oh? Well, that's kind of an interesting advancement, I guess.

Sydnee: Mm-hm.

Justin: It doesn't sound like it would be a great deterrent, I'll be honest.

Sydnee: No, well, I mean, actually, maybe it would confuse you, because you'd go towards it, because it smells so nice. But then—

Justin: And then it's like—

Sydnee: It's awful.

Justin: Oh, okay, yeah.

Sydnee: Yeah. And there were other, I mean, I—mace was developed as one of these. If you've heard of mace, which I, in my mind, mace and pepper spray were the same thing. I don't know why I thought that. That's not right. I mean, pepper spray, all of the pepper spray-based compounds are derived from capsaicin, or a synthetic capsaicin analog.

Justin: Right.

Sydnee: Mace is a brand name of a very specific aerosolized tear gas-like product, and it's like the—one of the types of tear gas, CN, dissolved in a hydrocarbon and then aerosolized. So, it's just tear gas in a can.

Justin: Okay.

Sydnee: This is not my concept. Like my understanding, culturally, of tear gas was that it was such a bigger deal than things like mace and pepper spray. To find out that all these things sort of—

Justin: Are in the same family, yeah.

Sydnee: Yeah!

Justin: Yeah.

Sydnee: It was really shocking to me.

Justin: Yeah, absolutely.

Sydnee: So, here's the thing, all of this—all of this is being used primarily by law enforcement. First we see on like the labor movement, were the earliest days, and then we see on the civil rights movement, ways to control people without, one, endangering yourself, and then two, I think from a—you have to think about the optics of this. People who are exposed to tear gas, I mean, you've seen pictures, recent pictures, they're sobbing, their noses are running.

Justin: Right.

Sydnee: Their skin looks irritated, they look quite disheveled, right?

Justin: Yeah.

Sydnee: They don't look like rational people now.

Justin: Oh, yeah.

Sydnee: They look like a screaming mob.

Justin: Right.

Sydnee: They also don't have marks on them. You don't see wounds, you don't see blood, you don't see bruises.

Justin: Yeah, bloodless, ideally. Or like... you know.

Sydnee: Yes, so the optics from the perspective of those who were using these agents is that, "This is much better for us. They look like the wild, uncontrolled mob. We look like the responsible, organized like structure of society." And so, the question is, if I am calling this a chemical weapon, if it was developed as a chemical weapon, why are we using it in law enforcement, but we cannot use it in war?

Justin: That's a great question, Sydnee.

Sydnee: And I'm gonna answer it, right after we go to the Billing Department.

Justin: Let's go!

[theme music plays]

[ad reads]

Jordan: Hi! I am Jordan Crucchiola and I host Feeling Seen. I'm here with Maximum Fun Member of the Month, Khalil Goodman. Hi, Khalil!

Khalil: Hi, Jordan! Thank you for having me, it's so great to see you.

Jordan: I gotta know what's made you feel seen? If you—I figure you've thought about this, if you've listened to the show a bunch!

Khalil:, I read X-Men when I was six. When you're a kid who makes art, which I am, and you're a queer kid, like this feeling of like something is different, but you don't know what it is—

Jordan: Yeah.

Khalil: You can be different, but it can be a superpower.

Jordan: What would you say to others who might be considering supporting the show? What would be your sales pitch to them?

Khalil: If you love this thing, if you are getting all of this joy and comfort from this thing, make sure that this thing that you like will continue.

Jordan: Thank you so much, Khalil, for taking the time to talk to me today. And for listening to the show, my god! It means a lot to just know people are really listening and valuing what they're hearing.

Khalil: Thank you so much.

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[break]

Drea: If you want to know what's going on in the world of movies, you should be listening to Maximum Film, so we can tell you all about it!

Kevin: Okay, but what if you already know what's going on in the world of movies? What if you're kind of obsessed with movies, like maybe you have a problem?

Alonso: Well, then you should definitely be listening to Maximum Film! Because we, too, have that problem, and it's important you know you're not alone.

Drea: We're talking indies you'll want to seek out!

Kevin: Blockbusters and blockbusting wannabes.

Alonso: Classics we can't get enough of.

Kevin: I'm comedian and writer, Kevin Avery.

Alonso: I'm film critic, Alonzo Duralde.

Drea: I'm festival programmer and producer, Drea Clark!

Alonso: Together, we're Maximum Film. Smart about movies in Hollywood, so you don't have to be.

Kevin: But if you already are, that's also great. And hey, we see you.

Drea: New episodes every week, on maximumfun.org!

[break]

Justin: So, Sydnee, you raised an extremely pressing question before the break. So, why is this okay for police to use, but not for the military?

Sydnee: So, as a lot of people have pointed out, and I think this is why it's really good to understand this, because I've heard people saying, I was actually asked this question recently, they're using a kind of gas that is against the Geneva Convention. Okay, all chemical weapons are against the Geneva Conventions, right? And tear gas is a chemical weapon.

Justin: Right.

Sydnee: And it is exactly because of this distinction, so that when they were banning the use of chemical weapons in military settings, the premise is,

"We are using these to hurt people." I mean, I know that sounds horrible, but it's a war.

Justin: Right, it's—that's the idea.

Sydnee: You're trying to hurt or kill the other side.

Justin: Right.

Sydnee: That's the war.

Justin: War is bad! Again, we're pretty anti-war here. I don't know how you feel.

Sydnee: I would say very, I wouldn't say pretty.

Justin: Not a huge fan over at Sawbones.

Sydnee: No.

Justin: Well, that is the context!

Sydnee: That's the context, I'm—

Justin: By which—I'm not—I'm not a big soccer guy, but I understand there are rules.

Sydnee: Yes. And I am untangling, why is a weapon of war being used in the streets of Minneapolis? So, in a military setting, the use of tear gas or any other chemical weapon could only be an offensive act. When this happened on an international scale, nationally, in the US, law enforcement saw a problem. "Well, we don't want to stop using this stuff. This stuff is great for us because—" And I mean, to take the most generous perspective, tear gassing a crowd is less likely to cause death than opening fire on a crowd.

Justin: Right.

Sydnee: For sure. So, if that is the argument you're making, that sounds very rational.

Justin: Right.

Sydnee: Right? Whether or not you should be taking any action on the crowd is not part of this conversation.

Justin: Yes. Sorry, the cat was gnawing on a power cord, so I was trying to get her to stop doing that.

Sydnee: Sorry, I thought you were snapping at me.

Justin: I would never in a million-bajillion years snap at you. [chuckles] Sorry, I didn't want the cat to get electrocuted. But I would sooner I get electrocuted than snap at you.

[both chuckle]

Sydnee: So, because especially if you think about the time period we're moving into, we're moving into like, we're post-World War II, we're moving into the '50s and the '60s, the civil rights era, the police departments do not want to use this—lose this tool that they have. So, we carve out a loophole. No, of course, we can never use a chemical weapon in an offensive way. We can't just like, go into a neighborhood and drop tear gas on them. We can't.

But if it is in defense of public safety, if it is in defense of the law enforcement officers themselves, then it is acceptable to use. And then the exact protocol for how it is deployed, it really varies from police department to police department. So, the rules for Huntington, I'm certain, are different than the rules for Minneapolis. And that can be state by state, city by city, jurisdiction by jurisdiction. They can also be different—

Justin: It makes it harder for people to know their rights too, and know when their rights are being infringed because they vary so wildly.

Sydnee: Exactly. And I would have to imagine it's different for federal agents than, you know, city police or county sheriffs. I mean, I don't know—I know that all—

Justin: P.S, we have some cowboys out there that aren't even doing laws at all anyway, so, good luck.

Sydnee: [chuckles] So, if you've got that much flexibility in the use of tear gas, you can see why it would leave plenty of room for it to be used in ways that are extremely dangerous, that—I mean, when these weapons were developed, they're weapons. Tear gas is a weapon.

Justin: Right. Yes.

Sydnee: It was developed in a military setting to be used to hurt people.

Justin: It's like you hear—think about things like rubber bullets or beanbag guns, like they—people used to refer to them as non-lethal, and I think more and more there's a push for like less lethal. Because you gotta remember that they're like, they're weaponry, you're using them against people that like you—there could be serious, serious damage.

Sydnee: Yes, yes, there could absolutely be serious damage. And I think that's what—that's the problem is, because it's a weapon, when we start talking about but have we studied the long-term health effects? That's a really complicated question. The short answer is no, we don't have good research on long-term, what are the effects of exposure to tear gas, once, twice, multiple times, if you attended multiple protests. We don't know the answer to that question really clearly.

Justin: Mm-hm.

Sydnee: Because we know it is a dangerous substance, we know that it's going to cause harm to you in some way. That's how it was—it was created to do so. And we know that in order to use it "safely" is almost impossible. I mean, when we talk about—I know that, generally speaking, the idea is you would kind of create a wall of tear gas between the crowd you're trying to

protect law enforcement from, and law enforcement, would be the—that is the—

Justin: A sort of barrier.

Sydnee: Like a barrier, right? So, you would not shoot canisters into the crowd or at the crowd. You're never supposed to use it indoors, for instance, because we know then you'll continue to breathe it. If the crowd does not have a way to run away, for instance if they're up against a hillside, you're not supposed to use tear gas, because then they're stuck there continuing to breathe this gas.

So, there are all these situations where you're not really supposed to use it, but then also it's a weapon. So, where is it safe to use? We have some peer reviewed evidence that says we think there probably are short-term health effects and long-term health effects, but it is so difficult to—I mean, if you think about—

Justin: How would you study it?

Sydnee: How would you study it, right? How do you safely study it? I mean, it's—because it is a dangerous substance, who's going to sign up for that study? How you get IRB approval? It's really complicated to study. We know that in the short-term, aside from like, okay, your eye's irritated, it's watering.

Well, it can cause severe eye injuries. You can get keratitis, like inflammation of the eye. Glaucoma can result. Cataracts can result. The optic nerve itself, the nerve that allows you to see, could have damage as a result. So, the damage to your eye might not just be irritated and tearing up, you may end up with permanent damage to your eye.

I don't know for sure, we don't have enough evidence to say for sure, but we know it's possible. We know that it is irritating to the skin as well, so definitely skin irritation, rashes, those can occur. The severity of that? I don't know how serious that can get.

Justin: Right.

Sydnee: Respiratory illness, it absolutely is toxic when you inhale it. Now, the damage it's going to do to your specific airways is going to be very specific to you, how much you inhale, and then what were your airways like before? So, you can see where some individuals who have chronic lung disease, or you know, other issues with their respiratory system—

Justin: I saw a photo that I know was circulated a lot, of a 70-year-old comic book shop owner emerging from a cloud of tear gas. And obviously that's going to have a bigger toll on somebody with 70-year-old lungs and respiratory system than somebody who's, you know, in their 20s.

Sydnee: Yes, I 100%—the people on both ends of the age spectrum, if you talk about the elderly and the very young, are absolutely going to be more impacted by tear gas than the majority of people in the middle. Although again, allowing for, you know, the existence of chronic disease—

Justin: Sure, of course.

Sydnee: And people who are going to always have issues with these substances. The Physicians for Human Rights say they cause pain and inflammation via multiple mechanisms. These agents work on pain and temperature receptors to cause sensations of burning and severe pain. So you're also in extreme pain the entire time. I don't think that that's well understood. It's not just that your eyes hurt, you hurt all over.

Justin: Mm-hm.

Sydnee: Your whole body hurts. I think that if your concept of tear gas is it will make everybody uncomfortable and they'll go, "Ah," and run away, no, you—we're inflicting damage on people's bodies.

Justin: Sure, it's a weapon.

Sydnee: Yeah, it's a weapon. The reactions start within 30 seconds, and usually they subside after 30 minutes, but it depends on if you get it off of your body. That's an important thing to note, if you're if your clothes are soaked in this. And again, because it is a powder that has been aerosolized,

generally speaking, it settles. And so let's say you also get knocked out, you're unconscious, you're stuck on the ground, there's like a stampede, and you—it is going to settle on you—

Justin: Yeah, and just being in a city environment like that, like you're probably not near your home, right? Like you're probably not gonna be able to change super easily.

Sydnee: No, absolutely you're not. And we also worry about like I say it's a—it's bloodless, it's not necessarily, because it's deployed in a lot of different ways. There are the canisters that can be thrown, there are also projectiles that are shot. We have seen injuries on people from actually getting like hit with the projectile.

Justin: Joker used those huge balloons at one time, but I don't know if that's the—that may just be for Smilex gas, I don't know if that's what—

Sydnee: I think it has been dispersed from above, although that's not what we're seeing currently. But that is—that—I mean—

Justin: No, yeah, and that was in a Tim Burton movie, so I don't—

Sydnee: Well, no. Obviously, if you are stuck in a space, it's going to be worse. The longer you're exposed to it, the worse it's going to be. And in terms of like, let's talk about like the public health part of this too. So, one, there is—again, this is discriminatory in the sense that if you are someone who does have an underlying chronic health condition, this—or if you are the elderly or the very young, this is definitely a weapon that is much more dangerous used in the vicinity of your body. Which might make you less likely to peaceably assemble, right?

Justin: Mm-hm. A chilling effect, yeah.

Sydnee: Yeah, if you are somebody who has a chronic lung disease, maybe you're afraid to go protest. So, it's an infringement on your ability to assemble.

Justin: Yeah.

Sydnee: To use your free speech. It also has environmental damage. It is toxic. We are dumping it onto streets, into waterways, onto forests and grass and plant life. I mean, it is bad for the ecosystem, and we are just... dumping it. And there is no, by the way, there is no standard protocol for cleaning it up.

Justin: Oh, wow. Yeah.

Sydnee: The expectation is—I mean, and I'm not saying that there aren't probably cities where you do have to. I'm sure that there are places that have addressed this. But there is no standard across the board, every time you use tear gas, you have to go through and do these decontamination protocols and clean the—test the water afterwards. A big concern has been that a lot of these different tear gas substances can contain hexavalent chromium, which is a known carcinogen.

Justin: Yeah.

Sydnee: So, if we're releasing large amounts of that into, you know, the earth, the groundwater, what is that going to do for generations to come? And the answer is, we don't know. We have no idea. Spraying this toxic substance into public spaces into the environment long-term, what are the effects on the earth and on people? We don't know. So, what should you do if you were exposed to tear gas, I think, is the most useful.

Justin: Right.

Sydnee: I mean, other than the fact that I think tear gas shouldn't be used, from a medical perspective, as a physician, I would say we should not be using tear gas, period.

Justin: Yeah.

Sydnee: It's a chemical weapon, it should be banned, just like it's banned by the Geneva Convention. But if you're exposed to tear gas, first of all, of course, get away from it. Get as far away from wherever the release point is as you possibly can. Right? If there's a cloud, move away from the cloud.

Justin: Right.

Sydnee: You know, if the wind is moving it, whatever. Get up, like I said, it is going to settle. So, if you're on the ground, you don't want to be on the ground, you want to be up and moving. Obviously, if you're inside, get outside. You don't want to stay inside a building with it. Wash your eyes with clean water as soon as possible, for at least 15 minutes.

Justin: Okay.

Sydnee: A good rule, and this is a whole other subject, riot medicine and what to do if you're going to go participate in protests to protect yourself. It's best not to wear contacts if you're a contact wearer, because if you are exposed to something like this, it can get stuck under the contact lens. So it's best to, if you did wear—either don't wear your contacts, or if you did, take them out, don't put them back in. I would just, you're done with that pair.

If you wear glasses, take them off, wash them with soap and water. Obviously, if you're having trouble breathing, go seek medical attention, of course. But you need to get somewhere where you can start breathing and drinking some water. And there is even a situation where if you've ingested a lot of the gas, if you think a lot of it, you may need to induce vomiting, but I wouldn't just across the board tell people to do that, right?

Justin: Right.

Sydnee: What I would say is you need to get to air you can breathe, you need to drink water, you need to wash your eyes, you need to wash your skin, as soon as possible, as soon as you can safely remove your clothing. Don't remove it over your head, because then you're just rubbing that back over your face. Get your clothing off, wash your clothes. Anything that was touched by the contaminant needs to be washed separately from the rest of your laundry.

Justin: Mm-hm.

Sydnee: I mean, you gotta get it off your skin as soon as possible, because again, it can lead to like blistering and skin damage if it is left on your skin long enough. So, these are all—these are all things that you can do if you're exposed to tear gas to protect yourself from this long-term damage. However, again, what does this mean for you five years down the road, 10 years down the road, 20, no one quite knows the answer to that question currently, at least evidence-based.

Justin: Mm-hm.

Sydnee: We could hypothesize, we could guess, and of course, it's gonna depend on how often this happens. But these are ways you can protect yourself if you're going to participate in a protest that may turn into these situations that we're seeing. And I would say there needs to be a movement to advocate against the use of tear gas permanently, again, from a medical perspective. I'm not saying—the question seems to be, is it better to disperse a crowd with night sticks and bullets, or to disperse a crowd with tear gas? And my question would be, what is the motivation to disperse the crowd?

Justin: Yeah.

Sydnee: And do we—do we trust that everyone who says, "Well, I had to do it because it was a defensive action," do we—do we trust that judgment?

Justin: Thank you so much for listening to our podcast, Sawbones. If you are out there, you know, speaking up and taking a stand, we appreciate you. Thank you so much. Please stay safe and take care of yourself.

Sydnee: Protect yourself and each other.

Justin: Thanks to the Taxpayers for the use of their song "Medicines" as the intro and outro of our program. We are so grateful to you for being here with us, and be sure to join us again next week for Sawbones. Until then, my name is Justin McElroy.

Sydnee: I'm Sydnee McElroy.

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

["Medicines" by The Taxpayers plays]

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