

Often it can be a race against time welcome to SBH Bronx Health Talk produced by SBH Health System and broadcast from the beautiful studios at St. Barnabas Hospital in the Bronx. I'm Steven Clark. A one year old girl is rushed to the ER in cardiac arrest according to the attending physician. On arrival she wasn't breathing and had no pulse. The team quickly supported her breathing and her pulse rapidly returned. They noted pinpoint pupils and I recommended they give naloxone. She began to breathe on her own and soon began to move and then cry. Over a few hours her breathing again slowed requiring additional doses. Ultimately and thankfully she made a full recovery. Those are the words of Dr. Howard Greller an ER physician and director of medical toxicology at SBH, welcome Dr. Greller.

*Thank you*

This was part of your recent testimony before the New York State joint Senate Task Force on opiates addiction and prevention in discussing the project relay program which was just a couple of weeks ago. Can you tell us a little bit more about Project Relay?

*So Project Relay is a New York State Department of Health sponsored program where someone who presents with an opioid overdose, non-fatal opioid overdose,. we are able to contact a peer advocate, someone who has experience with substance use disorders, they come to the emergency department within an hour, they counsel the patient, they provide them with naloxone kits teaching and training, and then they have whatever services that are needed and are available to them and follow them for upwards of 90 days.*

And this program has been here for what, a couple years now?

*We are about a little over a year and a half now.*

How has it worked?

*It's been really, very successful and it's been a great benefit to our patients. We've engaged at the last count over 330 patients, and distributed almost 600 naloxone kits just through that program alone.*

So we're saving lives?

*Absolutely, every day.*

Okay, we're what, one of what?, handful of programs in the city?

*So yeah, we were one of the first five pilot sites for the program. We started back in January of 2018, and they've expanded the program now to ten additional hospitals so there are a total of fifteen.*

Now I know the opiate overdose situation is really a grave one particularly in the Bronx, right?

*Yes, we we unfortunately have the distinction of being the county that has the highest rate and highest number of opioid overdose deaths in the state.*

What are some of the challenges here in the Bronx?

*So like anywhere else, it's access to care, it's education, and it's being having resources available to help patients with the challenges of substance use disorders.*

Have the numbers in the Bronx gone down?

*Overall, the numbers have not really gone down. Last year was the first year where there was a general, the overall numbers for the state were a little bit less than they had been the year before*

*so a slight decrease, but the number of deaths and the rate of deaths in the Bronx continued to rise.*

I know the the borough that was leading until recently was Staten Island. They have a very different demographic there. Again, why are they having a problem with opiates as well?

*So uh I can't speak to what's going on in Staten Island specifically as to why they're having the issue, this is not an issue which is unique to the Bronx, to New York, to the United States, it's this is a really a global phenomenon. In the United States is being unfortunately the greatest challenge by it. But Staten Island, their make up of opioid problem had a significant number of prescription opioids so they were drugs that were prescribed by doctors or prescribed by doctors appropriately or inappropriately, and the makeup of the kind of drug that was being used was primarily a pill that has changed as well. They, that has switched globally and and regionally to more illicit drugs like heroin so.*

and that's especially here in the Bronx right?

*Yeah, yeah I mean the Bronx is, the Bronx is very very challenged by heroin, and in the last few years, probably within the last five plus years, most of the heroin supply has been contaminated with fentanyl, which is a much more potent version of these kinds of drugs.*

Now naloxone also deals with fentanyl right?

*Yeah, naloxone will will help to reverse the effects of any drug in the opioid class, so that's heroin, oxycodone, fentanyl Demerol, Meperidine, knowing them either by the trade name, their chemical name, any of these drugs that are ultimately derived from from the opium poppy or that backbone.*

Now let's shift gears a little bit

*Sure*

And I know you're a medical toxicologist, what exactly does that mean?

*So what it means is, I'm a physician who specializes in medical toxicology, and medical toxicology is the branch of medicine that deals with poisonings, drug interactions, envenomation's, environmental toxins, radiation poisoning, chemicals from either the environment or from industry, so it really is the gamut. It's kind of, I like to think about it as, normal physiology that sort of goes bad, and through the interaction with some form of a chemical, and that chemical can come from really any source.*

So and I guess very often patient comes in to the ER

*Mmhm*

and the patient may be unconscious or semi-conscious

*sure*

or perhaps not willing to say what they ingested

*yeah*

and so it's basically a detective situation

*yeah*

where you have to decide, how do you determine what they took, if they're not going to tell you, if they can't tell you?

*Right, so I think one of the most important things is, fundamentally it comes down to not necessarily identifying the specific thing but*

*taking care of the patient that's there. So the the sort of the short phrase is, treat the patient not the poison. And hey one of the reasons why I like it so much is because it allows sort of a back-to-basics approach, sort of looking at the patient and trying to understand exactly what's going on with their physiology at that moment, with the understanding that that can always change, and trying to do the least amount of harm while trying to figure out the the most good that can be done. And it's not always someone ingesting something, so you know one of the other common things that we encounter is a lot of times there are more than one physician prescribing medications for a patient, and so there can be interactions between medications, there could be interactions with the medications that people are prescribed and medications that people take over-the-counter, or herbal medications some traditional remedies depending on the cultural background of the patient. So it can be an interaction with almost anything that can lead to a not predictable or a not anticipated interaction in a problem.*

And I guess in many cases also the additional burden is you're racing against the clock, you got to find answers, you got to find them quickly, right?

*I mean that's emergency medicine, right*

Right

*So yeah, I mean there is there is always the time pressure, but the time also is often an ally because things evolve, and that evolution gives a lot of information as well, so we're allowed, you know we're able to see the change, and a change can often give us a lot of information as to potentially what is going on.*

You shared a story with me a couple of years ago regarding a family, I think it was an estranged father

*Right*

And was sitting down with his two children

*Yeah son and daughter yeah*

Clark: Why don't we talk about that?

*Yeah so this was this is back when I was a toxicology fellow during my training in toxicology, and it was a family, the father was in the middle of a contentious divorce, and basically came home brought dinner for himself, his son, and his daughter, and they would consisted of pizza and soda, and they they said they had dinner, and while they were having dinner the father got up from the table, began to vomit, and then collapsed. The son also started to become sick and collapsed, and the daughter who had well ultimately, it was discovered didn't drink as much of the soda was able to call 911, EMS got there the father essentially was deceased, the son was able to be brought to the hospital, and the daughters rushed to the hospital as well. And ultimately what had happened was, the father had put cyanide in the soda, and because he was trying to basically end his life and his children as well. so it was a very tragic case fortunately the son, the daughter were able to be treated and recovered.*

I've always been a big Sherlock Holmes fan

*Yeah absolutely*

I mean how do you, you have to have patients who come in, you don't have a backstory, I mean now you can tell the backstory, but at the time I assume you've got, you're starting from scratch pretty much.

*You do start from scratch, but it's the detective work, like Sherlock Holmes. It's a lot of sort of picking up on things that may not mean*

*something to other people. So the fact that you may have more than one patient from the same family presenting with significant illness and with a fatality before they even get to the hospital. That really raises suspicion and points towards a you know, there are there's a shortlist fortunately of things that can very rapidly lead to someone's death from an ingestion, so you know it's it's sort of taking those clues and trying to build a picture and building building a story as you know to see what fits.*

Because I would think in many times you don't have the luxury of doing lab tests you got to make decisions pretty quickly right?

*For some things, cyanide is an example where you know, there's kind of a shoot first ask questions later approach certain things where, and again cyanide in that kind of an exposure is fortunately very uncommon. The much more common scenario would be someone pulled out of a house fire where combusted plastics can release a lot of cyanide, and so someone that comes out of a fire who is unconscious or has either low or no blood pressure, we would sort of empirically go ahead and just treat based on the the scenario, and that even happens now pre-hospital by EMS where they give an antidote called hydroxocobalamin or Cyanokit, which is specifically for that kind of a scenario. It's the same drug that we would use if they got to the hospital alive, but it's it is you know the timeframe really depends on the severity and so depending on how sick the patient is, determines how much time we have to get information versus just doing something in order to extend their life long enough to figure out what's going on.*

I guess not in every case there is a specific antidote to the problem right?

*Nope*

It's not like a recipe where A equals B, sometimes you've got to

find the best solution at the time, right?

*Right, right, and and that's absolutely true. There's not an antidote for everything. There are only sort of a handful of antidotes for very specific things and it's also not always just one poison or toxin that someone's exposed to that you have to deal with, and sometimes it's a competing interests depending on what you think is going to be the most harmful or the most rapidly concerning, and you have to address that and and balance that against what other things you think are going on. So it's it is always a bit of a cognitive puzzle which is what makes it fun and exciting and and intellectually challenging just one of the reasons why you know I love doing it so much.*

You mentioned about venom, if I could get the term in it, what's the term for someone who's been injected with snake venom ?

*Envenomated*

Envenomated

*yeah*

okay... have you ever run across something like that?

*Yeah, yeah I mean fortunately in the Bronx snake bite is not that common, but you know we do we do benefit from having the proximity to the Bronx Zoo, and they the kinds of snake bites that I have seen in New York are, I think the current term that we're using are from people who are snake enthusiasts, we don't call them collectors anymore, but these snake enthusiasts, who have rare exotic non-native snakes and so oftentimes treating or figuring out what treatment is available, could be a challenge, as well because these are snakes that come from you know around the world. There was another one snake bite that I took care of many years ago was a Gaboon Pit Viper so it was a snake from*

*Africa that you know it sort of, we didn't have anything to and we just had to sort of manage the patient, based on the progression of their symptoms.*

Well how would you know? I mean it's not like the snake Viper is sitting there.

*well no no, so in that in that case, so that's not that's not, so much a mystery because the patient's states "I got bit by my snake", what kind of snake do you have? I have this snake.*

Yeah.

*because these are also these are people who are very proud of you know their their pets and their collections and so that's not that's not often the the challenge the identity. If the challenge is now dealing with something that is not common in the United States, and so again there's a venom Center at the Bronx Zoo, they they handle many varieties of snakes many of which are venomous, and many of which are from different parts of the world, and because of that they also stock a number of, what if available a type of antivenin for for that kind of exposure.*

mmhm

*So if it's if it's needed it's there*

I see, and I guess also part of that your line of work or when people, whether ingest pills or something, suicide attempts, overdoses, whatever and I guess the first thing you look at are the symptoms right?

*right*

okay

*yeah*

and and then I guess sometimes do you need a computer next to you so you can check the data as to what could cause these symptoms? or is it something that over the course of experience you just really pretty much know what...

*Yeah I mean most the most common things are stuff that I've seen over and over and over and over again, but a perfect example of that is Tylenol so or acetaminophen, you know a very very very common drug which is present not only in just the brand name. But it's also in a combination with multiple different things, headaches, and for coughing cold preparations, and is a very very well studied drug. So something that people have been looking at not only the drug but also the the adverse things that can happen by taking too much for years and years and years, but every single patient that comes in is slightly different, and even though we have a very standardized approach for certain kinds of exposures, every time is a little bit of a challenge, and a little bit of a you know it's sort of figuring out what to do based on the experience, and again the specific patient that's that's there in front of you.*

So I'm sure you have a lot of war stories then

*plenty, plenty plenty*

Okay, well thank you Dr. Greller for a few minutes today.

*My pleasure*

For more information on project Relay Medical toxicology or other services available at SBH Health System visit [www.sbhny.org](http://www.sbhny.org) and thank you for joining us until next time.