3M Transcript for the following interview: Ep-36 Fentanyl Risks for First Responders Mark Reggers (R) Brad Prezant (P)

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Welcome to the 3M Science of Safety podcast presented by 3M Australia and New Zealand Personal Safety Division. This is a podcast that is curious about the signs and systems of all things work, health and safety, that keep workers safe and protect their health. I am Mark Reggers, an occupational hygienist, who likes to ask the questions Why, How, and Please Explain. Whether you are a safety professional, occupational hygienist, or someone with any level of WHS responsibility in the workplace, maybe you are a user of safety products or maybe you are a bit of a safety nerd who finds this stuff really interesting, then this is a podcast for you.

(R) Today we're talking with Brad Prezant from VA Sciences. Welcome Brad.

(P) Thank you.

(R) Now today we're talking about fentanyl and risks for first responders, but for those that haven't listened to the previous podcast we have done with you, can you please introduce yourself? Who are you, where are you from, and what do you do?

(P) I am an occupational hygienist. I am from VA Sciences in Melbourne and Sydney. We do a variety of work related to not just occupational environments but also the built environment, buildings, the indoor environment, pertaining to indoor air quality,

mould, asbestos, methamphetamine, basically any types of health risks that can be associated with indoors.

(R) So, we're talking fentanyl. Maybe a lot of our listeners haven't actually heard of fentanyl before. So, if we can go right to, I guess start at the basics, what is fentanyl and where would you maybe find it?

(P) Fentanyl is a synthetic opioid. Opium poppies are the source of natural opium and over the years as these products have been used pharmaceutically to treat pain, they have developed synthetic versions of opium which are far more powerful than the natural versions. So, fentanyl is a synthetic opioid, one of a number of different types of synthetic opioids, that's extremely powerful.

(R) Opioids being drugs? I'm assuming that's what you're referring to by opioids?

(P) Yes, yes. These are depressants. Unlike methamphetamine which is a stimulant, opioids are depressants and people are taking them for the high. So, heroin is derived from opium and fentanyl is a very, very pure version that has similar biological effects, pharmaceutical effects, in the body.

(R) I know myself personally I'm starting to see more things on LinkedIn and social media about fentanyl and fentanyl risks. Is this increasing in our society as people become more aware of it?

(P) I think it is increasing, and from a law enforcement perspective the number of seizures of fentanyl has been increasing. And fentanyl can be manufactured locally. It can also be transported across borders relatively easily. Because it's so potent, even a very small amount would result in many doses. And things like heroin or other opioids are being adulterated with fentanyl simply because it's so effective and it's going to cause similar types of a high.

(R) So is it just Fentanyl or are there other similar types of drugs that are out there that are worse than fentanyl?

(P) Well there are other synthetic opioids. One of them that would probably be worse than fentanyl is carfentanyl, which is probably 100 times as potent as fentanyl.

(R) I want to avoid exposures to that then!

(P) And we're talking for carfentanyl 5000 times as potent as a unit of heroin. So we're talking about these synthetic drugs that are incredibly potent

(R) So, from a worker point of view, what type of workers, workplaces, are likely to have fentanyl contact from a high to a low exposure?

(P) Probably the most exposed individuals would be police and enforcement who are going to be first on the scene. So, if someone is suspected of using fentanyl and is being arrested by the police, or if the police enter a building where it's being used or manufactured or stored or distributed or being put into a pill-type form somehow, those are probably going to be the most exposed individuals where they might actually see the powder. The powder, if it's for example a tablet-manufacturing operation, there might actually be an aerosol in the air of fentanyl and other products that are being tabletised. So that would be the highest exposure. As you move through the chain, for example if the police seize evidence and that evidence goes back to the station, people handling that evidence have potential exposure. And then healthcare workers, either first responders, firefighters or ambulance personnel who might be dealing with someone who has overdosed on fentanyl - there may be residue present on that person's body, there may be small sachets of fentanyl. Those people are going to have a potential exposure. And then back at the hospital, the same thing. So, first responders, healthcare personnel, are going to be the most

exposed and there are going to be visible dusts present for some of those situations. Much less exposed would be the people coming in to do the clean-up after the fact if all of the material has been removed, so there we're talking about just small residues that may not be visible.

(R) Other than first responders and healthcare workers, are there other occupations that may be at risk to fentanyl exposure?

(P) Because fentanyl, carfentanyl and these synthetic opioids are so valuable and so small in volume for their potency, it's probably going to be a lot easier for someone interested in selling this product to import it. So you've got customs officers who might be exposed, postal employees who might be exposed, because these things are going to be coming in to the country, maybe manufactured in China as opposed to being manufactured here in Australia or New Zealand.

(R) So, anyone along that logistics supply chain can potentially get that exposure if it's not packaged and handled appropriately.

(P) Exactly, yes.

(R) What are the likely health effects that these particular workers who have potential exposures would see?

(P) From the incident reports and NIOSH in the US, the National Institute of Occupational Safety and Health, have conducted a number of health hazard evaluations, have looked at this issue, have recorded some of the incidents with law enforcement personnel. And some of the most commonly reported health effects are palpitations, headaches, disorientation, in some cases pinpoint pupils, is an example of what might occur.

(R) How much would it take for those particular health effects? Is there an exposure standard for fentanyl?

(P) Boy, I wish I could answer that question.

(R) Oh, fair enough! I've asked a curly one!

(P) I think it's very unclear exactly how these exposures are occurring. It just hasn't been studied very well. But there have been a number of incidents where law enforcement personnel have at least reported with symptoms that they believe to be associated with the activity and have reported these types of symptoms. I think the presence of pinpoint pupils or other physiological signs would be very good evidence that in fact an exposure would have occurred.

(R) So, we've got this particular contaminant here and we don't know how much. So, I guess from a control point of view, what are the things that these first responders are likely to be wearing to bring that exposure down to as low as reasonably practicable?

(P) Well from the incident reports, the use of protective equipment is really quite variable. I mean ideally, they would be wearing protective equipment, gloves, that type of thing. Some of the reports indicate that glove use for example is sporadic and inconsistent. So, to the extent that protective equipment is being used, that is going to help to prevent exposure. Obviously in a police situation, an emergency response situation, we could be talking for example about a person who is on the floor in cardiac arrest who's being resuscitated, and we're talking about an emergency situation where perhaps some of the protective measures that might otherwise be taken might be compromised in this situation.

(R) And it's not the type of situation where we can easily put in those higher order controls. And we've spoken many times about where PPE sits on the hierarchic controls – right at the very bottom where it should be. So, I guess from a control point of view it's a very fluid situation that could go any number of ways.

(P) Well, we know that one of the big issues with all of these synthetic opioids is that they are so powerful that it's extremely easy to overdose on them, and this is happening on a routine basis in the countries where these drugs are being used. So, the emergency responders are dealing with overdoses of the drugs and if there's visible product present, then the potential for their exposure to occur as well is there.

(R) Are there fentanyl remediation standards for people that clean up these particular environments where fentanyl may be present after the police situation?

(P) I don't believe there are any studies that I'm aware of that are specific. You can test for the presence of fentanyl - it's an expensive type of a test that's not routinely done. But it's going to be removed through washing, through typical washing just with a mild detergent and water.

(R) Previously we spoke on another episode about methamphetamines and with that cooking process for meth labs, the vapours, is it similar for fentanyl and its powder aerosols in the cook situation or a making situation?

(P) It's really different. It's different because when you're manufacturing methamphetamine you're creating a vapour of methamphetamine in the air through the heating processes involved in the cooking, and that vapour is moving through and condensing on different surfaces. When we're talking about fentanyl we're not talking about a manufacturing process where it's being heated. The most extreme case perhaps would be when we have a tablet-forming operation where you're creating a dust in the air, and in that case that dust is going to settle on surfaces. But

in most cases, we're talking about an extremely small amount of fentanyl that's being used in a building indoors, and it's a powder and it's going to mostly just distribute in the immediate area that it's being used. It's a different process and the remediation would have to be very, very different. It's going to be relatively easy to clean up a visible powder that might be sitting on a surface like a coffee table or something like that.

(R) So, we're talking safety, worst case scenario. What would you do, or what would a first-responder crew do if someone did have a really quite high exposure and they disturbed something they didn't know was actually there? Are there first-aid procedures you would then put in place?

(P) There's a drug that is used for overdose of opioids called naloxone, and that's what's given to the individuals who overdose in order to counter the effects of the opioids. Most first responders that are dealing with this type of thing will have naloxone present and available so if that if one of the first responders had an overexposure, then the secondary prevention, if you can't prevent the exposure, would be to give a dose of naloxone to counter the opioid. That's pretty much the same treatment for the first responder as is being given to the patient.

(R) Once again, I know we're only sort of skimming the surfaces. We've got a short time this morning, but for those that are interested, or it is a concern in their workplace, where are some resources or what are some take-home messages you could leave with them today?

(P) There are some great resources available on the web, so I would strongly suggest starting with the NIOSH, the National Institute of Occupational Safety and Health in the US. they published recommendations for preventing fentanyl exposures to healthcare workers. They've published a number of health hazard evaluations

addressing exposures to law enforcement personnel. And that's probably the best place to look for resources.

(R) By the sounds of it they've done the most the most research I guess globally and internationally to leading the way to have those types of resources?

(P) It seems that way, correct.

(R) So, Brad if people do want to get in touch with yourself or VA Sciences, how can they do that?

(P) Probably from our web page vasciences.org

(R) Fantastic. Well thank you once again for coming in Brad. Really appreciate your time.

(P) Thank you Mark.

(R) Well thanks for listening everyone. If you have any questions, comments, suggestions for future topics or guests that you think would be great to get in the studio, you can send us an email to scienceofsafetyanz@mmm.com You can also contact us via that email if you need any information around PPE or would like a visit to your workplace for assistance around the appropriate selection, use and maintenance of PPE in your workplace - 3M are here to help. You can also visit our website: 3M.com.au/sospodcast which has a transcript of the chat that Brad, and I have had today, as well as all the other information and resources for previous episodes that I've recorded with those various guests. Be sure to subscribe to the podcast through Apple Podcasts, Spotify, or wherever you get this podcast from so you don't miss any future episodes. And if you enjoyed the podcast or found it informative, we really would appreciate it if you could take a few moments to leave

us a review as it really does help other people find the podcast. And as Leonardo da Vinci said: “People of accomplishment rarely sat back and let things happen to them. They went out and happened to things”. Thanks for listening and have a safe day.