Episode 76: Naloxone - Access, Harm Reduction and Disparities

Transcript

Hi everyone, welcome back to the Tox Lab. I'm Rebecca. I'm Rob. This week, we're gonna be taking another look at the antidote naloxone. Now, naloxone we've discussed before, it's the antidote to opioids.

It's a life-saving medicine. And we're gonna be looking at some behavioral papers and some epidemiological papers, looking at the phenomena of naloxone uptake. Before we dive into the science too hard, Rebecca, I want to ask you some questions. It's gonna be a little controversial take.

If you took the risks of something away, would people lean into it harder? I mean, probably. Let's imagine a casino. It's a casino where you can gamble your money and you can win, but at the end of the night, if you lose, somebody gives your money back.

You're gonna gamble harder. Yeah, I think people will take more risk, yeah. And I think that's the logical way of thinking, isn't it? If you remove some of the risk of something, and yet the reward remains the same, people are going to take bigger risks because the downside is reduced or gone.

This is an argument people have used against the wide availability of naloxone. The argument says that if you give naloxone to people freely, people will take more opiates because the risk is reduced. This week, we're gonna be taking a look at a paper that really tries to answer whether that argument has water or whether the real-life data actually says the opposite. Before we dive into today's episode, if you want to stay up to date with our content, you can find us on Instagram at @the_tox_lab, we also have a page on LinkedIn and we're fairly active on there.

And for those of you who don't use social media, but still want to get in touch with episode suggestions or comments for our episodes, you can email us at thetoxlab@gmail.com. So Rebecca, why don't we dive into our first paper and see if we can't unpack some of that question. So this paper is focused on adolescents as they're deemed most at risk due to them engaging in risk-taking behaviors more. And the study focuses on assessing whether state-level naloxone access was associated with changes in self-reported lifetime heroin use and lifetime injected drug use among adolescents.

And these outcomes were focused on because the theory is that in the presence of increased naloxone availability, the adolescents might be more likely to, one, initiate opioid use and two, engage in riskier forms of drug use, i.e. injecting drugs. And this goes back to the casino analogy, doesn't it? Yeah. If you're more likely to have a significant adverse event, are you less likely to do something?

Or is the converse true if you take that risk away? Does the risk of doing something increase? So they looked at data from the Youth Risk Behavior Surveillance System, which is a national US survey monitoring health risk behaviors among high school students. And they looked between 2007 and 2019 and restricted their analysis to 15 to 18-year-olds.

So across this time period, there were 920,333 students aged between 15 and 18 who participated. And the lifetime heroin use was self-reported to be 2.75% and the lifetime intravenous drug use, or IDE, was reported to be 2.48%. I just wanna unpack that a little bit. That seems like a shocking statistic.

I know. Only 3% of people aged 15 to 18 actually admitting in this survey that they have used heroin. Yeah, it's quite scary. I had no idea the prevalence was that high.

So across this time period in the US, access to naloxone has increased dramatically. In 2007, there were only three states which had naloxone access laws, but in 2019, all states have had some version of the law in place. So throughout the whole study period, the logic is there was increasing availability. Yeah.

So looking at the different provisions that are in place, immunity-related provisions such as dispenser immunity, so a law providing prescribers or dispensers with immunity from criminal prosecution or civil liability for prescribing, dispensing, or distributing naloxone, tended to be enacted earlier in the time period while naloxone decriminalization tended to be brought in later. And we're now entering the complexities of some of the laws, aren't we? Because naloxone is absolutely life-saving. At the same time, it is classified as a medicine and has various degrees of control.

And in the US, clearly there was different laws at different points in different states. Yes, the US law around naloxone is really complex and yeah, each state seems to have different aspects of the law in place. When looking at pharmacy-based naloxone dispensing, this increased during the study period from 0.002 prescriptions per thousand people in 2007 to 2.62 prescriptions per thousand people in 2019. So a real increase in prescriptions of naloxone.

Yeah. This isn't just in school children now, is it? This is just general availability of naloxone to the wider population. Yes, across that time period, yeah.

So based on regression models, adoption of any naloxone access law was not associated with lifetime heroin use or intravenous drug use. For pharmacy dispensing, a one unit increase in dispensing was associated with approximately 5% relative decrease in heroin use and approximately a 7% relative increase in intravenous drug use. It's kind of interesting that heroin use goes down but intravenous drug use goes up slightly. So that does lean into the argument a little bit, doesn't it?

Then it could potentially increase risk-taking behavior. There were also reductions in heroin use among respondents in naloxone access law states with third-party prescribing. So that's the law that authorizes naloxone prescriptions to third parties, i.e. persons in a position to assist individuals at risk of overdose and non-patient specific dispensing models. So that's the law that enables pharmacists to dispense or distribute naloxone without a patient-specified prescription.

So overall, their conclusion was that naloxone expansion was more consistently associated with decreases rather than increases in adolescent heroin use and intravenous drug use. So even though there was slight changes around intravenous drug use, this wasn't deemed significant and the benefits of naloxone expansion access outweighed any negatives. So the wider decrease in use greatly outbalanced the slight increase in intravenous use. Yes.

Now this is a very interesting study design, isn't it? There's a lot going on here and I think there's probably an awful lot of variables that we need to consider. Firstly, we're dealing with children, school children, who I don't know what naloxone uptake is like amongst younger people compared to older people. Without knowing that information, it's perhaps hard to interpret some of this, isn't it?

Yeah, I think it's very state dependent. And I know in the US to have things like naloxone teaching in schools that has to be written into certain state laws for them to be allowed to teach it. So there will be quite a bit of variation state to state. Hold that thought, we'll come back to teaching naloxone in a moment.

I'm just thinking this whole study does rely on the assumption, doesn't it, that the population increase in availability of naloxone is mirrored in the population that we are surveying. Yes, yeah. And that may or may not be the case. But I think what is crucial here is that there wasn't an increase.

Yeah, I think that's the main takeaway. I think that's really the main takeaway, isn't it? That there was this wide expansion of naloxone and probably other harm reduction practices alongside that. Yeah.

And yet there wasn't an increase in use. I think the other potential criticism of this paper here is that it looks at having naloxone laws and assumes that that is the equivalent of access to naloxone. Yeah. And again, that may not be the case.

Some populations may have access, some may not. No, that is a fair point. Naloxone access laws have expanded across the US, but I don't know how that relates to handing naloxone to under-18s as to whether there are different restrictions in that than over-18s. That's also a completely fair point, actually.

Yeah, that's a good point too. I don't know. If anyone is more familiar with naloxone access laws and under-18s, do let us know. I think there is one other potential confounder here.

And we do need to consider this. The study period that we've described here, heroin use in the US changed from heroin to fentanyl. And potentially that may have had, perhaps arguably, a bigger impact on youth uptake. That is fair.

I don't know what other categories are covered in that survey as to whether it is something to do with fentanyl or whether that wasn't added to a later and there's just not enough data to pull together. And there is another side to that, of course, and that is that if this study holds true and that if increasing availability of naloxone does not alter risk-based behavior, but the risk of taking opioid drugs from the street increases because of a shift from heroin to more potent compounds like fentanyl, you could probably make the argument that increased availability of naloxone becomes more valuable, not less valuable. Yeah.

So as long as you can show that behavior doesn't change, actually, there's still an argument for more naloxone. Yeah, definitely. So this next paper is looking at opioid overdose response and naloxone education in schools. And in 2022, 22 high school aged individuals died each week from overdoses on average, which has been driven by counterfeit pills containing fentanyl or other synthetic opioids, which is a trend I think a lot of toxicologists have seen with an increase in pills containing these really potent novel opioids.

Between 2019 and 2021, 67% of overdose deaths among teenagers had someone else present, but naloxone was not administered in 70% of cases. And there's an argument that if people were informed of how to recognize the signs of an opioid overdose and how to use naloxone, lives could potentially be saved. And I can see the logic here, right? We've just talked about how naloxone expansion has increased.

This now talks about teaching people to recognize the signs of an opioid overdose and how to deal with it. So theoretically, educational programs in schools in how to administer naloxone could help with this in a similar way to teaching CPR, for example. Canada have a program called NoMore, which is an opioid public awareness initiative that includes classroom presentations on opioids, naloxone, and the negative impact stigma has on people who use drugs.

And there is research that's shown that individuals who are educated on this are more confident and have the skills to help in these situations and are also likely to educate family and friends about this as well. So you kind of get that sort of cascade training where if one person knows how to recognize the

signs and how to use naloxone, they might teach others. So the proposal here then is teach people at school how to recognize an overdose and to use naloxone. And your comparison here is the teaching of CPR.

Yeah. And I understand entirely the logic here. Controversial idea though, right? Even though perhaps it shouldn't be.

It does feel a bit, yeah. And I think that's one of the barriers. It feels controversial. You're right.

When you say it out loud, I can't think of a good reason not to. The argument, I guess, could be let kids be kids for a bit longer. But if 3% of people in this age group are already using heroin according to that last survey paper, perhaps something does need to be done. And your stat about the number of child overdoses each week is quite shocking.

It is. Your point about opioid pills actually was something we didn't touch on, but that is another good point. The survey focused on heroin, but actually naloxone is an opioid reversal agent, not just heroin. And I talked a bit about fentanyl.

The availability of opioids in pills is a trend that we have seen recently. And in particular, the availability of what looks like prescription pills, but actually contain novel synthetic opioids. Yeah, we've talked about this a lot on the podcast, but I think it's especially noticeable with counterfeit benzodiazepines like Xanax or diazepam that have these novel opioids in. Because people aren't seeking them to get opioids, they're seeking them to get benzos and are not aware that this risk is very real and really, really harmful.

And that then leads into that other argument, doesn't it, about how if behaviour doesn't change, but the risk increases because of change in the market. Naloxone becomes more and more valuable. So going back to this paper then, this is a position paper, isn't it? This isn't a research study.

This is an idea, people, what do we think? At first glance, from what you've said, sounds completely sound. What are the drawbacks? What are the limitations?

What would be the bad thing if we were to enact this? So they did bring up some very good limitation points in this paper. So there is a lack of data on whether students retain the information on administering naloxone and how long they retain this for, and whether this helps them to actually intervene in an overdose situation. And this is an area that would obviously need more research with a very diverse group of people to know whether this sort of training would lead to any positive outcome.

It's not exactly a study you could do from the ground up, is it? No, it's not. You're gonna have to just do this and see whether your epidemiological data supports it. There are obviously some concerns that I think people think of when they think of this sort of training around liability, for example.

And there's a fear that if a student is trained but fails to act in a situation, that the institution could be held responsible for them not acting. And there's also a risk of potentially psychological trauma if someone does intervene in a situation, but that person unfortunately can't be saved. You're then putting an awful lot of pressure on a teenager and should that responsibility lie with them? I think that's a really, really fair point, isn't it?

I mean, I don't think anybody's saying there is a responsibility here. We are saying if we educate people, people might be more likely to help. But you're right. It can feel like a moral responsibility even if it isn't a legal one.

Yeah, because you yourself could feel responsible and the need to intervene in a situation that you might necessarily feel comfortable intervening in. But then you've also got, from the other side, family

members of someone who might have overdosed thinking that you should have intervened because you were trained. So there are two sides to that argument as well. Yeah, that's a fair point.

So for this to be implemented, there would need to be broad support and systemic efforts to scale up and implement this training. There would also need to be policy-level intervention. As for example, some states can't change their curriculum unless this is mandated and written into law. This happened in Massachusetts.

It has mandated an opioid use disorder education in schools so that all the students graduate with the knowledge of how to recognize the signs of an opioid overdose and save someone's life from the Loxone. And other states, such as Texas, Virginia, and Colorado are following in this. So there is some rollout of this already. Yeah, in terms of general opioid education that more than Loxone is, but I don't think it's such a structured training program that's sort of universal.

And again, as a lot of these policies come down to, there would need to be significant funding to provide people access to Loxone and provide the training as well. People aren't necessarily gonna be able to give up the time for free. You're gonna need space to give this training if you can't give it in schools and it's got to be done in like community settings. So there are some barriers that would have to be overcome for this to be successfully implemented.

The resourcing issue is a big one actually, isn't it? And then you end up in this health economics can of worms about cost-effectiveness of interventions and things like that. And it definitely all needs to be balanced up and weighed up and considered. Yeah.

And there is obviously in a setting where you're educating children concerns from parents about talking about these topics to their kids and whether that increases the risk of using opioids, which we saw in the last paper, it doesn't seem to be the case. But there's an important thing to bring up that we need to be having these conversations and opening up that dialogue between kids and their caregivers because stigma is a big thing surrounding drug use. And I think the more we talk about it, the better. As we said, it feels controversial and it's because of that social stigma.

I'm going to push back on what you just said, actually. You said that we saw in the last paper that educating people about naloxone didn't lead to an increase in heroin use. Not significant. No, what that study showed was that the wider availability of naloxone to the general population didn't lead to an increase.

We haven't actually done the study. Looking at the education. There was another important point about debunking myths with training. There are lots of myths around people intervening in those who are experiencing opioid overdose, like passive fentanyl exposure and how that might affect the person who's helping.

Yeah, fear of passive fentanyl exposure actually is quite a big one. You certainly see media headlines occasionally. So we've looked at the increasing availability of naloxone and whether or not this naloxone treatment should be taught in schools. But one thing we did mention in that first one was just because availability has gone up doesn't necessarily mean uptake has gone up.

This next paper looks at racial differences between naloxone availability and really explores to see whether it's universal or whether there might be some gaps. So in 2023, non-Hispanic black individuals in Rhode Island experienced the highest rate of fatal overdoses. And this paper aims to look at the disparities in naloxone uptake by racial and ethnic identity and harm reduction supply preference. So they used demographic data, identification codes and supplies requested from clients from a few organizations who provide harm reduction services in this area.

Clients were divided into three mutually exclusive groups based on the type of harm reduction service that they had requested between the 1st of January, 2022 and the 30th of June, 2025. And these included those who requested injection supplies only which included sterile needles, those who requested smoking supplies only which is a variety of pipes intended for different substances and those who requested both. And intranasal naloxone was offered separately from these supplies. So during this time period, 20,566 unique clients requested injection supplies and or smoking supplies.

And if the clients who requested injection supplies only 57% also requested naloxone and those who requested smoking supplies only 41% requested naloxone. When looking at those who requested injection supplies Native Americans or Alaskan clients were more likely to receive naloxone and those who requested smoking supplies white clients were more likely to receive naloxone. Of those who requested both Native American or Alaskan clients were more likely to receive naloxone followed by black clients. They then looked at odds ratios for the different groups.

So of those who requested injection supplies only only black clients had statistically significant higher odds of receiving naloxone compared to their white counterparts. And those who requested smoking supplies Hispanic clients and black clients had statistically lower odds of receiving naloxone compared to white clients. For all clients, Hispanic and black clients were significantly less likely to receive naloxone than their white counterparts. All right, so let me just check I've understood this right.

So there were quite a few differences between different racial groups. And that varied depending on whether they were requesting smoking supplies or injecting supplies or both. Yeah, there is one important caveat of this data that I think needs addressing is that individuals can request naloxone from other sources, not just these agencies that are included in this study. So there might be more people accessing naloxone than this data truly represents.

And we just don't have the abilities to know that. Okay, so this doesn't necessarily represent the overall availability of naloxone to those groups, only those who are requesting it from those harm reduction services. So the big question then is why? I think this is what we need to try and see whether we can explore a little bit.

Did the authors have any ideas? One point the authors brought up was that there was clearest racial and ethnic disparities observed among clients who requested smoking supplies. And they stated that these individuals are typically using stimulants and may not see themselves at risk of opioid overdose. So different groups may not think to request naloxone.

Okay, yeah. They also brought up important points about designing harm reduction services and the route of administration, substance and ethnic and racial identities need to be factored in when we're designing these sorts of services to make sure that they're accessible to everybody. And I think that was really where my mind was going with this. Is it that harm reduction services are more or less available to certain groups of people?

We were talking a few weeks ago, weren't we, about GHB and how GHB harm reduction may not necessarily be getting to all GHB users because of assumptions that have been made about who is more likely to use GHB. I think it shows there's quite a lot of population variation. This probably covers a lot of things, including socioeconomic status. There's almost certainly a lot of co-founders here.

I definitely think you could break it down even further with each group and there would be different patterns that you could spot. It'd be quite interesting to see. So I think there are a few criticisms of this study. And again, this isn't a study that's easy to do without just taking epidemiological data and looking at it.

So when I say criticism of the study, I'm not criticizing the authors, purely some of the limitations of this data. I mean, you've got a lot of selection bias here, haven't you? You're only looking at harm reduction services. So you're only looking at people who are engaged with harm reduction.

And as you say, perhaps naloxone might be available from other areas. So it might not be fair to say that naloxone is less available, only they're accessing it through these harm reduction groups. It's hard to draw too many strong conclusions and it may not be that general in terms of how well it applies to wider populations. But I think it does highlight something really important.

And that is that throughout this whole episode, we've talked about naloxone availability, we've talked about naloxone training, but just because it's available doesn't mean it's necessarily getting to all the communities. And that really was, I think, the point of this paper. So how does this all look in the UK context? These are all US studies.

How does it look in the UK? There was a recent change in the law that allowed certain organisations to be able to hand it out without prescription. And it is slowly becoming more and more available and more and more accepted as a harm reduction tool. But I do think that that disparity is probably real.

And I really want to drill a bit back into your point actually about opioids appearing in benzodiazepines. This American paper looked at the availability of naloxone to people approaching harm reduction services who were opioid users. There may well be people out there who are sadly suffering opioid overdoses who didn't realise they were taking opioids. And these people are perhaps less likely to be offered naloxone because they're not even aware necessarily that they might need it.

Now, I understand a few local harm reduction charities are now offering naloxone to people who are not opioid users, but benzodiazepine users for this reason. But then comes with that, the perceived stigma of that individual who is using benzodiazepines. They think, well, I'm not an opioid user. I'm not addicted to opioids.

I don't need this. Absolutely fair. Yeah, what is the uptake? Yeah.

Absolutely. Just because it's being offered doesn't mean it's going to be taken. So really in summary then, naloxone availability doesn't seem to increase the risk of heroin use. The market is shifting that naloxone is going to be more valuable, not less valuable, given the way the trends are with potencies and opioids occurring in new forms.

And there are now conversations around whether we should be teaching this sort of thing in schools and also studies looking to see whether naloxone is as available as it needs to be to the right people. I think we've still got a long way to go. I think this data's interesting. I think by no means can you draw solid conclusions from this.

But it does certainly, I think for me at least, get me thinking, expanding naloxone is good, but we need to get it to the right people. We need to make sure people know what they're doing. Possibly schools are the answer. Possibly schools is not the only answer.

There might be other arguments there. A friend of mine actually, regularly runs naloxone training sessions for people who want to learn how to use naloxone. She's an absolute legend. And I think she's doing an absolutely brilliant job.

But again, if I get offered naloxone training session and I'll go along, great. But a lot of people are not going to hear the offer for that and go. They need to be prompted. Well, I hope you've enjoyed listening to us this week.

If you've enjoyed spending time with us, do give us a like, give us a follow, share this episode with your friends, or share on social media. We'd really like that. Hope you all have an amazing week and we'll see you next time. Bye.