

Cannabis implications for youth and others, & strategies to mitigate risks.

November 1, 2023: House Health Subcommittee on Healthcare. Chaired by Rep. Krajewski.

[Rep. Rick Krajewski]

Good morning, everyone. In the interest of time, we're gonna get started. I'd like to thank you for joining the Health Committee Subcommittee on Healthcare for our informational meeting on legalizing cannabis for adult use. I'm representative Rick Krajewski. I'm the chair of the housing subcommittee on health care. And I'd to start off by recognizing under the other members who are here with us in attendance. Our chairs representative Dan Frankel and representative Kathy Rapp. We're also joined by representative Heather Boyd, representative Arvind Venkat is online, Representative Tarik Khan, Representative Tim Twardzik, Representative Zimmerman, Representative Paul Schemel, and also in the audience to see we're joined by Representative Kathy Rapp. Did I miss any members? No? Okay. All right. So, with that, I am going to pass it over to, our committee chairs to offer some introductory remarks. I'd like to start off by passing it over to Representative Frankel.

[Rep. Dan Frankel]

Thank you, Representative Krajewski. Many of us want the same things. We want products we sell to be tested and safe. The disaster with vaping acquired lung illness taught us how dangerous it can be to inhale unknown chemicals. We want to ensure teens with developing brains aren't impacting their development by utilizing cannabis. And we want to protect young children from the kinds of accidental overdoses that have put kids in the hospital and led to one death. We want to right some of the wrongs of the past by ensuring that those who have been the target of cannabis criminalization don't continue to carry the stigma now that utilizing cannabis is not considered a crime. We'd like to see our economy benefit from legal sales rather than illegal sales. And I'd like to say upfront that today we are hearing today from some opponents of legalization. Even as we recognize what is likely inevitable, it seemed important to us to hear from those folks who can help us remember that cannabis is intoxicating and there are legitimate concerns for health and safety. We want to start from a place of recognizing those concerns and think about how we might mitigate through appropriate regulation and oversight. Fundamentally, any proposal that we put forward must prioritize the health of Pennsylvanians. And with that, let me turn it back over to our subcommittee chair, Representative Krajewski. Thank you, representative. Next, I will hand it over to Representative Rapp to provide remarks.

[Rep. Kathy Rapp]

Thank you, representative Krajewski, and thank you for the opportunity to just say a few words. I appreciate the fact that the chairman is having---He is on the shelf in the family--- That the chairman is having hearings on this subject, and I appreciate the people willing to come forth with their testimony. As with many issues that we deal with on the health committee, we take up difficult issues that many times we disagree with one another. But we try to address these issues with respect even though we disagree on what we see as an outcome. I am adamantly opposed to legalization of marijuana. Usually when legislators talk about marijuana, they say, well, it's good revenue for the state. But we know, looking at other states, that the addition to state budgets really is almost minuscule. And the dangers for our youth, for our families, for the risk of putting more and more of our citizens in the mental health system, I believe far outweighs I don't really see any benefits to legalization. When we consider the mental health impact, the risk to our youth in this state, and the fact that other states are legalizing, I live very close to the New York State border. So I know and our communities are seeing our constituents going to New York State purchasing, coming back to Pennsylvania. Should people be imprisoned for life for using? I would agree with the chairman that I don't believe that that is the case. But for dealing and distributing drugs to minors, we're still in an opioid crisis. We see drugs coming across the border daily, daily. And last session we heard from testifiers on the issue of other drugs that if you can take one pill or one dose of a lethal drug that you think is safe, and in reality it's not. So we can learn certainly from our testifiers today, the risks involved. I myself don't see benefits, but we will leave that matter when we do a floor vote. But Mr. Chairman, Chairman Frankel, I do appreciate the fact that you are holding these hearings, sir, so that we can hear from testifiers the impact of legalization on not just our state, but the citizens and our children and the youth that will be at risk. So thank you. Thank you, representative.

[Rep. Rick Krajewski]

Thank you. Next, I will before that, I do want to recognize I know there are some folks in the audience that are recording this meeting. Traditionally, we don't record meetings, but given that this is a pretty sensitive topic, I just wanna check with the members if they are comfortable with the recording of this meeting. If so, we can go ahead as planned. Does anybody have any objections?

[Rep. Paul Schemel]

Sure. Mr. Chair, I think that the standard is that you have to identify who is recording and for what purposes. Think this is have no objection, but I think that if someone's recording the meeting, should identify who they are and so forth.

[Rep. Rick Krajewski]

Okay. If there's any folks, whether you're parts of the press or whoever, who is recording, do you mind just identifying yourself for the record? Ben with WITF. Alright. Ben with WITF. Thank you. Is there anyone else? Yes. Dan, sorry, say it again. Jan Murphy with Penn Life. Okay. Yes, Sean. Sean with Keystone Newsroom. Okay, excellent. Jake Roxbury with Roxbury News. Excellent. Okay. Thank you. Thank you. Appreciate you all participating. All right. Next, I will pass it over to my fellow chair, representative Paul Schemel to provide some remarks.

[Rep. Paul Schemel]

Thank you. Chairman Krajewski would note that every state that has legalized recreational marijuana has started with the admonition that they are going to make sure to protect citizens and they're going to address youth use of marijuana, and every state has gotten that wrong. What we do know from the analysis that has been done and reports released is that youth use of marijuana has increased, that young adult use of marijuana has increased. As policymakers, our number one job is to protect our constituents and to do no harm. In my nine years in the legislature, I can think of no policy initiative that we have ever taken up, which we know for a fact does harm to our constituents. This is not something we have to guess or project. We know for a fact that it does harm to our constituents. Of course, I'm open to hearing any part of the argument and look forward to our testifiers today. Thank you, Mr. Chair.

[Rep. Rick Krajewski]

Thank you, representative. So we know that legalizing adult use cannabis may sound simple, right? You just remove the restrictions on obtaining, selling, utilizing, and then it's legal. But we know that legalization is not just about removing restrictions. It's about setting the groundwork for a whole new industry while also addressing the past traumas and impacts of the criminalization of cannabis. Recognizing that Pennsylvania already has major cities where cannabis is practically decriminalized and that we have legalized cannabis in neighboring states, you know, there is a sense that, you know, the conversation around legalization is time for Pennsylvania to have this conversation. The question is, how can we do it in the most practical, publicly accountable, and socially equitable way possible? We have values that drive the way we see this industry and things that we wanna accomplish. And I'll say for me personally, this issue is important because of the way that my community and my family members have been impacted by the criminalization of cannabis. I have many loved ones who've been incarcerated due to the criminalization. People who had recreated a framework for legalization could have been legitimate business people or entrepreneurs in a burgeoning industry that has shown countless

evidence, right, for its medical benefits, for its mental health benefits, instead of being branded criminals and having their lives irreversibly affected. We've seen other states try with varying success to regulate cannabis. We know the changes may be coming at the federal level that could be impact our ability to regulate, and it's time for Pennsylvania to take agency in the conversation. So today's hearing, which is a very introductory informational hearing, is about level setting and giving us a big picture about where cannabis is now and where it could be going, as well as the basic safety considerations we should be considering when we think about the kind of market we will be responsible for creating. And so we're grateful to have some panelists with us today to be part of that conversation. I do wanna also recognize some of the other members who have joined us online. We have representative Marla Brown, representative Don Keefer, representative Tim Bonner, representative Danielle Friel-Otten. I believe that's everyone who has joined online, right? Yep. And in audience, we're also joined by representative Darisha Parker. So, with that, we'll go on into our first panel. Today we are joined by experts in the health and safety field and prevention. Doctor Kent Vrana serves as the chair of the Department of Pharmacology at Penn State and has over thirty years of published experience in the substance abuse research. He also serves as the founding director of the Pennsylvania designated Medical Marijuana Academic Clinical Research Center at Penn State. We're also joined by Jeff Hanley, who serves as the executive director of the Commonwealth Prevention Alliance, a statewide nonprofit that supports prevention professionals in reducing substance misuse and risk related behaviors. He has spent over twenty years in prevention services. So we'll hear it from both of our panelists and then we will take questions from members. And with that, I'll pass it over to Doctor Vrana.

[Dr. Kent Vrana]

Chairs Krajewski, Schemel, Chairman Frankel and Chairwoman Rapp, thank you very much for this opportunity to share a few thoughts. By way of introduction, as Representative Krajewski said, my name is Kent Vrana. I am the Elliot S. Wissell Professor and Chair of Pharmacology, having held that position at Penn State University for the last twenty years. I received my BS degree with honors in biochemistry, studying alcohol metabolism in the liver, and so began my study of substance abuse many years ago. I got a PhD in biochemistry from Louisiana State University Health Sciences Center in New Orleans where I studied brain chemistry involved in addiction and then did post doctoral training at the Carnegie Institution of Washington on the Johns Hopkins campus in Baltimore, studying molecular biology and embryology. My first faculty position was at West Virginia University where I was for five years. Then I was at Wake Forest University for thirteen years rising through the ranks to full professor studying alcohol and cocaine addiction in animal models. In 2004, I came to Hershey where I am the Elliot S. Wissel Professor and Chair of

the Department, and I've been studying for the last twenty years opioid abuse, cocaine, and most recently, cannabinoids and cannabis. I am an elected fellow of the American Association for the Advancement of Science, the folks that publish Science Magazine. I'm also a College of Medicine distinguished educator. And I've spent most of my forty years supported by the National Institutes of Health in a variety of different capacities, but specifically in addiction for today's conversation. I am the founding director, in full disclosure, of the Pennsylvania Designated Academic Clinical Research Center at Penn State and receive an unrestricted sponsored research agreement from PA Options for Wellness, one of the state's clinical registrants. I've published over two hundred twenty papers in total. I've co authored and authored a textbook on biochemistry and one in pharmacology. And most recently I've published over 25 papers related to cannabis and cannabinoids. So it's an honor to present here a few thoughts.

Let me start right at the very beginning by pointing out that I am against legalization of recreational use for adults for the following four very brief reasons. One is, while I recognize that cannabis is safer than my drug of choice, is a good single bourbon, single barrel bourbon, the fact of the matter is we don't need another legalized, abused and impairing drug. There are documented harms as Representative Frankel pointed out earlier in terms of our youth. Especially heavy use among adolescents that I'll touch on it briefly in a moment. And then potential harms to the very young, and we've seen plenty of examples where youngsters got into mom and dad's edibles, their gummies or whatever. We need to be careful of that. And then this arms race that has occurred over the last couple of decades where we've got higher and higher concentrations of THC, which have inherent harms that should be regulated and I don't believe should be approved for recreational use. I'm delighted to talk about those issues during the Q and A, but in recognition of the fact that we're here to talk about how to institute the potential institution of legalized recreational, let me focus on six broad topics.

First, I believe the Commonwealth should regulate the production and sale. We have, through Act 16 that was passed into law on April seventeen of 2016, a network of grower processors here in the Commonwealth as well as dispensaries. We need to know that there are no pesticides, organic solvents, heavy metals or synthetic contaminants in the products that the people of the Commonwealth are using. And I want you to think in terms of fentanyl now, laced products. The consumer needs to know what they're buying. This existing network could be expanded to scale to address the capacity needs for recreational use. I've also heard that there are discussions of using the state liquor stores as potential outlets. All of these could be accommodated, but under the regulatory mechanisms that are already in place to ensure that the people of the Commonwealth are getting safe materials. Second, I think that all products should be grown and processed here in the

Commonwealth. We do not need to be the dumping ground of other states that have excess capacity. This not only provides for the opportunity for control of the material here in the Commonwealth, It provides economic benefit to the Commonwealth, but it helps to ensure the composition and the quality of the product. I think it's vitally important. Third, I do not believe there should be any synthetics. This includes delta-eight THC, which is synthesized. It's not grown in the plant. It's synthesized from CBD oil. Nor should there be any of the high potency pharmaceutical grade products that we know are on the market in the public sector. They're known as things like K2 and spice. We do not need to be adulterating cannabis with synthetics in pursuit of a greater and greater high. That extends to other psychoactive synthetic components, especially things like fentanyl, carfentanyl. So it's important to realize that the synthetics are not derived from the plant. We're talking about legalizing cannabis use, not synthetic drug use. This also speaks to the importance of growing and processing the products here in the Commonwealth where we can have control. We already have the controls in place. Fourth, and I believe this will be controversial, I believe the Commonwealth should regulate the composition, the concentration of THC in these products. By way of explanation, when I was in college in the late 70s, the cannabis that I knew was three to 4% by weight THC. You can get products right now through our medical marijuana programs that are 30% by weight. Ten---eight to 10 times higher THC concentrations. And those high concentrations of the psychoactive compound do not come without risk. There's been a steady growth in the higher and higher THC content cannabis for decades now. And then we add to that, relative to the comment that was made earlier, the isolation of THC and using that in almost pure form in a vappable product. There's a significant downside to acute toxicity that's associated with the concentration of THC and the frequency with which it's used. I believe we could mitigate many of these concerns by regulating the composition. How much THC do we need recreationally? Specifically, I would propose as a starting point that we limit THC content in cannabis to 25%. Again, that's perhaps 10 times higher than what I knew forty years ago in college. I also believe that extracted or vape products should be limited as a starting point to perhaps 30%. Again, how much THC is required for recreational use? Now I'd like to expand on this point just a little bit because there's a lot of clinical data out there to help us with this. THC is not without risk. That's the key to understand. It is impairing and it is addictive. Cannabis use disorder is defined as the continued seeking and use of cannabis despite significant impacts on health and family and your lifestyle. And there are clear examples. Recent data suggests that as many as twenty percent of individuals who use recreationally or medicinally have a cannabis use disorder, CUD. And in fact, among those, 6.5 percent are thought to have moderate to severe impairment or CUD that it really impairs their quality of life. Again, the risk of CUD, cannabis use disorder, is related to the strength of the product and the frequency with which they're used. So once again, how

much THC do we need? We know that heavy cannabis use in adolescence is associated with increased risk of schizophrenia later in life. I am not saying that cannabis causes schizophrenia. The statistics are stunning, however, that the risk of schizophrenia two decades after heavy use in adolescence is clear cut, statistically significant, and physiologically important. Moreover, we're talking about legalizing for adult use, which I suspect you would argue should be 21. But the development of the frontal cortex, that part of our brain that's involved in impulse control, cognition, judgment, that continues to develop until the mid-20s. So let's not ignore the fact that we're legalizing a drug that could impair development of the frontal cortex well into the 20s. So suggesting that legalized recreational use will be limited to 21 year olds I think is a specious argument because not only do we know alcohol is limited to 21 year olds but our youngsters are getting into alcohol. The same will happen with cannabis. I have a colleague at Yale University, Deepak D'Souza, who has characterized a phenomenon called cannabis---cannabinoid induced acute and persistent psychosis. I'm sorry for that, CIAPP. It's a situation where somebody acutely uses cannabis and has a psychotic episode that lasts long after the drug has left the system. And that requires treatment. It's rare, but it is a very real phenomenon and it is directly linked to the concentration of THC, especially in those individuals who are THC naive, first time users or early stage users. Then finally, there is a well documented condition called cannabis hyperemesis syndrome in which patients have uncontrolled vomiting in response to cannabis use. We ourselves have just published a paper case study on individuals, adolescents who are hospitalized repeatedly at Penn State because of this uncontrolled vomiting that they have associated with cannabis use. What's ironic about that is people think cannabis helps with vomiting, but here it's triggering it. Again, a rare syndrome, but one we should pay attention to. Fifth, I don't believe we should have any edibles marketed, especially those that are gummies, candies or snacks. There are simply too many examples of youngsters getting into their parents' stash. Using Colorado as an example, from the time when they initiated their medical program in 2010 until 2021, there was a seven fold increase in children showing up in the ED with acute cannabis poisoning. In fact, just this last year, we had our first cannabis associated cannabis toxicity associated death in a toddler in Virginia, in which case the mother was has been convicted of contributing to that. This is a serious problem. In addition, if we legalize the edibles, especially gummies and lozenges or candies, that permits the discrete use of this impairing drug in the workplace while operating a motor vehicle or heavy machinery. How are y'all planning to regulate that? Which leads to my final point, which is how will the state regulate the acute impairment associated with recreational use? This isn't alcohol. You cannot do a breathalyzer and say you are intoxicated. So I know this has happened across the nation. There must be guidance there. I urge you to take that into consideration. So with that, those

conclude my remarks. I've been delighted to have the chance to share a few thoughts and I look forward to being able to answer any of your questions. Thank you so much.

[Rep. Rick Krajewski]

Thank you. Thank you, Dr. Vrana. Next we'll hear from Jeff Hanley.

[Mr. Jeff Hanley]

Thank you. And I want to thank Representative Frankel, Representative Rapp, Mr. Schemel, and Mr. Krajewski for having me here today. I certainly appreciate this opportunity and, to have an honest conversation around this issue is very, important. As mentioned, my name is Jeff Hanley and I do work for the Commonwealth Prevention Alliance or CPA and we support drug and alcohol prevention professionals across Pennsylvania. And we've been, doing that for forty plus years, and I've been in this role for four years, but I'm not new to the field of prevention. I started about twenty years ago in Mercer County, Pennsylvania working for a single county authority there for fourteen years. I then spent two years in Colorado working in opioid overdose prevention in Golden, Colorado for a public health department before moving to State College here in January 2019. I want to talk a little bit about my use and what I've experienced growing up and what was mentioned earlier. I was one of those kids in high school who was just quiet. I played basketball, I had friends, they didn't drink, they didn't use. My parents had alcohol in the house, but I don't remember them ever drinking, ever using. I didn't touch it when I was in high school. I didn't touch it. And yeah, I did have a couple sips of beer. I remember that. I remember how bad it tastes when I was in high school. But I never touched it. And I went to college and things changed because I realized that it helped me in some situations cope and deal. Throughout my 20s I spent my life misusing alcohol. And I'm incredibly fortunate to not be one of those individuals that came down with an alcohol use disorder and needed treatment. Personally and professionally, it set me back. And I sit there and I think, that was in 1988, 1990s, and I wonder what Jeff of twenty years ago, what would happen to me now in 2023? Because if you think of alcohol, if you think of marijuana, think about what it was, both of those products thirty years ago and what they are now. I can get a canned cocktail to drink, which is liquor mixed with some nice tasting flavors at a store, a grocery store. I can walk into Sheets and grab a product. I can do those things. I can have a Mike's Hard Lemonade. Those weren't available back in my day. And in college I did try marijuana a few times, and it wasn't anything that I wanted to do. But I can't imagine today with the products that are available and on the market what would happen to me in that situation. And I think about that frequently because of the access, the availability, and the strength, the ABV and alcohol, those contents, the THC contents, the edibles, the gummies, the things that are available now. And if you're at the press conference this morning, you heard a young man in

Jordan Davidson talk about becoming addicted to Juuls and going through treatment and he will be five years in recovery this year, but he talked about those strong products and what they did to him. So I just wanted to share that story because I think so many things have changed over the years and we need to be very, very conscious of that. Before legalizing recreational marijuana, can PA ensure some of the following safety measures? Because I think it's very, very important that we can ensure that our community will be safe. And I'm here today to talk just a little bit about what's happening in our school districts across Pennsylvania, from Pittsburgh to Philadelphia to the rural counties and what they are experiencing and seeing. So, can we ensure youth protection? Can we talk about youth use not increasing? Can we prohibit concentrates, establish low THC ceilings, prohibit any product deemed appealing to youth and children like the edibles and the candies and the gummies? Legal for 21+ or as a doctor mentioned 25, the state of Washington just came out with a recommendation to move the legal age from 21 to 25 because of these dangerous products. Accidental overdoses will not increase. THC poison control calls to centers will not increase. Can we provide a local opt in or a lock opt out opportunity for communities? Ensure the public health and safety of our communities will not be impacted due to the legalization. Ensure that positive THC test and fatal car crashes will not become more common than positive tests for alcohol, which has just happened in Illinois who legalized years ago. And it doesn't mean that alcohol DUIs are going down, but THC just surpassed alcohol DUIs in the state of Illinois. So we need to ensure the safe roads and highways. We need to protect pregnant women from use and predatory marketing of the industry. Include cannabis provision in social host laws and clean air laws. Ensure that we will not negatively impact the overdose epidemic. We have signs behind what is effective for treatment options for overdose epidemic. And then we have to ensure the elimination of the black market. I don't think we can do that. I don't think we can look at these things and say that other states have done this and what is Pennsylvania going to be able to do differently than the other states have. And then we need effective regulations. Require trial proof packaging. Prohibit CLC these products to outlets within 15 feet schools. Create cannabis scientific board to approve or reject health claims and ads. Home grows---how do we regulate home grows? I'm not quite sure any other state has figured out what that regulation looks like. And then finally, I want to touch a little bit on prevention programming and funding and what that looks like. So the Commonwealth Prevention Alliance joins the following organizations in opposition to legalization of recreational marijuana for adult use: American Academy of Pediatrics, the American Medical Association, the American Academy of Family Physicians, the American Society for Addiction Medicine, and the Association for Addiction Professionals. We also oppose it because of the increased access to and use of marijuana amongst adolescents. Marijuana is addictive and can interfere with brain development and worsen mental health conditions. Yes, not everyone's

going to become addicted to marijuana who uses it, right? We know that. The numbers aren't high, but the same thing could be said about alcohol, the same thing was said about prescription medicines, that people who misuse prescription medicines. It's not a very high number when you're looking at percentages, but that doesn't necessarily matter because we know the damage that these industries can cause. And then safety should focus on me. Safety is about focusing on the high potency, the road safety as I mentioned, and then of course the products that are being used. Over and over again state lab tests have disproven any police or law enforcement claims of cannabis suspected of contamination. I want to talk real briefly here just about the youth products in use and what we are seeing in school districts across Pennsylvania. And I encourage all of you before you talk about legalization and vote on this to reach out to your school districts, to ask your superintendents, principals, your school resource officers, is this a product that is impacting students in your jurisdiction? Just ask them, and if they give you to sign off and say, No, it's okay, we're not seeing any impacts, then you have your answer. But if they are telling you and sharing with you different stories that they're dealing with, I encourage you just to give it a second thought. Are you aware of the different types of edibles with high potency? Do you know what dabbing is? Those are things that kids are using and products and ways that they are using and accessing THC. I spoke to a narcotics officer in Westmoreland County, And in Westmoreland there is a network of 12 ambulance companies that ensure the health and safety of our communities. One of these companies in the past year has transported 12 youth to the hospital due to high potency cannabis. This is one company out of 12 companies in one county out of 67 counties in Pennsylvania. Twelve youth in a one year period they have transported to the hospital due to high potency cannabis. So things that we need to look at with our communities and we need to ensure that we're able to protect our youth and our school districts and the communities that surround them from this product. I talked to a prevention organization in the Philadelphia area and asked them what they are seeing around cannabis use. How are kids accessing these products and what does it look like for them? So there are many different access paths. Yes, some kids are going on the black market. Some kids are doing that, of course, but they don't necessarily have to. Those are typically the people that are looking to buy more products and looking to deal locally in their communities. But how are we regulating vape shops right now that are coming up? How are we regulating them? We're not. We're not. We're not regulating them. How are we regulating medicinal products? We're really not. So I'm confused on how we're going to be able to regulate this recreational product when we're struggling to regulate those other two industries. You're going to hear in the news in the next couple of months from WM Land County who a narcotics detective went undercover to a vape shop because they were selling illegal products to youth. They recorded every conversation. So again, it will be out in the next couple of months, but they were selling illegal products to youth.

How did they get those illegal products? Where were they accessing them from? So Westmoreland is saying they're coming from a couple of different areas. California. Okay so they're shipping products from California into Pennsylvania. And then of course the black market if you're looking for bigger and more products. But kids are going to these vape shops, they're getting this product. And how else are they getting this product? They're getting it from adults. They're getting it from parents. And we know one of the biggest indicators of future youth use is if your parents use a substance. That's one of the biggest indicators and biggest risk factors for our youth and we have to be able to make sure that we are really protecting those youth and those communities and those school districts. Also mentioned that this morning at the press conference was an organization that works with kids in school districts. So every school district in Pennsylvania are student assistance programs. So they help any students that has a barrier to success. Elementary schools, junior highs, high schools. These programs are led by prevention organizations and include guidance counselors, resource officers, principals, everything from those school districts and they intervene with students who have any sort of barrier to success. Typically I would say five years ago, the barriers to success were mental health issues, and they still continue to be a high number, but we are seeing a very large increase of marijuana use. And again, of these kids are coming to school high at eight am. In the morning from products that they took off their mom and dad's table. Okay, we can't ensure that type of safety. It's really, really difficult to do that. And then one of the things that these schools then would do is if a referral for treatment is needed, they would do that. They would get the parental involvement, parental support. So we're really looking at helping these youth to referral to treatment services or some sort of outpatient clinical type of opportunity for them if it is needed. But these are issues and concerns, and of course, vaping and edibles are really the two main ways that our youth are accessing THC, and the vaping products have a very high THC content and so do the edibles. Again, those are just the ways that our youth are accessing them. Mental health issues, we're all aware of that. I'm not gonna share any of that data. It's in my testimony from the Pennsylvania Youth Survey. Kids who are high depression risk, they are using marijuana at a higher rate than those who have a lower or no risk of depression. That data is in my report here, or my testimony. And I just wanted to close and say that I think it's incredibly important that if we were to look at legalizing this that we need to fully fund prevention efforts. Okay, so when people think of prevention efforts, what do you think of? You know, okay, some programming in schools, maybe some speakers, that sort of thing. But I want to tell you what I was doing in 16 in Mercer County, Pennsylvania when it came to prevention efforts. We were distributing Narcan. We were writing grants to get Narcan. We were building coalitions that included treatment recovery, faith based, DAs, law enforcement, we were bringing everybody to the table. We had to go door to door for doctor's offices because no one in our county was prescribed

buprenorphine. So that's what prevention organizations are doing folks. We were the only people right now currently in Pennsylvania working on this marijuana issue in regards to the prevention and intervention of it. Yeah, treatment organizations are wonderful and working at it. But the other thing is that we are the group that's working on this, and one of the bills that came through over the couple years that was released said that they would fund prevention efforts to the Department of Drug and Alcohol programs at 10% for prevention and treatment based on the revenue of medicinal marijuana. I'm going to ask and request that we revisit that and we look at it from the revenue of recreational marijuana because we know what happens to medicinal sales after we legalize recreationally. Every other state's gonna show you what happened to medicinal sales. But we need to fully fund those prevention efforts because we're the one doing prevention, intervention, and we're connecting youth to treatment services and counseling services. We're the one working on harm reduction of this product. We're the one bringing together everybody in the communities from marijuana around the opioid epidemic in school districts, student assistance programs, etc. So thank you for your time. I truly, truly appreciate this opportunity to have this honest conversation around the legalization of recreational marijuana. Thank you.

[Rep. Rick Krajewski]

Thank you, Mr. Hanley. And so with that, we're now going to open up to members of the committee for questions. So if members have a question, let myself know or Rep. Schemel and we'll be sure to put you in the queue. I'd like to start off with just an introductory question and again, thank you both for your testimony and for your work in this sector. In hearing your testimony, you know, I understand the perspective and the concerns that you have around the varying THC levels, right, the issues around toxicity, safety, the different products that are out there, synthetics, and even concerns around, you know, childhood or child adolescent use, right, and how we address that. But in my opinion, I think you also made a very strong case for the ways in which legalization can address some of those issues, right? The ways we can regulate THC levels, the way we can regulate product safety, right, toxicity levels, some of those age restrictions you talked about to make sure it's not getting in the hands of adolescents. So I think the way if we do this in the right way, the state can actually play a pretty big role in even addressing some of the concerns that there are with cannabis use right now, today, right, as an unregulated market. So I guess my question for you, and again this is not to push you in a box in regards to your position, but what do you think are the best tools that states like Pennsylvania can use to ensure their testing standards, their product safety, addressing some of those concerns you raised in your testimony? And feel free either of you to respond.

[Mr. Jeff Hanley]

I don't know if I have the answer for testing regulations and what that would look like. I did mention some things. I follow the lead of Doctor. David Jernigan who is really an expert in public health and what needs to happen for communities and that's where I got a lot of my information around regulations and what that looks like. Again, when we legalize a substance, we create access to--- It's just what happens. Access and availability increases, and when that increases, we have data that shows that, yeah, this typically will increase with youth. And again, when we're talking about youth and prevention, we're talking about risk factors and protective factors. How can we reduce the risk? How can we increase those protective factors? One of the biggest risk factors I mentioned is adult use, if parents are using, then kids are much more susceptible at a higher rate to use as they get older. I'm not quite sure what because I've heard all these, I agree with you. I think there is a way that we could look at this and the doctor really mentioned some great things that you would be looking at for regulation. But every state has come out and said this. I remember when Illinois came out and they said we have the most progressive social justice policy. We have the way that we're gonna prevent this to get into youth hands. Guess what? Didn't happen. Didn't happen. I don't know what Pennsylvania is going to be able to do differently, and I wish I did, but not one state has figured this out, but they've all come out and they said, we're gonna do this differently. Especially after Colorado, Washington. Illinois was the big one. They were the ones that said, oh, we've got figured out. No, you don't. Read that report that came out from Illinois just a couple days ago or a week ago. There's a lot of issues that public safety of our communities that we need to be concerned about. I don't know how we sit there and we say, Hey, there's these high THC products and we're going to keep them out of the hands of our youth. I don't know how we're going to be able to do that. It's a market that's not regulated and it's going to be a really, really big issue I think, because it currently is. Those vape shops, they're not going to stop selling illegal marijuana. The black market's not going anywhere. We're going tax the product, we know the black market is going stay here. I just don't know how we regulate those vape shops who are selling that illegal product, because kids aren't going to decide, Oh my gosh, this is illegal. I'm not so sure about this now. They're still going to go to their vape shops. They're still going to go to wherever they get their product from, and those folks aren't going to stop bringing that product in illegally. They may not ship it in from California because now they may be able to get it from somewhere in PA.

[Dr. Kent Vrana]

I have to agree that the disconnect between what we wanna do and what we accomplish are gonna be very real. I'll just use as an example, Act 16 in 2016 said there would be a state funded research program. That never happened. And so we say all the right things. As Jeff

says, every state thinks they've got it solved, but the reality is different. I think we just have to be realistic about that.

[Mr. Jeff Hanley]

And I just want to say, we need to have these honest conversations with folks. We have people running around saying this isn't an addictive product. We need to have honest conversations with our communities and if we're going to do this, we have to let folks know, hey, this is going to be a concern here and if this we don't have studies of THC over ten percent. We don't know what it's going to we need to be honest with our communities, and we need to sit there and say, we're going to legalize this, folks, here are some issues that we need to be concerned of, and as decision makers in Pennsylvania, we're going to do the best we can to address those. But we have to be very, very honest and it seems like we're afraid to sit there and say there are going be some consequences to this. There may be some benefits. And certainly what you shared with your family history is it's awful. It's awful the marijuana policies that what they have done to African American communities, Hispanic and Latino communities, it's awful. And that needs addressed and that need is acknowledged and we need to make sure that we're talking about that. And I forget who it was that said center equity in this this bill. Listen folks, if it's not centered, you're getting it ever. And if we go forward, it has to be an incredibly conservative approach because you can't liberalize your approach as you go forward. No state has been able to do that. You know, so it has to be a conservative approach.

[Rep. Rick Krajewski]

Thank you. Thank you, Mr. Hanley. Next I'm gonna pass to some of other members. Just a little bit of refereeing, just because I know we got a lot of panelists today and they're gonna eventually kick us out of this room. I'd just like to ask if members can keep it to just one question, just so that we can move through the agenda, and then also just for the panelists, appreciate your testimony, also try to keep your answers succinct just so that we can get through all the members and the panelists. Thank you. Next, I will pass it to representative Frankel.

[Rep. Dan Frankel]

Thank you, representative Krajewski, and thank you for the testimony. It's been very enlightening. You know, I don't know at the end of the day how you deal with the unregulated market and the black market that's always going be here. I mean, I walk up literally from my office, which is in the center of the Squirrel Hill Business District in Pittsburgh, and I've got five vape shops selling CBD, Delta eight, all unregulated and legal. And I've got a high school two blocks away and a bus stop in front of my office, and you just

you know, you can smell the marijuana when you come out the door every day. So it's there. It's a reality. And trying to find a regulatory framework for that illegal marketplace--- that legal marketplace and adult use is, I think, you know, inevitable. So I wonder maybe you can talk a little bit about CBD and its relationship to THC.

[Dr. Kent Vrana]

We're--- at Penn State we're very interested in the non euphorogenic cannabinoids. CBD does not cause a high. There are strong arguments for both THC and CBD having medicinal purposes. But the fact of the matter is CBD is an anti inflammatory, it doesn't produce the high, but it is because of the Farm Bill of 2018, the federal Farm Bill, it became legal and descheduled. Before that it was a Schedule I. If you take CBD, you boil it in organic solvent and acid, it makes Delta-eight. People can make Delta-eight in their kitchens if they want to. That's one of the synthetics I think we have to regulate, because we don't know what's in it. It's not that Delta-eight is dangerous in itself, it's the process. So CBD, unregulated, the biggest problem for me with CBD are the unjustified claims that it cures everything under the sun, and it doesn't. And we know that. And so that's a big problem with CBD. It's snake oil that's being sold as a cure all.

[Rep. Dan Frankel]

How should we be thinking about it in terms of the role of CBD in mitigating the EHC impact?

[Dr. Kent Vrana]

CBD is forgive me for getting my geek on with you is an inverse agonist. It blocks the effect of THC. So again, when I was in college, 3% THC and someplace around a quarter of a percent of CBD, it leavens the effect of the THC. In the ensuing decades, more and more THC, less and less CBD and cannabis. So there's nothing modulating the THC activity, and I think that's what's uncovering some of these untoward effects we've seen.

[Rep. Rick Krajewski]

Thank you. Next, I'm going to pass it to representative Friel-Otten, who is online. Representative Friel-Otten, if you have a question, you have the floor. Otherwise, we will move to our next member. Okay. Next, we will pass it to representative Rapp.

[Rep. Kathy Rapp]

Thank you, Mr. Chairman. My question is for you, Mr. Hanley. And as you know, I had referenced your testimony at a press conference prior to the hearing. And you mentioned the word “ensure”. How can we as legislators ensure in any legislation that we're going to have safety measures for our youth, for our communities. And you mentioned the vaping issue. So in 2019, we passed vaping laws, actually one of the bills was mine, which prohibited vaping on school properties. So according to your testimony and using the word ensure, did we ensure through legislation and ultimately through law that our students would not be vaping on school property?

[Mr. Jeff Hanley]

No.

[Rep. Kathy Rapp]

And I'd like to talk to you to maybe, you know, what could we do differently to ensure that it's a problem I think in every school district. When I talk to law enforcement, there's a big vaping problem. Even though we passed legislation, which became law, no vaping on school property. And we know, if you talk to law enforcement that many times those students are vaping marijuana right now. They are accessing it. So it stands to reason, and this is my opinion, since we see that we didn't ensure that students can't actually vape on school property. I don't know how through legislation and regulation that we can ensure that students, our youth, or even younger children are not going to have access to lethal marijuana when we take a look at the research from other states. So your term, your use of the word “ensure” really struck something with me, because I know that even our founding fathers said, you know, we can pass all the laws we want, and we certainly do. That's our job here. But we--- even though we pass those laws and regulations does not mean that we're going to be successful in deterring people from doing what they want to do. We at the end of the day, people make choices, good choices, bad choices. But just looking at the vaping issue, I don't know how we as legislators can write legislation, and even with the mental health, we know. We can't even find facilities for rehabilitation in mental health in this state. I've been in meetings in hospitals and in mental health units and where our folks as a team are looking for a bed somewhere in the state so someone can go and be admitted and or go through rehabilitation, whether it's a drug addiction, and I will say addiction, not just a disorder. I believe it is an addiction. And I don't know how much money it'll cost the taxpayers, regardless of the revenue that we may receive from legalization, I don't think we will ever be able to set aside enough money to really help our school districts, law enforcements and the mental health community in combating addictions when we legalize it. So is there anything that you think we can do as lawmakers in writing

regulations, working with our regulators to ensure our youth are protected from addiction to marijuana or even our adult population?

[Mr. Jeff Hanley]

That's really a difficult question. It's an incredibly complex issue and I would sit there and say that you need to really follow the guidance and the direction of the experts when it comes to regulation, and we're fortunate to have one right here in PA and here today. But we really need to look at the vaping epidemic and kind of get this under control a little bit before we look at saying, oh, here's a legal substance that kids are accessing through their vapes right now. And again, just really looking at those organizations, those prevention folks, organizations, coalitions that are really the ones in the field looking really talking to kids about and teaching coping, talking about risk factors, reducing those, enhancing protective factors. It's things like that. Look how long it took us for tobacco. Alcohol rates are going down amongst youth and they have been for years now and it's due to even with the increase in products, it's due to policies, it's due to prevention. So, tough question, really, really tough question, but I think there are lot of things we need to deal with before we kind of look at legalizing this substance. And very quickly, Representative Rapp, I think the subtlety that we have to remember is in legalizing recreational use for adults, we are giving it the stamp of imprimatur that it is safe, that adults can use it, so why can't kids? That's the concern. I'm sorry. Thank you, gentlemen. Thank you, Mr. Chair.

[Rep. Rick Krajewski]

Thank you. Thank you, Rep. Sorry, just for an interest in time because we have about ten minutes left and we do have to get to our next panelist. I'm gonna hand it over to Rep. Boyd and then we will also have Rep. Twardzik and Rep. Schemel and then we will move on to our next panelist.

[Rep. Heather Boyd]

Thank you, Chair. I think this would be a question for Doctor. Vrana. I'm very interested or concerned, I guess, in something you brought up about the limits of how we test impairment when someone has consumed cannabinoids. What makes that difficult? Why is it hard to test impairment with someone? You know, usually my understanding is if you consumed marijuana a week ago, it would still be in your system on our current test, but it may not be causing any effects in your current situation. And that limits people's ability to, you know, take cannabis on the weekends when they have a job the next day. What limits like scientifically? What limits our ability to test that impairment issue?

[Dr. Kent Vrana]

So two issues there, Representative Boyd. The first is that unlike alcohol, you can enjoy a beverage during sadly I have to say a Steelers game on Sunday and then the following day you won't you will have nothing available in your system. You'll test, you won't test positive. The pharmacokinetics, the way our bodies handle cannabinoids is that if you're a heavy user, you'll test positive twenty eight days later with metabolites of THC. The other thing, and I'm going to be honest here, THC is not as impairing as alcohol. If you heavy use alcohol, you can't stand up straight, you can't speak. It's obvious. You can do a test on the side of the road next to your car and you're impaired. But that doesn't mean that something more subtle but as problematic as occurring with marijuana. So especially in the workplace operating heavy machinery, I don't know how we do it, to tell you the truth. Here's a situation where society's gotten way ahead of the science. I don't have tools to give you to study that in THC.

[Rep. Rick Krajewski]

Thank you. Representative Twardzik.

[Rep. Tim Twardzik]

Thank you both for your testimony. It's been very enlightening. You have a lot of experience on these issues. I've talked to pediatricians and they're upset because a young child comes in with mom and they're throwing up all the time and she looks over and the first thing she does is say how much marijuana are you smoking? And the child, oh, none. It's like don't lie to me. Well, every day. And mom is, of course, upset and it's like, want to stop throwing up, stop smoking all the time. And it's just sad that this is what we're doing at pediatrician's offices. And in our schools we have vape monitors in the bathrooms that go off and you chase down and try to stop the vaping in bathrooms. It's just crazy that this is what we have now and we want to open it up to even more trouble. I don't think it's smart for us as a society. And no matter how much money we get from this, it's not going to be enough to cover the troubles it's going to be. But in your experience, do you find that marijuana can lead to more drugs and harder drugs?

[Dr. Kent Vrana]

I think that's been debunked, Representative. Marijuana does not lead to opioid addiction. The data are pretty strong there.

[Rep. Tim Twardzik]

Well, thank you. But, you know, I do hear from people at town halls and say that, yes, you know, it starts you and then you try to look for something else and, you know, if you have

that personality or that, you know, opportunity, it will lead to others. And again, we just don't want to have people have more opportunities to be less successful.

[Dr. Kent Vrana]

Right. I don't want to minimize it. There's not a direct causal link. But if a person has that kind of personality, they're going to start with something easy like marijuana and move on. It's not that marijuana leads to something else. And the other thing I want to say, and I should have said it at the beginning, Representative Twardzik, is that everything you just said about the pediatrician is true. We had that very patient, a patient very similar to that, whose mom was giving them marijuana because it is thought to help with vomiting. But they were using recreationally without letting mom know, and then we ended up with a problem.

[Rep. Rick Krajewski]

Thank you. And lastly, Representative Schemel.

[Rep. Paul Schemel]

Thank you. Two very quick questions. One, first for Dr. Varana. Market will always meet demand. You said that there's higher THC levels in today's marijuana than it was in the past. So people want higher THC. Why?

[Dr. Kent Vrana]

There's no question. The higher the THC, the higher the high. And so, it's in pursuit of a bigger and bigger high. The difficulty is that I don't know what the ceiling is going to be from a behavioral standpoint. When we were kids, Rum 151, we got the highest concentration alcohol we could. It got us high fast and it made us very sick, obviously, if we overdid it. I don't know what the ceiling is going to be on cannabis, but this is pursuing more and more of the--- and I'm going to conflate some ideas here, the dysphoria that comes with the high. The more you take, the bigger impact it has. And people are just in pursuit of this higher high.

[Rep. Paul Schemel]

Okay. Thank you. And for Mr. Hanley, is probably a yes or no. You said that you said that children often get these practices from their parents. Legalization, does it decrease stigma? And if so, does that increase adult use? Does that increase children's use?

[Mr. Jeff Hanley]

Just a quick follow-up. I'm not sure if what you mean by increasing of what?

[Rep. Paul Schemel]

if you legalize marijuana, does that decrease stigma, decrease the stigma of using an otherwise illegal product?

[Mr. Jeff Hanley]

I don't think so. I don't think so. I think it increases normalization of the product. Decrease stigma? Decrease stigma. I don't think so. Decrease the stigma of use or of marijuana safety?

[Rep. Paul Schemel]

If you legalize it, does it make it more likely that an adult will use it? And if so, will their children be more likely to use it? Put a different way.

[Mr. Jeff Hanley]

I think if we look at past states that have illegalized, has it increased youth use? Yes, certainly has when we look at specific populations and specific age groups then, yeah, you can you can find that use. I'm not quite sure about the stigma though.

[Rep. Rick Krajewski]

Thank you. Unfortunately, we do have to move on just for the for the sake of time, but you'll be first on the next list. Thank you. Thank you, gentlemen, for your testimony. I I really appreciate it. Next, we will have our second panelist, Amanda Riemann, who I believe is online. Our second panel is one testifier who's done extensive research on the consumer trends in the cannabis industry. Amanda Reiman is the chief knowledge officer for New Frontier Data and has studied cannabis use and policy for over twenty years. So Amanda, you have the floor.

[Dr. Amanda Reiman]

Thank you so much. Thank you for inviting me to speak today. I'm doctor Amanda Reiman. I have been studying cannabis from a public health and safety perspective for over twenty years. I conducted one of the very first studies on medical cannabis patients and one of the first studies on the use of cannabis in a harm reduction framework, primarily as a substitute for alcohol and opiates. I now, work at the, at New Frontier Data. I'm the chief knowledge officer, and we are a data and analytics company that serves the legal cannabis industry. My PhD is in social welfare. I've done pre and postdoctoral fellowships in public health. So I really come at this from a social service social welfare perspective and very

firmly rooted in harm reduction. So I have some slides that I'm gonna present today, but one thing I wanted to open with is I think there's a very common fallacy that I've seen over the past few decades that I've been studying this issue, and that is that drug prohibition equals drug control. And I think, you know, one of the things that our first panelists really illustrated was that in prohibition, you really don't get to control anything. You don't get to control who produces products, how they're tested, how they're regulated, where they get to be sold, who they get to be sold to. All of that control comes with regulation. And so I think talking about, you know, some of the questions about, well, how do we make sure that products are safe? How do we make sure that the vaping stores have to go, like, get licensed or aren't allowed? All of that comes through regulation. So I'm gonna go ahead and share my screen. Alright. So you should all be able to see that. So this data that I'm gonna present today is based on our annual consumer survey. We do this survey of over 4,000 cannabis consumers across state markets. So adult use, medical only, and illicit unregulated markets. We use an ISO certified survey research firm to collect the data, and the sample is matched to The US census on gender, age, and ethnicity to ensure a nationally representative sample. So, I think the purpose of me being here today is to really present data on who cannabis consumers are and the state of the market in Pennsylvania. So currently, 74% of the total US population lives in a state with some sort of legal cannabis framework, whether that be adult use or medical. A 160 million adults or people live in adult use states, and only about 89,000,000 live in illicit states. So we're definitely starting to see a shift where most Americans live in a place where they have some sort of access to cannabis. So one of the things we do at New Frontier Data is we do market modeling. So the purpose of this is to show you the impact of moving forward with adult use regulations across the country. So these are two different models looking at market estimates through 2030. The one on the left is with the activation of potential new state markets, so places like Pennsylvania, Ohio, which will be voting on this issue in November, and Florida. And then on the right is if nothing changes and everybody stays with the same laws that they have today. As you can see, the only way to trump that illicit market is to continue to allow adult use regulation. And I bring this up because a lot of the issues that were brought up in the first panel have to do with the illicit market. People getting products from California. That's not legal. It's not legal to ship products across state lines. People buying unregulated products, untested products, people under 21 being able to access products. This all comes from the illicit market. So I think one of the big goals of regulation is to reduce the illicit market. Now let's take a look at Pennsylvania. So the top chart shows what would happen if Pennsylvania, allowed for adult use cannabis regulations. The bottom chart shows if it just stays medical. Now what I want you to pay attention to is this illicit market line. Right? So when we look at the top chart, what would happen if Pennsylvania approved adult use regulations? We can see that by 2027, we're getting really close to eclipsing the

illicit market and that that is achieved by 2028. So by 2028, recreational sales would be higher than illicit market sales in the state of Pennsylvania. If you stay with a medical model as below, even by 2030, you're not going to overtake that illicit market. So if one of the goals of this is to make things safer, tested, products labeled properly, kept in stores where people 21 can't access them, you know, that is the piece that is going to reduce the illicit market. So now I'm gonna take you through a little journey of who cannabis consumers are, because due to prohibition, due to the schedule one status of cannabis, it's been very difficult over the years for us to understand who consumers were. People that had jobs, that had high standing in the community, that were parents, didn't wanna come out and admit that they were cannabis consumers. So we had this very limited view of who was using cannabis, and it was basically the people that were willing to admit that they were using cannabis. Now that cannabis has been destigmatized, so to address that previous question, with legalization, we do see destigmatization. So people feeling more comfortable talking about their cannabis use, more comfortable bringing their child to an emergency room if there's an accidental ingestion. It's important to understand who cannabis consumers are. So as you can see, cannabis consumers are primarily between the ages of 25 and 44. Their ethnic identity pretty much mirrors The US census with sixty three percent of cannabis consumers, being white. And the gender breakdown is 46% women and 54% men. Now something I think is really interesting is this political alignment chart. There might be assumptions that cannabis consumers trend to be more liberal, that they're a certain type of person. But what we see is a pretty even split across the political spectrum when it comes to who is a cannabis consumer, with 29% reporting that they are conservative, 36% percent reporting they are liberal, and 28% identifying as independent. So looking at youth use frequency, we do see that about a third of cannabis consumers use once every day or two, with about 31% saying that they use multiple times a day. I know that cannabis is compared to alcohol a lot. I'd also like to introduce the concept of it being compared to coffee. Caffeine, also a drug, also habit forming, also can cause negative mental and physical health issues in people that are very sensitive to it. And so some people drink five or six cups of coffee a day. For others, one cup sends their heart racing, and they can't sleep that night. So just like those consumers, we see a variable use pattern amongst cannabis consumers with twenty one percent using once a week to once a month. Now when we ask people if they'd like to cut back on their cannabis consumption, about 32% say, you know, I don't agree or disagree with that, but about half of consumers disagree that they would like to cut back on their consumption. And as we can see in the chart below, about half say that their consumption has stayed the same since a year ago. And I think that this is important because with cannabis and with other substances, there is an assumption that over time you need to use more or that your use will increase. We do not see that with cannabis consumers. Most of them fall into their regular patterns of

consumption, and that's where they stay. So I wanna talk a little bit about motivations for use. So when we ask consumers all the different reasons why they might use cannabis, eighty three percent are using it for what we call unwinding, which is relaxation, stress relief, or anxiety relief. This is followed up by sixty one percent who say that they use cannabis for improving their sleep quality or falling asleep, and about half of consumers also say they're using cannabis for pain management. I'd also like to point out that, I think sixteen percent are using cannabis to reduce or replace alcohol. Then when we look at the primary reason for use, so the number one reason, a little under half say it's, again, unwinding. So relaxation, reducing anxiety, stress relief. Twenty one percent are primarily medical users, including pain management or treating a medical condition, with eleven percent using for sleep. Now the activities while or after consuming, I think, is really interesting because DUI and some of the other public intoxication issues have been brought up. And I know that there's a concern that cannabis consumers are gonna use cannabis, and then they're gonna go and do dangerous activities. But I want to point out that fifty six percent of consumers say that after they consume, they just wanna watch movies at home. So literally, we're consuming cannabis, and we're putting on Netflix, and we're chilling on the couch. 52% say they listen to music. 45% say that they sleep. 37% are browsing the Internet, and 36% are eating. You know, we really don't even get down into social activities until a little bit further down the line. So for most consumers, they are consuming at the end of the day to unwind, to help with sleep, and then they're staying home and relaxing. Now when we look at product forms, so these are the chart on the left is all forms that somebody might use. We do know that many consumers use multiple forms of cannabis for different reasons. Pre rolls or joints are used by 61% of consumers, and 58% of consumers use edibles. Now something that's not in here, but we do do this survey every year, we are seeing edibles kind of catch up to smoked versions of cannabis. So I wanna pose because I agree, and I do think that smoking cannabis is not the healthiest way to consume it. There are no known connections between cannabis and lung cancer, emphysema, or COPD, but it does cause irritation. It can cause chronic cough. It can cause bronchitis. In some folks, it can cause gingivitis. So I do think it's a good idea to move people away from smoking. Smoking was highly a relic of prohibition. During prohibition times, you got your loose flower. You could roll it up in a joint. You could put it in a bowl. You could smoke it. When we see newer consumers coming into the market, they're not interested in smoking. Younger consumers are not as interested in smoking. But interestingly, in order to get an edible that where you know the potency, where you know that it's safe, you really have to go to a regulated source. Because what is available on the illicit market a lot of times is not tested. It is not labeled accurately, and that's really where you get into trouble with people taking things and they don't know what's in them. On the right, we asked all consumers and compared them to consumers in adult use states about

what products they actually have access to. So, again, looking at the desire of a regulated market to displace the illicit market, one of the things that's important is that people have access to the same products in a regulated store that they have on the illicit market. But as you can see, that isn't necessarily the case. Even with cannabis flower, which is pretty prolific, only 73% percent of consumers in adult use states say that they have access to cannabis flower. So if you're going to make the regulations work in the way that you want and have people access safe, tested products in age restricted, regulated environments, you have to make sure they have access to that. Because if they don't, they're either going to go out of state or they're going to purchase on the illicit market. So this really illustrates that. So when we look at the primary source of where people are getting their cannabis by home state market, if we look at an adult use state, 52% of consumers in adult use states say that their primary source is a brick and mortar dispensary with 17% saying that their primary source is delivery. If you look at illicit market states, friends and dealers, are definitely higher than, they are in states that have regulations. So, again, if you want people to source from regulated sources that you are licensing, that you are controlling, that have to report to you, track everything that they're doing, every transaction, have to card people every time they walk in the door, that is what we're seeing in adult use states varying from illicit markets. And if we look overall at the primary source of cannabis, brick and mortar dispensaries account for 43% of sourcing. Now that has increased. So again, as we see states move to regulate cannabis, we see more people using brick and mortar stores. This is a primary source comparison from 2022 to 2023, and you can see that brick and mortar increased from 34% to 43%, and dealers decreased from 13% to 10%. Now I mentioned before that people that wanna use manufactured products especially are very worried about product quality. They wanna make sure that if something says it's ten milligrams of THC that it actually has ten milligrams of THC. Again, I think it was illustrated very well in the first panel that with hemp derived cannabinoids like Delta eight, we do not have this assurance. You go into a vape shop, you see delta eight gummies, they may say that there are certain level of potency, but there's no testing requirements. There's no reporting requirements. And so people don't really know what they're getting. And product quality and product selection are the two biggest factors that consumers say affect where they source their cannabis. So they wanna make sure that something is tested and that it's appropriately regulated.

Finally, I want to talk a little bit about why people don't adopt the regulated market. Hopefully this does not bias you against me, but I am in California, in Northern California. And I think New York was also mentioned as an example. And, yes, in New York and California, we have had a very hard time getting people to adopt a regulated market. And the reason for that is that we had very effective and efficient illicit markets prior to legalization. California had a twenty year gray market with no state regulations for medical

cannabis before we introduced a fully legalized market. And New York has been very well known for its gray market, its bodegas, places where people can buy unregulated cannabis. So the longer you wait in between decriminalization or medical use and full legalization, the longer that gray market has time to mature and to become effective and efficient and making it harder to get people to then adopt a regulated market. Another issue is high taxes. So price, a very important decision for people when we're looking at sourcing. And if the taxes are too high and what they can get in the unregulated market is good enough for them, there is a lower chance that they will adopt the regulated market. I mentioned product availability. People have their products that they really like. If they like edibles, they're an edibles consumer. If they like flower, they're a flower consumer. If they cannot find that product on the regulated market, they're likely to stick with the illicit market. And this includes things like high THC cannabis. So just indulge me, I swear thirty seconds. So high THC cannabis also very much a relic of prohibition. It was mentioned that being a teenager trying to find the most potent alcohol out there, it was because you didn't know when you were going to be able to access it again. You know, you were trying to get the most bang for your buck, the most bang for your risk, and breeders knew that. So during prohibition, they bred cannabis that was going to result in higher THC because they knew that's what the market wanted. But something we've seen since legalization is the availability of lower THC cannabis, of cannabis that's 10% THC and 10% CBD because that is what a lot of consumers, especially newer consumers, want to use. They do not want the 30% THC. They're looking for something milder. That product was not available on the unregulated market, but it is available in regulated stores. And then finally, again, going back to lack of access due to local bans. So states really address this differently. Some states allow localities to ban commercial production altogether. Other states allow localities to limit it. But when you have what we call cannabis deserts, large amounts of land where there's no access available, people will not just stop using cannabis. They will use cannabis from the unregulated market. So I'm gonna go ahead and stop there so that I can answer any questions.

[Rep. Rick Krajewski]

Excellent. Thank you. Thank you, miss Reiman, for your presentation. I will now move to members for questions. I will just start off with one question, and I'll move to the other members and some of the members who we weren't able to get during our last panel. Just given, you know, the data and all the analysis you've done statewide on these different markets, I wanted to ask if you could speak to how regulation has, in other states, addressed some of the issues that's already come up during this hearing regarding varying THC levels, issues around product safety, toxicity, and synthetics like Delta-eight, concerns

around adolescent use. And then also if you've seen anywhere where social equity, right, has also been addressed through the legalization of cannabis.

[Dr. Amanda Reiman]

Absolutely. Some of the measures that other states have put in place to address some of the concerns about the unregulated market is age restriction. Can't get into a dispensary unless you're 21. You have to show your ID every time. There was a recent study done that looked at compliance and found a 100% compliance rate with that. Every dispensary that they sent a person to try to get in who is underage was turned away. We definitely do not have that same record with alcohol outlets. Another measure that states take is around packaging and labeling. So requiring that packaging is childproof, requiring that the amount of THC is put on the label and then limiting the amount of THC that's available per package. In California, for example, packages are limited to one hundred milligrams of THC per package, ten milligrams per dose. So that package has to contain 10 equally dosed pieces that are each ten milligrams of THC. A lot of times you see even lower than that. You see gummies and other products that are one, two, three milligrams of THC, but there are caps put in place there. And then, of course, anti smoking laws. So, again, Californian here, you're not allowed to smoke anywhere, anything, anywhere, But really solidifying that when we look at things like social consumption, not allowing combustion to take place in social consumption centers, limiting it to edible consumption in some places, vape consumption. And then speaking to youth prevention, a lot of states use cannabis tax revenue in order to create youth prevention programs and community reinvestment programs. So here in California under Prop 64, we have a fund that will grow to \$50,000,000 a year. That will be going directly back to communities for drug prevention, mental health treatment, youth prevention, all of those programs that were previously mentioned. We also have zoning laws. So states pass rules about where dispensaries can be located. So you can't be a thousand feet from a school. You can't be a thousand feet from a church. And again, these vape shops and others that are not regulated at all do not have to follow these rules. So they are completely uncontrolled, whereas the brick and mortar dispensaries in legal states are very highly controlled. There's also track and trace systems. So every plant that's grown in California has to be entered into the state's track and trace system so that we can track that plant all the way from the garden to the time that flower from that plant or an edible made with that plant is purchased at the dispensary. The dispensaries were required to keep all of that track and trace data. It is available to the state at any time. So that's another way that we prevent. And then finally, you asked about social equity programs. A lot of states have adopted social equity programs with varying degrees of success. I will say that states that simply give people who meet social equity criteria, a higher place in line or reduced licensing fee have not been as successful as

states that actually do incubation programs, business training programs, and other types of programs that aren't just handing a license over to you because you got arrested for cannabis ten years ago, but are actually cultivating you as a business person so that your business can stay in business, can be successful, and can bring tax revenue back into your community.

[Rep. Rick Krajewski]

Excellent. Thank you. So next we have representative Venkat followed by representative Twardzik and then representative Friel-Otten.

[Rep. Arvind Venkat]

Thank you, chair Krajewski, and thank you, doctor Rieman. Just as disclosure, I'm an emergency physician by background, so I have some familiarity with the healthcare issues brought up in the last panel. But my question for you actually has to do with your revenue estimates. My reading in California and Colorado and other states that have legalized marijuana is that there was a spike in state revenues and it rapidly dropped off from that peak, based on the fact that the illicit market, which obviously is not taxed, undercut that market. Even their pricing could manage that given the other regulatory burdens that were put in the legalized market. Does your model take that into account? Because I'm a bit surprised to see your estimation that in Pennsylvania, the illicit market would drop off as you've indicated.

[Dr. Amanda Reiman]

Absolutely. So, yes, we're gonna see ups and downs in tax revenue for quite some time post legalization. I think one of the big reasons outside of the illicit market is what I call, you know, shiny ball syndrome. It's new. People are wanting to try it. You know, a lot of times on the first day of sales, you see, you know, lines around the corner for people getting into dispensaries. A lot of those folks will try it one or two times and say, you know what? This isn't for me. That was fun. I'm glad I tried it. I can say that I did, but it's not gonna become part of my regular daily use. Only a very small percentage of new consumers will then adopt cannabis for regular daily use. So we are gonna see instability in the market as states figure out what tax rate makes the most sense. We do not have a lot of price elasticity research on cannabis the way we do with alcohol and tobacco, where we say, you know what? If you raise the tax rate by 5¢, then this is what's gonna happen to consumption. This is the person that's gonna not consume anymore. We don't have that research yet for cannabis, but it is in process. So I think that this is gonna be a kind of a long time before we see tax rates kind of settle in and consumption settle in. We also don't have interstate

commerce yet, so the price of products is highly variable from state to state because of this. We don't see this in other things. I'm not going and buying Budweiser at my local liquor store, and it's twice what it costs to buy that same product in Illinois. So I think it's very difficult at this moment to understand where things are gonna end up because of all of these different factors. But, yes, we do see tax revenues from cannabis coming into states. You know, Illinois had, I think, \$31,000,000 that they put into their social justice fund. Each state also deals with tax revenue differently in terms of allocation. Some states have that allocated to very specific purposes, while other states have more of a general call for proposals. So I agree. I think it's gonna be unstable for a little while. You know, cannabis has been around for thousands of years. It's been a dangerous illegal narcotic for several decades. And so I think it's gonna be a little bit of time before both consumer patterns and tax rates even out. And the illicit market is dwindling, but it definitely still exists.

[Rep. Arvind Venkat]

Sure. And then it chair Krajewski, can I ask one quick follow-up to that?

[Rep. Rick Krajewski]

Yes. That very quick.

[Rep. Arvind Venkat]

Yes. Sure. So the other quick follow-up I have is that with alcohol, we obviously had a legal market. There was the prohibition event and then the restoration of the legal market. With marijuana, it is the opposite. And as you mentioned, we don't allow because of federal scheduling the interstate market. Is there any state that has legalized and has managed this to get to a stable market without some of the drawbacks that were brought up by the previous panel and have found that there is a stable revenue source with this? Because my personal reading is that it's still very much the Wild West as a result of this federal, you know, prohibition.

[Dr. Amanda Reiman]

So I think that a lot of that has to do with market maturity. So in states that have the highest market maturity, I mean, Colorado legalized in 2012 along with Washington, Oregon in 2014, California in 2016. Now, of course, I think California is an exception because of that very effective and, efficient illicit market. But, yes, in states that have had legalization now for over a decade, we are seeing a stability happen. Now most states, and this is still true today, had a medical market prior to an adult use market, so that definitely impacts this a little bit. But I think it's age of market. I don't think we would expect any new market to come out in a in a stability. I think there's a lot of checking that has to happen over the first

few years of legalization to look and see what's happening to the illicit market. Are the tax rates too high? But I think with time comes that stabilization.

[Rep. Rick Krajewski]

Thank you. Next, we have Representative Twardzik

[Rep. Tim Twardzik]

Thank you, Mr. Chairman. Thank you for your testimony. Appreciate again, learn more information. You outlined specific Wellness needs of the cannabis consumers, including relaxation, stress relief and reduced anxiety. Are these not already met by the medical marijuana here available in Pennsylvania?

[Dr. Amanda Reiman]

It really depends on the conditions. So states have different lists of conditions for which cannabis can be used. Sometimes things like anxiety may not be on the approved list of conditions. And we're not necessarily talking about people with clinical diagnoses. So if I'm somebody that at the end of the day, I've had a really stressful day and I'm choosing to have a glass of wine, that may not be a medical use. It's more of a recreational use even though my goal is to feel less anxious. So I think it's important to differentiate between a clinical diagnosis of anxiety and somebody that just has had a stressful day and is looking for a way to unwind. And when we talk about the unwinding in this context, we're talking less about clinical diagnoses. So somebody you know, if I've had a stressful day, I may decide to to have some cannabis. It doesn't mean I'm gonna go to my doctor and get a clinical diagnosis of anxiety where I would be prescribed a pharmaceutical drug. And even though we do see a lot of people forgo pharmaceuticals for cannabis, it's still going to be the minority. The majority of people that are looking for stress relief are not looking for it in a clinical context.

[Rep. Tim Twardzik]

Okay, thank you. And again, Pennsylvania started out with a limited list available through medical marijuana, but I've been told that it's kind of everybody's anxiety. You can get a medical marijuana card by making the call, so it's no longer pure medical reasons. You had mentioned Illinois had money. Do you have any idea what the how much tax dollars come into Illinois on an annual basis? Actually, I think I have that right here. So I have, for 2021 see. So for the first quarter of 2021, marijuana tax revenue in Illinois was \$86,000,000, and that compares to \$72,000,000 from alcohol. So that was the first quarter where marijuana tax revenue eclipsed alcohol tax revenue in Illinois. Okay.

[Rep. Rick Krajewski]

Thank you very much. Thank you, and then we will have Rep. Friel-Otten, and then Rep. Schemmel to close this out and then we'll move on to the next panelist.

[Rep. Danielle Friel-Otten]

Thank you, Chairman. So my question actually kind of piggybacks on the last question. I kind of want to start out with a reframe of addiction as a personality because I think what we know from years and years and generations of research is that addiction is not a personality. Addiction is a byproduct of trauma, and also the lack of access to appropriate identification of needs and then the mechanisms to deal with those needs, the health care and the education for how to appropriately deal with trauma. And so then going back to the motivations for use, stress relief, anxiety, pain management, sleep, falling asleep. If someone doesn't have access to the understanding, the identification, the care for dealing with chronic issues related to these motivations, then they may become more likely to fall into an addictive state with any substance, whether that's alcohol, THC, potentially caffeine, sugar, nicotine, any kind of substance that may ease that byproduct of a lack of access to the needs being met. And so one of the things that, you know, I as I listen about medical marijuana as opposed to recreational marijuana or access for everyone to marijuana is the assumption that that someone has access to medical care, medical oversight, and there's so many people in our Commonwealth that do not have that access and or have varying levels of that access. And I've seen in my own personal life, my father was in recovery for twenty one years. I would say I grew up going to [Al and T?] meetings from the age of nine and so have a lot of personal experience with addiction and recovery and also a next generation. And so what I've seen in my own family is that when people have access to mental health care and good health care and education on how to deal with those things, they do not end up down that road. And those who haven't had that access have ended up down that road. And so what research is there to support, you know, how the prevention piece in terms of access to care, education, identification? Because I think we stigmatize addiction a lot as a personality, and it's not, and we know that. And so whether marijuana is legal or illegal, folks who are dealing with trauma and finding ways to manage that without access to care are going to find it wherever they're going to find it. They're not going to not utilize those things whether if they can't get it in a brick and mortar dispensary.

[Dr. Amanda Reiman]

So yes, I would absolutely agree that a lot of drug dependence is rooted in trauma and people not being able to get their needs met around their mental health issues and self medicating to deal with the impacts of that trauma. So I think it's kind of it's a little bit of two questions here. Yes. There absolutely should be a destigmatization of seeking help for

drug dependence. People who use drugs, not all use problematically, but those who do should be able to access health care and mental health care without being stigmatized. And at the same time, as you mentioned, if people don't have access to that care, they're going to self-medicate. And whether that's with cannabis or alcohol or caffeine or Instagram, they're going to find ways to address that trauma. So I think that the conversation kind of goes hand in hand. How are you meeting the needs of people in your community that have experienced trauma and need that support? And if they don't have that support, what does that mean for their health and mental health? And I'm not here to say that cannabis is completely harmless. I don't believe that. I do believe it's less harmless or less harmful than alcohol. I believe it's less harmful than opiates. I believe it's less harmful than a lot of pharmaceutical drugs on the market for mental health issues. But I think that those conversations have to both happen. And whether it's using cannabis revenue to fund mental health as we've seen in other states, or whether it's using this as an opportunity to talk about unaddressed mental health needs, I think that's also very important.

[Rep. Rick Krajewski]

Thank you. And then lastly, representative Schemel.

[Rep. Paul Schemel]

Very well. Thank you, doctor. Reiman. You heard the testimony from the last panel with regard to development of the brain. So you work for the recreational marijuana industry. At what age do you believe it's safe for consumers to use the marijuana products that your industry sells?

[Dr. Amanda Reiman]

So I want to clarify, I do not work for the cannabis industry. I work for a data and analytics company that studies the cannabis industry. So we're not a cannabis company. In terms of age, you know, young people are accessing cannabis. Now I will say I was looking at an article from the Journal of the American Medical Association from 2019 that shows that youth use actually decreases after legalization happens. And this has been studied several times. So I do think, again, we're talking about removing access and moving it behind a door where age verification needs to happen, is something that helps keep regulated cannabis out of the hands of youth. Now that isn't necessarily going to keep unregulated cannabis out of the hands of youth, just like I went to my parents' liquor cabinet when I was a teenager and wasn't supposed to. And even though there was a law against me doing so, I did it anyway. So in terms of an age, I mean, the age of 21 is when we allow people to drink. Personally, I like the message of the delay as long as possible. I think that there's certain

behaviors that the longer you wait, the safer they are, like driving and having sex. I believe the same thing with alcohol, and I believe the same thing with cannabis. But we have to recognize that no matter how many laws we pass and how many regulations, teenagers are gonna wanna get into things they're not supposed to get into. And we also know that the just say no message has not worked. I was a DARE graduate. I grew up in that framework. Didn't do anything. So if we don't have the just say no message, what else what other message can we put in there? And that's why I like the just say wait. You know, talk about cannabis use as an adult activity. Talk about it just like driving. You know, if a 12 year old tells us we wanna drive a car, we tell them the reasons why it's not appropriate for them to yet drive a car. So I think we need to do a better job with educating youth. I think we need to do a more realistic job with educating youth about cannabis and about other drugs and then understand that they are gonna use before they're old enough to because that's the nature of adolescent development. But if we can get them to delay that use as long as possible and give them good reasons to do so and not just because I'm the adult and I know what's best for you, but actual health and fact based reasons, then if we can delay use into, say, the mid twenties, I think that's really key. And the last thing I'll say is when we look at the substance abuse and mental health services administration data from 2017 to 2020, we saw increases in cannabis use among all adult groups except for eighteen to twenty year olds. Their use actually decreased by eight percent. So I do think that there's a little bit of a, you know, I don't wanna do what my parents are doing. I see my parents doing this. I'm gonna do something else. We're also seeing less drinking of alcohol amongst this generation as well. So I do think it's possible to get the right messaging across, but it has to be accurate messaging. It can't be condescending, and it has to be fact based.

[Rep. Paul Schemel]

So age 25? I mean, if we're we're policymakers and and we would be asked to put an age, what age do we put?

[Dr. Amanda Reiman]

Well, I would say 21 because, I mean, people under that age are gonna are gonna access it. Right? So it's kind of like at what age do I want someone to be able to go into a store and access a tested, well labeled product versus a product that somebody's selling out of a briefcase that is, you know, mislabeled or isn't labeled at all. You know, what age do I want someone to have the privilege of accessing regulated products? And so, I believe that if we allow people to drink at 21, we should allow people to access regulated cannabis at 21.

[Rep. Rick Krajewski]

I keep knocking over my panel. Alright. Thank you again for your testimony, miss Raymond. We greatly appreciate it. With that, we're gonna move on to our final panel, which consists of doctor Calkins, a professor of operations research and public policy at Carnegie Mellon University's Heinz College, whose expertise is in systems analysis of the supply chains supporting illegal markets and criminal organizations. So Doctor. Caulkins, you have the floor.

[Dr. Jonathan Caulkins]

[Todd?] thank you very much. Thank you for the opportunity to speak. So I've been studying drug policy for thirty five years. And as the introduction said, my particular expertise is on illegal markets, how they compare and how they compete with legal markets. I've been particularly interested in cannabis legalization since 02/2010, written book on Oxford University Press. First comment I'll make is about the expected scale of an illegal market after a state legalization. And of course, it's gonna vary over time, varies from state to state, varies by product. But I think it's simple. Consistent with Amanda's data, roughly two thirds legal, one third illegal. Happy to elaborate. But two important things to note about that are if the illegal market is one third of sales, that doesn't mean that the illegal market shrank by two thirds, because the total market gets bigger. The second is how big the illegal market is, is to some degree up to you in your decisions and how much enforcement pressure is put on the illegal market after the legal market exists as a potential substitute. And that is exactly what I study the most, and I could in q and a, go into great detail. But the concept is that the legal companies have some advantages over the illegal companies. They can operate at greater scale. They can operate with greater professionalism. The illegal companies also have some advantages. The industry will say, the big advantage is they don't have to pay excise taxes. And that's true. But they also don't withhold payroll tax or pay income tax or comply with the Americans with Disabilities Act. So they have a bunch of cost advantages. And the key thing that policy needs to do is to put enough enforcement pressure on them that they're forced to operate in inefficient ways. So 20 years ago, cannabis in The United States was grown like a hundred plants at a time, often in a basement. The legal greenhouses in Canada are some of them are a million square feet, enjoy economy scale. So if enforcement pressure forces the illegal producers to operate in inefficient ways, then the legal market can outcompete them. You don't have to put a lot of people in prison, but you do need to not just ignore them. So if there's a vape shop selling something that it is illegal to sell and the police never knock on the door, that's sort of a policy and enforcement failure and a missed opportunity because you can shutter the company, you can seize their inventory, you can find them, put them at a competitive disadvantage, and then the legal market will compete better with the illegal market. So that's the market share idea. I was also to come asked to comment a little bit on social

equity and justice. The written testimony makes the central point, but I'll just review it here, which is that the decisions about who gets licenses are important, of course, but they are far, far less important than what's done with expungement of past criminal records. In round terms, there are gonna be a hundred to a thousand times as many people who have a prior record from a marijuana offense as there are going to be people who get rich by getting one of these licenses. So just make sure that all the time and thought that goes into whatever is gonna be done in the licenses doesn't distract from the really important thing of making sure that those past criminal records aren't addressed. And a state that just says you are permitted to apply to have your record clear will find that the vast majority of people don't apply, and the ones who do tend to be the ones who are wealthy enough to hire good lawyers. The really important thing is it's an automatic expungement, and that that's the really big win from legalization. The next thing I'd like to say is a legalization is very complicated, and I'll request that you not forget all of the boring basics of doing good legislative work while focusing on the things that get the headlines. A lot of states have got legal industries with, quite a bit of corruption, a lot of rule breaking, a bit of a cowboy industry. It's important that the regulatory agency be quite aggressive. It's important that the regulators really scrutinize the testing industry. A common problem in many states is that the testing labs work for industry. They get their revenue from industry. And so they put on the label whatever industry wants because the states aren't looking over the shoulder of the testing companies. So those labels that are supposed to mean that the legal product is just what it says, we all know it's there, it's free, those labels are really close to bogus in a lot of places. There's even literally the phenomenon of a quote unquote dry lab where the testing company doesn't even run a test, prints up the label. The more common thing would be the, the, the producer mails like five samples to the testing company. The testing company runs all five and sees which one gives the best number. Overseeing the testing industry is, is quite important. There are issues about, public use and what's gonna be done with public use. There's issues around multifamily dwellings. Do landlords have a right to not have cannabis use in their, in their buildings? Do the neighbors have rights? The broader point there is just there's a lot of practical details of legalization that sometimes get overlooked chasing, the other issues. Next group point I would like to make is, a commercial for-profit industry is not the only way to provide legal supply. There's a state store model. There are options for having nonprofits rather than for profits be suppliers. There's the cannabis club model that Spain follows, which you can think about as a group of people pool their own growing rights and can distribute amongst themselves at cost, but there's no external sale. Quebec is a model where there's restrictions on the types of products and can be brought to market. There are many options. So last quick comment I'll make before I'll happily answer questions is that the cannabis industry is one that enjoys natural economies of scale. So unless there is a real intervention to prevent it, the trend will

be towards larger companies. The relatively small scale that exists with the gray market is a product of the gray market. And so you should just sort of expect that the natural force of the market is gonna be towards consolidation and bigger firms, you know, just like there's big tobacco. And, you can try to fight or push back against that in different ways, but that's the natural direction for the market to go is towards consolidation. And again, you can look north across the border to a country that is legalized in a in a pretty responsible way, and they have, very large production facilities and, larger firms than what you see still in The US where the federal prohibition, has prevented the maturation of the market in that way. So I'll stop there and happy to answer any questions you might have.

[Rep. Rick Krajewski]

Excellent. Thank you, Dr. Caulkins for your testimony. I will now move to questions from members. One quick question I have and then we'll pass it to the other members is you talked a little bit about, and I appreciated this, about expungement and making sure that we do what we can for people who've been impacted by the past criminalization of cannabis. And I just wanted to ask if you could speak a little bit more to the social benefits that you see, not just to the person, right, but also the just general social benefits that you see to making sure that restorative policies are in place for people who have been impacted by past criminalization?

[Dr. Jonathan Caulkins]

I'm missing exactly---So having a criminal record, particularly a conviction can be a barrier to accessing all sorts of things from employment to various government benefits. And I kinda wanna let the past be passed and remove that burden from people. I'm not sure if you're asking something, No, that's guess to me it's sort of self evident that if you remove this anchor on people, then they will be able to do better and society will be able to do better. But maybe I'm missing what you were asking.

[Rep. Rick Krajewski]

No, that's pretty much the question. Just, you know, I think it's an important point that I think gets missed often sometimes in the conversation is how both future and past right policies and retroactive policies are necessary just for the greater good.

[Dr. Jonathan Caulkins]

Yeah. So let let me just add this. If you just multiply the number of people who will benefit from expungement of record by any reasonable estimate of the value of that per person, that's way bigger than tax revenue. So absolutely, that is a it is a first order benefit of legalization, much more important than say the tax revenue.

[Rep. Rick Krajewski]

Absolutely. Thank you. Next, I'll pass it to representative Frankel. Thank you.

[Rep. Dan Frankel]

Thank you, Professor Caulkins. Just quickly, you know, I think many of us have, you know, looking down the road, at some point have an expectation that this is going to be cannabis will be legalized at the federal level. So how can we ensure here at the state level, moving forward in anticipation of that, that we can still regulate for safety? I'm delighted you asked that question. In fact, as I sort of made my notes of what I wanted to talk about, that was the one that I wanted to, but decided to cut to keep from talking too long. Yeah. I think you should just design it literally expecting national legalization to happen sometime in the dormant commerce clause to fundamentally undermine any ability to have a state isolated market. So like any kind of rules that cannabis sold in Pennsylvania must be grown in Pennsylvania will probably be struck down. The states have an unusual power. I mean, you, you know, you're lawmakers. States have unusual powers over alcohol in part because the constitutional amendment that repealed alcohol prohibition gave, explicit exception. But yeah, you should have as part of your work team-- lawyers who will anticipate what a national industry will do to challenge and have struck down state specific rules that prevent large national and multinational corporations from being able to operate in your Pennsylvania market in the way that maximizes their profit. They will challenge and defeat anything that would become unconstitutional after national legalization. Likewise, you shouldn't expect Pennsylvania to have any particular comparative advantage in growing. An analogy that I sometimes use is that essentially all the hops in the country are grown in Idaho. It's a slight simplification, but it's not that all 50 states have their own hop farmers growing hops for the beer that's consumed in the different 50 states. The industry will naturally go wherever there is a competitive advantage because the product is very light. A year's worth of supply for a typical heavy user weighs about as much one twenty ounce can of beer. So, the transportation costs of moving cannabis around the country after legalization are almost zero. So the industry will concentrate wherever labor costs are lowest, electricity costs are lowest and so on.

[Rep. Rick Krajewski]

Thank you. Next we'll have representative Schemel followed by representative Twardzik and then rep Brown that's online.

[Rep. Paul Schemel]

Thank you, doctor Caulkins. You indicated that the market will naturally gravitate toward large industry no matter what happens, whether it's when we have or if there is ever a

federal legalization or not. Much of the ---or some of the justification for some regulatory framework within the state is to sort of rectify inequities of the past. And you addressed that in one sense in your own analysis with regard to expungement and so forth. But in terms of ownership, there's a lot of emphasis put on, well, we will rectify these problems of the past by targeting, you know, various you know, heavily impacted demographics for, you know, the ability to sell and so forth. If it is ultimately going to be large companies that basically do all of the production and sales, doesn't that negate any of the equity initiatives relating to ownership that are otherwise used as a justification?

[Dr. Jonathan Caulkins]

Sure. Happy to address that. Let me reference these things. I actually forgot to say it's the very beginning. I am not an opponent of legalization. I'm not an advocate of any kind. I view my job as just trying to inform you with the best available evidence. And, sort of as evidence this, I will tell you who would give the opposite answer to what I will, so you're fully informed. A smart guy named Ryan Stoa believes that in cannabis industry, the equivalent of the craft breweries will be very large. And I disagree with Ryan. I can respect his analysis. I think that the equivalent of the craft breweries are going to have, probably single digit percentages of the market. I would predict that after national legalization and the market dynamics play out, the majority of the cannabis will be sold by the equivalent of the Anheuser Busch's of the world. So the yeah, the implication of that is I don't think it makes sense to engage on the pros and cons of legalizing cannabis primarily through a lens that focuses on achieving social equity by who does or does not get licenses. It's not unimportant, but I think that the impact on the number of people who have cannabis use disorder, the impact on air driving, the indirect impact on tobacco smoking. There are many other outcomes that are actually the bigger impacts, including expunging past records. So in a way, my caution is just to not let 80% of your attention get focused on who gets the licenses. There are many other aspects of this very complicated question that are also of first order importance.

[Rep. Rick Krajewski]

Thank you. Our next representative Twardzik.

[Rep. Tim Twardzik]

Thank you Chairman, thank you doc. You know very interesting conversation again I guess when you do the research of Philadelphia, not Philadelphia, of New York, that none of the licenses that were supposed to go out to the first four hundred social justice ever took place. And there's continuing fights. There's because if you've been in jail, when you get out of jail, unfortunately, you're not a trained business person. You don't have cash and you

don't have ability for credit. So it's it's a system that isn't set up for success, And I appreciate you saying that we have to watch out for that. I wanna go back to our former panel, just a quick question about the bigger high. As we chase the bigger high, it's very, you know, frustrating that, you know, people who are addicted to products whether it, you know--- the perfect example is Kensington. You look on the Internet and you feel sad in your heart that we have the zombies at Kensington who take this fentanyl because it's a quick high and now have decided that I'm gonna take the tranq drug, a tranquilizer from horses because it slows down my system and my high lasts longer. Now unfortunately your limbs fall off and you're turning into terrible people. And this is everything we can do to stop this we need to do, but if we can't handle, you know, this terrible narcotic problem in a in a place like Kensington, how are we gonna open up the whole state to open up more problems? I'm just very sad by this. And we talked about money. \$87,000,000 could come to a quarter in Illinois. Okay. So Pennsylvania is sort of the similar state that we would have the same amount of people and we could be Illinois in the cannabis business. Well, I don't want to be Chicago and, you know, we just passed a tobacco settlement bill that gets us \$350,000,000 from big tobacco to take care of health care and cessation and disability. So the money we're gonna get from the best case scenario with marijuana is really sad, and I'm I'm certainly a no. Thank you.

[Dr. Jonathan Caulkins]

Would you would you like me to make a comment in response to that? Sure. So so legalization unambiguously expands the variety of products on the market massively. And that does include some low THC or low potency products, but absolutely the direction of the market after legalization is towards, more potent products and also much more intense use. So one of the common ways of measuring the impact on use is the number of people who use, but that misses the most important change. The big change we've seen with the liberalization of policy is a big increase in the intensity of use. So Amanda pointed out a little while ago that forty three percent of current users use daily or even multiple times a day. That used to be like ten percent. So, so cannabis used to be used like alcohol as an occasional recreational product. Now it's used more like tobacco. And if you look at milligrams of THC per day of use, that has just soared. So so the big change with legalization and increase in the number of users, but but the big change is much more intense use. More more than eighty percent of industry sales is to daily and near daily users.

[Rep. Tim Twardzik]

Thank you very much.

[Rep. Rick Krajewski]

Thank you. And then my apologies, missed some of the subcommittee members who had questions. So we're going change up the order a little bit. We'll have Rep. Friel-Otten followed by representative Rapp and then we'll have Reps Brown and Kiefer online.

[Rep. Friel-Otten]

Thank you, Chairman. And as someone who is, proof that someone who grew up playing wall ball under the L in Kensington, can rise to become a state representative and a very functioning member of society. I take issue with, the last comments about Kensington. But aside from that, doctor Calkins, how do states prioritize, continuing enforcing against illegal actors without making the same mistakes that we made, in the war on drugs and the policies that, have kinda led to criminalization of folks who would do better in treatment?

[Dr. Jonathan Caulkins]

I guess three answers. The first is that enforcement against store owners and production plant owners is very different than enforcement against the users. The second is enforcement against, companies that are operating illegally can be seizing assets and fines. It doesn't have to involve, prison. And the last is that enforcement against one source of supply when there is a good substitute is way more effective than trying to suppress supply of something for which there is no substitute. So if you try to do enforcement against cocaine supply, there is no legal cocaine supply, so that market will tend tend to bounce back. But if the market has a choice between cannabis that's produced by a law abiding regulated company that's following the rules and cannabis that's produced by a criminal organization that's not paying income taxes, not following all the regulations, then you can relatively easily get the market to shift over to the legal supplier because the legal supply is a good substitute for the illegal companies that you're directing that enforcement at. So I think that what I'm talking about with, enforcing the law against, companies that are breaking the law is really entirely different than arresting users in the quote unquote war on drugs. Alright.

[Rep. Rick Krajewski]

Thank you. Next, we'll have representative Rapp.

[Rep. Kathy Rapp]

Thank you, Chairman. Thank you. Sorry for testifying today. It's kind of a follow-up with the whole insight and your comments to the last question, but I did want to say I found your comments about intensity of use intriguing. When talking about the whole legalization of marijuana though for recreational use, You often hear supporters argue that regulation of the product is needed for safety. So I found your insight on regulatory capture as you call it,

but compelling. But my question is can you point to a state that operates its licensed cannabis industry effectively and has not run into issues of corruption? Any states that are you aware of? It's a good question. It's a little awkward because I don't want to single out one state or another, but I would suggest looking north of the border. Canada has done canvass legalization way better than any US state has, and Quebec in particular is probably the model that you wanna follow.

[Rep. Kathy Rapp]

Thank you. I'm not, real familiar with any practices in Canada, but maybe that's something that we could look into. Thank you for your testimony.

[Dr. Jonathan Caulkins]

Absolutely. I mean, I hope you can. It's a real it it it pains me that there is a next door neighbor who has done it so much better than The US states have. It it is a far better model of how to approach this challenging question.

[Rep. Rick Krajewski]

Thank you, mister chairman. Thank you. Next, we'll have representative Brown, who is online.

[Rep. Marla Brown]

Thank you, chairman, and thank you, doctor, for your testimony. It's been very insightful. Of particular interest to me is this expungement issue, and you emphasized a couple times that it's gonna have a bigger impact on our state than anything else. Do you have the numbers of those that would need expunged in our state and what that looks like?

[Dr. Jonathan Caulkins]

No. I 100% do not. I haven't studied Pennsylvania in particular. I was part of a project that studied Virginia, And, you know, I I would guess that in sort of per capita terms, the story in Pennsylvania is not, totally different. So I'm pretty confident that the numbers are big, but no, I absolutely do not have, the specific numbers. One of the things that this is a detail, but one of things that makes it hard is the data are much stronger on the number of arrests than they are on the number of individuals because you often have a hard time figuring out when one person gets arrested multiple times and how to adjust for that. So I'm pretty confident that it's large numbers, but no, I don't have the exact numbers.

[Rep. Marla Brown]

Okay. Thank you.

[Rep. Rick Krajewski]

Thank you. Next, I will have representative Keefer.

[Rep. Dawn Keefer]

Thank you. So I wanna go back to the question regarding the consolidation of market, and and your thought that this is something next to impossible to stop, that, you can just expect the consolidation of market. And that makes sense. They have more access to capital, economies of scales, resources, what have you. But regulation, plays a big factor in that. Can you hear me?

Yep. Yes.

Okay. Just making sure. Regulation does play a big factor in that. And so my question with the regulation is, have other states done it in a way that's been consistent where they have, you know, set things up that doesn't make it so Pennsylvania, we are known for it. Just setting up these regulations and rules that actually played in the favor of only big corporations can really comply with all these regulations and rules. It's next to impossible for small independent businesses to not only get started, but once they do to continue to get to exist because they just continuously feel this pressure or get more rules and regulations heaped on them. Are other states doing something differently, or does somebody have a pretty solid, you know, set of regulations and rules supply by, one better than the other?

[Dr. Jonathan Caulkins]

I mean, again, if I just said what's your best single model? I would say the province of Quebec. You but you're asking, I think, more specifically, is there a state that's a model for not overly burdening small companies? I think it's a fair question. I think I'm gonna say I don't believe I really know the answer. I do think it a fair amount of the burden on the small cannabis companies is not going to be only the burden of cannabis specific regulations. That is there's, there are when, when you're a legal cannabis company, you have to follow all the cannabis specific rules, but you also have to follow all, all the other rules too. And they're already an important reason why the bigger companies have an advantage. Another reason why I expect in the long run the bigger companies to have an advantage is that there this is ultimately consumer good where brand will matter. The brands haven't developed yet, but I'd it takes a while for the markets to mature. But most consumer goods, brand and advertising matters a lot and small entities have a hard time competing for that brand

equity. So I know it's probably not a very satisfying answer to your question. I'm not sure really which state does the best at not unduly burdening small businesses.

[Rep. Dawn Keefer]

Yeah. And I'm just look yeah. I'm just looking at it from the perspective of of you know, I'm I'm a free market person, so you can kind of navigate your way through that. But this is this is not quite a free market product because it's gotta be heavily regulated. We're gonna have a pretty heavy hand in it, especially when the state goes into it as looking at this as a revenue generator to boot. So, you know, just trying to find a balance in that would be interesting to know.

[Rep. Rick Krajewski]

Yeah. Thanks. Alright. Thank you. And then, I have one final question before, I'll pass it to our committee chairs and my, fellow co chair for for closing remarks. Doctor Calkins, you had mentioned, you know, obviously, there's varying different models that we could use for legalization. And one of the models you mentioned was the State Store model. And so I just wanted to ask if you could speak to any pros and cons you see with that particular model.

[Dr. Jonathan Caulkins]

Sure. The overall idea is that in a free market society, we normally trust consumers to make good decisions for their own welfare. And so the lower the prices, the greater availability, the better for society. The catch is with dependence inducing intoxicants, the majority of the consumption decisions are made while intoxicated and they're made by people who have been using heavily in ways that affect them. And so the thing that can make society better off can be a more paternalistic approach that doesn't just let the for profit industry make as much money as it can by selling to people who sometimes make mistakes and use more than is in their best interest. And the state store model has the advantage of reducing that sort of point of sale pressure to use. So that's one big one. And then the second is cannabis is a very unusual product in that the value to the consumer is massively higher than the cost to produce it. So cannabis--- people happily purchase cannabis at \$10 a gram, but it costs well less than a dollar a gram to make. And so with legalization, you see these big declines in the price per milligram of THC. And you have a very hard time preventing that price decline just with taxes, but the state store model gives the state the opportunity to capture more of that gap between what the user is willing to pay and what it costs to produce. So it can be a more effective way of transferring a larger share of that producer surplus that would, to the state, to the taxpayers of of the state, then you can achieve with a, a free market retail system just with excise taxes. So those I think could be the two complimentary big advantages of a, of a state store system.

[Rep. Rick Krajewski]

Excellent. Thank you. I appreciate you answering that question. Okay. So with that, that'll close out for questions. And now I would like to just pass it to our committee chairs if they'd like to offer any closing comments. I'll start with Representative Frankel.

[Rep. Dan Frankel]

Thank you, Representative Krajewski and Representative Schemel for co-chairing this first hearing that we've had on adult use marijuana, and it provided, I think, a great overview and a great starting point as we look to craft a proposal for the state of Pennsylvania. Very important information that we heard today and useful as we try and put something together that I think is complicated. We've seen it done poorly in other states, And I think we want to learn from that. And we want to learn from the professionals and academics that we heard from today that have life experience and perspectives that I think would be important as we craft something. So I appreciate the opportunity to have this And this will be the first of several hearings that we have moving into next year.

[Rep. Rick Krajewski]

Thank you. Sure. Thank you. Thank you, Representative. Representative Rapp.

[Rep. Kathy Rapp]

Thank you, Mr. Chairman. I'd like to thank all of the testifiers. I truly appreciate the insight and your knowledge that you brought to the table this morning. I am deeply concerned about adult use being legalized because I do believe that adult use does increase use among our youth illegally, even though that would be, you know, illegal. But I was also very appreciative of terms like can we ensure the safety of our communities? Can we ensure the safety of our youth? Can legislation ever really ensure, including regulations, no matter how much law enforcement we have out there, can we ensure that this is going to be just a legal product for adult use and just from experience and being here the number of years I think our laws fall far short. When we look at revenue, a lot of these pieces of legislation are done because of projected revenue because, quite frankly, government wants to spend more of taxpayer money. But what we find usually in the long run is we never efficiently fund services in our counties and our communities the way we really need to fund those services to keep and ensure that our youth are safe and protected in our communities. But I was also very intrigued by the use of the increased intensity of marijuana if it's legalized. I think there are phrases and words that were used here today that we need to be very

mindful of. And we know there's a lot of research out there on both sides of the issue. And so I want to thank all of the testifiers again for your input today. Thank you, Mr. Chair.

[Rep. Rick Krajewski]

Thank you, Representative. Representative Schemel.

[Rep. Paul Schemel]

Thank you, Chair Krajewski. Appreciate the hearing today and all the testifiers. Few years ago, I was asked to participate in a panel discussion on the legalization of recreational marijuana in the city of Pittsburgh. It was a two day event, and, I was speaking on the second day as part of a panel, obviously offering an opposition view to those who would seek to legalize it. No one knowing who I was, in the morning I went down for breakfast, and it was a very elegant hotel, and sat at a table with a number of other people that I would say looked and dressed exactly like me. And the breakfast conversation amongst the others at the table was about how much money was to be made from this industry. Forbes Magazine last year indicated that by the end of this decade, \$57,000,000,000 is to be made by the industry in legal recreational use marijuana. However, in the Forbes article, it goes on to state that the industry itself estimates that if a few additional states, most especially Pennsylvania because we are large, also legalizes recreational marijuana, that that number goes up to \$72,000,000,000. Don't be mistaken, this is very much about money and large industry as our last testifier indicated. Now oftentimes there are moves afoot to legalize recreational use as a matter of equity because of demographic sections of the population which have had a disproportionate degree of confinement or other run ins with the penal system over marijuana use. I would suggest that we're looking at two different things. In the judiciary committee, in which I also serve, we can certainly examine the way marijuana use possession and intent with intent to deliver and so forth is penalized. And I think that that is something that's very much warranted. But eliminating the stigma of marijuana as an illegal product creates a new market. That's where we get into the money element of this. So those are apples and oranges. What we do know, we're talking about new policy for the Commonwealth of Pennsylvania. Our responsibility as policymakers to make sure that we protect the security and the health of individuals here, we have to look at what we know versus what we don't know. We talk about a lot of things we don't know. Well, this might happen, this might not happen. But what do we know? We know that in every state where there have been reports that has legalized recreational use, that use among children and young adults has increased. We know that. We had one testifier today who works for a data

analysis company that is funded by the recreational use industry indicated otherwise, but I've seen no reports to that end. Every report I've seen indicates that that usage increases. We know that that has a very, you know, a significant impact, negative impact on the health of those children. So as a policymaker, what policy would we ever, ever consider that we know will have a negative impact on the health of children? I do look forward to additional hearings. I understand that this is a complicated issue. I would like to learn more about legalization efforts in Canada and perhaps in subsequent meetings we could do that. And I would ask the chair that in past, you know, I know at last session when I was the majority chair of this committee that when we had a committee hearings, you know, we consulted together and always let the minority have absolute parity and select testifiers. And I would ask for the same courtesy going forward. Thank you.

[Rep. Rick Krajewski]

Thank you, chair. And firstly, I would like to thank our committee chairs representative Frankel and representative Rapp for giving myself and rep Schemel an opportunity to chair this very important subcommittee hearing. I'd like to thank our panelists, all the panelists for testifying and for your expertise in this issue. It's clear to me that we've heard a variance of opinions on this issue today, and they're very real issues that that have been brought up, you know, around safety, around, you know, substance use and substance abuse, around adolescent use. I know this firsthand as someone who has family members who struggle with addiction, family members who've been caught up in the criminalization of cannabis and other substances. But to me, the question is, is Pennsylvania gonna be a passive, you know, spectator in these things that are already continuing to happen in an unregulated and criminalized market, or are we gonna use our ability as legislators, as state representatives to play an active role in addressing the issues that we know are impacting users and communities, particularly communities of color, every single day with the status quo? So I think there's a lot of models we can look at both in The United States and also abroad apparently to address the issues of safety, around addiction, around racial and social justice. And I look forward to continued conversations in this subcommittee and in this legislature to figure out how Pennsylvania can do this in a socially and economically responsible manner. So with that, that closes our hearing. Thank you.