Washington State
Liquor and Cannabis Board

Washington State Liquor and Cannabis Board Cannabinoid Science Work Group Meeting

Thursday, April 6, 2023, 1:00 p.m. to 2:00 p.m.
The meeting was convened via Teams

Meeting Minutes

AGENDA ITEM 1: CALL TO ORDER AND ROLL CALL – 1:05PM

Kathy Hoffman opened the discussion. Present were:

David Gang
Richard Sims
Ryan McLaughlin
Holly Moody
Jessica Tonani
Amber Wise
Brad Douglass
Taylor Carter
Bill McLay
Jim Vollendroff, WSLCB Board Member
Justin Nordhorn, WSLCB
Kathy Hoffman, WSLCB
Cassidy West, WSLCB
Daniel Jacobs, WSLCB
Nick Poolman, AGR
Absent: Alicja Binkowska
Gillian Schauer
Chris Beecher
Tracy Klein

AGENDA ITEM 2: FEBRUARY 6, 2023 MINUTES AND ACTIVITY REVIEW

Kathy Hoffman asked groups members to offer changes or concerns regarding the February 1, 2023, meeting minutes. Group members signaled approval by thumbs up reaction emoji or on-camera thumbs up. There were no revisions offered by email before the meeting or during the meeting, and the group accepted meeting minutes as drafted. Kathy briefly reviewed her discussion with the Board on February 7 concerning the provision of additional direction to the CSWG. The Board offered five points of interest that aligned with CSWG self-identified interests, and these were consolidated and ranked in a document shared with the CSWG on February 24 by email. The CSWG was invited to vote by email on the ranking as drafted (agree/disagree) by March 10. All voting participants (10 out of 15 participants) agreed with rankings as drafted. The topic ranked first was diminishing the gap between scientific expression and regulatory/statutory expression, and creating an agreed upon language or nomenclature around the terms used.

AGENDA ITEM 3, PART 1: ***Diminishing the gap between scientific expression and regulatory/statutory expression.***

DISCUSSION: Improving Regulatory Science: A Case Study of the National Ambient Air Quality Standards":

Kathy Hoffman introduced the first topic of discussion as described in the agenda and begins by turning to the four pieces of literature provided to the CSWG by email on March 21, 2023. She invites Cassidy West, LCB Policy & Rules Coordinator to provide a summary of "Improving Regulatory Science: A Case Study of the National Ambient Air Quality Standards":

Cassidy West: Thanks, Kathy. So the piece really provides a case study of what happens when science and policy go awry. Basically, it does not provide a clear distinction on which either party can do. And the result of this is actually really bad policy, and I'll get to that in a second. But from more than an academic standpoint, the reason all of this occurs is what's called an ought-to fallacy, which is basically when us as a group, scientists, and policymakers confuse what is with what ought to be and have scientists weigh in on the "what ought-to be" rather than the "what is" and our policy considerations with scientific evidence so that we can make the best decision. Another issue is that we don't want to create policy that is in the name of science and use scientific terms without scientific backing.

[The article looks into] the EPA created Scientific Advisory Committee. They had the authority to review the scientific criteria from the EPA regarding specific standards and then provide recommendations on the standards for what the particulate matter threshold for the air quality should be and, actually, those are the standards that we use today. However, I want to go to this threshold. They said, at this threshold, this meets the public health need, basically.

The thing with the actual scientific evidence is, there is no evidence, and until you get down to a zero threshold, then you have no health effects. You can't say a 10 threshold is better than a 1 threshold when we're trying to do a public health initiative because there's no science to say what's better, what's worse. They are all negative health effects. The reason we do this at the end of the day is because the Scientific Advisory Committee worked with policymakers and said, "Do it this way." Policymakers said, "Well we don't want to go against the scientists because they know what they're doing better than us." And so they go with those standards, too, and the result is that the standards mean absolutely nothing at the end of the day.

Kathy Hoffman invites the group to discuss:

Brad Douglass: I found many things in that article interesting, particularly for scientists because I think as scientists we don't often think about such issues and how there's a handshake in some ways between science and policymakers. But one thing I found particularly interesting was that up until recently, scientific advisory Boards and workgroups such as ourselves were very reluctant to even wade into policy recommendations. And on the flip side, policymakers really held advisors' and scientists' feet to the fire saying, "Look, you can help us understand the way things are, but leave the policymaking to us."

And I think it's important, and it's helpful, too, Kathy, with the recommendations for the topics you put forward and the Board's input on those, giving us a pathway where we can weigh in on what we see the science helps describe and sort of setting the table for policymaking from there. And I think maybe that was a little bit of our confusion as a group or a reluctance to talk on the outset around where do we go from here? There are so many different ways, and I think that now we have a roadmap, and now we have some rules of the road.

Jim Vollendroff: I just want to speak a little bit about it from a Board member's perspective. We really do want to make evidence-based policy decisions. What we're looking for is good quality information, and that's where you guys come in, in helping us provide good quality information so that we can make the policy decisions. Really supporting what Brad and Cassidy have said and the value of this. And I've talked about this in a previous meeting. You know, we're looking at potentially setting up an internal group that does more evaluation. And the value that you guys can add in terms of feedback to that group can't be underestimated, as well. So super helpful conversation.

Kathy Hoffman: If I can tag on to that, that was the reason the additional pieces of work were shared with everyone, so we could have a discussion about how those pieces might inform the work that LCB is doing. I think it would be great if we could critique some of that work and have a conversation about how that work could inform LCB and how we connect the dots between those pieces of research and then how LCB interprets that into policy.

Jim Vollendroff: You just made me think about a couple of other things. In my prior role, when I worked in the University of Washington, disseminating evidence-based practices related to behavioral health was one of the things that I was really interested in. I came from the policy side

and went to UW to accelerate the timeframe in which good evidence-based scientific information and best practices got introduced into public policy and actually into clinical practice. Because there's this big-time lag between evidence-based approaches and evidence-based treatment being introduced into clinical practice, and so we were trying to accelerate that process. And that's one way I think of this group, is **how can you help us accelerate our knowledge about what's happening? Things are happening so quickly, and this industry is evolving so rapidly that we can't possibly keep up with what's happening**. (Emphasis added).

And that is from my perspective where you guys can be particularly helpful. Help us stay on top of what's happening. What's evolving? What's on the horizon, from what you're hearing? What should we be thinking about in advance, etc., so that we can accelerate the timeframe in which we're making good public policy decisions with good scientific information.

Jessica Tonani: I think one of the hardest things in this area to be brutally honest, is there's not a lot of translational research. There's a lot of us who touch the plant, and we are doing federally illegal work, and then there are people who are in federally funded universities. I think normally like my prior world, in genomics, you would have this translational research component that is actually kind of filling those gaps. This is an area where I think there are not a lot of those gaps being filled. We have to be cognizant of that and figure out how we fill those gaps in general.

David Gang**:** I've been thinking about a lot of this stuff a lot and also preparing for that cannabis conference this summer. We're going to have a panel, and we're going to talk about policy and connections and all that stuff. And how do we deal with this? How do we make this work? One of the things that I think from the scientists' perspective that makes this all very challenging is that a lot of times most scientists look at what they are doing, and to them it seems very objective. And I use my words there very carefully. It seems very objective what they are doing. Oftentimes, it is not actually. There are a lot of subjective biases to what they do, how they view things, and how they go about their experiments. The way that you do things is determined by your history, your personal viewpoint on the world, and the way you do things leads to the kinds of answers that you can get in response to what you do.

Sometimes we do experiments. It gives us an obvious answer, but that's all based upon that framework that experiment is performed within or that analysis or whatever you're doing. A lot of times we don't recognize those biases that we have and what we do. And then we see other people take what we have done -- scientists in general do this – and we make it easier. Scientists do this, and a lot of times they get very frustrated because they see decisions that are made that seem to go very much against what, to them, the science says. Sometimes that's because of this bias, and they don't understand it. But there's also another realm which comes into play, and that's the political realm. That is society. So how does society decide what needs to be done based on that scientific information? And unfortunately, especially in the last, I would say, decade, it has become very clear that this is the case.

A lot of times politics trumps the science. And that, from the scientists' perspective, is even more frustrating. And so how do you get the message out to people that we shouldn't be doing this?

People who are scientists are people, they do think about society, they think about what should be happening in society, and they look at what they are doing. They look at the results they get, and then they see what other people are doing with that. And it's extremely frustrating that people are just not getting it, or that they're misusing the information, or that they're completely ignoring the information, or that they are taking data that is not correct that has errors in it and using that as the basis for policy decisions because they either choose to ignore -- they don't recognize it, or have problems with it -- or they choose to ignore the problems with it because for the political purpose that they have, it benefits them.

This comes to play across all aspects of society. It's not just this year we're talking about. But it's a framework I think is important for everybody to understand that that is the world that scientists live in right now. When I was a young scientist, I was taught that things were different than that or should be different than that, but I've learned that that's really how the world works. And it makes it difficult to have conversations with people when you know they're just going to ignore everything that you say. So you try to get the information out there, and you know that eventually, the truth will win out. How the world works, gravity is gravity. It's going to pull you to the ground if you're going to jump out of an airplane. You're not going to be able to fight that.

So there are all these things. Eventually, the science will actually win out in the end, but in the meantime, there are a lot of things that can happen in society that are very frustrating. So the challenge then is when we're having a group like this -- how do we help policymakers have the ability to make the "right" kind of policies? Or the best decisions may be the best way to put it. How can they make the best decisions that are going to be for the best of society? And how can we make that information available? How can we communicate best? How can we make this all happen? And I think this is one of those areas where I think we have enough. I think this is something that we need to think about in the framework of how we're talking here.

Holly Moody: I get reminded of my former profession. I was in forensics for a lot of years. And the NIJ, National Institute of Justice put out a -- basically, it's not a condemnation of forensic science, but it is areas for improvement. They said that there are some disciplines of forensic science that were sort of pseudoscientific, like handwriting analysis, or blood splatter analysis. What I take away from that particular instance in that field is that as we move forward together with the Board and policymakers, that us as scientists should make sure to watch out for things that may look scientific, as you're saying, but they're not.

Because, actually, what I did for my graduate work was I picked apart handwriting analysis, and I was able to break it down to an instrumental method that was pretty much discriminating of pen inks. I didn't have to look at somebody's handwriting and have the art of handwriting interpretation for it. It's going to be difficult without funding to look into areas that may look like they are a pseudoscience kind of thing at the beginning to root those out and sort them out, otherwise, we'll be chasing down rabbit holes for the policymakers and for the scientists.

Nick Poolman: I think one of the difficulties, and kind of like that article pointed out is, there's a Venn diagram or some type of overlap between science and policy but not a great one. Science is

written for science, not written for policy. Most of the time if you've ever read the Schedule I in Washington State's laws, there are a lot of numbers in there for chemical names that any layperson reads and is just put off by immediately, so I think that often happens. And one of the reasons I think we're having this discussion is so we can maybe come up with common words or names that bridge science to policy or at least make science more ingestible for policy. I see those difficulties as I like talking about chemical and chemical names, but I see the blank looks on a lot of people's faces when you start talking about many different numbers and letters to describe a single chemical.

DISCUSSION: "THC and CBD: Similarities and Differences Between Siblings"

Jessica Tonani: I would say that I think Nephi does a good job of giving a general overview of the topic in general. I would say that there are some pretty significant typos in there that we've notified him on as far as the total milligrams versus milligrams per kilogram. That could have some pretty significant impacts on policies. So, for example, saying something like somebody that's consuming 30 mg total, saying that's 30 mg per kg or something like that, that would be a significant shift where you're having somebody consume over 1000 mg versus tens in milligrams, and you could expect very different biological outcomes of that. I don't know if there's a mechanism that we actually have journal clubs or help each other understand what are the really solid portions of these reviews, and where does maybe the foundation, somebody have a typo, or something occur that could really impact long-term policy. I don't know if anybody else wants to add on to that.

David Gang: I think you raise a really good point, and there are a couple of instances. I can't remember off the top of my head, and I didn't get a look at it right before the meeting, but there are a couple of instances in the paper where the numbers that are called out lead to an obvious conclusion that is made in the review, but those numbers are not actually correct. And so those numbers come from citing another paper incorrectly, and some of these papers are old papers. It's not clear exactly that the methodology that was used is accurate, to be honest with you. With our current technology, you would say probably not. It makes it hard to draw a good conclusion about what the conclusions in the paper really are in a couple of instances because of that.

I think somebody who doesn't take that citation list at the end of the paper and go dig up all of those papers and read them carefully and translate the numbers from their milligrams per kilogram, but they had different values back then. It was like in molar concentration versus dL of blood or something like that, and then you have to convert that into what that means for milligrams and what that means for the body weight. And sometimes it was in pounds, and sometimes it was in kilograms. I mean, the numbers are all over the place in literature. And trying to go through and do that analysis and get those numbers right is very challenging. I think Nephi did quite an admirable job of trying to do that, but this is one of those cases where he was the sole author. He didn't have somebody else check all the numbers. It's really easy. I've done this myself. It's really easy to just not get something quite right and not realize it. And if the reviewers didn't catch it, nobody catches it.

And sometimes the way review works, especially on review articles, they are not reviewed necessarily to the same standard. In fact, they usually are not reviewed to the same standard as a scientific data paper is. It's oftentimes some of the members of the editorial board who look at it and go, "Yeah, it looks good to me. You know, I don't see anything obvious as problems." And they don't dig into it as deeply as they could. And I think that's pretty clear from this paper that's what probably happened. And like Jessica said, there's a lot of really good information in the paper, but there are some issues. The numbers that come out just don't make any sense, and the conclusions drawn, therefore, also don't make much sense. So, like any paper like this, this is a good example of that. You have got to be really careful in how you interpret it.

William McLay: I would agree with that, too. I think a lot of the specifics, like you said, need to be reviewed. But overall, as like a foundational paper for someone who is new to the topic, I think it hits a lot of points that are relevant. And I can teach somebody very quickly just by reading through this article what these two compounds can possibly do, how they work in the body. For those lay people who haven't had any education on the topic, this could be a really good quick overview of CBD and THC, how it works, why it works, and without the specifics, like you had mentioned. I think it could be utilized that way. And it could inform people who are interested in the topic or would like to learn more. It's a good foundational paper, I think.

Brad Douglass: One takeaway I think we can read into Nephi's paper is that pharmacology is complex, and cannabinoid pharmacology is extraordinarily complex and that we need to be cautious about making inferences from receptor biology and reductive aspects of cannabinoid pharmacology for high-level human effects. I think that's very clear with all the different mechanisms Nephi goes into about how cannabinoids and the endocannabinoid system are regulated. But for us as a group, I think we need to be careful about what that receptor level pharmacology says about the high-level policy and what can be done about it.

Taylor Carter: I'll just add in a little bit on that because I work directly with receptor and cannabinoids and endocannabinoids. He actually misses a lot of stuff that current literature has you at, like THC binds GPR18 or resolvin D2 receptor stronger than a lot of these other receptors. It's not mentioned. The role of CBD and PPAR gamma and the effect that can have in various tissues. So coming from a physiological standpoint where I study in the immune system and immune development in other physical sense, that paper seems very skewed towards the brain. But I just got back from a Society of Toxicology meeting, and some FDA scientists that work on CBD and THC as far as hepatotoxicity development disrupt, and CFDA gives massive doses of things to try to find an issue so they can stick on it.

But some of the things that the FDA is going towards aren't really -- if you read that paper and then try to imitate or try to look at, you wouldn't necessarily see it. There is so much literature on cannabinoids that there is a big gap in the years when the endocannabinoid system wasn't developed or defined, we're now finding and pick and choosing. Is this an endocannabinoid receptor? Is this something directly how THC is involved in? So that lost area or not clearly defined area I think is where a lot of these issues of, oh, synthetic cannabinoids are hepatotoxic? Okay,

well, is that comparable to something you're giving natural? Or is it something where that binding affinity is stronger at one of these other receptors that you normally wouldn't have in a phytocannabinoid? So there just seems to be a big gap in where a lot of these effects occurring when you look at it from like a hepatoxic or like a toxicology perspective.

Sarah Murray: I feel kind of unscientific saying this, but when I work directly with patients, looking through these articles, the extremely complex pharmacology as we were talking about receptors, maybe when we're thinking about regulating, thinking about developing policy instead of putting numbers to these things, we should look more at the pharmacokinetics of what's happening with our clients or patients who are going to be using these products in our general society. And then going back to what Cassidy said earlier, we don't have any data on what 10 parts per million versus 1 part per million is, so saying that 1 part per million is safer is really a fallacy. I think we have lots of evidence in our literature with cannabis that's showing us that we can't really put numbers to this much. Delta-8 is going to be okay for people or not because we just don't have the literature out there. And so thinking about like not killing people and not having toxic effects is there produced in the actual people might be a good place to start finding like -- I don't know, it seems more qualitative, honestly, which maybe is a lower level of evidence. But case studies or other cohort-type studies may help here to show in a larger cohort how this is actually functioning for our greater population.

Holly Moody: I think that we need to get a common testing framework, so then you can have all the numbers, as we say, come out in common terms because if we don't have a basis for that, everything else can get skewed and go all the different ways. Because I did look at the part where they are describing the molecules and how much is in an edible or how much is in a cigarette. It was confusing to even me, and I'm used to using the deciliter equivalents in blood, those measurements, or parts per million or parts per trillion even. But somebody else who doesn't work with those daily may not even work in it. They may work in mg/mL.

DISCUSSION: "The Dark Side of Cannabidiol – The Unanticipated Social and Clinical Implications of Synthetic D8 THC"

William McLay: I think, overall, when we talk about these compounds, especially, it's I think a testing issue. We don't have a lot of testing available for commercially available products. And we all allude to the fact that there's not enough research out there about the compounds themselves or how they work, there's also not enough testing or regulation available for what is out there. So that's why we're here, essentially. We have this issue arise all the time, and even what is being added into the products has been an issue in my state in Pennsylvania. Recently, we had some delta-8 gummies pulled off the shelves for fear of fentanyl being injected in them, and they don't know at what point it may have happened. And then the district attorney took back that statement a few days later, after it had been put out there.

So the way the public views delta-8 and the products that are available, there is a lot of discomfort and a lot of mistrust. And it may be rightfully so, but I'm not sure what we can do to control what is

out there. But I think testing at the level of what is in every product that goes on the shelves should be at the top of the list.

Sarah Murray: I think that's really important. And here in Washington, when you walk into the store and you buy something, there are lots of percentages and lots of types of things on the baggie. But do you know you're buying that for glaucoma? Do you know why you're...? You have this general idea of what you want or what you're trying to treat when you enter the store to purchase your product. But none of that really makes sense. And then you can end up with a product that doesn't really actually help your anxiety, it makes it even worse. And closing that gap between communication, what are we actually testing? And what does that mean to the regular person who's buying that product versus like, how important it is for science? Because we need to know and regulate these chemicals and components that are in here. So, thank you.

Jessica Tonani: I agree with Sarah, that a lot of consumers don't know what they're purchasing. But some of that, we have to be brutally honest, is the fact that our law is based upon 10 years ago. So other states have been much more progressive on medical reporting out for patients and help with those kinds of things. And so at some point, we as a state may need to just step back and relook at and reevaluate that, just because we had to be really conservative because we were the first state out there. And maybe at some point, this group or another group can help modernize the rules around that and in some of the information because we haven't necessarily updated them as a state.

Amber Wise: I added the link to an article. It's a very easy-to-read article from cannabis scientists that I know who wrote about we're basically making these complicated word problems for people who go into stores. Right? And I think when we talk about standardizing and setting regulations, it would be really helpful to have standard units that we all talk about. And that was one of the root causes of some of the confusion in Dr. Nephi Stella's paper was that there's a lot of units that go back and forth, and it's hard to keep track of them. So we might consider having a standardized one unit kind of way to talk about these types of things, and that would really help people not just regulators but, more importantly, consumers, purchasers, and users of these products.

DISCUSSION: “A Synopsis of Recent Lab Findings: Delta-8THC and Its Derivatives”

Kathy Hoffman: I'm looking at this group's identified lists, and one of them is providing educational information can help people make better decisions. So how do we write the language around that? I think that a common theme I've heard today is, how do we write that language? And when we talk about testing, what kind of language can we come up with in testing that is more in layman's terms, something that could be communicated to a legislator or some other decision maker? I think I'm hearing that as well.

I wanted to talk about Dr. Sams' great piece. He provided a synopsis of recent lab findings. I just want to share from a regulator's perspective that presentation is easier for me to digest rather than other types of material, and I appreciate Nephi's article. I also appreciate the article on the dark side of CBD. Very interesting, but it's really dense material, and a lot of times I would offer we're

really pressed for time in the regulatory space. Receiving something like what Dr. Sams put together, I think kind of summarizes the high-level pieces in ways we can quickly take in. We can digest that, but how do we translate that into something that we write into a rule or write into a regulation? Dr. Sams' piece begins to start making those connections. They're valuable to us in the regulatory space.

AGENDA ITEM 3, PART 2: Creating an agreed upon language or nomenclature around the terms we use.

Kathy Hoffman invites the group to begin thinking about terms related to **standard units** to begin creating a shared vocabulary, starting with words commonly used in testing. The following were offered:

- Milligrams
- Parts per million
- Ambiguity with regard to what's really meant by PPM or PPV. Dr. Sams offers to steer away from the use of those terms. He would speak in terms of milligrams per kilogram or microgram per milligram or gram.
- (On the flower side inhaled you often see) percent of THC.

Discussion:

Ryan McLaughlin: This is often easily converted to just milligrams of THC as well. He offers that being Canadian and seeing how they've rolled out their federal legislation, they provide actual milligram content of THC and CBD on all their labels. They don't give like percentage of like 26%, whatever. It's all milligrams of THC, regardless of whether it's edible, vape, flower.

Jessica Tonani: Ryan, I think that also brings up a good point of how people consume it, how we educate people about the differences of consumption paths and how that might affect them.

Ryan McLaughlin**:** Absolutely. The route of administration is a huge issue. And 10 mg of edible THC is very different from 10 mg vape, so yeah, that's a very important component as well.

Amber Wise: I guess I would like to add something here. I mean, I think all of these math units are correct. We use all of these in the lab, which is why it's so complicated. And we should pick one, probably milligrams, and go with that. Right? I'm not saying that's the decision for the group, but in terms of complicatedness, there is only one unit there. Percentage is actually two units. Right? It's like a part per 100, and all the other ones are also two. It's a mixture of units. And so math is hard for most people, so let's keep it simple.

Richard Sams**:** I think there's merit in expressing the number of milligrams per dose.

Kathy Hoffman: What are some **testing terminologies** that the public generally might not understand that we could translate?

- Total cannabinoids
- Total THC
- Potency
- THCA content

Discussion:

Amber Wise: [These terms create] uncertainty. Total cannabinoids. Total THC. Right? Just like using the word total is very confusing -- usually in the way it's utilized. Those are the two top ones that come to my mind. Also, I think the term "potency" is completely incorrect, and I try to never use it.

Richard Sams: I just wanted to second what Amber said. We need to get away from the term "potency." It's used incorrectly.

Ryan McLaughlin: I also agree with what Amber said. And I think to put on top of that another confusing thing with labeling right now is that a lot of different distributors will label THC A content, and a lot of people don't know what that is or why that's on there. Why is THC different from THC A? And so to the standard confusion, that's just another number that's on there that just confuses people, I think.

Jessica Tonani: Also, the one thing that has come up in some chats recently on the 502 side is the ratio and whether THC or CBD goes first. How ratios are handled on packaging can be confusing to some.

AGENDA ITEM 4: WRAP UP AND NEXT STEPS

Kathy Hoffman: I'd like to invite us to continue this discussion around words we use in your everyday work in our email exchange in between meetings. I'll provide minutes, which is largely a transcript of our discussion here, to you in the coming weeks. We can resume this discussion online and then begin to develop some lists of words and try to fill in those gaps between the language of science and the regulatory space and how that's going to work together to inform consumers in the marketplace and decision makers.

Justin Nordhorn offers closing remarks: Great conversation. And the way that this is progressing I think is going to be most helpful for us as we move forward. I think that the start of this conversation between policy and science is really critical, and I think this group is positioned very well to help the LCB move forward in this particular area. Thank you so much for spending your time reading beforehand, coming and discussing. I really appreciate the input people are providing.

ADJOURN