

## Meeting Minutes

### HB 21-1317 Ninth Meeting of the Scientific Review Council

November 21, 2022; 3:00 pm – 5:00 pm MT

#### General Remarks and Welcome:

- Dr. Chris Urbina, Chair of the Scientific Review Council (SRC), called to order the ninth meeting of the SRC on November 21, 2022, at 3:00 pm MT.

#### Scientific Review Council Introductions and Update on Conflicts of Interest:

- The Chair conducted a roll call for both the Council and the Colorado School of Public Health project team members.
- The following Council members were present and introduced:
  - Chris Urbina
  - Paula Riggs
  - Erica Wymore
  - David Brumbaugh
  - Greg Kinney
  - Joseph Schacht
  - Kennon Heard
  - Lesley Brooks
  - Susan Calcaterra
- The following Council members were absent:
  - Kent Hutchison, with advanced notice and apologies
  - Archana Shrestha, with advanced notice and apologies
- The following SPH team members were present and introduced:
  - Jonathan Samet
  - Greg Tung
  - Tianjing Li
  - Valerie Yim
  - Rosa Lawrence
  - Neeloo Soleimanpour

- Louis Leslie
- Sam Wang
- Jean-Pierre Oberste
- Meghan Buran
- The following SPH team members were absent:
  - Christi Piper, with advanced notice and apologies
  - Thanitsara Rittiphairoj, with advanced notice and apologies
  - Lisa Bero, with advanced notice and apologies
  - Sheana Bull, with advanced notice and apologies
  - Ashley Brooks-Russell, with advanced notice and apologies
- Changes to COI forms for any Council members
  - None

No questions for Chair Chris Urbina.

**Review of Agenda, Meeting Minutes, Charge to the Colorado SPH, and Recommendations to the SRC:**

- Chair Urbina reminded everyone in attendance that meeting minutes and the response to SRC recommendations are available on the project website under the resources tab.
- Chair Urbina reviewed the agenda with the Council.
  - Agenda shown on screen for the panelists (Council and Colorado SPH) as well as public attendees.
- Dr. Jonathan Samet reminded the participants of this meeting about the charge and tasks for the Colorado School of Public Health through HB 21-1317 including: the systematic review on high-potency marijuana and THC concentrates, making policy recommendations to the Colorado General Assembly, and producing an educational campaign. Dr. Samet provided an update on what the Cannabis Research and Policy Team has completed up to this moment and when previous reports were submitted and what the team is working on currently with their plans to submit another report encompassing their progress and findings.

No questions for Chair Urbina or Dr. Samet.

**Progress Update on Systematic Review from the Cannabis Research & Policy Project:**

- Dr. Tianjing Li presented on the progress to date of the scoping review, the PRISMA diagram, and evidence map overview.
- Dr. Li discussed the progress of the data extraction process with the initial literature search resulting in over 46,000 titles and abstracts with the addition of an updated literature search to include new studies in the past year, resulting in a total of 66,234 studies. After screening, a

total of 566 articles was selected including 381 observational studies and randomized control trials, and 75 case reports/case series for data extraction into the evidence map. 110 systematic reviews were found, but not included in the evidence map. Currently, we have finished extraction of the study characteristics from all studies and have carried out double verification of coding of the data to minimize computational errors and maintain consistency.

- Dr. Li presented the purpose of an evidence map, explaining that it is an interactive output from a scoping review. It provides an overview of the evidence identified and supports the exploration of extracted information from the scoping review through the Tableau dashboard. Please reach out to Rosa Lawrence if you have questions or need assistance with the dashboard.
- Dr. Li showed an example of what can be extracted from the dashboard where three data visualizations methods are available on the home page and displayed a histogram of the study characteristics and study design based on the different study characteristics chosen for a single variable. In addition, she illustrated heatmaps with an example of showing study data stratified by two characteristics. The heat map reflects the data density with darker shaded boxes, illustrating the more counts of studies that fit that category. The last visualization is a timeline, which can be displayed by any of the extracted variables.
- Dr. Li provided an overview of the explore page which may be more relevant in transitioning from the scoping review to a systematic review. This page provides the user with variables that can be used to filter studies.

#### Questions and Answers

- Chair Urbina asked when the dashboard will be available to the public.
  - Dr. Li responded that this will be a team decision, pending the activities of the team and the readiness to share. There are three main uses to the evidence map including: describing research on a particular topic, interrogating the map to answer a particular question, and identifying clusters of similar studies that are suitable for systematic reviews.
  - Dr. Samet emphasized the effort and value of this dashboard as a resource for public health and academic purposes, adding that it is our goal to make this dashboard available to the public.
  - Chair Urbina commented that we should return to the topic and commended the team for the development of the dashboard.

#### **Progress Update on the Educational Campaign:**

- Dr. Samet presented on the progress to date of the educational campaign that was developed by Dr. Sheana Bull and Dr. Jenn Leiferman (unable to attend).
- Dr. Samet introduced the team members for the educational campaign and highlighted their expertise including Dr. Sheana Bull (lead of this committee), Dr. Jenn Leiferman, Charlene Barrientos-Ortiz, and Paige Buchanan-Hall. They will work on targeting the campaign to specific groups.

- Dr. Samet outlined that they are looking at what has been done and what can be done through a Review of Reviews by evaluating this current era and use of social media to deliver the campaign. There will be community engagement activities through convening community advisory groups to ensure that we are reaching the appropriate population groups effectively.
- Dr. Samet also outlined a timeline of the educational campaign team's activities.

#### Questions and Answers

- Chair Urbina asked if the initial reviews are focusing on marijuana and THC campaigns or if the initial review of previous campaigns goes further.
  - Dr. Samet answered that we are reaching widely in the reviews.

#### **Approaches for Moving from Evidence Maps to Evidence Synthesis:**

- Two approaches were described: question-driven or “top down” involving a priori, policy-relevant questions; and “bottom-up” involving interrogation of the evidence map to identify those strata of the evidence map that are sufficiently robust for carrying out systematic reviews of policy relevance.
- Dr. Greg Tung presented on the question-driven approach, what we are doing now that the evidence map is complete and what our next steps may be.
- Dr. Tung discussed the top-down question-driven approach, which begins with a priori questions used to interrogate the evidence map and evaluate whether the evidence can address the policy-motivated questions and lead to recommendations.
- Dr. Tung provided three examples of policy-motivated questions and asked for feedback from the SRC based on the Cannabis Research and Policy Team's interpretation of the legislature's intent and mandate.
- Dr. Tung discussed how we plan to address the question-driven approach process. Step 1 uses the visualization tool through the evidence map dashboard tool. We will identify relevant studies and develop a narrative description of the results in relation to the first component of the paired question. In step 2 we take those studies and address the paired question and develop a narrative description. This becomes the basis for potential policy recommendations with consideration of relevant core values and potential trade-offs. Our draft recommendations will be shared with the SRC.
- Dr. Tung provided an example of step 1 based on policy motivated question 1. Dr. Tung provided an illustration of looking at the evidence map and limiting it to the age group and population of interest with key characteristics that may make it relevant for policy recommendations pulling out the product type, route of administration, THC concentration, frequency of product used, duration of use of product used, and association outcome for population in question in relation to the studies included in the systematic review.

#### Questions and Answers

- Dr. Greg Kinney commented that on a basic level there is a difference between accidental exposure and non-accidental exposure.
  - Dr. Tung agreed and commented that the planned approach to using the evidence map will accommodate that issue. The evidence map can be used to separate these two populations and we can refine reviews by sorting on the nature of the exposure.
- Dr. Paula Riggs referred to the policy-motivated question one and noted its relevance to policies and regulations.
- Dr. Riggs commented that there could be clinical and treatment findings and possible recommendations, but such recommendations could be beyond the charge from the legislature.
- Dr. Samet stated that questions related to the intent of the legislature are not the only questions that can be posed. The SRC can utilize the evidence map freely and suggestions for additional questions from the SRC are welcome.
- Dr. Lesley Brooks wondered about substance use in relation to harmful physical use and harmful mental health outcomes. If mental health is defined as encompassing substance use, then Dr. Lesley Brooks agrees but, if not, then how do we reflect mental health broadly in the policy-motivated question one? Also, how do policies and recommendations address treatment issues and when and how should they do so?
- Chair Urbina asked Dr. Brooks to clarify her question. Are you (Dr. Brooks) asking about the use of high-concentration THC in treatment or treatment of people who use high-concentration THC?
  - Dr. Brooks responded that depending on what is found about harms and their implications, what are the policy implications for treatments?
  - Dr. Tung commented that if the SRC wants to tailor a question specific to substance use, we can develop such a question.
- Dr. Kinney noted that policy-motivated question one reflects a focus of the legislature. He questioned what evidence is needed to sort out impact on younger versus older users. He suggested providing an ideal study design to test hypotheses related to young users and possibly using meta-analysis to address questions related to age.
  - Dr. Li mentioned that it is hard to define what the requisite study might be. While randomized controlled trials would be preferred, we are necessarily reliant on observational data. There are unavoidable problems of selection bias and finding the right control groups who are not exposed to high-concentration THC. The scoping review has not pointed to such studies and Dr. Li doubts whether a metanalytic approach or systematic review will suffice.
  - Dr. Kinney stated that we are to help the legislature understand the questions they have asked and it might be beneficial to provide an example of an ideal study design to answer those questions for the legislature.

- Dr. Li discussed outlining the challenges of the study design and what the ideal study design would be with regard to exposures, outcomes, and time needed to observe/conduct the study. She is drafting a paper that addresses design issues.
- Chair Urbina outlined our hopes to bring policy recommendations and to also indicate what additional research is needed.
- Dr. Riggs recommended that we address whether use of high-concentration marijuana leads to or is associated with other substance use. The dashboard could be used for this purpose.
  - Dr. Tung responded that there are studies on cannabis use disorders and studies on cannabis use and other substance use in addition to substance use and mental health overall.
  - Dr. Riggs returned to the previous question in relation to the treatment question. She offered the example of finding that use of high-potency cannabis is clearly and causally related to precipitating the initial onset of psychosis. In that case, if clinicians discharge youth from emergency rooms without treatment referral, those with persistent symptoms may not receive needed therapies and sustain an unfavorable course.
  - Chair Urbina and Dr. Riggs note that our recommendations should not stop with identifying the causal or potential harm, but go further as appropriate.
  - Dr. Brooks also emphasized the need for referral follow-up and best practices for this area and advocacy. How can we use this body of work to point towards standards of care and how policy implementation can help? Dr. Brooks appreciated the definition of mental health as inclusive of substance use but suggested that the Cannabis Research & Policy Team will need to carefully explain the approach in the report.
- Dr. Susan Calcaterra also agreed with Dr. Brooks' comment. Dr. Calcaterra raises concern about policy-motivated question two and noted that, as written, the question appears paternalistic and may stigmatize people with pre-existing mental health condition and potentially restrict their use of the product. It is important to report the harm and how to mitigate the harm, without taking away any rights or restricting autonomy and decision making.
  - Dr. Riggs mentioned that it may be preferable to reframe the question and emphasize whether individuals with mental disorders are at higher risk for adverse consequences. Such susceptibility would complicate the clinical management of their condition.
  - Dr. Calcaterra with agreement from Dr. Riggs said that the phrase of "what policies or regulations, if any, should be put in place to protect those..." may be paternalistic.
  - Dr. Joseph Schacht questioned if policies and regulations could include the use of warning labels.
    - Dr. Calcaterra stated that warnings could be helpful but potentially subject to misinterpretation.
  - Dr. Samet said that this is important for the educational campaign and how we word the messages to particular populations in focusing the campaign.

- Chair Urbina advised caution among questions regarding stigmatizing populations and warning them of the potential risk of using high-concentration of THC.
- Dr. Erica Wymore appreciated Dr. Calcaterra's comment. Dr. Wymore suggested caution with the language of these questions. She recommended potentially expanded education and clinical guidance for policy-motivated question two to inform people on potential harms and to provide guidance to clinicians.
- Dr. Wymore emphasized the need to address use of high potency products during pregnancy and by lactating women. Such use represents a crisis in the work of Dr. Wymore and colleagues in relation to perinatal practice and substance use.
- Chair Urbina asked as we roll out questions, how should we provide potential questions that the SRC wants the Cannabis Research and Policy Team to address.
  - Dr. Samet responded that our charge includes highlighting research gaps. We plan to develop another report before the next legislative session and have another SRC meeting to follow up on progress, possibly in early January. In terms of further feedback send to Chair Urbina and Chris will compile them and send them to the Cannabis Research and Policy Team.
- Dr. Riggs agrees that we have research gaps, and the question regarding pregnant women may have implications for warning labels or other educational measures.
  - Chair Urbina asked for Dr. Riggs to clarify her question.
  - Dr. Riggs mentioned that there is enough evidence already, in her opinion, to place a warning label directed at women who are or who may be pregnant. But, she awaits the findings from the review on the topic and also recommends a policy-motivated question.
  - Dr. Wymore also highlighted that Canada has developed a robust educational campaign to encourage abstention from marijuana products during pregnancy and lactation.
- Dr. Brooks mentioned that we call out pre-existing mental health conditions but are there other populations to call out and highlight (e.g., children) in relation to policy and regulation? How will we address harmful impacts on marginalized populations in these questions?
  - Chair Urbina mentioned that is also a question he would ask, and the research may be scant for some populations and that it should be a gap or policy we address.
  - Dr. Riggs highlights what policies, if any, should be put in place. If one recommendation focused on community outreach or public educational campaigns, then we need to assure that the messaging is on-target for different populations.
    - Dr. Samet mentioned that we coded whether studies addressed issues of equity and there were only a few. Rosa Lawrence showed the dashboard and the questions that indicated health equity components of the studies. The strategy outline by Dr. Bull has outlined how to focus on targeting the campaign for

different communities; the literature may prove to be uninformative as populations are not well identified.

- Dr. Riggs emphasized having the educational campaign tailored to specific audiences.
  - Dr. Samet affirmed that and acknowledged the use of focus groups and community engagement to produce the most effective campaign.
  - Chair Urbina stated that less than 10% of the studies highlight health equity.
  - Dr. Samet agreed that there is a gap in the research and that these items were coded based on feedback from the SRC.
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- Dr. Tung commented on the value of the discussion and summarized the main points. Overall, we will proceed based on the evidence map to support recommendations and to define research gaps.
  - Dr. Li presented on the bottom-up approach to be used in combination with the evidence map that will identify those studies that are sufficiently similar to be grouped in order to address a priority topic.
  - Dr. Li provided an example of how to browse the studies by health outcome. She focused on substance use and the narrative review of the studies in this category. Dr. Li developed a potential systematic review question: Does exposure to higher concentration, higher frequency, and higher duration of THC increase the risk of cannabis use disorder, psychological problems (including psychosis), and other substance dependence (e.g., alcohol, cigarette, illicit drug use)?

#### Questions and Answers

- Chair Urbina noted that this is a specific and targeted question, but it narrows too quickly the number of studies of the question implications.
  - Dr. Li agreed and stated that the question is based on the availability of data. The example question does not reflect the priority that might be given to it.
    - Dr. Riggs finds the topic to be an important policy-based question. Dr. Riggs suggested changing from other substance dependence to other substance use disorders. Dr. Riggs also asked in comparison to what, those who do not use the product at all or at a lower potency level?
    - Dr. Li mentioned that this is the problem, there is no standardization and there is heterogeneity.
  - Dr. Samet mentioned that studies define higher and lower within the study and there is not standard classification. As a result, we are left with trying to determine dose-response relationships based on what is in the literature.

- Dr. Sam Wang agreed, stating that studies differ greatly so that choosing standard cut-offs is almost impossible. We will use product type as one classification with the assumption that some have high THC concentrations.
- Dr. Riggs thinks this is worth pursuing despite the limitations.
- Dr. Li agrees that this is a zoom out approach and can we say higher is better or worse.
- Dr. Kinney asked as to with whom are we sharing the data. He suggested that aside from reports to the legislature, there could be a public report and perhaps a seminar series.
- Chair Urbina highlighted that both approaches are reasonable and asked if the group had any additional questions regarding the exploration of the evidence map.
  - Dr. Schacht had a clarifying question: is this a living document and will additional research be added? As data accumulate, it may be possible to provide stronger answers on key questions.
  - Dr. Samet said that ideally this resource will be maintained and the gaps filled in over time. We are only 10 years in for legalized recreational use of marijuana for the state of Colorado. The literature should grow over time, hopefully addressing limitations of available data.
  - Dr. Riggs asked if this group is able to highlight the limitations of current research in relation to what can and cannot be answered. As well as make recommendations that can be prioritized for future research.
  - Dr. Samet agreed that there are research gaps in relation to populations and methodological problems that cloud the interpretation of literature. There has been some discussion with the SRC and there will be further conversations about how we can improve the quality of the literature with the anticipation of future questions that will need to be answered.

**Next Steps from the Cannabis Research and Policy Team:**

- Dr. Samet provided a review of the next steps from the Cannabis Research and Policy Team and the overall tentative timeline.
- Dr. Samet mentioned that there are evident challenges based on the initial look at the evidence map, which shows the scientific literature to be highly diverse in its methods, populations, and outcomes. For some outcomes, however, the literature appears to be sufficiently robust to complete informative systematic reviews. We plan to proceed from scoping review to systematic review through the bottom-up and top-down approaches. Dr. Samet also discussed the potential for selected narrative reviews to assist with policy recommendations and planning the educational campaigns. Dr. Samet plans to have another report completed before the 2023 General Assembly that will describe the proposed systematic reviews and plans for the educational campaign that will occur in Spring 2023.

Questions and Answers

- Chair Urbina acknowledged the draft of the final report and appreciated the progress made. He asked for any comments from the SRC in regard to the working draft of the final report and the discussion from today and they can send them to Meghan Buran.
- Chair Urbina volunteered to put together questions that would stem from the dashboard in recommendation to policy and pregnancy/breastfeeding mothers, and marginalized communities. He asked for the SRC to send them to him and Chris will pass them along to the Cannabis Research and Policy Team and the SRC.
  - Dr. Samet encouraged the SRC members to use the dashboard. There are many gaps in the literature and the challenge to make suggestions with uncertain evidence.
    - Chair Urbina highlighted that research is always changing, with policies changing rapidly.
- Dr. Samet commented that we are at a point where we are using the scoping review and figuring out where to take it next. Dr. Li talked about the importance of both approaches, the need to make policy recommendations, and her familiarity with the top-down approach.
- Dr. Calcaterra asked when the dashboard becomes public, how will it be cited, accessed, and used by other organizations.
  - Dr. Samet commented that it is unclear at the moment, but he does find this to be a valuable resource that can be put out for others to use in general.
  - Dr. Li mentioned citing the team properly and asked if Rosa wanted to comment on the use of the dashboard.
    - Rosa Lawrence mentioned the user interviews she conducted, and a major concern was that since the data extracted are sorted as study characteristics, not specific outcomes, then the information can be misinterpreted. The end user of the dashboard is someone wanting to engage with the database and produce some sort of research or summary from it. The dashboard is tailored for those purposes. There are warnings for the user to read for appropriate interpretation of the dashboard.
- Chair Urbina asked when it will be publicly available
  - Dr. Samet mentioned that the dashboard is ready in terms of operation, but it needs a policy around the use and interpretation and guidance of how to use the dashboard. The questions raised by the SRC are tough to sort and we have to address the need for a policy focused on utilization and collaboration with warnings for adequate understanding of the dashboard where we will add an email for questions and comments to be sent to.
  - Dr. Li added that other groups have shared their models for other systematic reviews, and we can emphasize on the dashboard that the data is from our data sharing agreement.
- Dr. Kinney asked if we are tracking changes to the dashboard.

- Rosa Lawrence will reach out to see if there are capabilities to track the queries made on this server.
- Chair Urbina concluded that this is not ready to be made public at this time and a manual with warnings will be needed in addition to tracked changes.
  - Dr. Samet notes that a user guide will need to be developed and create collaborative opportunities tailored to the scope of users in addition to a set of policies explaining how it can be used with collaborative activities.
- Chair Urbina highlights that this will need to be public as this is funded by the public and when do we want any questions and feedback.
  - Dr. Samet asked for questions/ remarks to be sent back by next week after the Thanksgiving break if possible.
  - Chair Urbina asked for questions for the SRC will be sent to Chris at the same time too.
- Dr. Samet discussed his hopes for funding to continue to ensure that the dashboard is continually updated as we did with the second systematic search where roughly 20,000 studies were added.
  - Dr. Li commented that typically updates occur every 6-12 months from her past experience, but not daily.

No further questions or comments for Chair Urbina and Dr. Samet.

#### **SRC Plans and Discussion:**

- Chair Urbina mentioned we will plan to have another meeting at the end of December or early January, to review the final draft for the legislature.
- Chair Urbina will work with Meghan Buran to send out a poll for our next SRC meeting. Timing is tentative for now.
- Chair Urbina commended the Cannabis Research and Policy Team for their work.

#### **Next Meeting Timing and Closing Remarks:**

- No final questions or comments.
- No future scheduled SRC meeting but another is anticipated in late December or early January.
- Meeting Adjourned 4:50pm (MT).