ORIGINAL RESEARCH

Physicians' Perspectives on Their Training for and Role Within Pennsylvania's Medical Cannabis Program

Khanh Bui, BS, Brooke Worster, MD, Jennie Ryan, PhD, CPNP-AC, Swechhya Pant, BA, and Erin L. Kelly, PhD

Background: **Physicians' ability to guide their patients on the use of medical cannabis can vary widely and is often shaped by their training, experiences, and the regulations and policies of their state. The goal of this qualitative study is to understand how prepared physicians are to certify and advise their patients to use medical cannabis. A secondary goal is to explore how physicians integrate certification into their clinical practices, and what factors shape their decisions and behaviors around certification.**

Method: **Using semi-structured interviews with 24 physicians authorized to certify patients to use medical cannabis in Pennsylvania, a state with a medical access only program, we explored how physicians are trained and set up their practices. Interviews were analyzed using a blend of directed and conventional, and summative content analysis.**

Results: **Three main themes emerged from the data around training, system-level factors, and practice-level factors that shaped how physicians are trained and practice medical cannabis certification. Although participants were largely satisfied with their CME training, they noted areas for improvement and a need for more high-quality research. Participants also noted system-level factors that prohibited treating cannabis as a traditional medical therapy, including communication barriers between physicians and dispensaries and confusion about insurance coverage for certification exams.**

Conclusion: **Physicians require additional training to improve the operation of the medical cannabis program in Pennsylvania. Participants suggested that the program could be improved by reducing communication barriers between them, their patients, and the dispensaries around the product purchase, selection, use, and effectiveness of medical cannabis. (J Am Board Fam Med 2023;36:670–681.)**

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Introduction

Medical cannabis is an increasingly prevalent part of medical treatment, with more than 5.4 million registered medical cannabis patients in the US.[1] Thirty-six states allow for some form of medical cannabis use,[2] but implementation of state programs varies widely. For example, Pennsylvania requires physicians to complete 4 hours of continuing medical education (CME) offered by the State before issuing medical cannabis certification to patients, and in Minnesota no CME is required.[3,4] Eight state-approved training programs were active as of January 2022.

Despite significant support and acceptance of medical cannabis's role in clinical practice, most

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From the Sidney Kimmel Medical College, Thomas Jefferson University, Philadelphia, PA (KB); Department of Medical Oncology, Sidney Kimmel Cancer Center/Thomas Jefferson University, Philadelphia, PA (BW); College of Nursing, Thomas Jefferson University, Philadelphia, PA (JR); Department of Family and Community Medicine, Thomas Jefferson University, Philadelphia, PA (SP, ELK); Center for Social Medicine and Humanities, University of California, Los Angeles, CA (ELK).

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Corresponding author: Khanh Bui, BS, 1015 Walnut St., Curtis Building, Suite 400, Philadelphia, PA 19107 (E-mail: khanh.bui@jefferson.edu).

health care providers report low knowledge,[5] which is perceived as a main barrier to engaging with patients regarding medical cannabis. Patients are consequently referred to cannabis dispensary staff as cannabis subject experts[6,7] despite a lack of requirements for dispensary staff education or an understanding of how patient-dispensary staff interactions operate.[8] This lack of preparation poses a public health concern to patient safety[3] and is a significant concern among medical cannabis patients.[9] There is also a dearth of awareness among health professionals about how medical cannabis programs procedurally operate in their own state.[10] Few studies have examined the perceptions of health care providers regarding their knowledge around medical cannabis[5,11] and even fewer provide the richness of detail that comes from qualitative studies on these topics.

Some of the challenges around training for indications and usage of medical cannabis products reflect the broad uses and forms of cannabis that are available commercially, of which only a small subset has been rigorously tested in research. Only 4 prescription cannabinoids have FDA approval and therefore have clear evidence for dosing guidelines, indications, and interactions. Nonsynthetic medical cannabis (tinctures, edibles, vaporization cartridges) cannot be prescribed and the composition of approved cannabis products are presented variably, as percentages of an inhaled form to ratios or mg strength if orally ingested. Thus, it is difficult for some providers to adequately educate their patients on specific dosages, dosing schedules, or delivery methods.[3,5] There are also concerns about safety in the supply of unregulated products allowed after the Agricultural Improvement Act of 2018 authorized the exclusion of hemp products from the statutory definition of cannabis if products contain less than 0.3% of Δ-9-tetrahydrocannabinol, which may further complicate advising patients about cannabis use.

As legalization and use expand, there is a critical need to understand how the implementation of medical cannabis programs affects clinical practice and what are the most persistent or problematic knowledge gaps among physicians authorizing access to medical cannabis. The present study is among the few studies to use qualitative inquiry to assess physician knowledge gaps and education needs regarding cannabis for therapeutic purposes[12] and the only study that we are aware of that examines physician perspectives on the implementation of a medical cannabis program. Given physicians' major role in patient access to medical cannabis, it is essential to understand what factors shape clinical decisions; this can inform the development of educational resources that increase physicians' clinical competence and improve patient care.

Methods

Setting

Pennsylvania authorizes physicians to certify patients to use medical cannabis after completion of a 4-hour state-approved training course and registering with the state as an "approved practitioner." In Pennsylvania 4% (1500 out of 54,681) of physicians are certified to register medical cannabis patients. Patients must have 1 of 23 qualifying medical conditions and details of the certification process are outlined in Figure 1.

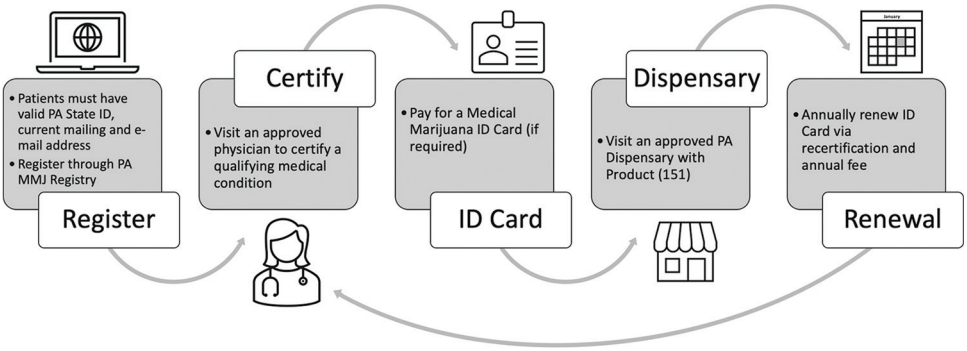
Sample

A convenience sample of 24 physicians who can certify patients to use medical cannabis in the state of Pennsylvania were recruited from participants in a larger statewide survey on clinician attitudes, knowledge, and training about cannabis.[5] Participants in the larger survey who granted permission to be contacted for a follow-up interview received an e-mail invitation to participate. E-mails were sent out to 96 people and 24 scheduled interviews for a 25% response rate.

Procedures

Twenty-four semistructured interviews were conducted between March to October 2020. Participants were interviewed by a single interviewer (ELK) using a semi-structured interview guide asking physicians to describe their experiences as certifying physicians, how their training prepared them to certify, and to identify areas of education for patients or providers around certification, purchase, and use of medical cannabis. The interview guide was developed by a research psychologist (ELK) with experience studying substance use and cannabis and a physician (BW) who has conducted multiple projects on medical cannabis and is authorized to certify patients to use medical cannabis in Pennsylvania. The initial protocol was completed with 3

Figure 1. Certification process for patients in Pennsylvania to use medical cannabis.



Notes: The certification process begins with patients completing an initial registration on the state's Medical Marijuana Registry website before they see a physician. The patients schedule an appointment with a physician who is authorized to certify patients. After reviewing the medical records and an exam to determine the presence of one of 23 qualifying medical conditions and if cannabis is an appropriate treatment, patient certifications are granted for up to one year. If the physician certifies them, the state issues authorized users an id card, which is required to enter or purchase cannabis from state-authorized dispensaries. Patients must be re-certified annually to retain medical cannabis access and insurance does not cover the cost of cannabis purchases. Physicians can put limits on the forms of cannabis that patients may purchase but this is rarely done in practice. Physicians must directly call a dispensary to inquire about an individual's purchases and cannot visit operational dispensaries as a certifying physician.

participants, transcribed, and analyzed with process memos, and the interview guide was refined for the remaining 21 interviews. All interviews lasted 15 to 25 minutes, were tape-recorded, and completed over telephone (n = 4) or via Zoom (n = 20) and professionally transcribed. All procedures were approved by the Institutional Review Board of Thomas Jefferson University. Study participation was voluntary and verbal consent was given after reviewing the consent form. No incentives were provided. No identifying information was collected. Data were collected until saturation was achieved.

Analysis

Members of the research coding team included a psychologist with more than 10 years of experience conducting qualitative research (ELK), a medical student (KB), and a research coordinator (SP) with a bachelors in Women and Gender Studies. Data were analyzed using a blend of conventional, directed, and summative content analysis.[13] Analysis started with 2 coders who read each transcript, highlighted key points, and noted potential themes and codes (ELK, SP). An initial codebook was iteratively constructed through discussion of these codes with a third coder (KB) in NVivo. Axial coding was used by all 3 coders who collaboratively coded 2 interviews, modified the codebook, and then independently coded the interviews with 2 coders for each transcript using the finalized codebook. Coding disagreements were collaboratively reconciled among the 3 coders. Two coders (ELK, KB) analyzed the data in an iterative process of examining all data within each code through thematic memos. Using a form of summative content analysis[13] within the memos, we tracked the number of participants whose responses mapped onto those codes to guide our analysis to the centrality of each theme and subtheme. Through this process, some codes were combined or removed until the central themes and subthemes were consolidated. A senior physician (BW) reviewed and validated the completed findings.

Results

Three main themes emerged about training, the process of becoming a certifying physician, and how physicians approached their roles as certifying physicians due to their perceptions of the health care system's boundaries, such as state-level rules, and their practice-level concerns (Table 1). Physicians varied widely in the extent they certified patients, with some rarely doing so while maintaining their primary

Table 1. Illustrative Quotes from Main Themes and Subthemes

Theme	Sub-Theme	Illustrative Quote
Training Quality		
	Satisfactory (*n* = 12)	"The course was some interviews with physicians going over kind of the pharmacokinetics of medical marijuana. I thought probably what was most helpful is like the clinical perspective of prescribing and just talking to patients about the principles of just going low and slow, combination of THC versus CBD and how those will be incorporated and how the dispensary pharmacists or physicians will talk about their symptoms and determine the ratio and how much to start with because it's, unfortunately, still not a perfect science in terms of dosing. Talking with patients, we don't prescribe a dose, but we prescribe a consultation there at the dispensary and then you will make a combination that's going to fit your needs." -#14
	Unsatisfactory (*n* = 5)	"The training, I thought was pretty bogus. It was about six hours, and I really didn't learn much about cannabis, but learned more about the laws around cannabis." -#1
		"No. I actually took a four-hour course. Initially, there were only two vendors for the initial course, the four-hour certification course. I took one of the two and I walked away thinking, well, they really didn't tell me a ton more than I already knew, and I'm really not sure that I'm ready to do this. So I actually went and took the other course as well. So I did two four-hour certification courses. And by the second one, I felt kind of much more confident." -#11
Training Gaps		
	Navigating the system (*n* = 10)	"A lot of products in Pennsylvania really are extreme versions of cannabis products, meaning they're going to induce a lot of intoxication. And I think there are very few medical conditions that might require certain concentrated products. . .If you have patients that are looking to use this as a legitimate medication and they are looking to avoid intoxication as much as possible, you need to be able to explain how to look at a menu and how to pick out products that are considered lower dosages, and again, medically appropriate." -#10
		"I really think the biggest thing is not knowing what to expect from a dispensary. . ." -#15
	Practice set-up (*n* = 13)	"Nobody came to me and said, 'Hey, you should do this or we should structure it this way.'. . .So I just did it. . .I didn't really know what I was doing." -#15
		"Okay. So, the gate keeping part is an important part for people to learn. Maybe as part of thatcertification training processes, is learning the comfort to say no." -#21
		"But as far as certifying, I didn't think that there was any resource available, aside from using my common sense and ingenuity. . .I can learn about some of the research that's done in Canada and Sweden and Israel and all the other places, about the utility and the medical stuff. But as far as the practical conducting of my practice as a physician, there's really nothing out there that I found." -#22
		"I think the gaps that would have been best addressed in that would have been, one, not even in the training thing, but like a supplement that says, 'Here are your regulatory requirements when you certify somebody. Here are the things that you must document and must do. Check the PDMP. Document that they have whatever condition it is and that they can or cannot go to the dispensary themselves. Document their certification number.' All of that stuff. . .Having just like a quick overview sheet of like, 'These are the things you got to do.'"-#23
	Evidence-based practices (*n* = 22)	"Drug interactions would be somewhat helpful. I know there's some of that. The one study, at least that I know of that looks at, I think nivolumab and medical cannabis, it's not a great study, but it suggests that somebody who's using cannabis and on nivolumab, that the efficacy is 35% less than it would be." -#5
		"I would like what I think a lot of us would, I'd like to see a lot more research showing me conclusively or reasonably conclusively for which conditions medical marijuana is helpful, for which ones it is not. And in cases where it is helpful, what components of medical marijuana? Is it a THC? Is a cannabidiol? Is it a combination, if so in what proportions. . .A lot of the research type questions I think would be very helpful so that can provide better care for people." -#12

Continued

Table 1. Continued

Theme	Sub-Theme	Illustrative Quote
		"It was too much basic science on like, 'Here's what the THC molecule does to the cannabinoid receptor, and here's the cellular cascade.' That doesn't help me. I need to know how do I fix someone's nausea? How do I fix their pain? How do I help them eat more? How do I keep them be more alert? Those are the pertinent things that I think are really useful." -#23
System-level issues		
Communication Issues		
	Patients (n = 16)	"So the problem is most of the people, the first real education in marijuana is when they talk with pharmacists in the dispensary, because everything else they've probably heard is phooey. Then they talk to these guys in the dispensary, they're talking about the endocannabinoids and the terpenes and things like that, so it's tough. It's something from zero to a 100 and it takes a while." -#4
		"A lot of actually my folks will come in expecting that it's going to help them with their chronic pain and their PTSD and their depression and their anxiety and their sleep and their anger. And I have to tend to put the kibosh on that and say no. So I think there's a lot of education that needs to be done. This is a tool that we use, like anything else." -#6
		"I think people are still getting sometimes inappropriate advice at the dispensary on occasion." -#10
	Dispensaries (n = 11)	"...I'm always asking my patients exactly what are you taking. Take a picture of the label. What does it look like...That would be nice to just be able to log in and see exactly what did somebody get and what is that product...I know there's a wall, intentionally, between the certifier and the dispensary, and it's a pretty robust wall." -#8
		"I used to write all sorts of notes to the pharmacist in these certifications, and I don't know that they're really reading them or looking at them. And then the other real huge problem is that physicians have no access to the products that their patients are using." -#10
		"I've had several patients tell me that that's happening because the pharmacy, the dispensary, sorry, runs out of a certain strain. And then again, I'm not like privy to the ins and outs of how their supply chain works. But if they run out of a strain, what do they do? Do they go and try to purchase a similar strain? Do they just tell patients, 'Well, you're out of luck. Here something that's not same.'" -#13
		"I ask patients what happens, and they give me the information, but I would love to actually go in there and speak to a pharmacist. I also think it may not be a bad idea for me to have some capabilities, if not responsibilities, to educate patients about what I think would be good for them so when they go in they're armed with medical information, and not just rely on a sales person's information." -#16
		"I want them to meet with a pharmacist, but I also want the pharmacist to be restricted to what I'm telling them and not be like, well patients say dry leaf works better because that's what they've smoked for the past 20 years so that's they get. No, they have horrible CPOD, don't inhale this stuff anymore, please." -#21
Technical Issues (n = 18)		"...there's a lot of technical limitations that can be pretty frustrating for some of these patients who are elderly and are not really used to using computers...and the help desk is almost nonexistent." -#2
		"There's issues with documentation, there's issues with scheduling, there's issues with the website itself." -#3
		"...I have a great admin that will actually go online for the patients when they were in-house and they would help them, sit right next to them. And now that COVID, we're doing a hundred percent online and it makes it very difficult for our patients' population that does not have computers or is computer illiterate...I just had a patient today that has been trying to get renewed since June and finally got through. And so they have to deal with the state and the state's very difficult to get through to them." -#7

Continued

Table 1. Continued

Theme	Sub-Theme	Illustrative Quote
		"I mean, we have to explain to everyone ahead of time how to register with the health department, it's not really intuitive. The website's not great. It doesn't explain in really detail how to put in all your information exactly the way it reads on your license in capital letters, including abbreviations. People didn't know that. And so they would say 'I tried and failed to register, and I called the health department and no one called me back.' So that's a huge problem, especially for our less computer literate people, but it has happened to young folks who are very computer literate as well. So I think really detailed information about how to register with the health department or a simpler way of doing it." -#10
Legal and ethical issues (n = 10)		"I would much rather have a situation where it was legal recreationally, and someone who wanted to use it to help treat their pain could do that on their own and not be in a situation where it feels like I'm giving them permission as their physician." -#2
		"...[T]he second big medical problem is my patients that are off of opioids and get admitted to the hospital. And the hospital says no marijuana. And they prefer opioids, which is, I think a really big moral dilemma for me. And it is a shame that we're doing that, but that's just, and I've talked to the CEOs and the lawyers of these hospitals. The lawyers say no, CMOs users say yes, but the lawyers win out." -#7
		"Most of the medical malpractice companies with whom I've spoken will exclude any liability that happens as a result of you prescribing medical marijuana. I have found a couple of brokers who are in touch with people who will underwrite policies exclusively for medical marijuana. They're not terribly expensive. And truthfully, I have no idea what the liability is...But I think in talking with some other physicians, that's also been a reason why some of them have not gotten certified." -#12
		"...It's very similar to vanco per pharmacy where you're just having a pharmacist manage it. I don't want to write the prescription, I can't even imagine what a prescription would look like. I'm sure it would look heinous. Nothing like what other meds look like. I'm glad I don't have to dictate exactly what it is, but I think it's a very different dynamic from a physician standpoint in terms of what this looks like, and you don't have that fine amount of control over the meds that are the illusion of a fine amount of control. Who knows what happens when still pick up meds..." -#21
		"I always go through the legality of crossing state borders with it because some of the patients are from close to Ohio and traveling, flight, that kind of thing. But I don't take too deep of a dive into the legality, other than telling them that it's a Schedule I substance and that there are federal rules about the use of marijuana, and that it's only valid in the state of Pennsylvania pretty much." -#23
Practice Setup		
Approach within practice (n = 24)		"I incorporate this as part of my patient panel care...This is a tool that we use, like anything else." -#6
		"So I've tried to restrict, for the most part, the patients that I see for certification to GI patients, so people with inflammatory bowel disease or Crohn's disease...I try and stick within the GI timeframe because I do know the studies and literature on that." -#7
		"there was the option to become certified and my partner that I had joined was certified as well. So I took the opportunity and became certified to better serve my patients...Our patients are those who we are treating for active malignancy. So our practice has made a policy that we do not see patients outside of those who are receiving cancer care for us, for medical marijuana." -#14
		"When I got my certification through [training program], it also said not just who they are, but also through the state website, not to give much information to patient to leave it up to between them and the medical professional at the dispensary." -#16
		"...I thought, well, this is actually a nice side income as I enter retirement...So I decided to open my own little telemedicine thing. So I have a very small thing on my own, just in case. And basically, I just gave out cards at the local dispensary and did a couple of Google ads and that was it." -#17

Continued

Table 1. Continued

Theme	Sub-Theme	Illustrative Quote
		"Yeah, so we created some parameters around who we had certified that's a little bit different than what is I guess what anybody can do. So when we, as a practice, we had some concerns about certifying and our main concerns came around we didn't want patients to come to us thinking that with the understanding that cannabis would be their only treatment for their cancer. . . And then, because the education around cannabis and cancer was really limited and that information is really limited, we decided a practice we would only certify patients with incurable malignancies who are either on treatment or who were in that transition to hospice care." -#18
Insurance and payment (n = 19)		". . .For all patients it's yearly, and then for any patient who is interested in seeing me more frequently, I certainly offer it, and say I'm available for them. . .but for the certification process it's a year." -#2
		". . .It's usually billed under, I do put medical marijuana in there, and I haven't gotten any rejects back yet, or any patient calling me upset that the bill didn't get covered." -#6
		"Once they get the certification, they can go anywhere to get anybody to certify it. But if they want me to do it, they'll see me yearly." -#8
		"I got fee for service" -#11
		"No, we don't go through insurance. It's strictly cash." -#16
		". . .I called. . .the head from Pennsylvania. And she said I can do it based on the diagnosis code and insurance will cover the visit based on the diagnosis code." -#19
		"Insurance does not cover these visits. I know that insurance companies are sanctioned by the federal government, because they're affordable, and the federal government considers marijuana legal. So I don't mix insurance based visits with medical cannabis visits, because I don't want it to be out of compliance. I understand that if the insurance company discovers that you're certifying people and discussing medical marijuana, they can not only pull that money back that they paid you for that visit, but they can fine you. At least that's the way it was when I first started. I don't know if statutes and other new legislation has changed that situation, but I'm just separating them." -#22
Tools and support (n = 13)		". . .Our nurse coordinator calls the patient ahead of time." -#5
		"I have a great admin that will actually go online for the patients when they were in-house and they would help them, sit right next to them. And now that COVID, we're doing a hundred percent online and it makes it very difficult for our patients' population that does not have computers or is computer illiterate." -#7
		". . .We have a website that we created as well, called [*Name*]. . .It's a great way to give patients information." -#9
		"I developed the questionnaire with [a colleague] and also an informational sheet that I designed that I give people that has some information about the major cannabinoids, and the different routes of delivery, and some tips on how to minimize intoxication with regards to product selection and dosing." -#10
Mentorship (n = 22)		"[A colleague] told me how she organized her things, and I just set it up that way and then made little amendments, and where other people in other departments also wanted to do it, I told them how we had set it up. . ." -#3
		"I was in the first wave, and I didn't reach out people in other states. . ." -#12
		"I didn't really know what I was doing and just to talk to someone and hear what other experiences in setting it up, and getting patients [would have been helpful]." -#15

Abbreviations: CBD, Cannabidiol; THC, delta-9-tetrahydrocannabinol; PDMP, Prescription drug monitoring program; PTSD, Post-traumatic stress disorder.

practice (n = 2), some interweaving it with their routine patient panel (n = 18), to those whose full-time practice focused on certifying patients for medical cannabis (n = 4). Most of those whose practices focused only on certifying patients also reported being authorized in other states.

Training Quality

Most physicians expressed overall satisfaction with the required medical cannabis CME training (n = 12/17, 71%), though 5/17 (29%) were completely unsatisfied. However, even among those who reported satisfaction, most (n = 8/12, 67%)

described learning information in limited domains (eg, legal history, basic mechanics of the endocannabinoid system). Those who felt dissatisfied expressed feeling highly unprepared for their role and were uncomfortable providing guidance about use or product selection. Outside of the initial training, participants remarked that up-to-date, peer-reviewed literature, or prior experience were their "go-to resources" when providing guidance to patients, and that conferences and communication with peers were also key to guiding their clinical practices. To address questions on navigating the PA system—either the legalities surrounding medical cannabis certification or navigating the website itself—participants noted the use of informal web sites, use of their own judgment, or the Department of Health website; some (n = 4) participants expressed frustration over the lack of support or bidirectional communication with the state government and medical cannabis regulatory agency to assist clinicians or clarify questions.

Areas for Improved CME Training

Three primary areas were identified as missing or underdeveloped within the required CME modules: information on the dispensary process and experience, guidance on establishing medical cannabis-specific workflows within existing practices, and evidence-based information about how cannabis can and cannot be used medically. Seven participants expressed a desire to learn more about the dispensaries, the product purchase decision process, educate patients on supply availability, or how to manage patient expectations. Some (n = 3) recommended that future CME training encourage similar experiences through visitation or training organizations bringing in working staff or pharmacists from dispensaries to discuss front and back-end processes.

Participants emphasized that training could be improved by up-to-date, high-quality research evidence to guide their clinical recommendations. Fourteen participants wanted more information about cannabis for specific conditions, 9 about dosing guidelines, 6 on interactions with other medications, and 4 on the mechanisms of action. Although all participants agreed that there is limited research on how cannabis should be used to treat specific conditions, 10 recommended that training incorporate more guiding principles for medical cannabis (eg, routes of administration, dosing, formulation, contraindications, and drug interactions).

Communication Divides

Two main gaps in communication were described, which either reflected how the state designed the program to compartmentalize information around cannabis or perceived disconnects of patients' experience and knowledge of cannabis by patients and dispensary staff. Physicians reported little knowledge of how dispensaries operate, such as how products are selected, guidance offered and by whom, and if a patient's experience is a part of these discussions. Several (n = 5) described their discomfort with this lack of transparency compared with other prescribed medications, as they would normally be able to see all the details of medications that their patients are using and discuss processes or issues with pharmacists.

Physicians primarily learned about dispensaries from patients or through relationships developed with specific dispensaries (eg, relationships with local dispensary staff). A few (n = 3) learned about the dispensary process by visiting dispensaries (in other states), which they described as invaluable. These physicians emphasized the value of sharing this knowledge to prepare other patients regarding what to expect and how to plan ahead. Some (n = 7) stressed that the lack of communication between dispensaries and physicians impairs patient care, as patients have difficulty describing their products to their physicians, which limits their ability to provide input. Physicians expressed concern that dispensary staff may expect that patients have more knowledge and experience than they actually do and 7 wanted more information about the training and experience of dispensary staff or pharmacists. Although many patients were described as having tried cannabis before to some degree, others may not have. Even experienced patients may not understand how to select and use products clinically with a detailed understanding of how different cannabinoids or terpenes may affect their condition. For example, one physician described concern after a patient with COPD purchased an inhaled (dry leaf) product, which they had specifically advised against.

Physicians wanted patients to have education on practical concerns, such as knowing what expect when they go to a dispensary, how to navigate the state's website, payment options, expectations for

treatment efficacy, and how they initiate and find the correct product or dosage. Three described how patients need to have the tools to become self-advocates. Four expressed concerns about patients' misconceptions about cannabis as a cure to their conditions and a lack of awareness of other therapies or treatments.

Technical Issues

Patients and physicians must enter information about those applying for certification in an iterative process (see Figure 1). The majority of physicians (n = 18) described difficulties using the state's website, either themselves or their patients. Participants described difficulties in troubleshooting the myriad of steps created by the back and forth process between the patient, the state, and physician. Physicians described how difficult the state's website was for patients to enter their information, how issues with the Department of Motor Vehicle's (DMV) information (as patients with hyphenated names or changes in address can result in information mismatch) causes issues, and how technical assistance from the state required long phone waits. Several (n = 5) physicians expressed concerns about completing registration on the website created barriers for patients with cognitive impairments or lacking technological access or comfort. However, a few (n = 2) participants noted the state had made efforts to update the website, such as removing an extra confirmation step at the end of the certification process frequently missed by patients.

Legal and Ethical Concerns

Legal boundaries and where the PA Medical Program's legal reach begins and ends were described as unclear to patients and certifying physicians. Physicians perceived health organizations as having inconsistent interpretations of what is legal or not (such as continuing cannabis therapy during hospitalizations), which led them to develop individual interpretations of what is allowable. This led to ethical conundrums for some physicians, who outlined a need to set clear boundaries to protect themselves and their patients. Some (n = 4) physicians described concerns about their roles within the medical cannabis system and expressed a desire for clearer boundaries. One physician attributed other physicians' hesitancy about providing counseling or becoming a certifying physician to liability and medical malpractice coverage concerns.

Approach Within Practice

Participants incorporated medical cannabis certification into their existing practices in different ways. Although all but 2 (8%) participants agreed that they were consistently certifying patients, the number of patients seen and certified depended on the level to which certification was integrated into their practice, as 8 (33%) certified only those patients within their practice enterprise, a small number (n = 3/24, 13%) accepted patients with a condition related to the physician's specialty, and 13 (54%) accepted all patients with qualifying conditions. This decision process was highly individualized and based on the volume of patients that they felt comfortable certifying and concerns about impact on their existing practice.

Participants described a wide range of practice workflows that were typically self-developed. Six participants did not describe any difficulty implementing their medical cannabis practices, but also described collaboration or mentorship from colleagues to develop these workflows. Four participants noted difficulty with developing workflows and building infrastructure to process medical cannabis appointments, and recommended development of guides or practice tools for newly authorized physicians.

Participants also discussed their perceived roles in the PA program. Eleven physicians considered cannabis as another tool in their toolbox as health care providers and educated their patients on indications, contraindications, and safety practices, and made recommendations. A smaller subset (n = 6) viewed their role as only to certify patients and encouraged patients to seek out information from dispensaries or online.

Insurance and Payment

Insurance and cost concerns shaped the ways that physicians set up certification exams, follow-up visits, and recertification. Many physicians perceived that the rules around insurance coverage did not allow insurance to cover the costs of certification but some thought that insurance could cover the visit if certification was not the sole purpose of the examination visit or for existing patients. Among the physicians whose practice was solely focused on certification, patients covered the cost of their certification examination out-of-pocket. Among physicians who integrated it into their existing practices, there was a roughly even split among those who

charged out-of-pocket (n = 7/15, 47%) and those who had it covered by insurance only (n = 8/15, 53%), though some allowed for a combination of out-of-pocket and insurances coverage. Six of these did so by limiting their certification to those whose conditions matched their specialty or only to their existing patients. One provider, who rarely certified, never charged patients.

Several physicians (n = 5) described their outrage at the costs of certification for patients and a few advocated within their organizations to ensure insurance coverage of visits. Due to physicians' awareness of the costs of visits, most did not have follow-up visits specifically about their patients' cannabis use and the majority only saw those who wanted to renew their certifications on an annual basis (n = 14). Routine patients were asked about their experiences with cannabis by their physician on a more frequent basis (n = 7) but for the most part, follow-up visits were considered prohibitively expensive and not required.

Tools and Support

Participants described a wide range of support from staff and use of self-developed tools to guide their practice, with some having none to those who had comprehensive support. Seven had support staff to assist with technical issues (eg, helping patients figure out how to enter their information properly on the website) and providing guidance throughout the whole process. Of the 15 without support staff, 6 (40%) reported that their patients struggled to navigate the online registration and had to assist their patients personally or asked patients to call the state for assistance. Six participants described how they developed their own tools for their patients' education or to improve internal processes. Among those who certified a high volume of patients, they described building infrastructure to improve patient experiences, including templates for informed consent, screening questionnaires, and even online platforms to disseminate information about cannabis, facilitate payment portals, or telemedicine visits.

Mentorship

All physicians who were asked (n = 22) saw the benefits of mentorship or a shared knowledge network to improve their medical cannabis practice, however, most physicians (n = 12/22, 55%) did not have access to these platforms. Three areas were highlighted as beneficial domains for mentorship: dosing or prescription strategies, setting up practice to incorporate cannabis certification, and clinical perspectives on various scenarios.

Discussion

The results of present study highlight the numerous barriers to integrated care created by the murky legal status of cannabis. Physician training is hampered by numerous perceived and actual barriers. In the present study, physicians stressed the lack of evidence-based research to support clinical decision making, including establishing clinical workflows and making dosing or product-type recommendations. Training gaps were partly filled by seeking out anecdotal evidence from peers, mentors, or patients, but not all physicians had access to people who could provide guidance. In the absence of evidence-based research or guidance from the state regulations, physicians self-directed their practices, which sometimes led to very limited guidance being offered to patients. This led several physicians to express deep concerns about their role as authorizing medical cannabis and the impacts of cannabis on their patients. The current lack of standardized care is perceived by physicians as reducing the efficacy of cannabis treatment for patients who would otherwise see a positive benefit. There is a clear need for continued CME training with updated research findings and clear policy guidance to improve care quality.[5,14]

Similar to previous survey research,[4] system-level issues of insurance, payment, equitable access, and barriers to communication were frequently raised by participants, as they created ethical, practical, and legal dilemmas for physicians. If cannabis certification is for medical purposes, the systematic carve out of insurance coverage for this certification creates access disparities among patients. Second, many (n = 7) physicians were unaware or had trepidations about possible audits if they charged insurance for an examination so the majority required patients to pay out-of-pocket for certification exams. However, an office visit for patient seen by any physician providing ongoing care for a medical condition is a billable visit. Under that umbrella, certification can be covered as a billable service with ICD-10 codes denoting the medical condition. Clarifying the rules around insurance coverage of appointments for exams and follow-up visits should

be better addressed within the initial training programs. The perceived lack of insurance coverage for visits meant that physicians, who are acutely aware of the high costs for patients, were reluctant or disincentivized to schedule follow-up visits to monitor their patients' responses to cannabis and to provide ongoing recommendations. Another unfortunate by-product is that the high costs of medical cannabis certification and products are prohibitive for lower income patients and constitute a significant health equity issue. The online patient registration system also drives health inequity; physicians commented that many patients describe difficulties with the state website, and internet access is a known contributor to health disparities for communities with those with limited access to internet or electronic devices, limited health or digital literacy, or other disabilities.[15,16]

Physicians reported barriers to communication with dispensaries[3] and concerns about whether their recommendations are followed. Several expressed frustrations that they cannot inquire about individuals' purchases and communicate with dispensary staff. This information can be acquired if they know which dispensaries their patients make purchases at and call them directly. However, this is prohibitive logistically and in a practical sense ensures that this information is not shared. Greater transparency between physicians and dispensaries may alleviate the informational divide that uniquely separates physicians from understanding what products their patients are using and how they are guided into making those selections. Unlike discussions and treatment decisions that physicians and pharmacists have with prescription medications, pharmacists or dispensary staff were perceived as having unique expertise or excessive leverage over the choices of patients within dispensaries. There is some evidence that these fears are well-founded. In a national survey of dispensary employees,[17] 60% of respondents indicated using personal use to advise customers and only 40% reported taking into account physician recommendations, which lends credence to physician reservations about the qualifications and motives of dispensary staff.

Conflicting state, federal, and insurance regulations and policies around the role of cannabis in medical treatment create ethical conundrums for physicians who must make important decisions about the care of their patients with limited information and resources. Physicians urgently need guidance on how to navigate the systems that patients must operate in while obtaining and using cannabis as well as rigorous scientific studies to guide their patients in treating specific conditions. [4,11,14,18] The results of this study likely generalize to the experiences of physicians in other states due to the overall federal policies and restrictions that limit information about the safety and effectiveness of the vast number of products available.

Limitations

Data are limited by collection within a single state and being drawn from participants already involved in a larger research project about medical cannabis. No demographic information was collected about participants so no statements about their representativeness are possible, though the larger study was representative of certifying physicians state-wide.[5] However, the range of ways that physicians included cannabis certification in their practices suggests that we were able to recruit a broad cross-section of physicians. Similar studies may be conducted in separate US regions and states to offer a comparison of physicians' attitudes toward training, system- and practice-level concerns, and if particular conditions are particularly challenging to certify for or to provide counseling.

Conclusions

State and federal policies only partially sanction the use of medical cannabis, which has led to a fragmented system of care that creates ethical and financial dilemmas for physicians and patients, as well as significant confusion about the rules about certification, counseling, and information sharing. The lack of rigorous research to guide the selection and use of products creates significant ethical concerns for physicians. There is an urgent need for high quality medical research so that physicians can better guide patients about the conditions that can be best treated or managed with cannabis.

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References

1. MPP. Medical marijuana patient numbers. Mpp. Published 2021. Accessed May 11, 2021. Available from: https://www.mpp.org/issues/medical-marijuana/

state-by-state-medical-marijuana-laws/medical-marijuana-patient-numbers/.
2. State Medical Marijuana Laws. National Conference of State Legislatures. Published 2021. Accessed April 2, 2021. Available from: http://www.ncsl.org/research/health/state-medical-marijuana-laws.aspx.
3. Temple LM, Lampert SL, Ewigman B. Barriers to achieving optimal success with medical cannabis: opportunities for quality improvement. J Altern Complement Med 2019;25:5–7.
4. Zylla D, Steele G, Eklund J, Mettner J, Arneson T. Oncology clinicians and the Minnesota Medical Cannabis Program: a survey on medical cannabis practice patterns, barriers to enrollment, and educational needs. Cannabis Cannabinoid Res 2018;3:195–202.
5. Worster B, Ashare RL, Hajjar E, Garber G, Smith K, Kelly EL. Clinician attitudes, training, and beliefs about cannabis: an interprofessional assessment. Cannabis Cannabinoid Res 2021;X:1–10.
6. Ananth P, Ma C, Al-Sayegh H, et al. Provider perspectives on use of medical marijuana in children with cancer. Pediatrics 2018;141:1–10.
7. Rubin R. Medical Marijuana is legal in most states, but physicians have little evidence to guide them. JAMA 2017;317:1611–3.
8. Haug NA, Kieschnick D, Sottile JE, Babson KA, Vandrey R, Bonn-Miller MO. Training and practices of cannabis dispensary staff. Cannabis Cannabinoid Res 2016;1:244–51.
9. Reed MK, Kelly EL, Wagner B, Hajjar E, Garber G, Worster B. A failure to guide: patient experiences within a state-run cannabis program in Pennsylvania, United States. Subst Use Misuse 2022;57:516–21.
10. Reece S, Holle L, Mukherjee K. Survey of pharmacists' knowledge of Connecticut's medical cannabis program. Cannabis Cannabinoid Res 2021;6:66–73.
11. Gardiner KM, Singleton JA, Sheridan J, Kyle GJ, Nissen LM. Health professional beliefs, knowledge, and concerns surrounding medicinal cannabis—A systematic review. PLoS One 2019;14:e0216556–13.
12. Christensen VA, Nugent SM, Ayers CK, Morasco BJ, Kansagara D. A qualitative study of VHA clinicians' knowledge and perspectives on cannabis for medical purposes. Fam Pract 2021;38:479–83.
13. Hsieh HF, Shannon SE. Three approaches to qualitative content analysis. Qual Health Res 2005;15:1277–88.
14. Kondrad E, Reid A. Colorado family physicians' attitudes toward medical marijuana. J Am Board Fam Med 2013;26:52–60.
15. Saeed SA, Masters RMR. Disparities in health care and the digital divide. Curr Psychiatry Rep 2021;23:1–6.
16. Chagpar AB. Sociodemographic factors affecting telemedicine access: A population-based analysis. Surg (United States) 2022;171:793–8.
17. Merlin JS, Althouse A, Feldman R, et al. Analysis of state cannabis laws and dispensary staff recommendations to adults purchasing medical cannabis. JAMA Netw Open 2021;4:e2124511–11.
18. Carliner H, Brown QL, Sarvet AL, Hasin DS. Cannabis use, attitudes, and legal status in the U.S.: A review. Prev Med 2017;104:13–23.