TO: Patty Salazar, Executive Director, Colorado Department of Regulatory Agencies
Members of the Colorado General Assembly

FROM: Colorado Consortium for Prescription Drug Abuse Prevention

DATE: July 1, 2020

RE: 2020 Prescription Drug Monitoring Program Task Force Report

The Colorado Consortium for Prescription Drug Abuse Prevention (Consortium) submits the enclosed report on behalf of the Prescription Drug Monitoring Program (PDMP) Task Force pursuant to 12-280-409(2), C.R.S. This report details the Consortium's work on: a) analyzing the viability and appropriateness of user experience testing of available PDMP software interfaces; b) developing a plan for directly measuring PDMP utilization in connection with controlled substance prescriptions; and c) recommendations for the future state of the technical architecture of the Colorado PDMP.

Respectfully,

Colorado Consortium for Prescription Drug Abuse Prevention

COLORADO ELECTRONIC
PRESCRIPTION DRUG MONITORING PROGRAM

2019-2020 TASK FORCE REPORT

July 1, 2020

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Introduction:

Pursuant to Section 12-280-409(1), Colorado Revised Statutes (C.R.S.), the Executive Director of the Department of Regulatory Agencies (DORA) is required to create a Prescription Drug Monitoring Program (PDMP) Task Force or consult with and request assistance from the Colorado Consortium for Prescription Drug Abuse Prevention (Consortium) to:

1.   Examine issues, opportunities, and weaknesses of the program, including how personal information is secured in the program and whether inclusion of personal identifying information in the program and access to that information is necessary; and

2.   Make recommendations to the executive director on ways to make the program a more effective tool for prescribers and pharmacists in order to reduce prescription drug abuse in Colorado.

Should the Executive Director convene a Task Force, it shall submit an annual report to the Executive Director and the General Assembly detailing its findings and recommendations, per 12-280-409(2) C.R.S.

This report highlights the recommendations of the Task Force to the Executive Director consistent with the directive to explore ways to make the program a more effective tool for prescribers and pharmacists in order to reduce prescription drug abuse in Colorado.

History of Consortium and PDMP:

Established in 2013, the Consortium is a coordinated, statewide, inter-university/inter-agency network. It now supports 10 different work groups with more than 800 participants, including providers, professionals, laypersons and other stakeholders. The participants and work groups study, recommend and implement ways to reduce prescription drug abuse in Colorado. The PDMP Work Group focuses on issues relating to the use and improvement of the state's PDMP.

The progression of the Colorado PDMP includes the following milestones:

- In 2005, House Bill 05-1130 authorized the creation of the Colorado PDMP. Pharmacies began submitting prescription data to the Colorado PDMP in 2007, and the Colorado PDMP web portal went live to users in 2008.

- In 2011, Senate Bill 11-192 reauthorized the Colorado PDMP through 2021.

- In 2013, Colorado began sharing PDMP data with other states through PMP InterConnect.

- In 2014, an administrative change increased controlled substance dispensing reporting from bi-weekly to daily, thereby providing up-to-date PDMP patient data for prescribers and pharmacists.

- In 2014, House Bill 14-1283 (HB 14-1283) made several updates to the PDMP, including:

    ○ The Colorado Department of Public Health and Environment (CDPHE) was authorized to collect PDMP data for population-level analysis, expanding Colorado's ability to study the effectiveness of the PDMP through statistical analysis, including CDPHE's Prescription Drug Data Profiles for each of Colorado's 64 counties.[1] This access also allows CDPHE to work with healthcare organizations to evaluate the effectiveness of PDMP integration and other organizational initiatives related to controlled substance prescribing and PDMP utilization, including CDPHE's PDMP integration pilot project evaluation and the University of Colorado's PDMP integration and clinical decision support research, both discussed below.

    ○ Prescribers and pharmacists were authorized to designate up to three delegates to access the PDMP on their behalf with proper authorization.

    ○ The Colorado PDMP was authorized to issue unsolicited reports (Push Notices) to prescribers and pharmacies that inform them of their patients being prescribed controlled substances by multiple prescribers, at multiple pharmacies, over set periods of time. These Push Notices reduce potential patient misuse, abuse, and diversion of controlled substances, while increasing patient safety.

- In 2014, the Colorado Dental Board, Colorado Medical Board, State Board of Nursing, State Board of Pharmacy and the Nurse-Physician Advisory Task Force for Colorado Healthcare collaborated to develop *The Policy for Prescribing and Dispensing Opioids* to provide meaningful guidance to prescribers and dispensers of opioids in Colorado. This Policy was subsequently adopted by the State Board of Optometry and the Colorado Podiatry Board and endorsed by the Colorado State Board of Veterinary Medicine. This policy was the first of its kind to be adopted across numerous healthcare boards and groups within the Division of Professions and Occupations ("the Division").

- In 2015, CDPHE received a grant from the Office of Justice Programs, Bureau of Justice Assistance (BJA) to increase the use of the PDMP as a public health surveillance tool.

- In 2015, DORA was awarded a grant through BJA. DORA contracted with University of Colorado as a grant sub-recipient and researcher. Pursuant to the grant, funding was used to strengthen PDMP efforts to develop and test innovative strategies and to implement evidence based approaches that demonstrate the impact of expanded use of PDMP data to support decision making.

- In 2016, the PDMP created a five-minute online informational video to teach potential delegates and their corresponding supervising prescriber or pharmacist how to set up a delegate account and begin accessing the PDMP on the prescriber or pharmacist's behalf.

- In 2017, Senate Bill 17-146 broadened access to the PDMP, allowing prescribers and pharmacists to check the PDMP for reasons apart from controlled substance prescription considerations, including drug-drug interactions, dangerous side-effects and possible abuse or diversion issues. Specifically, the Bill authorized:

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[1] Colorado Department of Public Health and Environment. 2017. Prescription Drug Data Profiles.
https://www.colorado.gov/pacific/cdphe/prescription-drug-data-profiles

- o Prescribers to query the PDMP to the extent the query relates to a current patient of the prescriber;

- o Pharmacists to query the PDMP when considering dispensing any prescription drug to a specific patient; and

- o Veterinarians to query the PDMP when they suspect a client (person responsible for the animal) is diverting the patient's (animal) controlled substance(s) or when they suspect a client is purposely abusing the animal to obtain a controlled substance.

- In 2018, the Colorado prescribing boards and State Board of Pharmacy published the *Guidelines for the Safe Prescribing and Dispensing of Opioids* ("Guidelines") after soliciting statewide stakeholder feedback, consulting with experts in the fields of pain management, addiction and mental health, and reviewing current literature, policy and guidelines related to the safe prescribing and dispensing of opioids for pain. These guidelines updated the 2014 *Policy for Prescribing and Dispensing Opioids* to both harmonize the guidelines with current policies and to provide Colorado prescribers and dispensers with current, evidence-based guidance with best practices including regularly checking the PDMP, risk assessment, assessing pain and function, considering opioid alternatives, patient education and treatment agreements, collaboration with members of a patient's healthcare team, establishing a strategy for reducing or discontinuing opioids, identifying aberrant drug-related behavior and referral for treatment of opioid use disorder.

- In 2018, the PDMP initiated Prescriber Scorecards. These individual scorecards are sent to eligible prescribers and provide information such as prescription volume data, PDMP usage, morphine milligram equivalent (MME) dosing information, and assessments comparing an individual's prescribing history to others within the same specialty to assist prescribers in making more informed prescribing decisions.

- In 2018, Senate Bill 18-022 (SB 18-022) began prohibiting a prescriber from prescribing more than a seven-day supply of an opioid to a patient who has not had an opioid prescription in the last twelve months by that prescriber, with exceptions for chronic pain, cancer pain, post-surgical pain, or transfer of care from another prescriber who had prescribed an opioid to the patient. The law also restricts a second fill to a seven day limit with a requirement that prescribers query the PDMP prior to prescribing a second seven day fill.

- In 2019, Senate Bill 19-228 expanded PDMP access to Colorado medical examiners and elected coroners for patients whose death occurred under unusual, suspicious, or unnatural circumstances and are the subject of an autopsy, and mandated opioid prescribers to complete up to four credit hours of training per licensing cycle in order to demonstrate competency regarding: best practices for opioid prescribing, recognition of substance use disorders, referral of patients with substance use disorders for treatment, and the use of the PDMP.

- In 2019, DORA was awarded a second grant from BJA. DORA contracted with the University of Colorado as a grant sub-recipient and researcher and is using the funding to systematically investigate the impact of mandated PDMP use, automated PDMP screening, and adding high risk clinical features to PDMP screening, measuring the effects of each modification in all care settings and hospitals used in the research.

- In 2019, the Office of eHealth Innovation (OeHI) formed a new strategic policy subgroup that reports to the Consortium PDMP Task Force (PDMP Task Force) to advance statewide PDMP integration planning and implementation and to ensure alignment between various state agencies. This subgroup, comprised of representatives of the Department of Health Care Policy and Financing (HCPF), CDPHE, Office of Information Technology (OIT), DORA and OeHI, is focused on formulating recommendations involving funding, policy, governance, data sharing, research, and the future state of the PDMP technical architecture to advance PDMP integrations statewide.

- In 2020, the Division and CDPHE began reimbursing PDMP integration costs for healthcare organizations through the award of mini-grants in connection with Overdose Data to Action grant funding from the Centers for Disease Control and Prevention (CDC).

- In 2020, OeHI and HCPF received funding from The Centers for Medicare and Medicaid Services (CMS) to implement the requirements of the Substance Use-Disorder Prevention that Promotes Opioid Recovery and Treatment for Patients and Communities Act of 2018 (SUPPORT Act)[2] to expand integrated PDMP access for Medicaid providers.

The PDMP and the Colorado Health IT Roadmap

Colorado's Health IT Roadmap[3] is the state's strategic plan for promoting and advancing the secure, efficient, and effective use of health information, and to inform, encourage, and influence future health IT initiatives. As PDMP data is uniquely situated within the Colorado Board of Pharmacy, the PDMP presents unique opportunities and challenges with respect to other health information. Significant federal funding opportunities from the Centers for Medicare and Medicaid Services (CMS), Bureau of Justice Assistance (BJA), and the Centers for Disease Control and Prevention (CDC) may be available to implement more widespread integration. The integration of PDMP data into electronic health records (EHRs) and health information exchanges (HIEs), and other PDMP integration initiatives should be consistent with the goals and strategies of other Colorado health information technology stakeholders.

Prescription Drug Monitoring Training and Technical Assistance Center, Prescription Behavior Surveillance System Measurements

The previous two PDMP Task Force reports detailed characteristics of all controlled substance and opioid prescriptions in Colorado as well as high risk prescribing practices and patient behaviors. This data is updated in this year's report in Tables 1-3 and Figures 1-3 below. As PDMP integration increases,

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[2] Substance Use-Disorder Prevention that Promotes Opioid Recovery and Treatment for Patients and Communities Act of 2018 (SUPPORT Act), H.R.6, 115th Cong. (2018). https://www.congress.gov/bill/115th-congress/house-bill/6

[3] Colorado's Health IT Roadmap (2017). Office of eHealth Innovation. https://www.colorado.gov/pacific/sites/default/files/atoms/files/Colorado%20Health%20IT%20Roadmap%20FINAL%2011-15-2017.pdf

it will be important to continue to review these metrics to understand if integration is associated with reduced high risk prescribing and patient behaviors.

Table 1: Characteristics of Controlled Substance Prescriptions Dispensed, Colorado, 2014-2019

Characteristics	2014	2015	2016	2017	2018	2019
Number of Controlled Substance Prescriptions Dispensed	8,499,973	8,739,789	8,554,976	8,053,171	7,497,618	7,163,385
Number of Unique Patients	1,614,277	1,642,929	1,606,599	1,550,864	1,447,709	1,371,939
Number of Unique Prescribers	39,226	38,750	46,177	45,564	43,996	43,488
Number of Unique Pharmacies	1128	1028	1229	1298	1198	1235

In 2014, NPI was used to identify unique prescribers and pharmacies as DEA numbers were not available until 2015
Data Source: Colorado Prescription Drug Monitoring Program, DORA; Data Analysis by: CDPHE, 2020

Table 2: Characteristics of Opioid Prescriptions Dispensed, Colorado, 2014-2019

Characteristics	2014	2015	2016	2017	2018	2019
Number of Opioid Prescriptions Dispensed	4,039,048	4,310,254	4,159,575	3,765,259	3,317,520	3,139,087
Number of Unique Patients	1,085,551	1,131,781	1,102,297	1,027,685	931,427	867,038
Number of Unique Prescribers	25,011	24,784	28,063	27,676	26,718	26,870
Number of Unique Pharmacies	941	839	1,039	1,097	989	1016

Data Source: Colorado Prescription Drug Monitoring Program, DORA; Data Analysis by: CDPHE, 2020

Figure 1: Annual Controlled Substance and Opioid Prescription Totals, 2014-2019
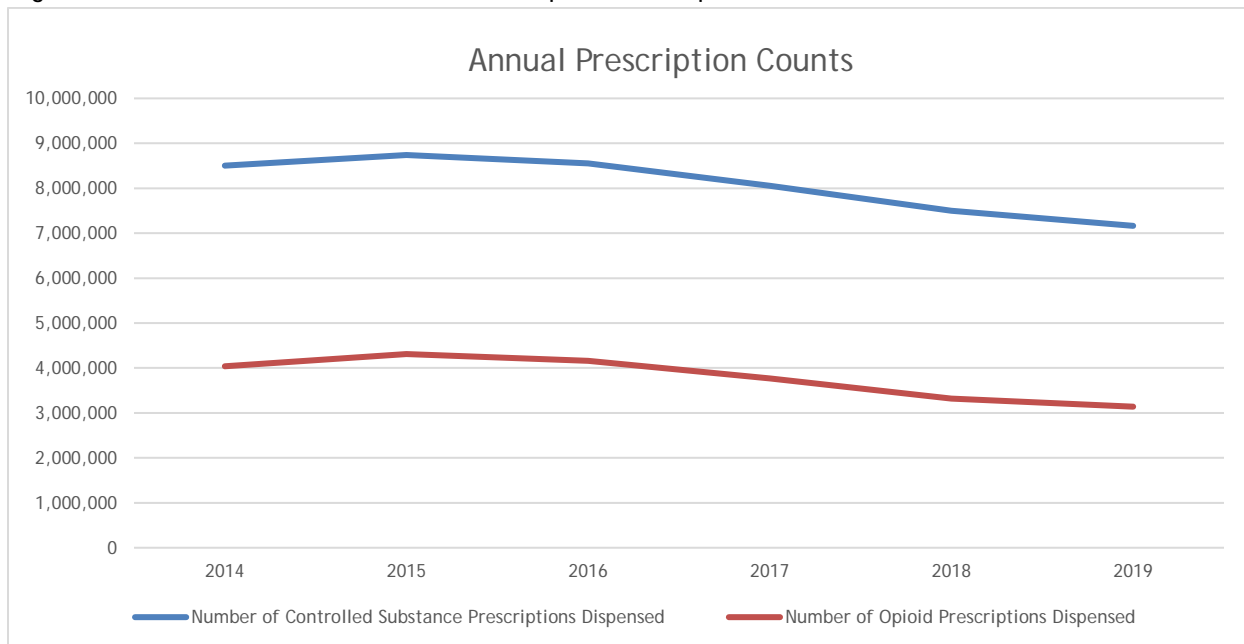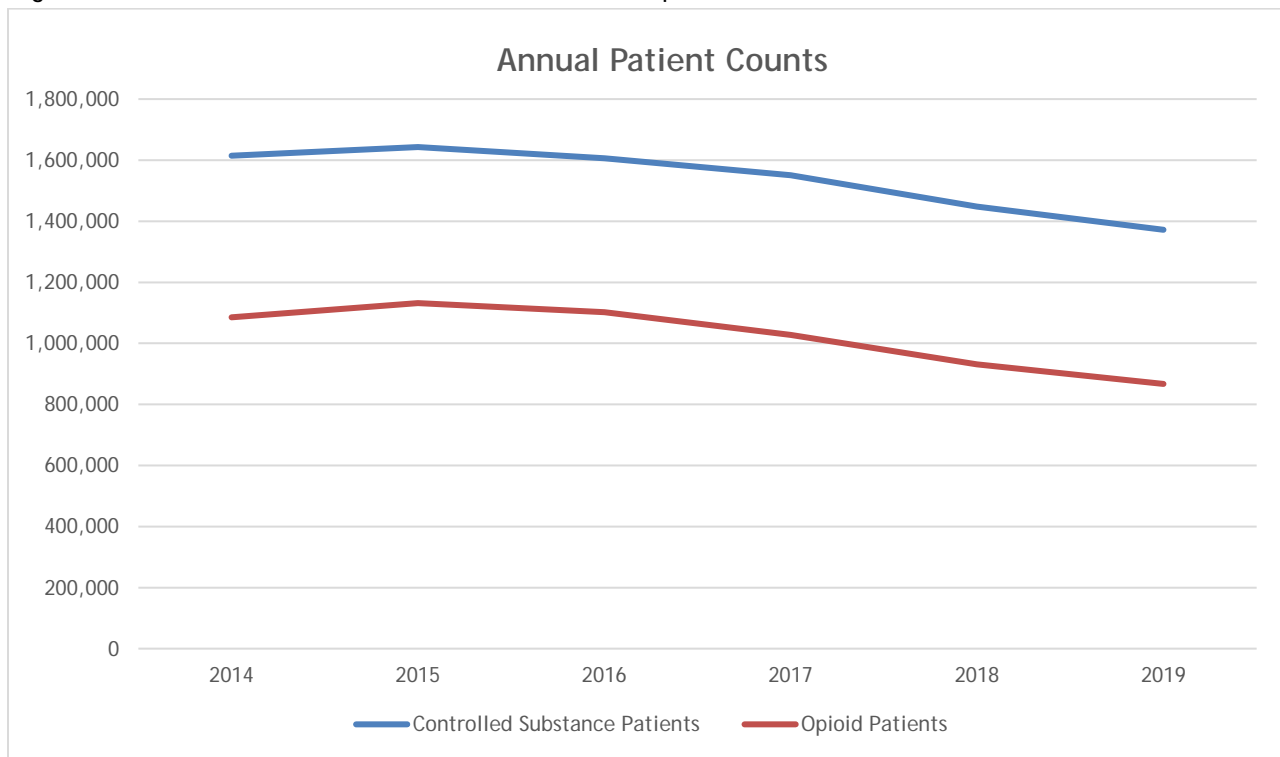
Figure 2: Annual Patients Controlled Substance and Opioid Patients, 2014-2019

In Colorado, total controlled substance prescriptions decreased by 15.7% from 2014 to 2019, and decreased by 4.5% from 2018 to 2019. Patients receiving at least one controlled substance prescription decreased by 15.0% from 2014 to 2019, and decreased by 5.2% from 2018 to 2019. Total opioid prescriptions decreased by 22.3% from 2014 to 2019, and decreased by 5.3% from 2018 to 2019. Patients receiving at least one opioid prescription decreased by 20.1% from 2014 to 2019, and decreased by 6.9% from 2018 to 2019.

BJA's PDMP Training and Technical Assistance Center's Prescription Behavior Surveillance System (PBSS) uses several measurements and metrics to gauge the effectiveness of statewide PDMP systems. The definition of PBSS Measures[4] provides key metrics to monitoring and determining the success of PDMPs, which are developed in collaboration with the CDC to monitor trends in controlled substance prescribing and dispensing. The PBSS' measurements include: overall usage within drug classes and for selected individual drugs; daily dosage; overlapping prescriptions within each drug class; across the opioid and benzodiazepine classes; across dosage forms of opioid analgesics (i.e., immediate vs. extended release); questionable activity within a class or classes; inappropriate prescribing measures; and pharmacy-based measures of possible inappropriate dispensing.[5]

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[4] PDMP Training and Technical Assistance Center Prescription Behavior Surveillance System, Definitions of PBSS Measures,
http://www.pdmpassist.org/pdf/COE_documents/Add_to_TTAC/Definitions%20of%20PBSS%20Measures.pdf
[5] PDMP Training and Technical Assistance Center, PBSS website,
http://www.pdmpassist.org/content/prescription-behavior-surveillance-system

Table 3: High Risk Prescribing Practices and Patient Behaviors, Colorado, 2014-2019

Characteristics	2014	2015	2016	2017	2018	2019
Percent of patients receiving over 90 MME per day	10.3%	8.9%	8.7%	8.2%	7.3%	6.5%
*Rate of multiple provider episodes per 100,000 residents	170.1	124	93.6	68	40.3	25.1
Percent of patients prescribed long duration opioids who were opioid-naïve	18.2%	17.6%	15.8%	15.1%	12.1%	11.0%
Percent of patient prescription days with overlapping opioid prescriptions	22.3%	21.5%	21.4%	20.5%	19.4%	18.2%
Percent of patient prescription days with overlapping opioid and benzodiazepine prescriptions	12.1%	11.6%	11.2%	9.9%	8.9%	7.7%

*2019 rates are calculated with 2018 population estimates as 2019 estimates are not yet available. Annual percentages are based on average of quarterly percentages
Data Source: Colorado Prescription Drug Monitoring Program, DORA; Data Analysis by: CDPHE, 2020

Figure 3: High Risk Prescribing Behavior, 2014-2019
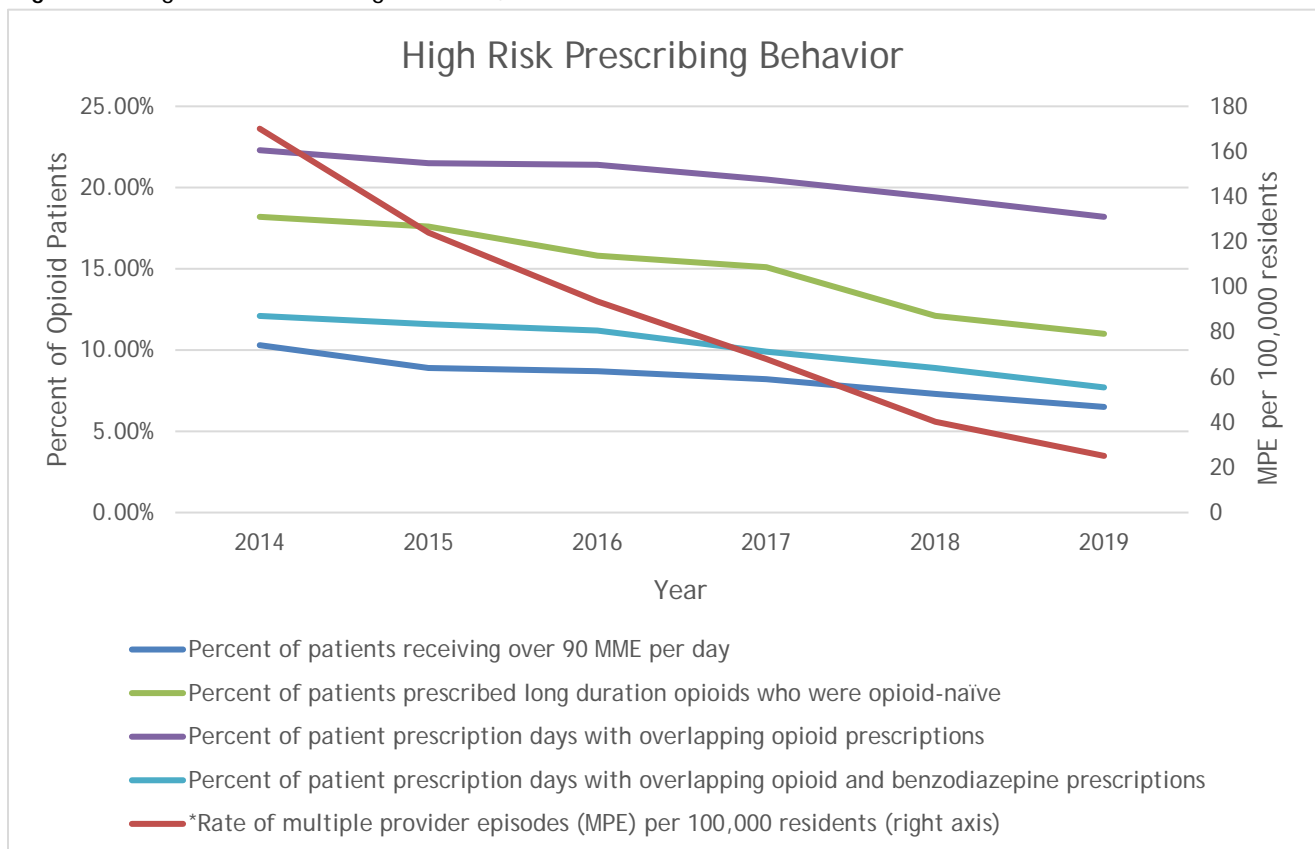
In Colorado, the percent of opioid patients receiving over 90 Morphine Milligram Equivalents (MME) decreased by 36.9% from 2014 to 2019, and decreased by 10.9% from 2018 to 2019. The rate of multiple

provider episodes per 100,000 residents, defined as patients receiving controlled substance prescriptions from five or more providers and at five or more pharmacies within 90 days, decreased by 85.2% from 2014 to 2019, and decreased by 37.7% from 2018 to 2019. The percent of opioid-naïve patients prescribed long-duration opioids decreased by 39.5% from 2014 to 2019, and decreased by 9.1% from 2018 to 2019. The percent of patient prescription days with overlapping opioid prescriptions decreased 18.4% from 2014 to 2019, and decreased 6.2% from 2018 to 2019. The percent of patient prescription days with overlapping opioid and benzodiazepine prescriptions decreased 36.4% from 2014 to 2019, and decreased 13.4% from 2018 to 2019.

Overall controlled substance or opioid prescription volumes are difficult to attribute to PDMP utilization because many other factors are involved in the national trends surrounding opioid prescribing. However, comprehensive use mandates implemented during 2011-2015 were associated with a 6-9 percent reduction in opioid prescriptions with a high risk for misuse and overdose.[6] Additionally, the 2014 "Briefing on PDMP Effectiveness, Third Edition" by the PDMP Center of Excellence at Brandeis University and funded by a grant from BJA concluded studies concerning PDMP effectiveness suggest that prescription drug monitoring programs are effective in improving medical care; reducing doctor shopping, inappropriate prescribing, drug diversion and prescription fraud.[7] This suggests that high risk prescribing practices and patient behaviors noted in Table 3 and Figure 3 can be more closely correlated with PDMP utilization, as the PDMP's purpose is to inform prescribers and pharmacists of potentially dangerous drug doses, interactions, and to prevent drug overdoses due to prescribers and pharmacists having incomplete patient records.

Requests for 2020 Task Force Report

Following the issuance of the 2019 PDMP Task Force Annual Report, DORA's Executive Director requested the Task Force to:

(1) Analyze the viability and appropriateness of user experience testing of available PDMP software interfaces.

(2) Develop a plan for directly measuring PDMP utilization in connection with controlled substance prescriptions.

(3) Provide recommendations for the future state of the technical architecture of the Colorado PDMP.

The Executive Director's request may be found in Attachment A.

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[6] Bao, Y. et al. (2018). Assessing the Impact of State Policies for Prescription Drug Monitoring Programs on High-Risk Opioid Prescriptions. *Health Affairs, 37*(10), 1596-1604. Doi:10.1377/hlthaff.2018.0512

[7] PDMP Center of Excellence, Brandeis University. (Updated September 2014). Briefing on PDMP Effectiveness. http://dhhs.ne.gov/DOP%20document%20library/PDMP%20Center%20of%20Excellence%20Briefing.pdf

Task Force Review and Responses to DORA Executive Director's Request for Assistance

The Task Force assigned the Executive Director's request to its PDMP Work Group, comprised of representatives with medical, legal, or health information technology expertise, interested patients and family members, members of the Colorado legislature, as well as representatives from various state and federal agencies. A full list of the PDMP Work Group members and their corresponding organizations may be found in Attachment B.

The Task Force makes the following recommendations in furtherance of its objective to make the PDMP a more effective tool to improve medication safety and reduce prescription drug abuse and misuse in Colorado.

Task 1: Analyze the Viability and Appropriateness of User Experience Testing of Available Software Interfaces

Being mindful of the need to provide a PDMP solution that is seamlessly integrated within the users' workflow that provides PDMP data in a user-friendly format, I ask the Task Force to analyze the viability and appropriateness of User Experience testing of available PDMP software interfaces to assess the most effective solution(s) to integrate the PDMP with software interfaces within the clinical workflow.

Response to Task 1

As discussed in the 2019 PDMP Task Force Annual Report, PDMP integration with other health information technology has expanded considerably in recent years. While PDMP integration lowers accessibility barriers, integration alone does not guarantee universal utilization. Furthermore, some PDMP integration solutions offer enhanced clinical decision support by providing summaries or visualizations of PDMP data that may provide sufficient information to forego viewing a patient's full PDMP report. For example, if a patient has no recent controlled substance prescriptions recorded in the database and that information can be surmised with clinical decision support tool summaries or visualizations, does a practitioner need to view the patient's full PDMP report? In states that mandate checking the PDMP before prescribing or dispensing a controlled substance, users often must view the patient's full PDMP report to be credited with a search, even when clinical decision support software could provide sufficient information without viewing a full report. These use mandates may impose additional requirements without providing increased value and may be counterproductive, reducing the time a provider has to allocate to other needs during a patient encounter.

Being mindful of the needs of end users, it is important to present useful PDMP data to users at the appropriate time and in the appropriate format. To that end, this section discusses various clinical decision support tools that integrate the PDMP within users' workflow in user-friendly formats and considers whether the state should expend resources analyzing the efficacy of various clinical decision support tools by surveying integrated users or performing user experience testing.

UC Health Clinical Decision Support Tool

Funded by the aforementioned 2019 BJA grant, The University of Colorado, Denver and the University of Colorado Health System (UCHealth) is a pilot site for the Office of the National Coordinator for Health Information Technology's (ONC) "Advancing PDMP-EHR Integration: Health System Integration" study. To address the opioid crisis, considerable resources have been spent to implement PDMPs and policies designed to implement safer prescribing practices and reduce the risk of prescribed opioids. CDC's Opioid Prescribing Guidelines for Chronic Pain[8] are a significant component in reducing high risk opioid prescribing and the attendant risk of future misuse and abuse. While PDMPs and policies mandating use hold promise as mechanisms to improve prescribing decisions, healthcare provider access to PDMP data has historically been cumbersome, resulting in concerted efforts to expand integrated PDMP access within other electronic health information and implementing analytics within PDMP reports. As a Clinical Decision Support Point of Care Test Site with existing PDMP-Electronic Health Record (EHR) integration, the University of Colorado, Denver and UCHealth will examine ways to design and implement clinical decision support tools across large health systems to enhance clinicians' effective use of the PDMP to address two key CDC guidelines, namely CDC guideline #4, which states that when starting opioid therapy for chronic pain, clinicians should prescribe immediate-release opioids instead of extended-release/long-acting opioids, and CDC guideline #11, which states clinicians should avoid prescribing opioid pain medication and benzodiazepines concurrently whenever possible. This study will configure various alerts based upon patient NarxScores™ in Appriss' NarxCare™ clinical decision support tool to assess how and when to most effectively prompt users to view a patient's PDMP history, whether these alerts affect utilization and whether utilization affects patient outcomes.

CDPHE PDMP Integration Pilot Project Evaluation

In 2016, CDPHE received funding from the Centers for Disease Control and Prevention (CDC) to pilot different ways to integrate the Colorado PDMP into prescriber workflow as a part of Colorado's *Prescription Drug Overdose Prevention for States* grant.

CDPHE collaborated with the Colorado Department of Regulatory Agencies to implement integration into Colorado's three major existing types of IT applications used in health care for patient information: health information exchanges, electronic health records, and a secure mobile application. Specific pilot projects included:

- Integration of the PDMP into EPIC's Electronic Health Record at the University of Colorado Hospital outpatient clinics.
- Integration of the PDMP into Colorado Regional Health Information Organizations' (CORHIO) Health Information Exchange with HealthOne Urgent Care centers.
- Integration of the PDMP into Quality Health Network's (QHN) Health Information Exchange (HIE) leveraging single sign-on HIE access with St. Mary's Hospital.

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[8] CDC Guideline for Prescribing Opioids for Chronic Pain. *Recommendations and Reports.* March 18, 2016. https://www.cdc.gov/mmwr/volumes/65/rr/rr6501e1.htm?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fmmwr%2Fvolumes%2F65%2Frr%2Frr6501e1er.htm#B1_down

- Integration of the PDMP in Rx Assurance's mobile software application, OpiSafe, with Denver Health's internal medicine and family practice clinics.

In its 2019 PDMP integration evaluation report to the CDC, CDPHE surveyed providers concerning the success of PDMP integrations and user satisfaction. The report found that all PDMP integrations succeeded in achieving the goals of reducing barriers to accessing PDMP data. Key informants from all sites shared that PDMP integration was initially a resource-intensive process involving collaboration across physicians and IT. However, after the initial investment in the integration, the project had relatively low maintenance. Obstacles to PDMP integration included difficulties with technical capabilities, contracting, and identifying sustainability options.

An integrated system still requires the prescriber to query the PDMP for a patient report (by pushing a button), but all three integrations greatly reduced the time burden from more than 20 clicks to less than five clicks to get the same information from the health record. The results of a survey concerning provider satisfaction and resultant use of the PDMP after integration is summarized in Table 4 below.

Table 4. Integration Outcomes Summary

Pilot Evaluation	UCH (EHR Integration)	QHN (HIE Integration)	CORHIO (HIE Integration)	OpiSafe (App Integration)
# in Pilot	217	87	200	124
Geography	Urban	Rural	Urban	Urban
# Clicks to integration	1	3	5	2-4
Knowledge	Increased*	Increased*	Increased*	Increased
% of prescribers indicating improvement in PDMP access	97.7%	64.3%	62.5%	66.3%
Self-Reported PDMP Use	Increased*	Increased*	Increased	Increased*
Prescribing Metrics (at least one	Improved*	Improved*	Improved*	Improved*
Prescriber reported response to patient PDMP report	Discuss with patient*,prescribe alternative therapies, refer the patient to a specialist*	Discuss with patient, prescribe alternative therapies*, refer the patient to a specialist	Discuss with patient, prescribe alternative therapies	Discuss with patient, prescribe alternative therapies*, refer the patient to a specialist
% of Prescribers recommending integration	97%	90%	88%	62%

*indicates statistical significance at p<.05

Source: CDPHE, 2019. Colorado *PDMP Integration Evaluation Report*. Reported to CDC. Used with permission, CDPHE

Enhanced Dash Visualizations and User Feedback

As PDMP integration advances, PDMP data may be displayed in a variety of formats. Basic integrations allow users to view a standard PDMP report with as little as one click within the user's EHR or pharmacy

health management system, displaying prescription details in reverse chronological order. However, some integrated software leverages clinical decision support software with advanced analytics to summarize PDMP data with risk scores or dashboards to alert users to various aspects of the report such as current controlled substance prescriptions, potentially dangerous combinations, or multiple provider episodes. Last year's report discussed the data visualizations used by NarxCare and OpiSafe™, but these are not the only clinical decision support tools for presenting PDMP data. The RxCheck data sharing hub is developing an application programming interface (API) that will offer a customizable patient dashboard incorporating analytics including substance abuse risk scores or CDC guidelines. While some states are funding specific clinical decision support tools for PDMP integrations, Colorado does not endorse a specific clinical decision support tool, instead allowing healthcare organizations to choose the software that best meets their needs.

Though integrated PDMP access is expanding nationwide, data concerning the efficacy of various clinical decision support tools or different methods of incorporating PDMP data within a user's workflow is lacking. As discussed above, activities in Colorado may offer additional insight into the effectiveness of PDMP integration and clinical decision support tools. UCHealth's proof of concept study for a clinical decision support tool is one way to evaluate the efficacy of various iterations of PDMP integration. As discussed below in response to Task 3, Colorado will offer funding to healthcare organizations' PDMP integration implementation costs leveraging Overdose Data to Action grants and will solicit feedback from prescribers concerning provider satisfaction and the efficacy of various clinical decision support tools using surveys and/or interviews. This will build on CDPHE's previous evaluation of provider satisfaction with various integration platforms, further discussed in response to Task 3.

User Experience Testing

User experience testing is appropriate when seeking to maximize the usefulness or value of a specific product. As emerging PDMP integration solutions and clinical decision support tools are developed by third party vendors, those vendors perform user experience tests to maximize the usefulness and value of their platforms. Because Colorado is not sponsoring a specific PDMP solution, and because numerous clinical decision support tools exist, user experience testing wouldn't be effective, efficient or appropriate for the Colorado PDMP as the program is not choosing one solution for all users.

With healthcare providers' time at a premium and with a variety of alerts in their health information technology platforms, presenting data at the most appropriate time and in the most effective format is key to ensuring data benefits users and patient outcomes. User experience testing is commonly leveraged to maximize a specific product's effectiveness and could identify the most effective ways of presenting PDMP data in a user's workflow to maximize value and minimizing time and effort. However, analyzing the effectiveness of PDMP integrations and clinical decision support tools must also account for the various clinical contexts in which PDMP data is utilized.

Recommendation: Task 1

Although PDMP integration is a key prerequisite to increased utilization, integration alone does not guarantee utilization. As PDMP integration expands, assessing the effectiveness of various software

and system configurations as it relates to utilization and patient outcomes will be crucial in ensuring PDMP data is provided at the right time and in the right format. UCHealth's clinical decision support study is assessing the effectiveness of alerts in various contexts as it relates to utilization and patient outcomes. PDMP integration mini-grants discussed in Task 3 will provide an opportunity to receive feedback concerning user satisfaction and the effects of integration on practitioners' workflow and prescribing behavior, supplementing CDPHE's previous integration evaluation work. User experience testing is considered the gold standard of software evaluation. However, with many available software solutions and with PDMP access being leveraged in a variety of clinical contexts, the state should focus on making PDMP data accessible to practitioners and pharmacists.

Task 2: Develop a Plan for Directly Measuring PDMP Utilization in Connection with Controlled Substance Prescriptions

The 2018-2019 Task Force Report discussed future reporting requirements for CMS that will require a direct measure of utilization by October 2023. I ask the Task Force to analyze the feasibility of developing a direct measure of utilization, both for upcoming CMS requirements and to proactively assess prescriber compliance with SB 18-022.

Response to Task 2

Appriss has developed an enhanced utilization tracking dashboard for state administrators and practitioners which allows PDMP administration to directly measure prescriber utilization with respect to specific prescriptions. The Division is evaluating whether to implement this enhanced dashboard later this year. This dashboard would allow the Division to directly measure a total utilization rate with respect to all controlled substance prescriptions or for specific drug classes such as opioids, as well as for specific controlled substance prescriptions and for specific prescribers.

Despite the upcoming ability to directly measure utilization with respect to specific prescriptions, assessing prescriber compliance with SB 18-022 is problematic because the PDMP does not collect diagnostic information, making it difficult to assess whether an initial opioid prescription or second fill is for acute pain or for a condition exempt from the requirements of SB 18-022. Without diagnostic context for these prescriptions, we are unable to determine how frequently these second fills are for conditions where the requirements of SB 18-022 apply. However, UCHealth is working with CDPHE to evaluate their providers' compliance with the requirements of SB 18-022. Though provider compliance will be evaluated at an aggregated and de-identified level, the additional clinical and diagnostic information from EHR data will allow UCHealth and CDPHE to identify prescriptions subject to SB 18-022's requirements and evaluate compliance with the seven day supply limit and PDMP utilization with respect to these prescriptions.

Since October 1, 2015, the health care industry's payers, vendors, and all Health Insurance Portability and Accountability Act (HIPAA) covered entities have been required to use the International Classification of Disease 10th Edition (ICD-10) diagnosis codes with prescriptions, which are used for prior authorizations and claims payment processing. This is a diagnosis coding system for diseases and

signs, symptoms, abnormal findings, complaints, social circumstances, and external cause of injury or disease.[9] Several states mandate the collection of these ICD-10 codes within their PDMPs, but this is not currently a required field for Colorado PDMP data submission. Implementing a change in the required fields for PDMP data submission would require a change to Pharmacy Board Rule 23.00.40 and would require communication to all pharmacies submitting controlled substance prescription data to the PDMP as well as updates to the standard prescription reporting data format which may present challenges for pharmacies. Furthermore, requiring ICD-10 codes would result in the PDMP collecting information related to a patient's medical condition. Collecting this information would help the program assess SB 18-022 compliance and could provide clinically relevant information for practitioners and pharmacists using the PDMP for clinical decision support, but should be analyzed with respect to the requirements of Section 12-280-403(1), C.R.S. which states:

> The Board [of Pharmacy] shall develop or procure a prescription controlled substance electronic program to track information regarding prescriptions for controlled substances dispensed in Colorado, including the following information:
> (a) The date the prescription was dispensed;
> (b) The name of the patient and the practitioner;
> (c) The name and amount of the controlled substance;
> (d) The method of payment;
> (e) The name of the dispensing pharmacy; and
> (f) Any other data elements necessary to determine whether a patient is visiting multiple practitioners or pharmacies, or both, to receive the same or similar medication.

Collecting diagnostic information related to a patient's medical condition could raise patient privacy concerns, though the diagnostic information could provide value to practitioners and pharmacists using the PDMP as a clinical decision support tool. Any analytical or clinical benefits should be considered as it relates to the PDMP's mission of preventing prescription misuse, abuse and diversion.

Recommendation: Task 2

Advances in PDMP analytics may allow program administration to directly measure of utilization with respect to controlled substance prescriptions. However, the lack of diagnostic information recorded in the PDMP limits the program's ability to identify prescriptions that are subject to SB 18-022's requirements, and is therefore challenged in evaluating SB 18-022 compliance. Colorado should evaluate whether statute authorizes the program to collect ICD-10 information and should weigh the benefits for analytics and clinical decision support against privacy concerns with respect to the program's mission of reducing prescription drug abuse, misuse and diversion.

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[9] ICD Diagnosis Code Requirements, Version 5.3. July 10, 2017. Centers for Medicare and Medicaid Services. https://www.cms.gov/Medicare/Coordination-of-Benefits-and-Recovery/Mandatory-Insurer-Reporting-For-Non-Group-Health-Plans/NGHP-Training-Material/Downloads/ICD-Diagnosis-Code-Requirements-Part-I.pdf

Task 3: Provide Recommendations for the Future State of the Technical Architecture of the Colorado PDMP

Last year's report outlined the current state of the Colorado PDMP and identified challenges and opportunities within the current framework. I ask the Task Force to provide recommendations for the technical architecture of the future state of the Colorado PDMP. In this analysis, evaluate the costs and benefits of various integration models as they relate to the preferences of Colorado stakeholders, the goals of Colorado's Health IT Roadmap, and the needs of end users. Additionally, analyze how each integration model has the ability to reduce healthcare costs in Colorado. How can the PDMP best achieve the objectives of integration usability and healthcare cost savings within the broader goals of Colorado's Health IT Roadmap?

Clinical Contexts for PDMP Integration

PDMP integrations are being implemented in a variety of clinical contexts, demonstrating numerous ways to integrate the PDMP with health information systems. Pharmacy management systems leverage integrated PDMP access in the prescription review process. Direct EHR integrations allow practitioners to review a PDMP report when the practitioner opens a patient's chart, providing access at many points in a patient encounter. Integrations with HIEs allow a practitioner to access PDMP reports when retrieving other data from the HIE, with the HIE serving as a one-stop shop for externally-held patient data. PDMP integrations with electronic prescribing tools allow a practitioner to review a patient's PDMP report within the electronic prescribing workflow. With PDMP data offering value in such a variety of clinical contexts, integrating the PDMP with multiple platforms and leveraging clinical decision support analytics will be key to maximizing the PDMP's value to practitioners.

PMP Gateway Integration

Section 12-280-405(3), C.R.S. authorizes the Division to collect an annual fee of no more than $25 from individuals who hold a license from the Division that authorizes him or her to prescribe a controlled substance, collected in conjunction with license renewal fees. Colorado's PDMP is operated by Appriss, which is the PDMP vendor for 43 states and municipalities.[10] Appriss also developed the PMP Gateway in conjunction with the National Association of Boards of Pharmacy (NABP), which is an application programming interface (API) directly connecting PDMP data to electronic health records (EHRs), pharmacy management systems, and health information exchanges (HIEs). Appriss estimates that the PMP Gateway is compatible with over 80% of practitioners' and pharmacists' EHRs and pharmacy management systems.

As of May 2020, 229 Colorado healthcare organizations accessed the Colorado PDMP through the PMP Gateway. These integrated organizations range in size from single practitioner practices to large health systems such as UCHealth. In May 2020, over 82,000 patient searches were performed by over 5,000 practitioners through the PDMP at 561 facilities. This represents approximately 15% of all Colorado-licensed physicians, physician assistants, nurse practitioners or clinical nurse specialists, podiatrists and medical residents based on a review of active licensees and PMP Gateway users.

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[10] https://apprisshealth.com/who-we-help/state-governments/

As of May 2020, 17 Colorado pharmacy organizations were integrated through the PMP Gateway, including all of Colorado's major pharmacy chains. These organizations range in size from single independent pharmacies to national pharmacy chains. Nearly 230,000 patient searches were performed by over 1,600 pharmacists through the PMP Gateway at 639 Colorado pharmacies in May 2020. This represents 55% of all Colorado pharmacies where approximately 75% of all controlled substance prescriptions were dispensed based on a review of PMP Gateway audit logs, licensed prescription drug outlets and prescriptions reported to the PDMP.

Colorado's contract with Appriss does not include costs for practitioners' PMP Gateway access. Instead, integrated healthcare organizations and pharmacies using PMP Gateway are currently charged a licensing fee for PMP Gateway access. To achieve widespread adoption of PDMP integration, twenty states currently sponsor the cost of statewide integration using PMP Gateway for all healthcare providers within the state. Appriss' Statewide Interoperability Program includes a consistent onboarding process and ongoing support from Appriss and ongoing development of integrations with various health IT systems. This approach has led to significant expansion of PDMP integration. For example, this approach resulted in over 90% of providers being integrated in Oregon within two years, and within three years in Michigan and Indiana. Appriss estimates that EHR integration via PMP Gateway using a Statewide Interoperability Program could be deployed to nearly all Colorado providers within an estimated 18 to 24 months.

PDMP Integration Grants

In February of 2020, Colorado released a competitive Request for Applications (RFA) to reimburse healthcare organizations for PDMP integration implementation costs, funded by the CDC Overdose Data to Action grant awarded to CDPHE and implemented through an Interagency Agreement between DORA and CDPHE. Colorado received only one response in February, but in the fall of 2020 Colorado will release a second RFA to award additional grants. This RFA will award grants ranging from $5,000 to $30,000 to reimburse healthcare organizations for the costs of integrating the PDMP into providers' workflows through HIE, EHR, software as a service solution, or through electronic prescribing software. These mini-grants are intended to support activities including determining which solution best meets the organization's needs, implementing PDMP integration, and providing training and education for staff. These mini-grants will allow healthcare organizations to choose any available PDMP integration solution including direct EHR integrations, integrations with Colorado's Health Information Exchanges (HIEs) which offer PDMP access, electronic prescribing software and integrations with OpiSafe, a mobile-friendly software as a solution product that incorporates PDMP data with other data sources and offers portal access to both providers and patients. These mini-grants will provide PDMP administration with additional insight concerning the implementation and development costs of PDMP integration which will be leveraged in further analysis of total costs of PDMP integration and in identifying the most cost-effective ways to expand PDMP integration.

RxCheck as a Potential Future Integration Hub

The RxCheck PDMP data sharing hub was developed in 2011 with support from the Bureau of Justice Assistance at the US Department of Justice. This hub historically had limited participation, but the 2018 CDC Overdose Data to Action (OD2A) grant required states receiving OD2A grant funds to connect their PDMPs to RxCheck with a minimum requirement of responding to inter-state PDMP data requests from states that use RxCheck as their preferred data sharing hub. Colorado connected to RxCheck in September 2019 and is engaged in bi-directional data sharing with Kentucky, Utah, Washington and Nebraska through RxCheck. As of May 2020, 28 states have a live connection to RxCheck, 15 completed the MOU and are in the process of onboarding, six are in the process of signing the MOU, and two states are in discussion with RxCheck.[11]

With the expansion in states connected to RxCheck as a result of the OD2A grant requirements, numerous system enhancements are in development. RxCheck is capable of PDMP integration using a State Routing Service (SRS). Currently, each facility must host its own SRS, but enhancements are in development to allow a healthcare organization to use a single SRS for the entire organization, which will simplify maintenance of the SRS and reduce costs and save time for healthcare entities with multiple facilities. Other enhancements include a confederated query process to allow a user to search multiple states in a single search as well as improvements to patient matching, enhancements to user credential validation, and additional fields in audit trails. Colorado will examine the feasibility of using RxCheck as an alternative integration option once these enhancements are completed.

SUPPORT Act PDMP Evaluation

Colorado's Department of Health Care Policy and Financing (HCPF), working closely with the Office of eHealth Innovation (OeHI) and with support by DORA and CDPHE, received Federal Financial Participation (FFP) funding to further develop and expand integrated PDMP access in connection with the requirements of H.R.6. - Substance Use-Disorder Prevention that Promotes Opioid Recovery and Treatment (SUPPORT) for Patients and Communities Act of 2018. As the SUPPORT Act requires Medicaid providers to electronically prescribe Schedule II, III, and IV controlled substances and to query the PDMP before authorizing these prescriptions beginning October 1, 2021, OeHI received $4.9 million to developing recommendations to the State of Colorado to further develop and strengthen Colorado's electronic prescribing and PDMP integration efforts. Topics include interstate data sharing, workflow integration, electronic prescribing, real-time PDMP reporting, and data access and analytics.

OeHI is working with multiple stakeholders to review existing data sharing options, potential future models, and various vendor-based options. Anticipating that end users will likely use more than one integration method to access the PDMP depending upon different locations or workflow needs, OeHI is evaluating how usability, user interface design, and the user experience relate to the effectiveness of PDMP integration. OeHI is working with key stakeholders to vet and identify vendors who can provide electronic prescribing tools to Medicaid providers. OeHI is also studying vendor details, contractual terms, functionality, pricing, scope of work, user interfaces and system designs for PDMP data

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[11] https://www.pdmpassist.org/pdf/RxCheck_states_map.pdf

integration with other health information systems. OeHI is also evaluating the necessary technical and infrastructure capabilities to support more frequent PDMP reporting by prescription drug outlets. Additionally, OeHI will make recommendations concerning data infrastructure and governance for data sharing and interoperability as well as policy or legislation required to support optimal data features and program administration. OeHI's evaluation report is expected to be completed by the end of September 2020 and will inform how the PDMP can best achieve the objectives of integration usability and healthcare cost savings within the broader goals of Colorado's Health IT Roadmap.

PDMP Integration with Electronic Prescribing Software

Many electronic prescribing platforms offer integrated PDMP access, representing a key opportunity to increase PDMP utilization by making PDMP data available within the electronic prescribing workflow. With the SUPPORT Act requiring Medicaid providers to query the PDMP when electronically prescribing Schedule II, III, and IV controlled substances beginning October 1, 2021, electronic prescribing and PDMP integration are central activities in OeHI's SUPPORT Act evaluation. Additionally, with Colorado Senate Bill 19-79 (SB 19-79) requiring many Colorado prescribers to electronically prescribe Schedule II, III, and IV controlled substances beginning July 1, 2021, electronic prescribing software will have a significant role in delivering PDMP data to prescribers. Though SB 19-79 does not mandate Colorado prescribers to query the PDMP when electronically prescribing, providing PDMP data within the electronic prescribing workflow will be closely evaluated with respect to PDMP utilization as these electronic prescribing mandates are implemented.

Recommendation: Task 3

Various PDMP integration solutions are being implemented by healthcare entities in Colorado, including direct integrations through EHRs and pharmacy management systems, integrations with HIEs which offer access to the Colorado PDMP, electronic prescribing tools, and software as a service solutions. With PDMP data being accessed in a variety of clinical contexts, integrated PDMP access should be provided to practitioners and healthcare entities through the platforms that best meet their needs.

OeHI's upcoming evaluation report will provide important recommendations for strengthening Colorado's efforts for expanding PDMP integration and interoperability while considering the costs and benefits of various solutions. In 2022, a new Request for Proposals (RFP) will be published for awarding a new contract for the PDMP, which will allow the state to closely examine the costs and functionality of various PDMP platforms. With integrated PDMP access identified as a key prerequisite for broader PDMP utilization, this RFP should include costs for providing integrated PDMP access to all providers in Colorado.

PDMP Annual Report: Conclusion

Controlled substance prescriptions, opioid prescriptions, and high-risk prescribing indicators continue to decline in Colorado while PDMP utilization continues to increase. While these correlations are encouraging, PDMP utilization is only one of many public health initiatives aimed at reducing drug

abuse, misuse and diversion. UCHealth's study of PDMP integration leveraging clinical decision support tools and configurable alerts will help inform whether PDMP utilization affects patient outcomes.

Advances in PDMP analytics provide program administration and public health researchers with a more sophisticated understanding of PDMP utilization and will promote further research into how PDMP utilization affects patient outcomes. Colorado should also evaluate whether additional information can or should be collected by the PDMP to contextualize prescription data.

PDMP integration mini-grants will help program administration better understand the challenges and costs of PDMP integration as well as the effectiveness of various integration models while allowing practitioners and healthcare entities to choose the integration solution that best meets their needs. Conceptualizing PDMP data as health information technology infrastructure, focusing on providing integrated access to a variety of health information systems, and leveraging clinical decision support tools can provide additional value to practitioners while promoting innovation. With Colorado's contract with its current vendor expiring in two years, Colorado should ensure its future RFP includes the costs of providing integrated access to users and maximizes interoperability with other health information technology.

With a variety of third-party clinical decision support tools available for healthcare entities, Colorado should continue promoting integrated PDMP access by considering the PDMP a component of health information technology infrastructure and should ensure all qualified clinical decision support tools can efficiently and securely access PDMP data in alignment with ONC's plan for advancing the interoperability of health information technology.[12] As stated in ONC's "Connecting Health and Care for the Nation: A 10-year Vision to Achieve an Interoperable Health IT Infrastructure," one guiding principle is to

> Strive for baseline interoperability across health IT infrastructure, while allowing innovators and technologists to vary the user experience in order to best meet the user's needs based on the scenario at hand, technology available, workflow design, personal preferences, and other factors.[13]

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[12] https://www.healthit.gov/topic/interoperability
[13] Office of the National Coordinator for Health Information Technology. 2014. "Connecting Health and Care for the Nation: A 10-year Vision to Achieve an Interoperable Health IT Infrastructure." https://www.healthit.gov/sites/default/files/ONC10yearInteroperabilityConceptPaper.pdf

COLORADO
Department of
Regulatory Agencies
Executive Director's Office

November 4th, 2019

Jose Esquibel, Director of the Colorado Consortium for Prescription Drug Abuse Prevention
    And Associate Director for Community Outreach for the Center for Prescription
    Drug Abuse
Robert J. Valuck, PhD, RPh, FNAP, Professor
University of Colorado Skaggs School of Pharmacy and Pharmaceutical Sciences
On behalf of the Colorado Consortium for Prescription Drug Abuse Prevention
12850 E. Montview Blvd, Mail Stop C238
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Dear Mr. Esquibel and Dr. Valuck:

On behalf of the Department of Regulatory Agencies (DORA or the Department), thank you and the Colorado Consortium for Prescription Drug Abuse Prevention (Consortium) for your continued support and advice concerning the Prescription Drug Monitoring Program (PDMP), including the Consortium's 2018-2019 Task Force Report. The Consortium's support and expertise this past year was invaluable.

Section 12-280-409, C.R.S. requires the Executive Director of the Department to consult with and request assistance from the Consortium as the PDMP Task Force. To that end, on behalf of the Executive Director, I am requesting assistance from the Consortium to examine issues and opportunities regarding the PDMP and to make recommendations on ways to make the PDMP a more effective tool to reduce prescription drug abuse in Colorado. In doing so, please prepare and submit an annual report to the Executive Director and the Colorado General Assembly detailing the Consortium's findings and recommendations by July 1, 2020.

Task #1: Analyze the Viability and Appropriateness of User Experience Testing of Available PDMP Software Interfaces

Being mindful of the need to provide a PDMP solution that is seamlessly integrated within the users' workflow that provides PDMP data in a user-friendly format, I ask the Task Force to analyze the viability and appropriateness of User Experience testing of available PDMP software interfaces to assess the most effective solution(s) to integrate the PDMP with software interfaces within the clinical workflow.

Task #2: Develop a Plan for Directly Measuring PDMP Utilization in Connection with Controlled Substance Prescriptions

The 2018-2019 Task Force Report discussed future reporting requirements for CMS that will require a direct measure of utilization by October 2023. I ask the Task Force to analyze the feasibility of developing a direct measure of PDMP utilization, both for upcoming CMS requirements and to proactively assess prescriber compliance with SB 18-022.

Task #3: Provide Recommendations for the Future State of the Technical Architecture of the Colorado PDMP

This year's report has outlined the current state of the Colorado PDMP and has identified challenges and opportunities within the current framework. I ask the Task Force to provide recommendations for the technical architecture of the future state of the Colorado PDMP. In this analysis, evaluate the costs and benefits of various integration models as they relate to the preferences of Colorado stakeholders, the goals of Colorado's Health IT Roadmap, and the needs of end users. Additionally, analyze how each integration model has the ability to reduce healthcare costs in Colorado.   How can the PDMP best achieve the objectives of integration usability and healthcare cost savings within the broader goals of Colorado's Health IT Roadmap?

Sincerely,

Patty Salazar
Executive Director
Colorado Department of Regulatory Agencies

Cc: Jill Hunsaker Ryan, Executive Director, Colorado Department of Public Health and Environment

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