

Accounting, Auditing, and Financial Reporting: Legal Marijuana



Presented By
Auditor Dianne Ray, CPA, MPA
Director Chris Tholkes, MPA
Steven Whitney, JD.
Yoko McCarthy, MBA, CISA, CFE, CGFM

August 26, 2020



Agenda

- Introductions
- Legal Marijuana Market
- Colorado Recreational and Medical Marijuana Market
- Assessment of Colorado Department of Revenue's Administration of the Legal Marijuana Market
- Minnesota Marijuana Market
- Price Analysis of Medical Marijuana in Minnesota
- Q&A

Introduction to the Panel

Dianne Ray, CPA, MPA: State Auditor – Colorado Office of the State Auditor (OSA). Auditor Ray:

- Has worked for Colorado's OSA for over 18 years and has been Colorado's State Auditor for more than nine years
- Was just appointed to a five year term on the Government Accounting Standards Board (GASB)
- Was the recipient in 2016 of the NASACT's President's Award for commitment to government innovation and accountability, service as President of NASACT and a member of the NASACT Executive committee

Chris Tholkes, MPA: Director Minnesota Office of Medical Cannabis. Director Tholkes:

- Has over 30 years of experience working in public health
- Has worked for the Department of Health for over 10 years and has served as the Director of the Office of Medical Cannabis for over one and a half years

Introduction to the Panel (Continued)

Yoko McCarthy, MBA, CISA, CFE, CGFM: Senior Manager BerryDunn

Yoko has over 15 years of experience conducting audits, performance reviews, and cost analyses of public agencies. She led a price analysis of Minnesota's medical cannabis industry in 2020.

Steven Whitney, JD: Senior Manager BerryDunn

Steve has over 35 years of experience assessing state agencies and helping them develop internal controls and improve performance. He led a performance assessment of Colorado's legal marijuana program in 2019.

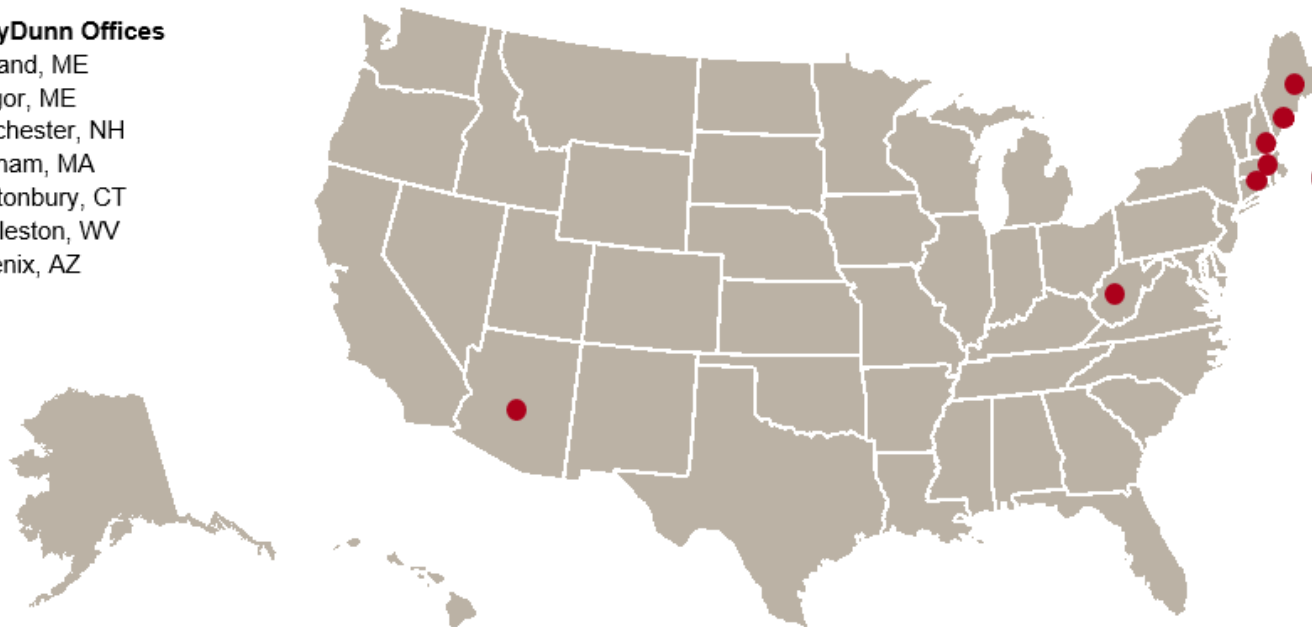
Introduction to BerryDunn

BerryDunn is headquartered in Portland, Maine, and we serve a wide range of public and private clients nationally by providing objective audit, consulting, and advisory services. We provide a wide range of services to a variety of public and private clients.

In 2019 we performed an assessment of the controls within Colorado's recreational and medical cannabis market. In 2020 we performed a price analysis of Minnesota's medical cannabis program.

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46 years in business



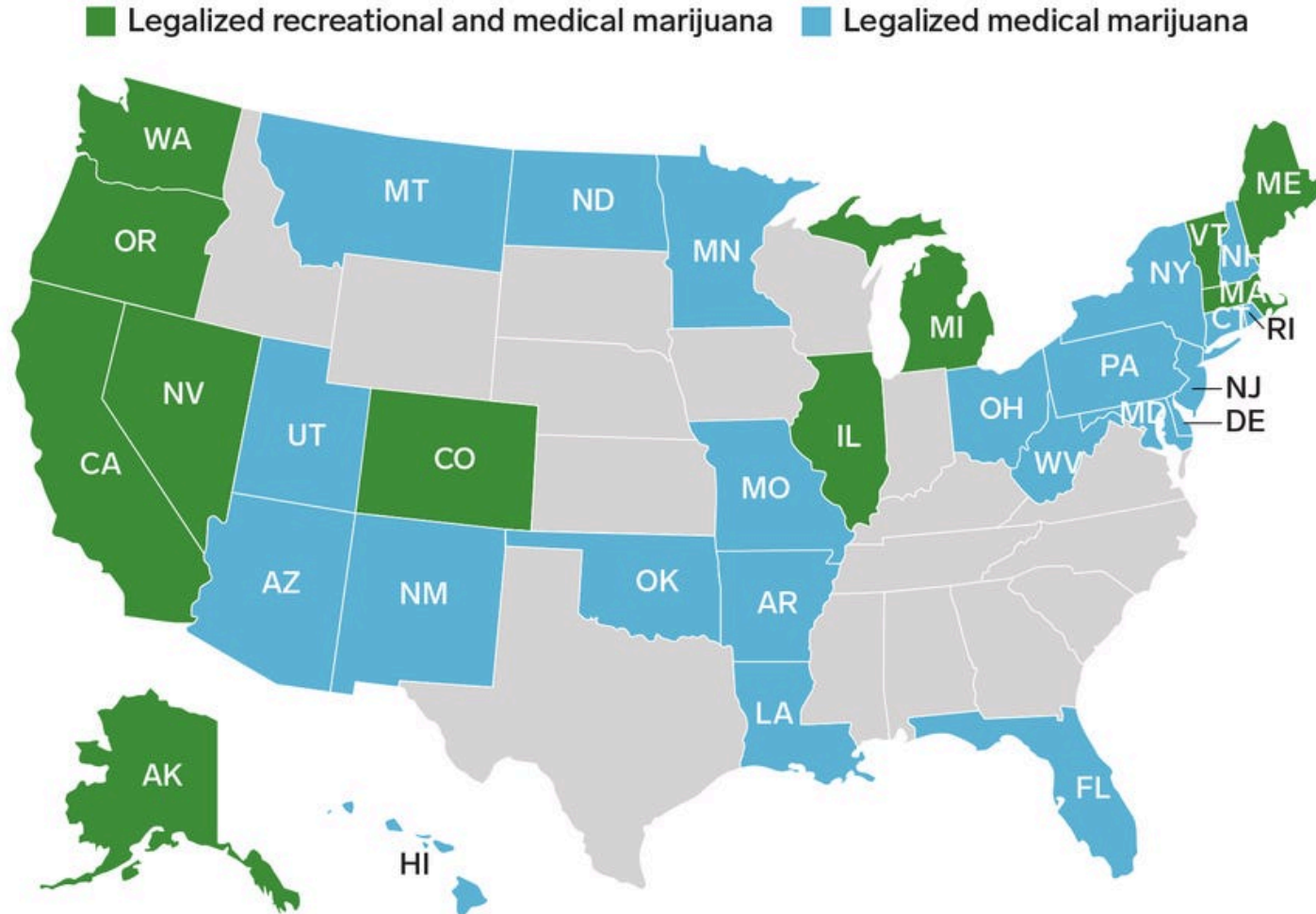
48 principals



500 employees

Legal Marijuana Market

States where marijuana is legal



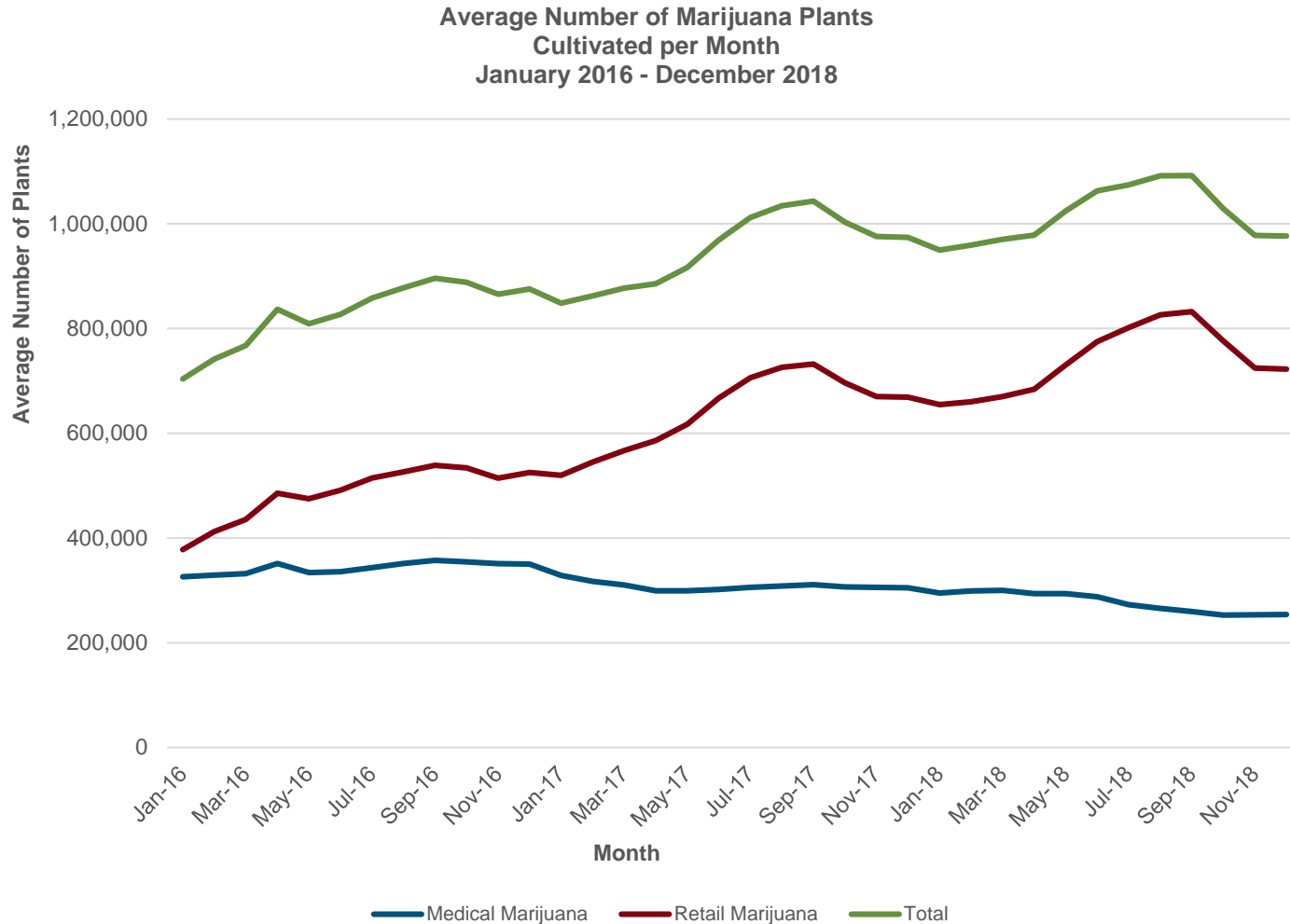
Introduction to the Colorado Office of State Auditor

- The OSA is a nonpartisan agency in Colorado's Legislative Branch.
- Its performance, financial, and IT audits provide the General Assembly, agencies, and the public with thorough, credible, and impartial assessments of the operation of state programs and the use of state and federal funds.
- OSA audits provide solution-based recommendations that focus on:
 - ✓ reducing costs,
 - ✓ increasing efficiency,
 - ✓ promoting the achievement of legislative intent,
 - ✓ improving effectiveness of programs and the quality of services,
 - ✓ ensuring transparency in government, and
 - ✓ ensuring the accuracy and integrity of financial and other information that decision makers need to hold government agencies accountable for the use of public resources.

Colorado Marijuana Market

- Colorado was the first state to legalize recreational marijuana use.
- Through amendments to the Colorado Constitution, voters legalized the use of medical marijuana in 2000 and the use of retail marijuana in 2012.
- As the first state to legalize marijuana for recreational use, Colorado has a more mature structure to oversee and administer the marijuana market.
- The Department of Revenue (DOR) is the state agency responsible for the administration and enforcement of Colorado's tax laws, as well as laws related to the cultivation, manufacture, distribution, sale, and possession of marijuana in Colorado.
 - ✓ The DOR created the Marijuana Enforcement Division (MED) to monitor the marijuana industry
 - ✓ The DOR designated a specialized unit to audit excise and retail sales taxes placed on marijuana businesses
- Colorado has received significant benefits from the legal marijuana market – in 2018 the State collected over \$ 251 million in tax revenues that have been used to fund education, help the homeless, fight drug addiction, and aid mental health programs.

Colorado – Marijuana Plants Cultivated



The average number of marijuana plants being cultivated per month increased from about 704,000 plants in January 2016 to about 977,000 plants in December 2018

Colorado Marijuana Business and Occupational Licenses

Marijuana Business and Individual Occupational Licenses by Type as of July 1, 2019				
Marijuana Business Licenses				
Medical Marijuana		Retail Marijuana		
License Type	Number	License Type	Number	
Centers Sell medical marijuana and medical marijuana-infused products to patients.	454	Stores Sell retail marijuana and retail marijuana products to purchasers age 21 or older.	566	
Cultivators Grow and cultivate medical marijuana at an additional premises that may not be contiguous with a licensed medical marijuana center or medical marijuana-infused product manufacturer.	610	Cultivators Cultivate retail marijuana for sale and distribution to other retail marijuana licensees.	699	
Infused-Product Manufacturers Manufacture medical marijuana-infused products intended for consumption other than by smoking (e.g., edible products, ointments, tinctures).	224	Product Manufacturers Manufacture retail marijuana products intended for consumption other than by smoking (e.g., edible products, ointments, tinctures).	287	
Testing Facilities Perform testing (e.g., potency, contaminants, and pesticides) on medical marijuana for medical marijuana licensees.	11	Testing Facilities Perform testing (e.g., potency, contaminants, and pesticides) on retail marijuana for retail marijuana licensees.	13	
Operators Own or operate a licensed medical marijuana establishment or receive a portion of the profits as compensation.	6	Operators Persons operating a licensed retail marijuana establishment, owners, and those who receive a portion of the profits as compensation.	8	
Transporters Provide logistics, distribution, and storage of medical marijuana and medical marijuana-infused products for other medical marijuana licensees.	9	Transporters Provide logistics, distribution, and storage of retail marijuana and retail marijuana products for other retail marijuana licensees.	13	
Research and Development/Research Cultivation Grow, cultivate, possess, and transfer by sale or donation, medical marijuana for limited research purposes.	1			
Total		1,315	Total	
			1,586	
Individual Occupational Licenses				
License Type		Number		
Associated Key Employees (Owner, Officer, Director)		1,665		
Key Employees (Manager, Supervisor, or Lead Worker)		13,465		
Support Employees (All Other Employees)		26,682		
Total		41,812		

Colorado DOR's Legal Marijuana Organizational Structure

Marijuana Enforcement Division (or MED)

- MED is the primary regulator of Colorado's legal marijuana industry, and it:
 - ✓ licenses businesses and their staff
 - ✓ analyzes data related to the growth, production, and sale of marijuana
 - ✓ conducts investigations of marijuana businesses

Taxpayer Services Division

- Processes excise and sales tax returns and payments filed by marijuana businesses.
- Performs initial validations of the returns to assess whether they are properly completed and that the payments match the returns.
- Promotes taxpayer compliance with the State's tax system through outreach activities.

Colorado DOR's Legal Marijuana Organizational Structure

Taxation Audit and Compliance Division

- **Audit and Compliance** collects delinquent taxes and conducts criminal investigations related to illegal, unlicensed marijuana businesses.
- **Field Audit** conducts audits of marijuana businesses, to ensure that all tax liabilities owed to the State have been identified and paid.

Colorado DOR's Information Systems Administering Legal Marijuana

The DOR's marijuana enforcement and marijuana tax-related activities depend on, and are supported by, three primary information systems.

Metrc®

- A statewide “seed-to-sale” inventory tracking system, known as Metrc®.
- A web-based system coupled with radio frequency identification (RFID) technology that allows licensees and MED to identify and account for all marijuana grown, processed, sold, and disposed of in the legal marijuana market.

MyLO




- Tracks the licensure status for all retail and medical marijuana businesses and their employees.

GenTax



- An integrated tax processing and information system the DOR uses to administer the State's tax laws, including the processing and collection of sales and excise taxes applicable to medical and retail marijuana businesses.

Seed-to-Sale Workflow



Marijuana Growth Phases/Transition Points and Associated Key Inventory Tracking Data

Growth Phase/Transition Point	Description	Key Data Points Recorded in Metrc®
<p>Immature Plant</p>  <p>23 Days*</p>	<p>Cultivators grow marijuana plants from seeds or the clones of a mother plant. Clones and seeds are planted into an immature plant batch. Not all immature plants develop properly; any plants that are not selected for continued growth are destroyed.</p>	<ul style="list-style-type: none"> • Group name (strain and date of planting) • Date of planting • Number of plants • Type of plant (seed or clone) • Plant strain • Destroyed plants
<p>Vegetative</p>  <p>49 Days*</p>	<p>Once a plant reaches the vegetative state (i.e., eight inches in height and/or width), cultivators must place a radio frequency identification (RFID) tag on the plant. The location where each plant is physically located must also start being tracked in Metrc® that represent the various physical locations where plants are housed during the vegetative, flowering, and harvest phases. Any plants that are not selected for continued growth are destroyed.</p>	<ul style="list-style-type: none"> • Date of transition from immature plant to the vegetative phase • Date RFID tag is affixed to plant • Plant RFID number • Assigned room • Date plant is moved to the assigned room • Destroyed plants
<p>Flowering</p>  <p>58 Days*</p>	<p>Flowering is the reproductive state of the plant in which there are physical signs of flower or budding out of the nodes in the stem. A plant is considered to be in the flowering stage once the growing light cycle changes to 12 hours of light and 12 hours of darkness. Plants are ready for harvest once they reach the end of the flowering phase. Any plants that are not harvested are destroyed.</p>	<ul style="list-style-type: none"> • Date of transition from vegetative phase to flowering phase • Replacement RFID tag number (if needed) • Assigned room • Date plant is moved to the assigned room • Destroyed plants

Seed-to-Sale Workflow

Growth Phase/Transition Point	Description	Key Data Points Recorded in Metrc®
<p>Harvest</p> 	<p>Once plants are ready for harvest, cultivators create a harvest batch in Metrc®, assign a harvest batch identification number, and record the harvest date to document that the plants are no longer active and viable.</p> <p>Cultivators and MED use industry averages to ensure that harvest batches lose wet weight at an expected rate and identify anomalies. During the harvest and cure process, unusable excess plant material is generated as roots, leaves, and stems are removed. All such waste must also be weighed and tracked.</p>	<ul style="list-style-type: none"> • Harvest batch identification number • Plant RFID numbers included in harvest • Harvest date • Plant wet weight • Waste • Destroyed plants
<p>Testing</p> 	<p>Before a harvest batch can be released for packaging, a sample package is created and sent to a lab for potency, microbiological contaminant, and pesticide testing. Once a sample passes all required tests, including any retests, the harvest batch is released for packaging, transfer, and sale. Cultivators must destroy or remediate harvest batches that fail the testing process.</p>	<ul style="list-style-type: none"> • Sample package identification number • Weight • Transfer vehicle's make, model, license plate number, and planned route • Transfer driver's name, phone number, and occupational license number • Date and time of acceptance by recipient • Recipient's name and license number • Test results

Seed-to-Sale Workflow

Growth Phase/Transition Point	Description	Key Data Points Recorded in Metrc®
<p data-bbox="79 319 413 354">Packaging & Transfer</p> 	<p data-bbox="533 319 1213 615">At the completion of the harvest phase and successful testing, the cultivator packages the marijuana for transfer to a retail marijuana store, a medical marijuana center, or a product manufacturer. Multiple packages can be created from a single harvest batch, and any time marijuana or marijuana product is repackaged, a new package RFID tag must be created and details about the package entered and tracked.</p> <p data-bbox="533 644 1213 805">As packaged marijuana and marijuana products are transferred between cultivators, product manufacturers, and stores/centers, the complete details of the transfer must be recorded and tracked.</p>	<ul data-bbox="1242 319 1843 825" style="list-style-type: none"> • Package RFID • Package weight • Package contents • Package history (harvest batch, testing results, transfers, repackaging) • Travel manifest (what, how much, and to whom the package is being transferred) • Transfer driver's name, phone number, and occupational license number • Transfer vehicle's make, model, license plate number, and planned route • Date and time of acceptance by recipient • Recipient's name and license number
<p data-bbox="79 853 227 888">Purchase</p> 	<p data-bbox="533 853 1213 1015">The sale to the end consumer is the final step in the seed-to-sale process. Metrc® is not a sales transaction system; however, all sales information is entered into Metrc® and tied to the specific package RFID tag so that inventory records are kept current.</p> <p data-bbox="533 1043 1213 1239">Specifically, the weight and/or count of all on-premises marijuana must be reconciled at the close of business each day. A summary of sales transactions, which includes total quantity, unit of measure, and total dollars for the day, is prepared daily for all packages sold</p>	<ul data-bbox="1242 853 1547 1053" style="list-style-type: none"> • Package RFID • Total quantity sold • Unit of measure • Date and time of sale • Dollar amount of sale

MED's Use of Data Analytics

- MED's investigations of licensees result from a number of different sources:
 - ✓ Public tips and complaints
 - ✓ Referrals by other federal, state, or local agencies
 - ✓ Observations by MED personnel of actions by a licensee that raise potential compliance questions
 - ✓ Analysis of licensing and inventory tracking data.
- In Fiscal Years 2017 and 2018, MED initiated a total of 1,085 and 1,022 investigations, respectively.
- MED uses data analytics as a source for generating investigation leads and targeting its investigation activities.
- MED's investigators use checklists to structure their review of information in Metrc[®] and its licensing system, MyLO, and develop an overall profile of the licensee.

MED's Use of Data Analytics

Two sample analytical process that MED performs are:

Industry Benchmarking

- MED maintains and uses historical data from Metrc[®] to establish industry norms for every step in the cultivation, harvest, and packaging process.
- MED analyzes these data to identify those businesses that are outliers and where further inquiry and investigation may be warranted.
- MED analyzes Metrc[®] data to identify weight adjustments that are outside of expected and acceptable ranges.

Risk of Diversion

- MED analyzes marijuana inventory tracking data from Metrc[®] to identify circumstances where there could be a higher risk of diversion or other noncompliant activity.

Excess Inventory - Diversion Risk Analysis

Excess Inventory

- MED runs and distributes the “506 Report” to identify facilities whose inventory is greater than the amount they sold in the previous 6 months.
- MED’s investigators use the 506 Report to identify and prioritize investigations of businesses.
- Once on site, investigators compare data in Metrc[®] to the on-site inventory records and the physical inventory.
- Investigators count all concentrate and infused products and weigh all plant material.
- This inspection validates the Metrc[®] data and helps inspectors determine whether the facility has excess inventory.

No Useable Marijuana - Diversion Risk Analysis

No Useable Marijuana Packages Created

- When a licensee completes a harvest batch in Metrc[®] and reports limited or no usable products, it could be a flag that there is an issue.
- The table below shows an example of the type of inventory data MED extracts from Metrc[®] and provides to investigators.

Example of No Useable Marijuana Product Report						
Licensee	Harvest Batch	Batch Date	Number of Plants Harvested	Wet Weight (g)	Waste Weight (g)	Weight Left Unreported (g)
403R-XXXX1	BD050119	05-01-2019	6	4,000	1,200	2,800
403R-XXXX1	CC050119	05-01-2019	4	1,000	400	600
403R-XXXX1	XY042219	04-22-2019	8	6,000	2,400	3,600

- In the example, the cultivator has three separate harvests without associated marijuana packages, resulting in approximately 7,000 grams of unreported marijuana.
- MED uses this type of analysis to identify cases that should be investigated.

Additional Examples of Diversion Risk Analysis

MED relies on a number of other queries and analyses of Metrc[®] data to identify data patterns where there may be a risk of diversion.

Examples of MED Data Analysis to Identify Diversion Risk	
Data Pattern	Diversion Risk
Medical-to-Retail and Retail-to-Medical Transfers	Such transfers are only permitted under limited circumstances and could indicate that inventory is being manipulated to mask diversion.
Expired Patients	Keeping patients active after their medical marijuana card has expired could be used to manipulate inventory limits to mask diversion.
Package Adjustments Over Certain Amounts	Large adjustments in product weights could indicate that inventory is being manipulated to mask diversion.
Atypical or Unusual Plant Life Cycles	Plant life cycles that are outside of typical ranges could indicate that plant inventories are being manipulated to mask diversion.
No Reported Sales	If no marijuana sales occur for a number of days, there is a risk that on-hand inventory could be diverted.

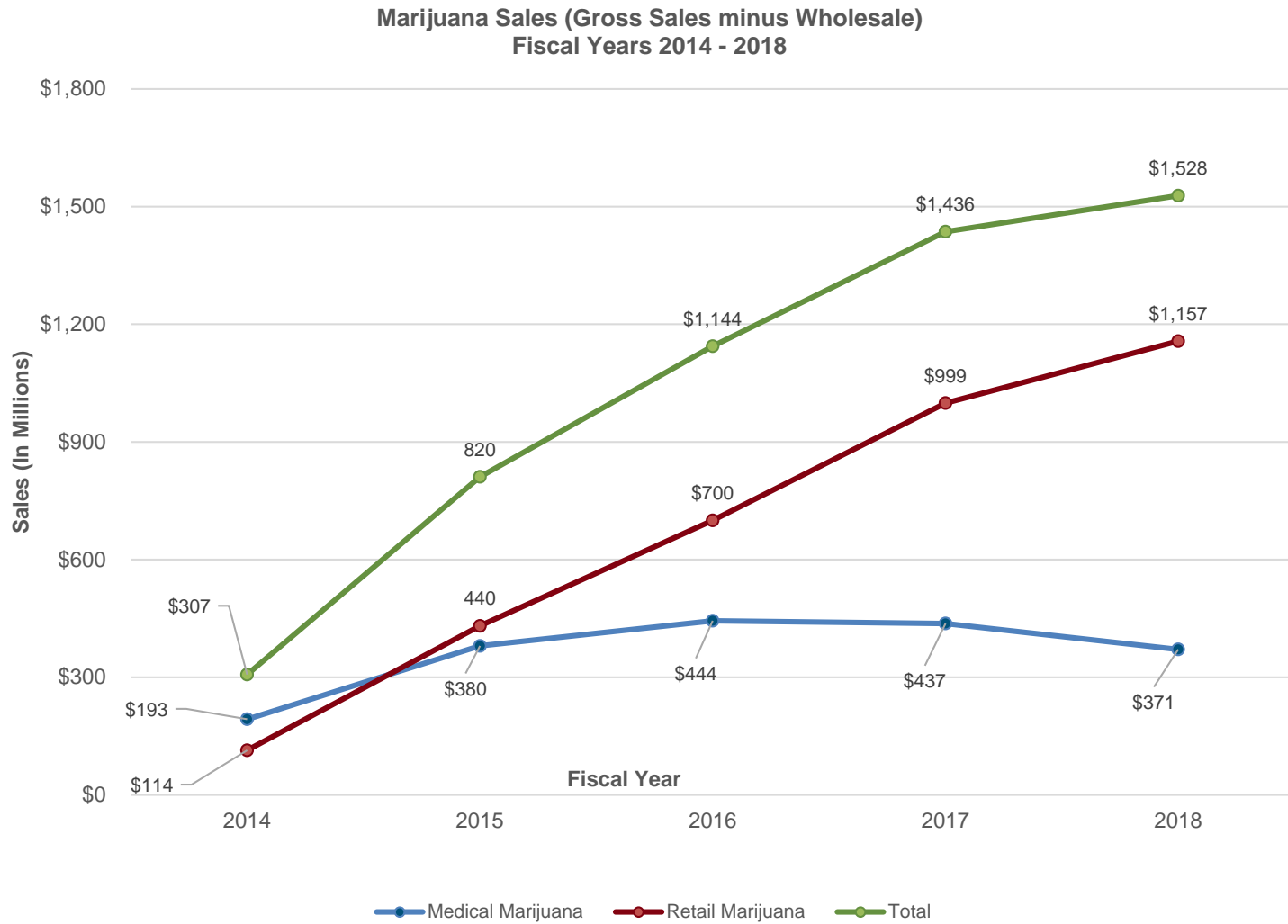
Additional Data Analytic Capabilities

- MED is pursuing a “Big Data as a Service” solution to house data from multiple systems and sources in one centralized data repository (referred to as a Data Lake).
- The Data Lake initiative will allow it to process more data, from more sources, and lead to more collaboration and data-driven decision making.
- The Data Lake will enable MED to create dashboards with real-time analytics and facilitate data mining and other advanced analysis.
- The Data Lake was implemented and became fully functional in the fall of 2019.

Tax Compliance

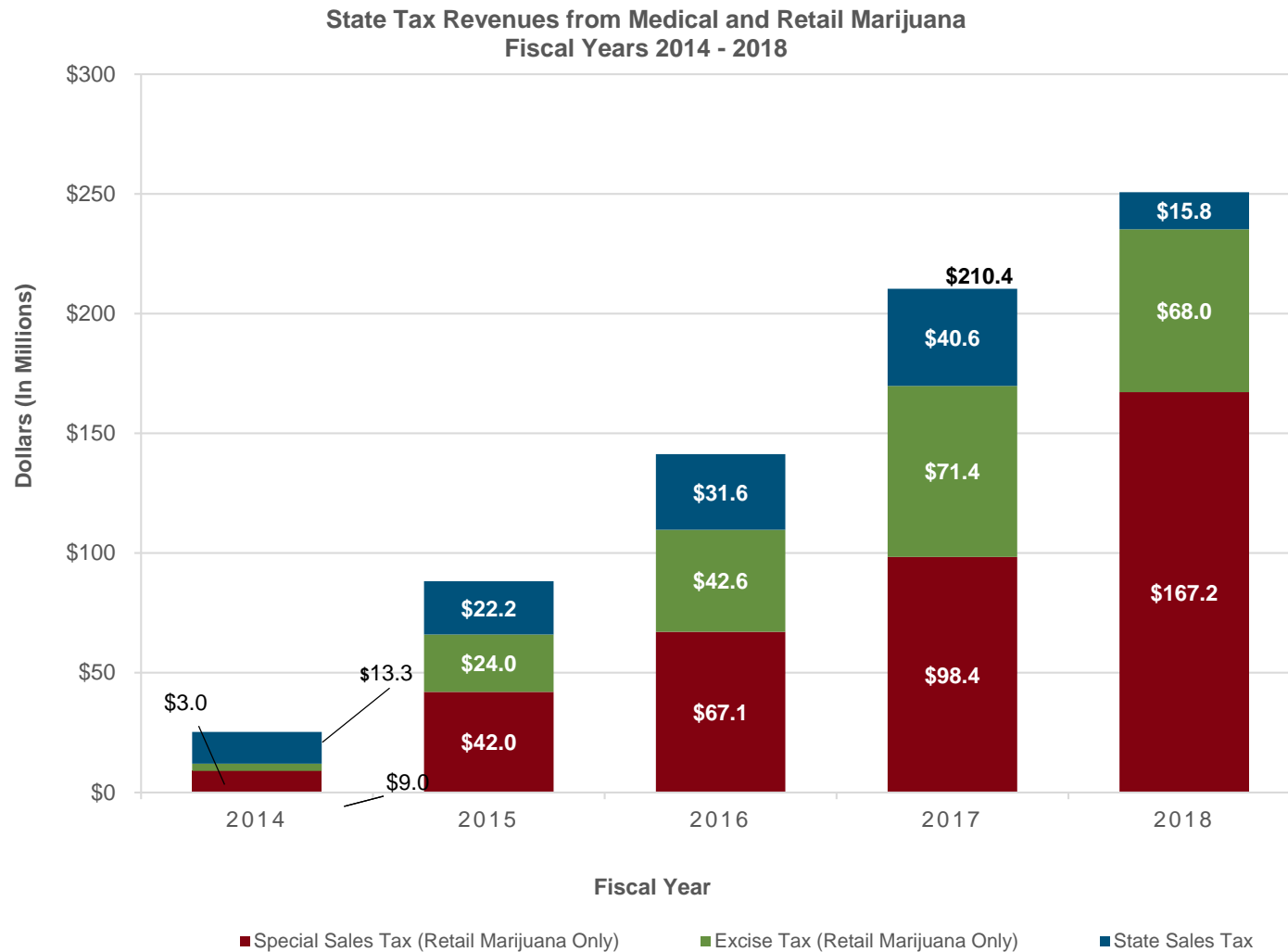
- During Fiscal Years 2015 through 2019, 1,102 marijuana excise tax accounts and 650 marijuana sales tax accounts were registered with the Department.
- Excise taxpayers reported taxable marijuana transfers totaling about \$1.8 billion for fiscal years 2015 through 2019.
- Sales taxpayers reported taxable marijuana sales of approximately \$4.8 billion for the same period.

Colorado - Marijuana Sales



Total combined marijuana sales increased by almost 400%—from \$307 million in Fiscal Year 2014 to more than \$1.5 billion in Fiscal Year 2018.

Colorado - Marijuana Tax Revenues



State tax revenues from marijuana increased by over 890%, from \$25.3 million in Fiscal Year 2014 to \$250.7 million in Fiscal Year 2018.

Taxpayer Services

Taxpayer Services:

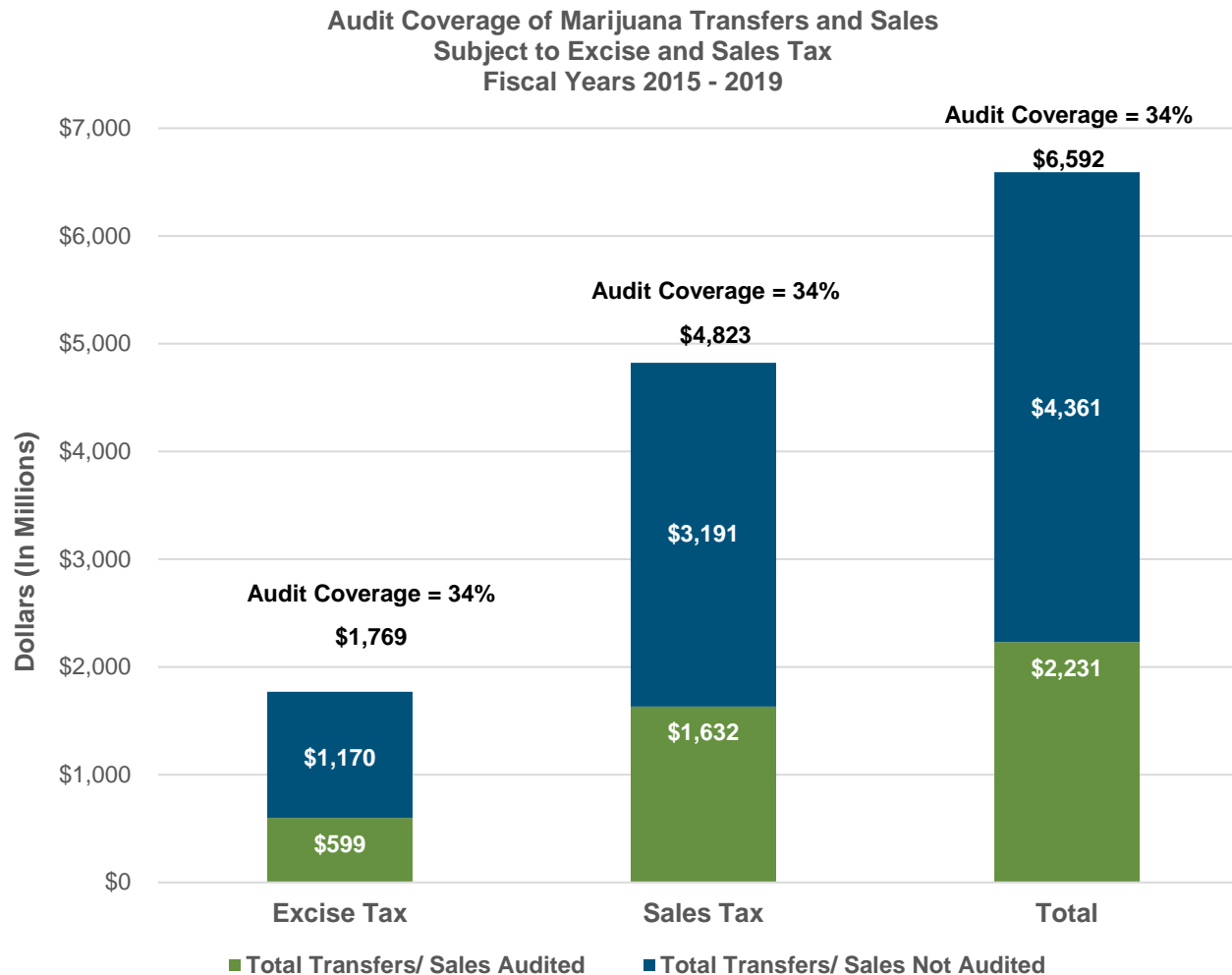
- Supports excise and sales taxpayers during the filing process
- Performs initial validations of the returns to assess whether they are properly completed and that the payments match the returns.
- Identifies potential nonfilers (-) matches data in GenTax and MyLO to:
 - ✓ Identify any marijuana business licensees that do not have a corresponding GenTax account.
 - ✓ Cross-verify information about marijuana businesses, such as the start and expiration dates of their license, to identify period when taxable marijuana transfers and sales occurred.

Audit

Field Audit:

- Field Audit is responsible for conducting audits of Colorado businesses and they have nine auditors who spend 70% of their time on audits of marijuana businesses.
- Field Audit uses “R,” a language and platform for statistical computing, to analyze tax return and inventory data to identify audit candidates.
- Each year Field Audit modifies its audit selection criteria based on what it learns from prior statistical models.
- Examples of the types of analyses Field Audit performs to identify audit candidates includes:
 - ✓ Comparison of marijuana transfers on excise tax filings with Metrc[®] data to identify possible underreporting of marijuana transfers.
 - ✓ Analysis of bud-to-trim weight ratio data in Metrc[®] to identify possible misclassification of marijuana transfers subject to excise tax.
 - ✓ Analysis of claimed deductions in GenTax data to identify possible overstatement of claimed deductions.

Audit



Field Audit has audited over \$2.2 billion—or about 34%—of the nearly \$6.6 billion in combined marijuana transfers and sales subject to excise and sales taxes between July 1, 2015 and June 30, 2019.

Findings

The DOR should strengthen inter-divisional communication about marijuana-related activities

The Government Accountability Office's *Standards for Internal Control in the Federal Government* (Green Book) provides that management should:

- Communicate quality information throughout the Department.
- Communicate quality information down and across reporting lines to enable personnel to perform key roles in achieving objectives, addressing risks, and supporting the internal control system.
- Assign the internal control responsibilities for key roles in internal communication.
- Receive quality information about the Department's operational processes that flows up the reporting lines from personnel to help management achieve its objectives.

Recommendations

To strengthen inter-divisional communication about marijuana-related activities we recommended that the DOR:

- Establish a formal communications plan or other procedural document that specifies:
 - ✓ what information should be communicated between divisions,
 - ✓ how the information should be communicated,
 - ✓ the frequency of the communication, and
 - ✓ which personnel should receive and have access to the information being communicated.
- Re-institute routine inter-divisional meetings to coordinate and share information about observed issues and trends with individual marijuana businesses and the marijuana industry more generally.

Attendance Check

Introduction to the Minnesota Office of Medical Cannabis

- The Office of Medical Cannabis was formed in 2014 to administer Minnesota's medical cannabis program – the Office:
 - ✓ Develop policies and procedures for administration of the medical cannabis program
 - ✓ Enrolls applicants in the medical cannabis program who have been certified as having a qualifying condition by a Minnesota-licensed health care practitioner
 - ✓ Administers the two manufacturers that grow and produce cannabis and the eight dispensaries that sell the cannabis
 - ✓ Reviews petitions for approving additional qualifying conditions for medical cannabis use

Minnesota Medical Cannabis Market

- Legislation passed in 2014 legalized the sale of cannabis to Minnesotans who are certified with a “Qualifying Condition.”
- To purchase cannabis under the medical cannabis program, Minnesotans must:
 - ✓ receive certification from a Minnesota-licensed health care practitioner that they have a qualifying condition
 - ✓ submit an application to the Minnesota Department of Health
 - ✓ have the Department of Health process the application and enroll the applicant
 - ✓ purchase medical cannabis from one of eight dispensaries
- Medical cannabis is provided to patients as a liquid, pill, topical or vaporized delivery method that does not require the use of dried leaves or plant form.

Minnesota Medical Cannabis Market

- The State is limited to two vertically integrated cannabis manufacturers with responsibility for:
 - Cultivation
 - Processing/extraction
 - Product sales
- There are eight dispensaries located in the state.
- No state centralized seed-to-sale software system. Each manufacturer has their own system.
- Patient registry system

Minnesota Medical Cannabis Program Statistics

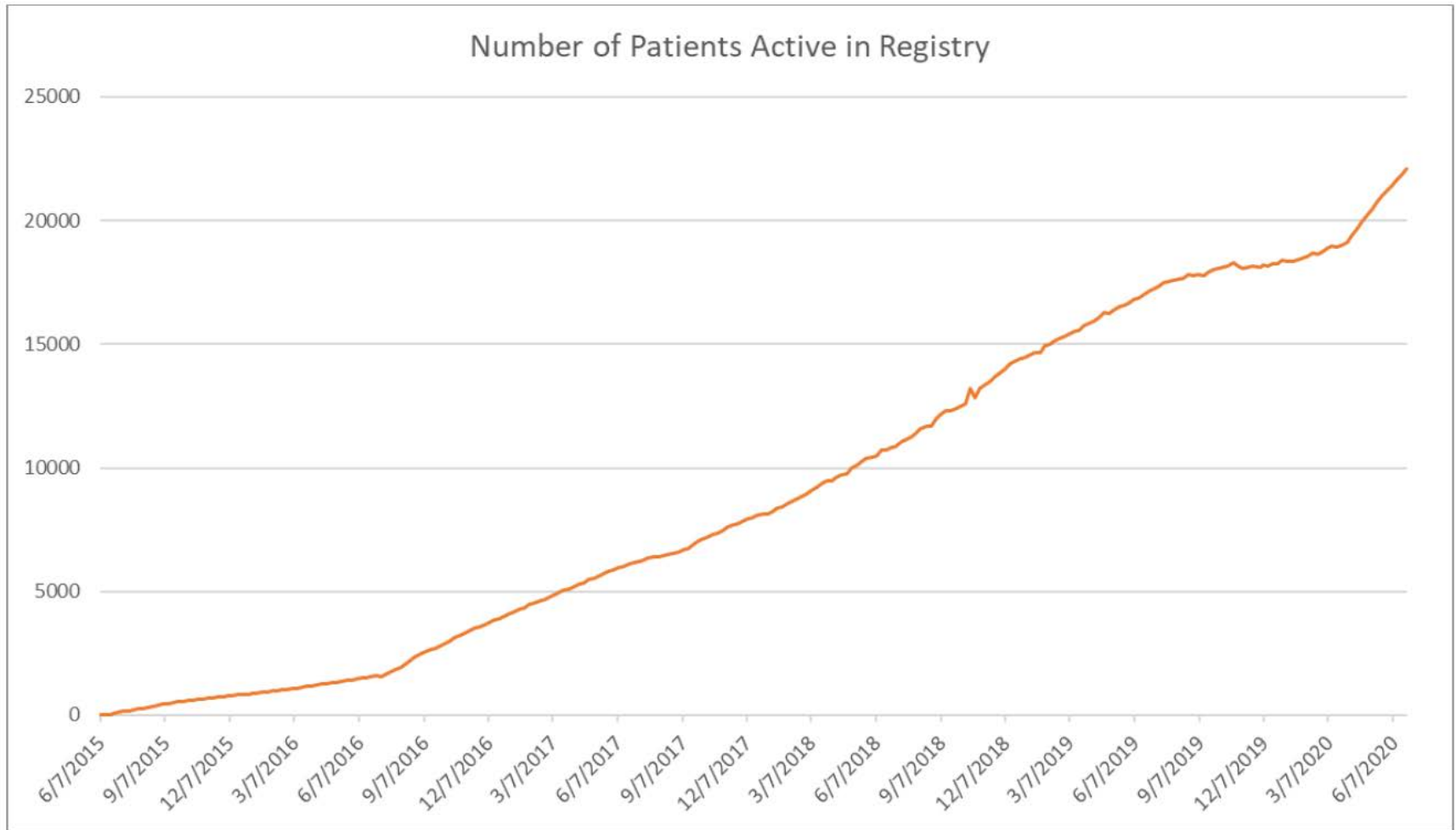


Figure 2. Weekly number of patients enrolled and in active status in registry, as of June 30, 2020.

Minnesota Medical Cannabis Program Statistics

Count (%) of Active Patients by Condition as of June 30, 2020

Qualifying Condition	# of Patients Certified	%
Intractable pain	14,236	64%
Post-Traumatic Stress Disorder	5,027	23%
Severe and persistent muscle spasms	2,607	12%
Cancer	1,581	7%
Obstructive Sleep Apnea	1,123	5%
Seizures	688	3%
Inflammatory Bowel Disease, including Crohn's Disease	633	3%
Autism Spectrum Disorder	564	3%
Glaucoma	154	1%
Terminal illness	137	1%
HIV/AIDS	129	1%
Tourette Syndrome	129	1%
Alzheimer's Disease	33	> 1%
Amyotrophic Lateral Sclerosis (ALS)	30	> 1%
Total count of certified conditions:	27,071	
* Total number of certified patients	22,233	100%

- Patients certified total more than 100% because 16.8% of the 22,233 patients are currently certified for more than one condition; this table counts each certified condition.

Why a Price Study?

1. Steady program growth over 5 years
2. In the past 1.5 years there has been a political movement to expand the medical cannabis program and add recreational cannabis
3. Top two complaints about the program:
 - Access – only 8 dispensaries statewide
 - Cost – anecdotal stories of patients regularly spending over \$800 per month

Objectives of the Medical Cannabis Price Study

The objectives of this study included:

1. **Minnesota Medical Cannabis Price Study:** Documentation of available medical cannabis products and historical prices during the review period, October 2016 to December 2019
2. **Medical Cannabis Price Comparison:** Analysis and documentation of the current prices of sampled medical cannabis products in the states of Colorado, Michigan, New York, Ohio, Pennsylvania, and Washington that are comparable to the medical cannabis products offered in Minnesota
3. **Sales Data by Category:** Documentation of discount programs offered during the review period, and documentation of the total number of units sold, sales, discounts applied, and net sales from medical cannabis sales in each quarter during the review period
4. **Average 30-Day Supply Cost by Qualify Conditions (QCs):** Calculation of the average amount spent for a 30-day supply of medical cannabis by registered patients

Medical Cannabis Products Offered in Minnesota

Number of Unique Medical Cannabis Products Available in Minnesota as of December 2019

Medicine Type	THC Dominant	THC=CBD	CBD Dominant	Total	
Vape Oil	13	6	2	21	34%
Oral Suspension	11	6	5	22	36%
Capsule	7	2	2	11	18%
Topical	2	3	2	7	12%
Total	33	17	11	61	100%
	54%	28%	18%	100%	

Medical Cannabis Market Comparison

We analyzed and documented the current prices (as of March 2020) of sampled medical cannabis products in the six comparison states that are comparable to the cannabis products offered in Minnesota. The six states included: Colorado, Michigan, New York, Ohio, Pennsylvania, and Washington

Approximate Number of Dispensary Companies and Locations			
Location	Approx. No. of Medical Dispensary Companies	No. of Locations	REC/MED
Minnesota	2	8	MED
Colorado	258	437	REC/MED
Michigan	58	228	REC/MED
New York	12	40	MED
Ohio	27	51	MED
Pennsylvania	12	23	MED
Washington	135	179	REC/MED

We selected a minimum of five distribution facilities for each of the six states and collected medical cannabis product prices directly from each facility's websites.

Medical Cannabis Price Comparison (Cont'd)

Limitations/constraints

- *Limited availability of information:* Detailed product information, such as THC and CBD content or THC and CBD prices, was not consistently available.
 - For THC or CBD dominant products, we calculated the approximate price of THC or CBD by dividing the unit price by the amount (mg) of THC or CBD contained in the product.
 - In order to calculate the approximate price of THC and CBD more accurately, we only included medical cannabis products that contain over 95% of THC or over 95% of CBD for this study. As a result, eight medical cannabis products offered by MinnMed were excluded from this study.
 - For products that contain equal amounts of THC and CBD (THC=CBD), we calculated the approximate price of cannabis, not the individual prices of THC and CBD, by dividing the unit price by the amounts (mg) of THC and CBD combined.
- *Limited sample sizes:* None of the sampled distribution facilities offered all of the product types Minnesota offers, which necessitated varying sample sizes among product types.
- The lowest/highest prices for the six comparison states in our report are within our samples only, and may not represent the lowest/highest prices for the state.

Medical Cannabis Price Comparison (Cont'd)

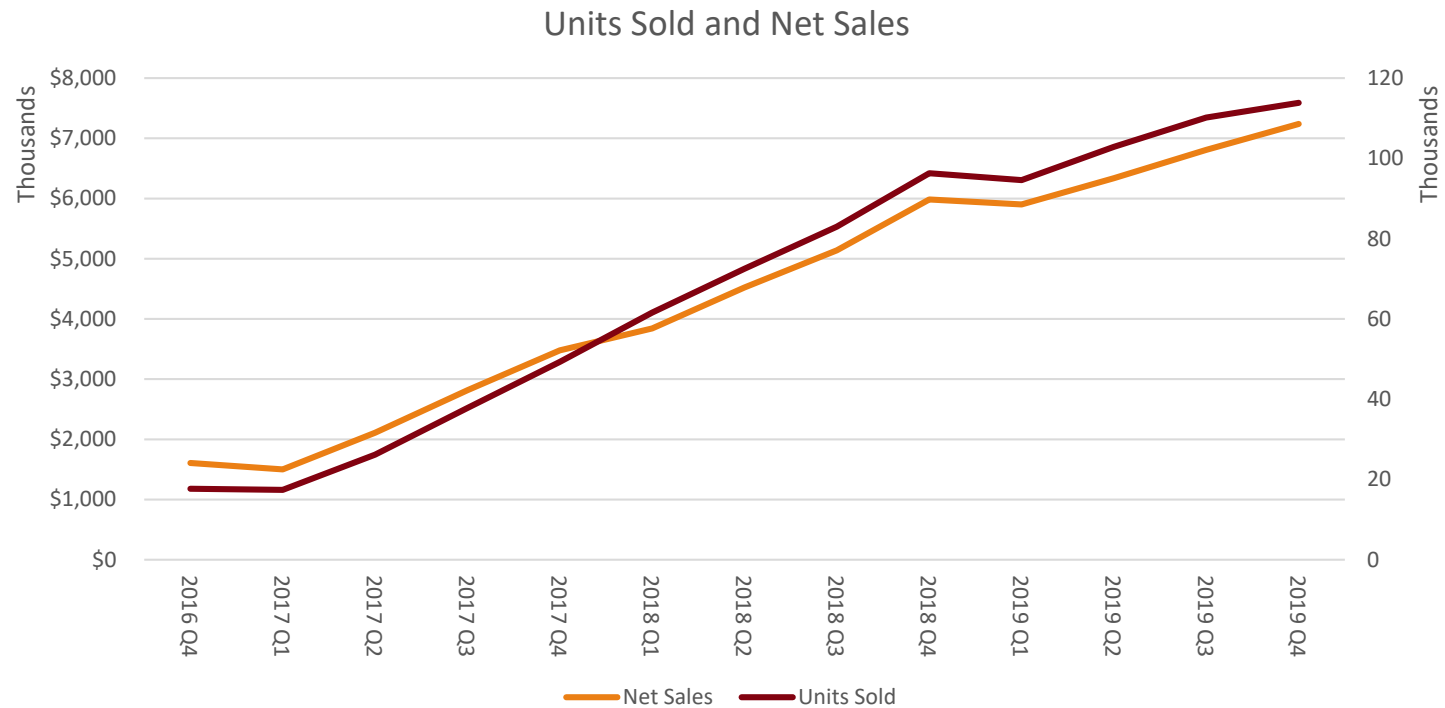
Our key observations:

- Minnesota offers medical cannabis products at comparable prices to equivalent products in the six comparison states
- The other states offer a wider variety of product categories such as flower, edibles (food items that contain marijuana product), and additional types of topical. All six comparison states sell flower products.

Sales Data by Category

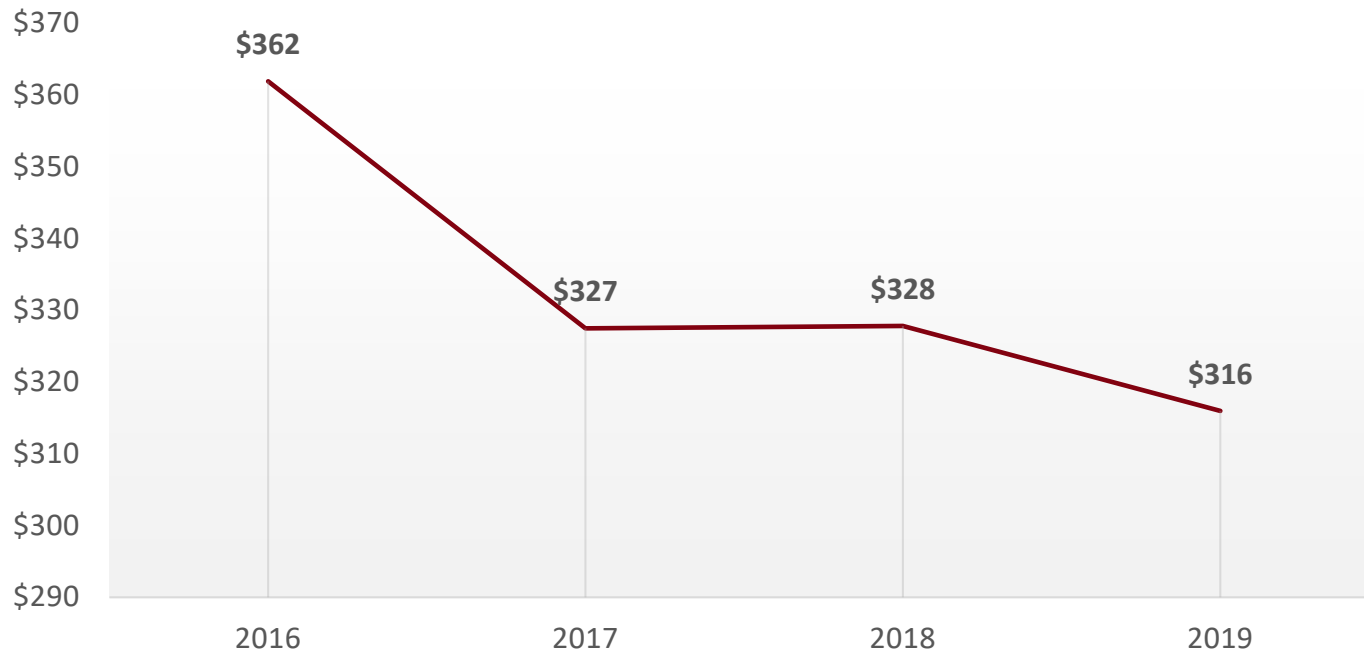
Our Key Observation:

The sales of medical cannabis products continuously increased during the review period both in the number of units sold and revenue.



Average 30-Day Supply Cost

Average 30-Day Spend in Minnesota 2016 – 2019

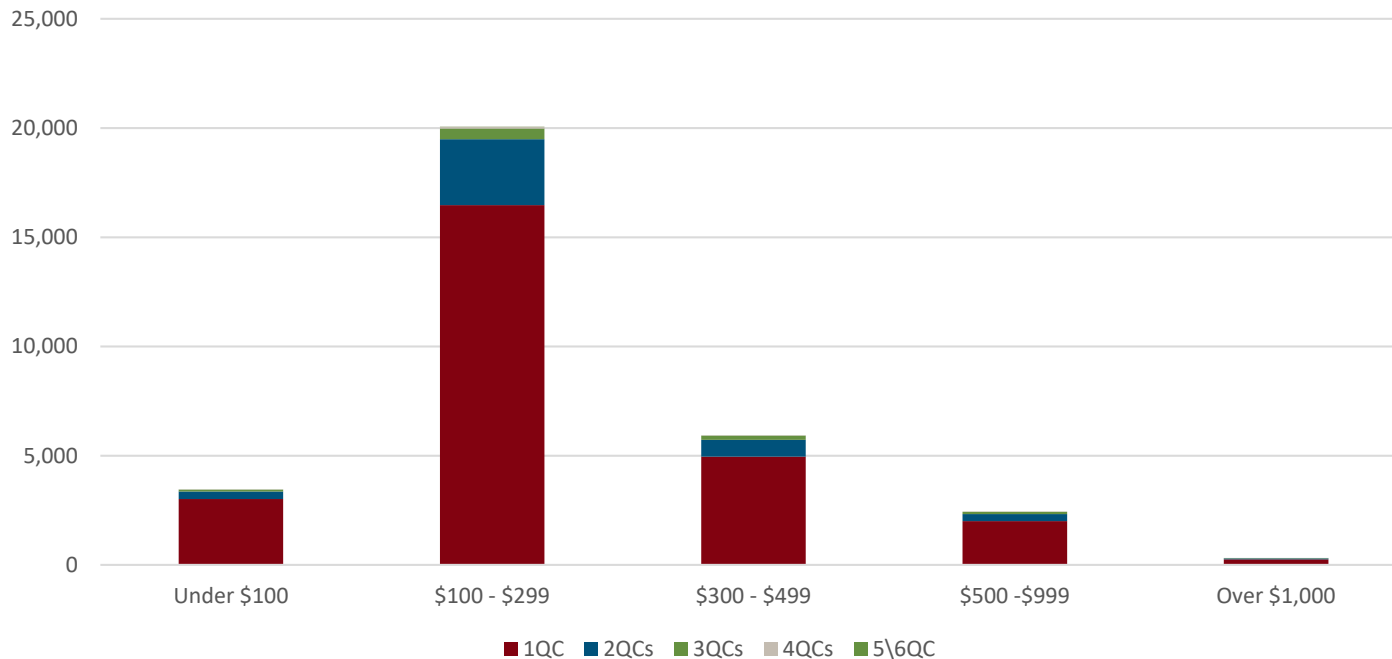


Our Key Observation:

The data shows overall average 30-day spend decreased by \$46, from \$362 in 2016 to \$316 in 2019. One of the contributors to this decrease may have been a decrease in cannabis prices.

Average 30-Day Supply Cost by Qualifying Conditions (QCs)

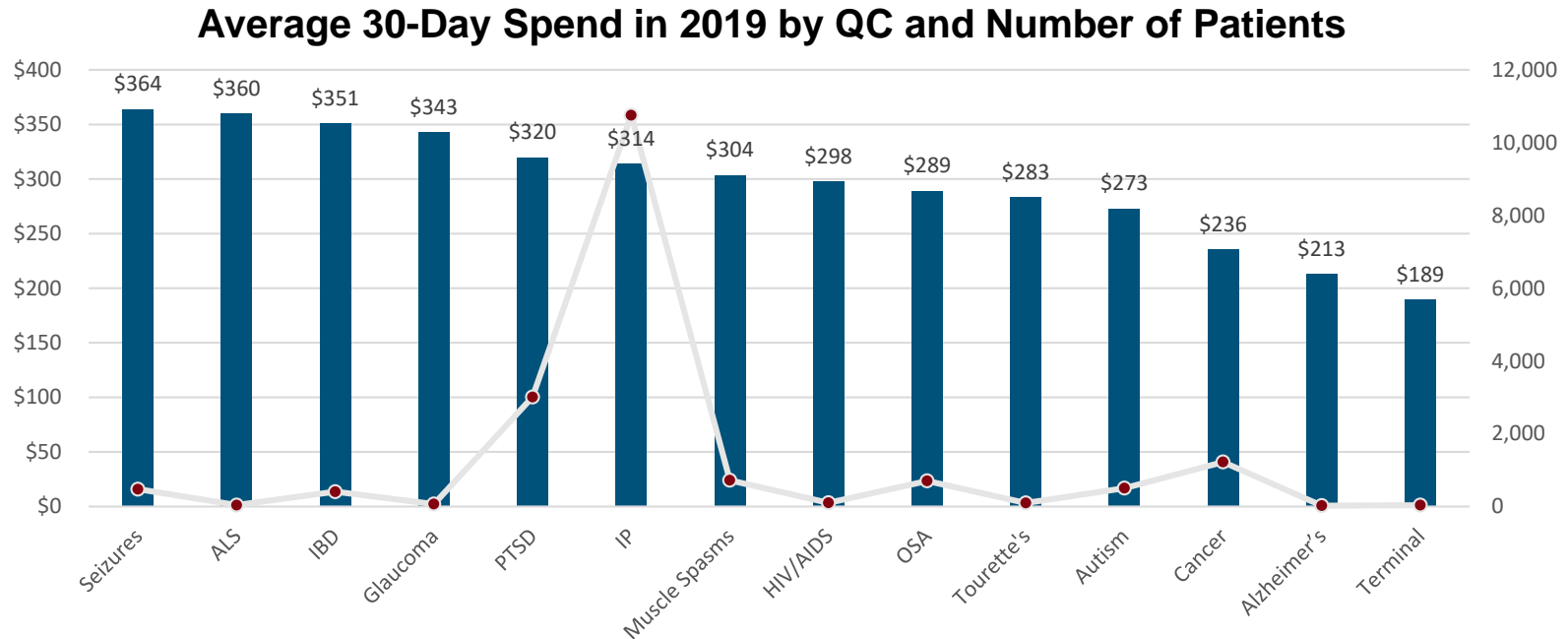
Number of Patients by Average 30-Day Spend by Number of QCs



Our Key Observation:

The data indicated that 73% of patients spent more than \$100 and less than \$300 a month on average for medical cannabis in 2019.

Average 30-Day Supply Cost by QC



Our Key Observations – the data in this section only includes patients with one QC:

- The number of patients with intractable pain (IP) is significantly higher than any other conditions.
- In 2019, the patients with seizures had the highest average 30-day spend and the patients with terminal disease had the lowest. However, the average 30-day spend of patients with terminal disease was much lower in 2019 compared to the previous years (e.g. \$345 in 2018)
- There might not be sufficient historical data of patients with Alzheimer's disease to present a general spending pattern because it was only added as a QC on August 1, 2019.



Questions?



Contact Us

Diane Ray, CPA, MPA
Colorado State Auditor
Dianne.ray@state.co.us
303-869-2800

Chris Tholkes, MPA
Director Minnesota Office of Medical Cannabis
Chris.Tholkes@state.mn.us
651-201-5598

Steven Whitney, JD
Senior Manager
swhitney@berrydunn.com
207.541.2288

Yoko McCarthy
MBA, CISA, CFE, CGFM
Senior Manager
ymccarthy@berrydunn.com
207.541.2312