Legal Cannabis and Consumer Protection in Denver

National Cannabis Summit
August 28, 2017
Welcome to COLORADO
How did we get here?

- **2012:** Amendment 64 petitioned onto the ballot amended the Colorado constitution legalizing the personal, private use of marijuana
- Passed in Colorado by about 55% of the vote & in Denver by 66%
- **Allows adults over 21 to:**
  - Possess up to one ounce of marijuana
  - Possess and grow up to six marijuana plants, only 3 of which can be flowering
  - Transfer up to 1oz of MJ between adults without payment
  - Private consumption of MJ
  - Assist another adult in any of these acts
For the past week now, Colorado has been allowing the sale of legal recreational marijuana. In a related story, in one week the population of Colorado has jumped to 315 million people.

- Conan O’Brien, January 09, 2014
To operate a licensed marijuana business in Denver, you must have **BOTH** a state license AND a local license.

The Colorado **Marijuana Enforcement Division (MED)** licenses and regulates marijuana businesses for the state.

The **Denver Department of Excise and Licenses** licenses and regulates for the city.
State Marijuana Licensing
Includes people too

- All owners, employees, vendors, support personnel in the marijuana industry must obtain an **occupational license** through the MED
- Only badged employees can enter restricted access areas of the marijuana business.
State Marijuana Licensing
“Seed to Sale” Tracking

• When a marijuana plant reaches a certain size, it must be identified with an affixed radio frequency identification (RFID) tag

• The RFID tag is scanned into the MED tracking system called “METRC”
Main Governmental Partners

City of Denver
- Dept of Environmental Health
- Denver Fire Dept
- Denver Office of Marijuana Policy
- Dept. of Excise & Licenses
- Denver Police Dept
- Community Planning & Development
- Risk Management
- City Attorney’s Office

State of Colorado
- Dept of Revenue, Marijuana Enforcement Division
- Colorado Department of Agriculture
- Colorado Dept of Public Health & Environment
- Colorado Attorney’s General
Marijuana Business Licenses

- Denver has 8 distinct Marijuana Licenses:

<table>
<thead>
<tr>
<th>Retail Stores</th>
<th>Medical Centers</th>
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<tbody>
<tr>
<td>Retail Cultivation</td>
<td>Medical Cultivation</td>
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<tr>
<td>Retail Infused Products</td>
<td>Medical Infused Products</td>
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<tr>
<td>Retail Testing Facility</td>
<td>Medical Testing Facility</td>
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- Currently, Denver has 1,125 licenses operating out of 489 unique locations.
### Number of Annual Compliance Inspections Performed
By Each City Agency per License Type

<table>
<thead>
<tr>
<th>License Type</th>
<th>Environmental Quality</th>
<th>Excise and Licenses</th>
<th>Fire Department</th>
<th>Public Health Inspections</th>
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<tbody>
<tr>
<td>Retail Stores</td>
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<tr>
<td>Retail Cultivation Facilities</td>
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<td>Retail Infused Products Manufacturers</td>
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Denver’s accredited local public health department

5 Divisions with 200 employees:
- Office of the Medical Examiner
- Denver Animal Protection
- Environmental Quality
- Community Health
- Public Health Inspections
  - 2 Sections:
    - Food Safety & Marijuana
    - Healthy Families/Healthy Homes
Denver’s accredited local public health department

Public Health Inspections Division

– Healthy Families/Healthy Homes Section
– Food Safety & Marijuana Section
  • 17 Food/MJ investigators
  • 2 fulltime MJ investigators
  • 4 supervisors, 1 manager
Denver Revised Municipal Code:

• **Chapter 23: Food & Food Handlers**
  – Denver has its own food safety regs
  – Denver food safety regulations have been applied to marijuana food businesses since 2010
  – Includes concentrates if ingested

• **Chapter 24: Health & Sanitation**
  – Enforcement authority for hindering an investigation
  – Authority to conduct recalls for contamination issues and address other issues not covered by Ch 23
Sec 24-16, Denver Revised Municipal Code

General Powers and Duties
The manager of environmental health, as provided under the Charter, shall exercise a general supervision over the environmental health of the city, and shall have full power:
(1) To take all measures necessary to promote the health and cleanliness of the city and its inhabitants and visitors;
(2) To abate all nuisances related to environmental health of every description on public and private property;

Sec 24-22, Interference with Duties
(a) It shall be unlawful for any person to molest, hinder, interfere with, or in any manner prevent the manager of environmental health or any individual engaged in the department of environmental health, from performing any duty imposed upon the individual or made by any law or any rule of the manager.

Sec 24-24- Failure to comply with a violation notice, order, or rule and regulation.
(a) It is unlawful for any person to fail to comply with any violation notice or any order issued by the manager, including, without limitation, those issued under the manager’s general power and duties in section 24-16.
Enforcement Tools

- DEH staff have authority to issue criminal summons
- Administrative citations assessed for repeat violations
- Food disposals, facility closures where imminent health hazards exist
- Hold orders for products which may pose health hazards
- First ever recalls of marijuana products conducted in 2014
Occupational Safety Hazards

- Explosion from extractions
- Hydrocarbon solvent toxicity due to improper leaks and poor ventilation
- Reduced oxygen, elevated CO2 in cultivation facilities
- Criminal activity
- Off-label pesticide exposure
- Robust safety protocols, Denver inspector safety video
Role of Food Safety Section with MJ Food Operations

- Conduct plan reviews
- Approve business licenses
- Inspect food businesses & apply Denver Food Establishment Regulations
- Investigate complaints

Timeline:
- 2011: Started routine inspections of MJ food operations
- 2012 & 2013: Complaint investigations only
- 2014 - present: Routine inspections at least twice per year & contamination investigations as needed
MJ Products Regulated as Foods by PHI

- All marijuana products that are consumed via ingestion (i.e. non-smoking oral consumption):
  - Infused baked goods, candies, etc.
  - Infused pizza, ice cream, drinks, peanut butter
  - Concentrates if ingested
  - Infusions such as tinctures, butters, honey, oils, etc.

- Contaminated smoking/vaping products addressed under Ch. 24 of DRMC
It’s not just joints and pot brownies anymore...

**How to get high!**

**Osmosis of Marijuana**

**Inhalation**
- Onset: 0-10 MINS
- Peak: 30 MINS
- Duration: 1-4 HRS

**Oral**
- 60-90 MINS
- 2-3 HRS
- 6-8 HRS

**Sublingual**
- 5-60 MINS
- 1-2 HRS
- 1-4 HRS
Smoking versus vaporizing

**Smoking vs Vaporizing**

**Why Smoking Marijuana Isn’t Ideal**

Respiratory hazards of smoke are due to toxic by-products of combustion, not the active ingredients in the plant, also known as cannabinoids.

**Combustion Creates Smoke**

Which is the prime cause of lung cancer and many respiratory disorders.

2,012º

How hot a joint can burn

392º

Marijuana plant begins to combust

285º

Cannabinoids begin to vaporize

**Vaporizing Marijuana Emits a Vapor That Is 95% Smoke and Carcinogen Free.**

Vaporizers heat a substance to a precise temperature, releasing active ingredients in vapor form without ever igniting the substance.

**The Sweet Spot**

Vaporization is the most effective around this temperature.

338º

**Combusted Smoke Gases Consist Of**

Non-Cannabinoids with 31 different components including a half dozen known carcinogens.

88º

**Vaporized Gases Consist Of**

Cannabinoids

5%

The remaining part consists of small amounts of one half and cannabinoids and a fragrant oil found in many plants.

**Conventional Wisdom Says**

Holding in the smoke increases effects felt

**Wrong**

Holding in smoke allows more tar and noxious chemicals to be absorbed

95%

Of the THC in cannabis is absorbed in the first few seconds of inhaling.

TIP: Take small shallow puffs.
How to get high!

- THCa is most abundant in plant material
- Must be decarboxylated (“decarbed”) through heating to transform THCa (acid form) to THC that has psychoactive effect
- Without decarb step, ingesting plant material and derivatives has no psychoactive effect

![Chemical reaction](image-url)
Cannabinoids

- Over 70 known cannabinoids
- CBD and THC are most well known
- Some psychoactive, some not
- Different properties and impacts
- Various well-documented therapeutic properties: appetite stimulant, suppressant, anti-inflammatory, anti-seizure, sleep aid, anti-inflammatory, anti-anxiety
- Emerging body of knowledge
Cannabis Extracts &
How They are Produced!

Concentrates 101

KIEF

HASH

BHO

CO2 OIL

What is Rosin?
Kief is the simplest of concentrates. Kief is composed of the trichomes broken away from the dried plant material, usually via filtering screens and a little elbow grease. THC content can range from 20 percent to 60 percent.
Ice water extraction is one of the most common processes used to create quality non-solvent hash. Trichome heads become brittle from the ice and break off.
Rosin is a solid form of resin that is made by adding pressure & heat. Quick, simple and affordable.
Butane hash oil, commonly referred to as BHO, uses butane as the solvent. Further refinement makes different textures: shatter, budder, honeycomb, and sap.

High THC content: 80-90%!

Propane and hexane too

Residual solvents
Carbon dioxide (CO2) extractions use a supercritical fluid, meaning it converts from gas to liquid when pressurized.

No residual solvents.
1. Retailers (dispensaries)
2. Manufacturers (MIPS)

- Many sites have both medical and recreational licenses for multiple operations
Challenges

Retailers:
- Unapproved source – hemp foods
- Refrigeration of PHFs
- Labeling

Manufacturers:
- Some have a lack of food safety knowledge
- Little research and few precedents
- Absence of GMPs and federal oversight that guide other industries
- Contaminated plant material
- Food safety risks of extraction processes have not been established
- Unapproved equipment
- Staff safety
Extractions/oily foods must be treated as PHF unless one of the following:

- Plant material is irradiated
- Extract is suspended in alcohol, homogenous
- Thermal critical limit met
- pH/water activity is low to prevent growth (non-oily foods only)
- Product is labeled for smoking only
- Scientific research demonstrating safety of another critical limit is provided and approved

HACCP-type plan must be submitted and approved
• No EPA, no FDA, no CFRs
• Huge gaps in regulatory infrastructure
• New equipment, processes, and products are introduced with minimal regulatory evaluation
• Potential significance when products consumed long term or for therapeutic purposes?
Ingredient Standards

- CFRs provide regulations for use of food ingredients
- No such standards for products that are smoked, concentrated, or vaporized
- Seeing many ingredients used in medical & rec products for which no safety evaluation exists for method of consumption
Molds & Pests

- Little research on health impacts
- Low quality MJ tends to be sold cheap for concentrates
- 1 enforcement recall in Denver
- Managed through use of pesticides and fungicides
Years of selective breeding and manipulation resulted in the emergence of two varieties:

**Marijuana**
- THC - 5%-30%
- Psychoactive
- CBD
  - Strains can be high in CBD
  - Therapeutic

**Hemp**
- Low in THC – must be < 0.3%
- Contains CBD
  - Therapeutic
  - Common uses for medical purposes
- Agricultural & Industrial Uses
Hemp-Derived Food Products: Approved Source Issues

- Many therapeutic CBD products are made from hemp
- Denver hemp-derived product manufacturers are inspected by DEH
- As of April 2017, NO manufacturers of hemp-derived CBD products were regulated
- Denver placed holds on products from 39 manufacturers
- Colorado State Health Dept began regulating CBD food manufacturers as of 7/17
Pesticide Contamination: Denver Enforcement

• Initial actions in March-May, 2015 based on complaints/referrals of off-label contamination:
  – 11 Denver “holds” on grow facilities, hundreds of millions of $$
  – Colorado Dept of Ag also opened off-label pesticide use investigations (no authority over products)
  – followed by a district court lawsuit alleging Denver EH pre-empted state law by addressing pesticide contamination
  – May 2015: judge ruled we were “absolutely within our authority” to protect public health by placing the holds on this potentially contaminated crop
• ~100 public health investigations conducted since March 2015
• 31 pesticide contamination recalls since September 2015 affecting hundreds of thousands of units
• 1 recall due to unclean equipment; 2 due to shelf-stability; 1 due to mold/pests; 1 due to unapproved ingredients
• 2 appeals of enforcement action to Denver’s Board of Environmental Health
Number of Different Pesticide Residues Found on Each Product by Recall

Median # of pesticide residues found on recalled product samples = 3
Medical vs Recreational Number of Products Recalled

- Medical: 59%
- Recreational: 41%

<table>
<thead>
<tr>
<th>Product</th>
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<tbody>
<tr>
<td>Recreational</td>
<td>174</td>
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<tr>
<td>Medical</td>
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</table>
Pesticides: Where are we now?

- Detectable residues can persist in products many months
- Residues persist in mature plants cloned from “mothers” that were sprayed
- Low residues still a concern, especially for concentrates
- Cleaning of ventilation systems, grow rooms, plant containers needed
- Still seeing spiked residues indicating recent use in some investigations
Other Consumer Safety Issues

• Solvent grades; impure solvents are much cheaper; reused
• Heavy metal absorption from nutrients
• Ingredients
  – Is smoking/inhaling food ingredients safe?
  – Terpenes from non-MJ sources
Additional consumer protection challenges

- Lack of due diligence
- Intentional sales of contaminated plant material
- Profit over responsible cultivation
- Reluctance to take measures necessary to protect consumers
Training for regulators!

MARIJUANA MANAGEMENT SYMPOSIUM2017

Join us in the Mile High City to share ideas and learn about Denver’s collaborative approach to marijuana management.

October 19 & 20, 2017 | Embassy Suites Denver Downtown

www.DMMS2017.org
QUESTIONS?

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