Emerging Issues: Autonomous Vehicles and Marijuana and Opioid Use

CARe Emerging Issues 2

Brooklyn

June 5, 2018



Antitrust Notice

- The Casualty Actuarial Society is committed to adhering strictly to the letter and spirit of the antitrust laws. Seminars conducted under the auspices of the CAS are designed solely to provide a forum for the expression of various points of view on topics described in the programs or agendas for such meetings.
- Under no circumstances shall CAS seminars be used as a means for competing companies or firms to reach any understanding expressed or implied that restricts competition or in any way impairs the ability of members to exercise independent business judgment regarding matters affecting competition.
- It is the responsibility of all seminar participants to be aware of antitrust regulations, to prevent any written or verbal discussions that appear to violate these laws, and to adhere in every respect to the CAS antitrust compliance policy.



No part of this presentation may be copied or redistributed without the prior written consent of ISO. This material was used exclusively as an exhibit to an oral presentation.

It may not be, nor should it be relied, upon as reflecting a complete record of the discussion.





Marijuana 2018 CAS Seminar on Reinsurance June 5, 2018 Brooklyn, NY

Gerry Finley, Senior Vice President, Casualty Treaty Underwriting, Underwriting Services Munich Reinsurance America, Inc. gfinley@munichreamerica.com





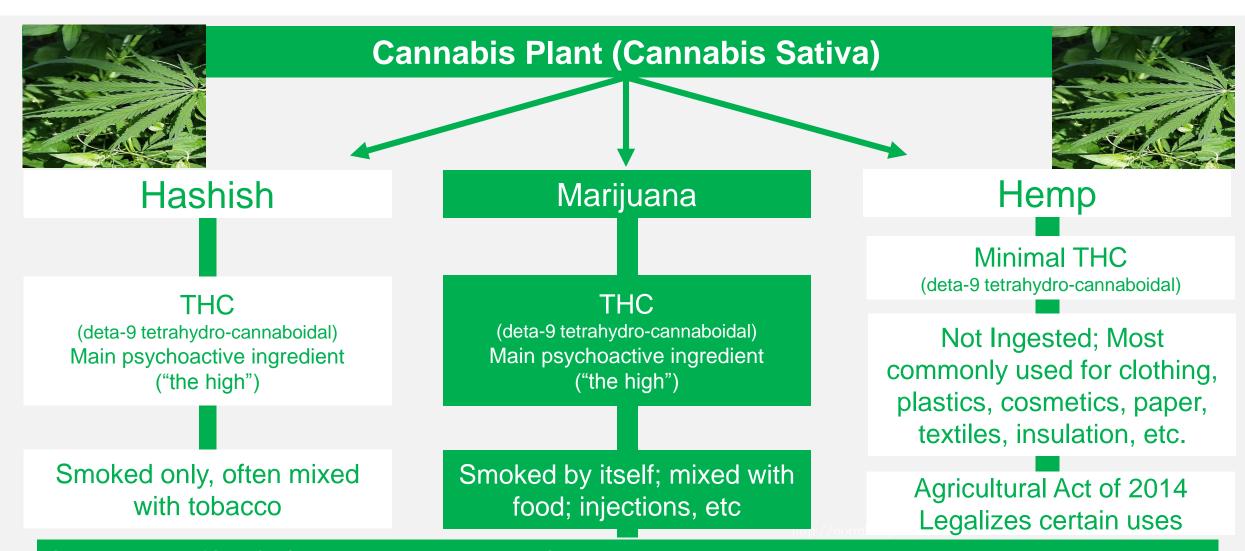
Marijuana Agenda

Introduction
Legal / Regulatory Considerations
Insurance Implications
Closing Thoughts



What it is



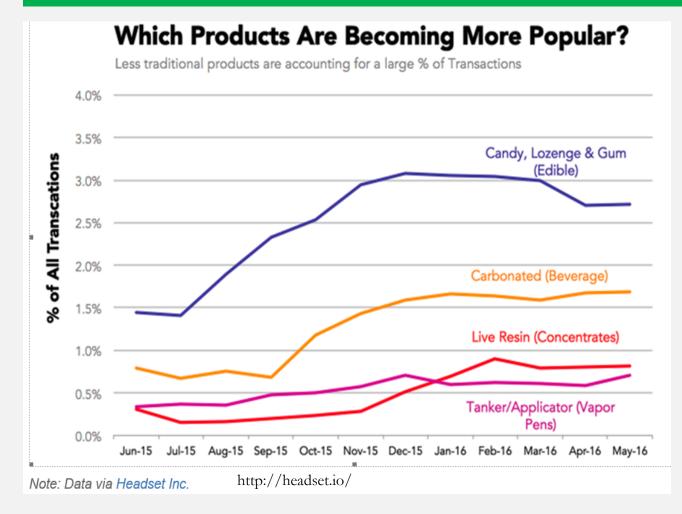


Cannabinoid (CBD): Cannabinoid Found in Cannabis that does not produce Psychoactive Effects





Marijuana Versatility



Multiple Ways of ingesting Marijuana make it highly attractive for both Medical and Recreational use

- Smoked/Vaped (flower)
- Beverage
- Eaten (Candy, Lozenges, Brownies, Cookies, etc)



Noted Benefits/Positives (Not Universally Accepted)THC and CBD

Medical Value Reported

Multiple conditions, including:

Stress, anxiety, migraines, PTSD, chronic pain, glaucoma, etc

Neurodegenerative diseases such as:

- Alzeimers
- Multiple Sclerosis
- Cerebral Palsy
- Epilepsy
- Parkinson's

Autism Research Cancer/HIV

Increase appetite

Food & Drug Administration

Has not been engaged due to illegal status under Federal law

However

World Health Organization (11/17 Report):

Cannabinol (CBD) which represents 40% of the Plant's extract is "generally well tolerated with a good safety profile".

In 2018 will study (THC) in depth

■ Treats side effects of treatments – pain; nausea; vomiting;

Economic Benefit Reported

Marijuana.. Next Mega Industry

- 2016 \$7.2bb total sales
- 2025 ~ \$24bb (assuming no new states)

Creating Jobs (May Overtake manufacturing Jobs by 2020)

• 2017 – ~100.000 to 150,000 jobs; 2020 - ~ 283,000

Tax Revenue.... The Key:

- 2017 \$655mm (Retail Sales Only)
- <u>2017 Tax Reform</u> May Prompt more states with high income/property taxes to look at Marijuana Tax Benefit

Projections:

- \$132b Taxes from 2017-2025 if Legalized Nationally
- 1mm Jobs by 2025 if Legalized Nationally
- CA 2018 (1st Yr of Rec.) \$643m Taxes projected (LA Times 1/10/18)

https://finance.yahoo.com/news/frontier-data-u-cannabis-market-133832469.html https://www.forbes.com/sites/debraborchardt/2017/04/11/1-billion-in-marijuana-taxes-is-addicting-to-state-governors/https://www.washingtonpost.com/national/2018/01/10/study-legal-marijuana-could-generate-more-than-132-billion-in-federal-tax-revenue-and-1-million-jobs/?utm_term=.7115be662769

Marijuana

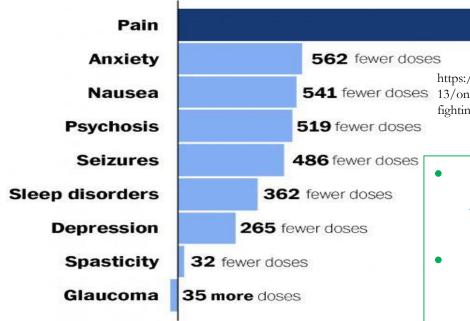


....Health Care Impact...(Studies)

Pharmaceutical Industry...Marijuana Reduces Use of Prescription Narcotics

Fewer pills prescribed in medical pot states

Difference between annual drug doses prescribed per physician in medical marijuana states, and in states without medical marijuana laws, by drug category



1,826 fewer doses

562 fewer doses

https://www.washingtonpost.com/news/wonk/wp/2016/07/

541 fewer doses

13/one-striking-chart-shows-why-pharma-companies-are-fighting-legal-marijuana/?utm_term=.2cb126a4e8f0

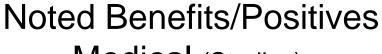


Significant Reduction in Prescription Painkiller
Abuse and Deaths in States with Medical Marijuana

(http://www.nber.org/papers/w21345)

WAPO.ST/WONKBLOG

Source: Bradford and Bradford, Health Affairs, July 2016

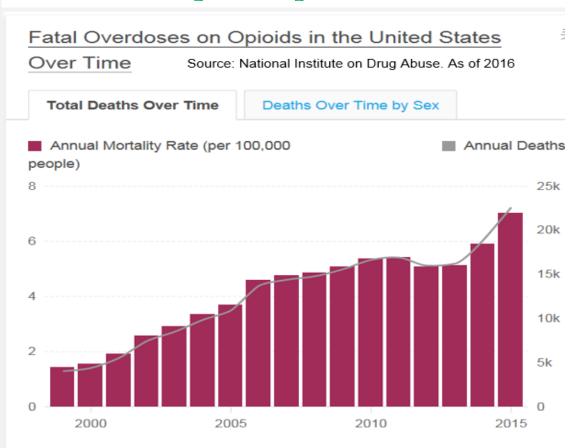




.....Medical (Studies)

Marijuana vs. Opioids

Opioid Epidemic



2016 Center for Disease Control Report

- 2014 EVERY DAY 46 people die from an overdose of painkillers such as Opioids, Vicodin, OxyContin, Opana or Methadone
- 2012 Doctors write 259m prescriptions for painkillers

2014 Journal of American Medical Assoc. Rpt.

 Annual Opioid Deaths decreased 25% between 1999 and 2010 in states that legalized marijuana

2015 RAND Study Conclusions

States with legalized medical marijuanaexperience decreases in both opioid addiction and opioid deaths compared to states without legalized medical marijuana

)

Noted Benefits/Positives

(\$352mm Recreational)

.Economic (Estimates Vary)



Legal Marijuana Sales Growth = Economic Growth (Medical and Recreational)



2015 **2027 Projection = \$60bb**

https://finance.yahoo.com/news/frontier-data-u-cannabis-market-133832469.html

ArcView Market Research; Fortune 2/1/16 and Marijuana industry could be worth \$50 billion annually by 2026; Market Watch Apr 22, 2017

2014



IntroductionConcerns



THC acts on numerous areas in the brain (in yellow).

movement
sensations
vision

judgment
reward
memory
coordination
Image: NIDA; wwwdrugabuse.gov

Short Term Effects (1-3 Hours)

- Impaired cognitive capability (impact: school, employment, driving, etc.) for 1-3 hours
- THC may remain in the body for days or weeks (complicates testing)
- Extreme doses may lead to anxiety, fear, acute psychosis rather than a relaxed euphoria

A Word About "Synthetic Marijuana" ("Spice"; "K2")

Actually not Marijuana:

 Designer drug consisting of herbs, incense, other leafy material Banned Nationally in 2012...but FDA has approved one variant (Marinol) for treatment of migraines, epilepsy; Alzheimer's, HIV, etc.

- Sprayed with lab created chemicals attempting to mimic the effect of THC
- Can be more potent that marijuana and may have dangerous side effects

Green Glè
Bizarro, G
Geeked U
acked, Bizarro, Green Glant, AK-4,
Smacked Jarro, Green Glant, AK-4,
Smacked Jarro, Green Glant
Green Glant, Bizarro
Green Glant, AK-47, Geeked U
Geeked Up, Smacked, Len Glant, AV
Smacked, Bizarro, Gree
AK-47, Bizar
Green Glant
Gre

Credit: The New York City Department of Health and Mental Hygiene.

http://cannabis.org.uk/dronabinol/index.html



Additional Concerns/Negatives (Not Universally Accepted)

Long Term Effects....Further Research Needed...Inconclusive, but Possible

Addiction...To Marijuana?

- "Marijuana Use Disorder" (MUD) form of dependence in about 30% of regular marijuana users
- Those that started young are more prone
- Severe cases of MUD may lead to addiction in extreme cases

Gateway to Other Drugs?

- Possible if other factors are at play (e.g., life style/social environment, propensity for addictions, etc)... Not more so, and probably lower, than over use of nicotine, alcohol, opioids and other pain remedies
- Regular use by Teen Boys Increased risk of psychotic symptoms e.g., paranoia, hallucinations (American Journal of Psychiatry 8/16)

Decreased IQ and Socio-Economic Mobility?

Frequent, Extended use, starting when very young; lasting for decades

Key Question:

....Do the Health and Economic benefits... make the Risks

Worth Taking?





43

Arguments For.....And Against

.Much is Still Less Than Conclusive.....Much Additional Research Needed

Many Supporters of Legalization Cite Marijuana's Health Benefits Among the 53% who think marijuana should be legal, main reason why you feel this way ... (%) Medicinal benefits 41 Not as dangerous as 36 other drugs Benefits of regulation. 27 such as tax revenue Current enforcement is 12 expensive, problematic People should be able to do 9 it if they want to Survey conducted March 25-29, 2015. Open-ended question. Total exceeds 100% because of multiple responses. PEW RESEARCH CENTER

Opponents of Legal Marijuana Cite Dangers to Individuals and Society Among the 44% who think marijuana should be illegal, main reason why you feel this way ... (%) Hurts society. bad for indviduals Dangerous, addictive drug 30 Should be illegal. 19 needs to be policed

Gateway drug

Bad for young people

Recreational should be

illegal, medicinal okay

Survey conducted March 25-29, 2015. Open-ended question. Total exceeds 100% because of multiple responses.

11

8

7

PEW RESEARCH CENTER

What Do You Think?



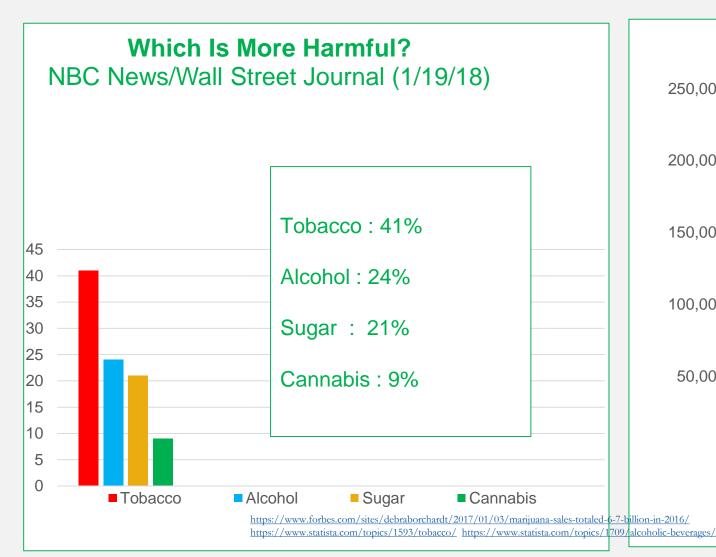
How Does Marijuana Compare?	Is Marijuana Better (More Benefit)?	Is Marijuana Worse (More Risk or Harm)?
Cigarettes		
E-Cigarettes		
Alcohol		
Opioids and other Pharma		
Sugar		
Football		
Gambling		

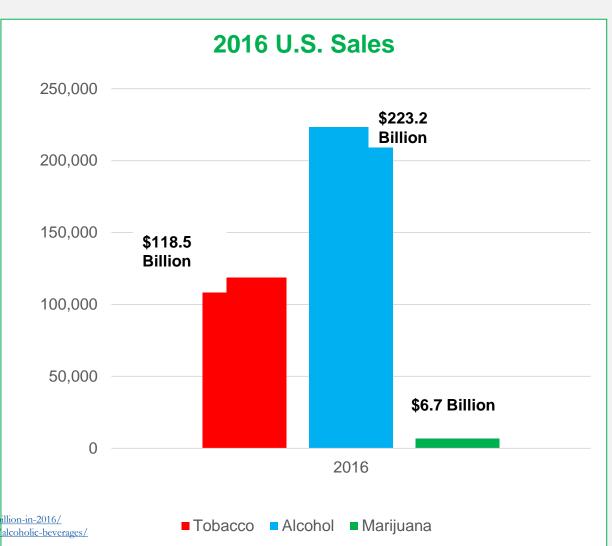




What Do You Think?Some Polls









MarijuanaFederal Law



Key Federal Laws....Through The Years

- Marijuana Tax Act 1937 Intent is to discourage production... 70% Tax
- Banking Secrecy Act and Anti-Money Laundering Provision -1970
 - Requires US financial institutions to maintain records regarding currency transactions and customer relationships.
 - Rules implemented under that law require financial institutions to file Suspicious Activity Reports (SARs) to report "suspicious transactions".
 - Does Not Apply to Insurance Companies
 - Controlled Substances Act (CSA) 1970 (Prior to 1970???)
 - Marijuana classified as a Class I Controlled Substance
 - Illegal to grow, cultivate, posses, use or distribute
 - No accepted medical use; high potential for abuse; lack acceptable safety evidence

18 US Code Sections 1956 and 1957

- Prohibits financial transactions involving the proceeds of unlawful activity or criminally derived property.
- Separate and distinct from the Bank Secrecy Act, so they could be applied to anyone dealing with and accepting money from marijuana-related businesses, which under federal law are engaged in criminal activity.
- Applies to Insurance Company Transactions





Marijuana - Federal Law

Controlled Substance Act of 1970....(part of the "War on Drugs")

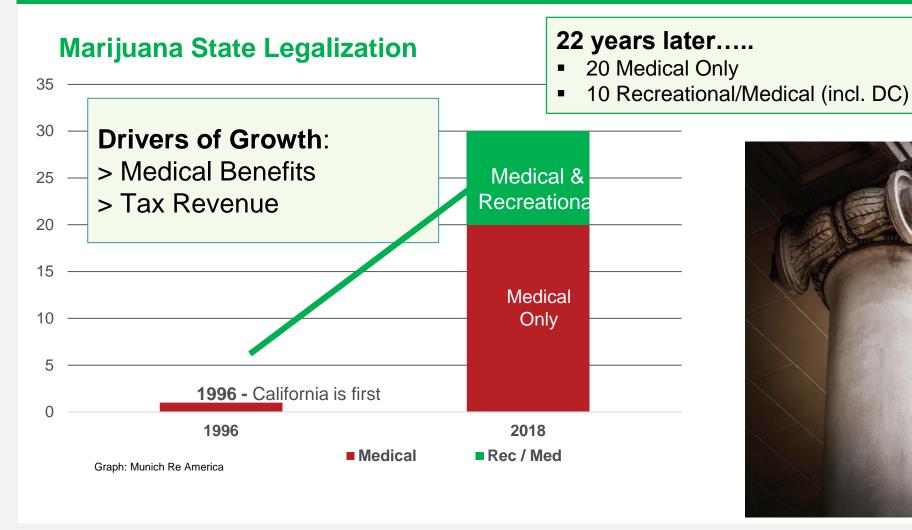
Schedule Level	Potential for Abuse	Medical Value	Potential Negative Impact of Abuse (Physical or Psychological)	Examples
I	High	None	Severe for both	Heroin; LSD; Marijuana
II	High	Yes	Severe for both	Cocaine; Opium; Oxycodone; methadone
III	High, but less than Schedules I and II	Yes	Moderate or low physical dependence; High psychological dependence	Anabolic steroids; Marinol (synthetic marijuana)
IV	Lower than Schedule III	Yes	More limited than Schedule III	Ambien, Valium
V	Lower than Schedule IV	Yes	More limited than Schedule IV	Cough suppressants (Codeine) other preparations that contain Opium

Even so, US holds patent (No. US 6,630,507 B1 specifying Marijuana's multiple therapeutic benefits

Marijuana - State Law



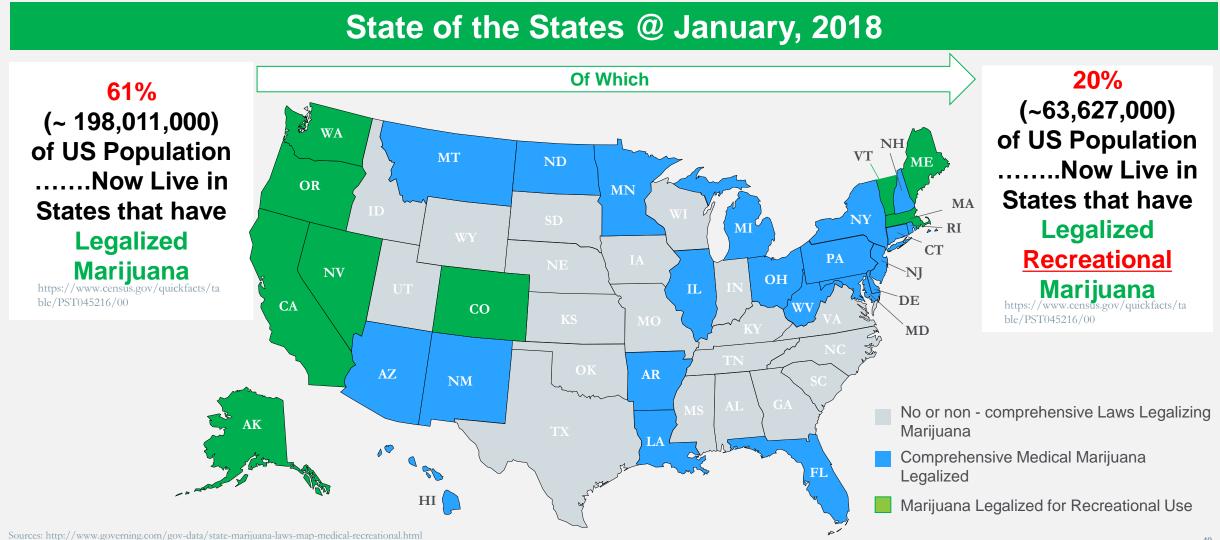
Marijuana Legalization.....a "Growing" Phenomena...@ January, 2018



Likely More to come in the next few Years



Marijuana - State Law



Marijuana

.....State Law Breakdown



State Marijuana Laws @ January, 2018 Legal **Limited Access Laws Medical & Medical Use** (Low THC/High CBD) **Medical or Legal Defense Recreational Use Legal / Decriminalized** Only Alaska Arizona **New Mexico** Alabama Oklahoma Maryland Arkansas* So. Carolina California* Michigan **New York** Georgia Colorado Minnesota Connecticut North Dakota* lowa **Tennessee** District of Columbia Kentucky Texas* **Delaware** Montana Ohio* Maine* Florida* **New Hampshire** Pennsylvania* Louisiana* Utah Massachusetts* Hawaii New Jersey Rhode Island Mississippi Virginia Nevada* Illinois West Virginia** Missouri Wisconsin Oregon No. Carolina Wyoming Vermont*** *Law is considered non-functional as it requires a physician "prescription" which can't be done as 20 States Washington long as it is illegal at the federal level. 9 States + DC 16 States *2016 Laws ' ** 2017 *2016 Laws / *** 2018 Laws

 http://www.ncsl.org/research/health/st ate-medical-marijuana-laws.aspx

MarijuanaState Law Breakdown



Recent or Projected Activity



Montpelier

2018 Additional Potential State Activity:

(Newsweek1/2/18 http://www.newsweek.com/marijuana-legalization-2018-which-states-will-consider-cannabis-laws-year-755282

1/22/18

Vermont becomes 9th U.S. state to legalize Recreational Marijuana

Unique:

- 1st one done exclusively through legislation rather than ballot initiative
- Applies only to Personal Growth and Use...Not Commercial production/Sale...(for now)

Recreational

- Michigan*
- Delaware
- Rhode Island
- Connecticut
- Ohio
- New Jersey*

Medical

- Oklahoma*
- Kentucky
- So. Dakota
- Utah
- Missouri

*3 Most Likely in 2018

https://finance.yahoo.com/news/3-states-most-likely-legalize-111700126.html

2017 New Federal Tax Reform:

Restriction of SALT deductions may spur additional States to legalize recreational marijuana to generate additional tax revenue?

State Laws Vary Tremendously



Often Regulated (similar to the sale of liquor)...but with more limitations

Who can "prescribe" (recommend)

Where it can be used (public, private)

Where You can Grow, Sell, Buy, Use

How Much Quantity and dosage (THC level)



Form (smoke, food, pill)

Employment previsions: Employee or employer protections

Taxes and fees

Eligible Medical Conditions (Usually very specific)

Who Can Grow, Process, Buy or Sell (age limits, licensed growers, dispensaries; certification often required)

Even Existing Laws are Constantly Evolving (e.g., in 2016 both IL and NJ expanded use for PTSD; IL reduced Marijuana Penalties)

Marijuana Legal Landscape



Federal vs. State Legal Uncertainty

Federal

Federal: Continues to be classified as Illegal – Schedule 1 Substance



State

States: Increasingly Legalizing Marijuana – Medical and Recreational

The Challenge?.....
How To Reconcile??



Some Judicial Activity....Trend Toward State Law

- 2005 Gonzales v. Raich US Supreme Court Established Federal Preemption for Marijuana based on US Constitution Commerce Clause
- 2016 Courts in 2 states applied or modified State Marijuana law
 ...but <u>DID NOT</u> apply Federal Marijuana Law, i.e., supported State law
 - Hartwick (2016; MI Circuit Ct.) Defendant guilty of illegally growing/processing marijuana in violation of state medical marijuana
 - MT Supreme Court (2016) Upheld a 2011 amendment to the 2004
 Medical Marijuana Law that limited how much & who can sell marijuana.



- US Supreme Court (2016 Nebraska v Colorado, No. 144) "Punts" (for now) Declined to hear a case brought by OK & NE citing CO law violates Federal law
- 2016 Ninth Circuit Court of Appeals Decision Unanimously ruled that the DOJ <u>CAN NOT</u> prosecute medical marijuana cases for violating the CSA as long they are in full compliance with state laws legalizing medical marijuana..... Reinforced a 2014 budget measure (Rohrabacher-Farr Amendment)



Judicial Activity...2017 Employment Case

2017 Employment Cases

Moving Toward Recognizing State Law; Prior Cases were More Pro-Employer based on Federal law

(e.g., Coast v Dish Network, CO, 2015; Garcia v Tractor Supply Co., 2016)



Some Recent Examples

- CT <u>Noffsinger v. SSC Niantic Operating Company, LLC, No. 3:16-cv-01938 (August 8, 2017):</u> Federal district held that federal law does not preempt Connecticut law.
- MA <u>Christine Barbuto v. Advantage Sales and Marketing, LLC (July 17, 2017)</u>: The Supreme Judicial Court of MA ruled that an employer could be liable under the MA Anti-Discrimination Act for terminating an employee for testing positive for off-duty Medical Marijuana use.
- RI Callaghan v. Darlington Fabrics and the Moore Company, C.A.

 No. PC-2014-5680 (May 23, 2017): The RI Superior Court held the state's

 Medical Marijuana Act prohibits discrimination against medical marijuana users



Legislative / Regulatory Activity......How do the States Do It

Rohrabacher- Blumenauer Amendment to the Federal Appropriations Bill

First Passed in 2014

Doesn't change the illegal Federal Status of Marijuana
 but does Protect Marijuana and Hemp ...

- Prohibits use of Federal Funds to interfere with State Medical Marijuana laws and activities that are consistent with State laws
- Increasing Bi-partisan supportButhas to be renewed every year as part of US Spending Bill
 - 2018 Senate Budget ...Reinforced by the HouseRohrabacher Continued



Congress Doesn't Give the DOJ Money to Enforce Federal Law!!!



Enforcement Activities.....

- 2009 Department of Justice (DOJ) Ogden Memo
 - Would not Enforce Federal Preemption (Federal resources should not focus "on individuals whose actions are in clear and unambiguous compliance with existing state laws providing for the medical use of marijuana.")



- 2011 and 2013 Cole Memorandum on Medical Marijuana
 - Reinforced and codified by Congress through the 2014 Rohrabacher Amendment
 - Clarification and Guidance to US Attorneys regarding the Ogden Memo
 - Applicability to States that have legalized Medical Marijuana
 - DOJ is committed to enforcing the CSA...but broad discretion granted recognizing resource priorities:
 - Priority is prosecuting "significant traffickers in illegal drugs" including "commercial operations cultivating, selling or distributing marijuana" ...however.....
 - To the extent that States have legalized marijuana and have adequate enforcement in place, Federal enforcement in conflict with those State Laws is not a priority
- 2018 Jeff Sessions DOJ Memo Rescinded Cole Memo
 - **Net Effect For Marijuana Legalization Proponents:???????**



Enforcement Activities......

What does the Sessions DOJ Rescission of Cole mean???

- Is It More Cosmetic than Substantive????
 - Cole Memo didn't prohibit Federal Enforcement; Sessions Memo doesn't require Enforcement
 - Rohrabacher Amendment Prohibits use of Funds to Enforce the CSA in States where it is legal...as long as it continues
 - Will Congress or Trump Allocate other Resources... Perhaps diverting funds earmarked to fight terrorism to closing marijuana Dispensaries??.....Probably Not
 - Other States Moving Forward with Plans to Legalize
- If legal Action is Taken
 - Will it Finally Motivate Congress Act??? Pass a Law Legalizing Marijuana Federally or making State marijuana Law Pre-emptive to the Federal CSA



Federal Legislative / Regulatory Activity......Proposed/Pending

A Glimpse Into the Future?????

2015 Legislation Introduced

- HR 667: Veterans Equal Access Act
- S 683/ HR 1535: CARERS (Compassionate Access, Research Expansion and Respect States)
- HR 1940: Respect State
 Marijuana Laws Act of 2015
- S 1726: Marijuana Businesses
 Access to Banking Act
- HR 1013: Regulate Marijuana Like Alcohol Act

2016 Legislation Introduced

HR 5549 (114th): Medical
 Marijuana Research Act of 2016

Bottom line:

- All Seek to Decriminalize marijuana at the Federal levelat least for Medical
- All Leave it to the States
- All Either in Committeeor will be
- Most are Bi-partisan

2017 Legislation Introduced

- HR 975 Respect State Marijuana Laws Act of 2017
- HR 1227: Ending Federal Marijuana Prohibition Act of 2017
- S. 1689: Marijuana Justice Act of 2017







Marijuana - Insurance Market

Insurance Market in Transition

Current Market Limited due to Federal Legal Status

 ~ 30 Carriers Active.. Growing: E&S, Specialty; Captives...

Liability Coverage Required for a License

If/When Federal Law changes....

....the market is expected to expand rapidly

Underwriting Risk Is Manageable

Potential Market _

- Farms
- Manufacturing/Processing
- Wholesale/Distributing
- Medical Professional
- Retail Dispensing
- Ancillary Activities:
 e.g., Real Estate, Security

Lines of Business

- Farm/Homeowners (1st and 3rd)
- Commercial Property
- General and Product Liability
- Crime
- Malpractice/E&O
- Plus......

Lines Of Business

Already Exposed/Covered

- Workers Compensation (Use and Treatment Costs)
- Employment Practices (Drug Testing)
 - Auto (DUI)



Marijuana

....."To Cover or Not to Cover"

Oregon Coverage Clarification Requirements

Oregon Bulletin DFR 2017-04......Two Basic Requirements:

......May Lead to expansion to other states or development of Manuscript Marijuana Endorsements

"....policies that would otherwise cover marijuana items or activities should explicitly state whether those risks are covered or excluded."



"In order to exclude loss, damage, or liability associated with marijuana items and marijuana activities: Policies ...
.....must contain language in the policy explicitly stating the extent to which marijuana items and activities are excluded."

ISO and AAIS: Filed a series of Marijuana Exclusions in Response to the Oregon requirement that carriers clearly specify in their Property/Casualty Policies if and to what degree Marijuana is Not Covered or

Covered. ISO has Formed an Ad Hoc Group Panel to Develop Coverage Endorsements

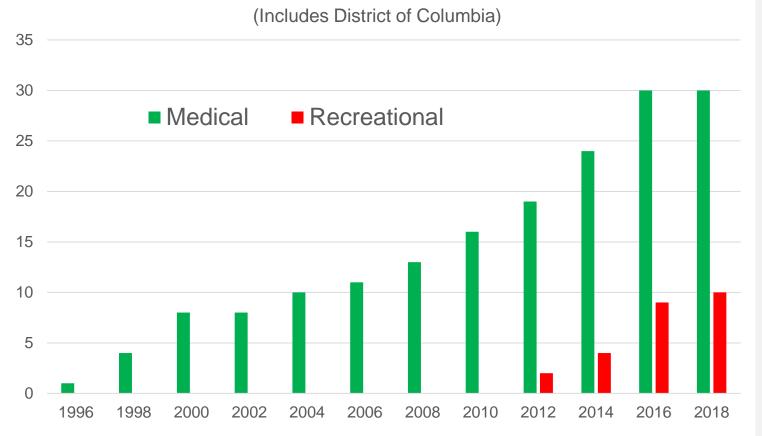


MarijuanaState Law Trend



State Legalization Trend @ January, 2018



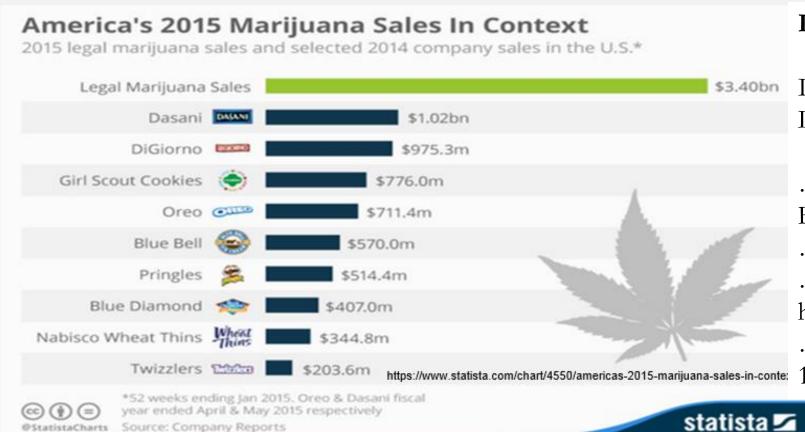


State laws change from time to time, with the recent trend being toward an expansion of marijuana use. Up to date details on any state marijuana law may be found at the following websites: http://norml.org/states and http://www.ncsl.org/research/health/state-medical-marijuana-laws.aspx



Marijuana - Where does Marijuana fit in?

How Big is Marijuana Already?



In Spite of the ongoing debate

In 2015 ... Pre 2016, 2017 and 2018 Legalization Expansion

.....Marijuana Outsold Many Common Food Productsby a wide margin

.....Even though its legal in only about half the country...

..... and is legal recreationally in only 10 Jurisdictions...

statista 🗸

Image source: Statista based on data from Marijuana Business Daily.

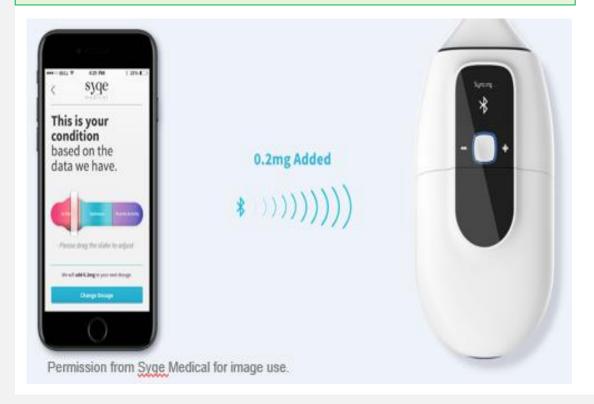
Marijuana



.....An Interesting Development

High Tech Marijuana......Sign of Mainstreaming?????

Syqe inhaler (Syqe Medical)
.....wireless connectivity
Manufactured with 3D Printing Technology





Microsoft

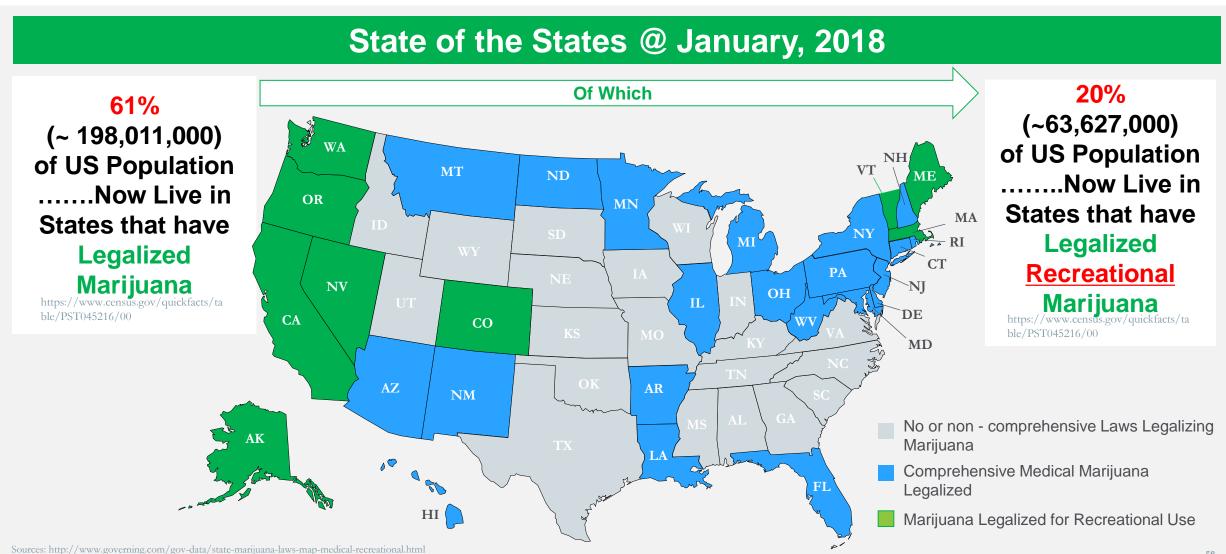
Teaming with KIND (ATM mfg)...

Develop software to help sell.... and track marijuana sales...

....through MARIJUANA ATMs

Marijuana - State LawA Reminder

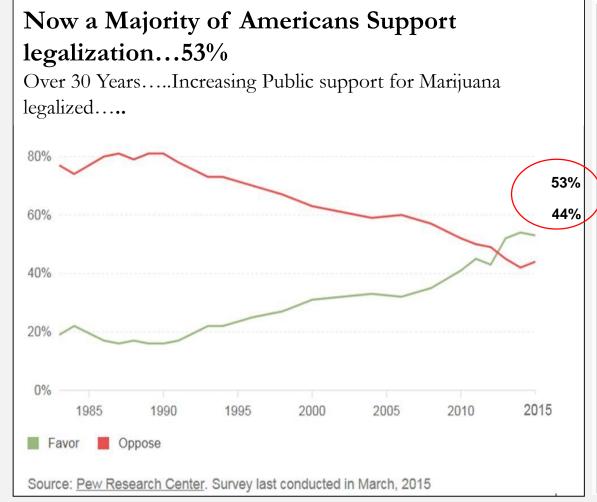


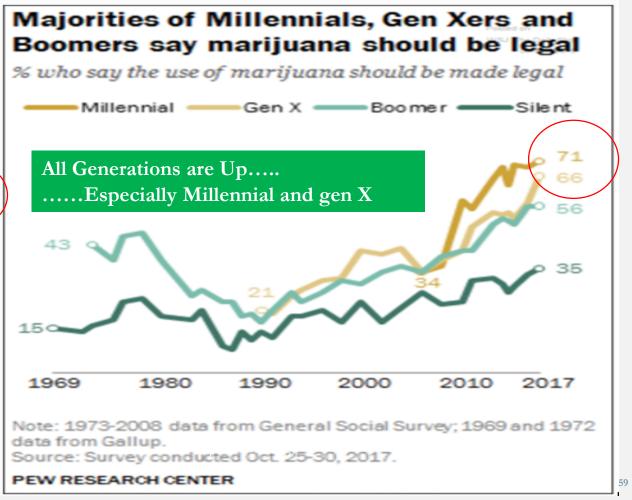


Marijuana SummaryPublic Opinion.....Future Implications



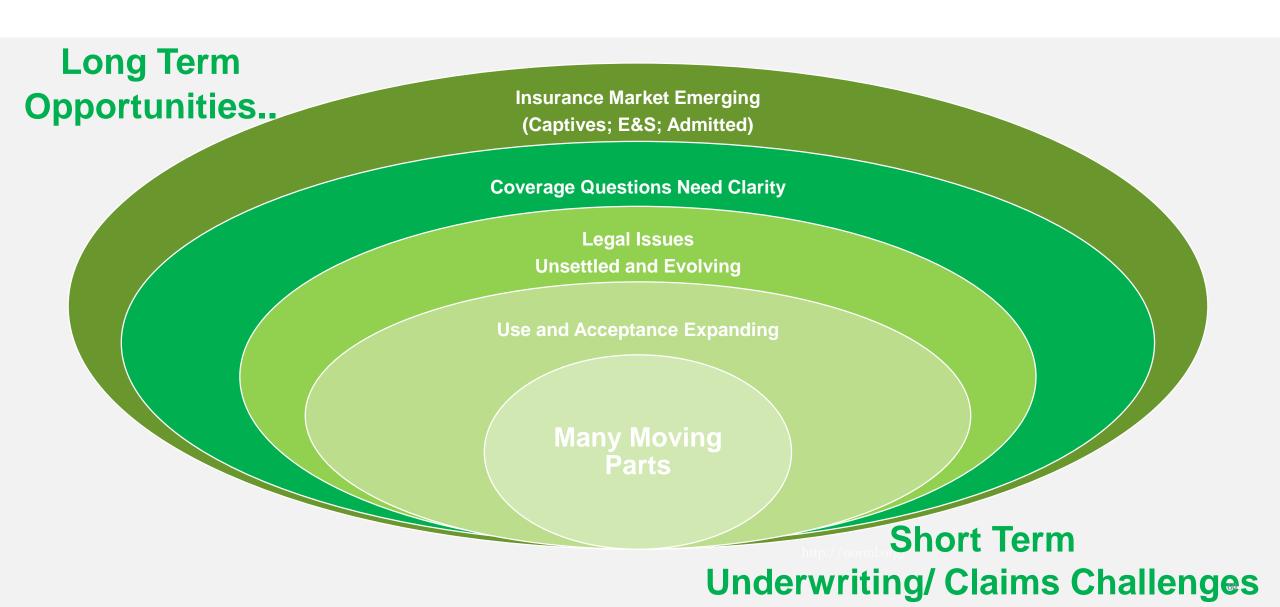
Marijuana Support Over Time2015 PEW Research Study...







Marijuana Summary





Thank You

© Copyright 2018 Munich Reinsurance America, Inc. All rights reserved. "Munich Re" and the Munich Re logo are internationally protected registered trademarks. The material in this presentation is provided for your information only, and is not permitted to be further distributed without the express written permission of Munich Reinsurance America, Inc. or Munich Re. This material is not intended to be legal, underwriting, financial, or any other type of professional advice. Examples given are for illustrative purposes only. Each reader should consult an attorney and other appropriate advisors to determine the applicability of any particular contract language to the reader's specific circumstances.



Questions and Discussion

