Debunking The Mythologies of Medicinal Cannabis

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Disclosures…

- Member of ACT Medical Cannabis Advisory Committee
- Provide bipartisan advice at State/Territory & Federal jurisdictions
- Provide pro bono medical advice to Lucy Haslam's "United in Compassion"

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Disclosures…

- Never received a donation, stipend, etc. from either the manufacturers of opiates, or cannabis medication
- I am not a consumer of cannabis, either recreational or medicinal
- I have taken the time to specifically study both recreational, and medicinal cannabis
  - Member, Society of Cannabis Clinicians
  - International Association for Cannabinoid Medicines
  - completed training for NYSDOH Prescribers Course

I’m a fairly simple man…

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Gamekeeper turned poacher…

Keep off the grass: marijuana use and acute cardiovascular events

David G.E. Caldicott[a], James Clayton[a], Kurt R. Thompson[b] and Leo Mahar[b]

Marijuana is one of the most widely used recreational substances in the world, considered by many consumers as a relatively safe drug with few significant side-effects. We report the case of a 21-year-old man who suffered an acute myocardial infarction following the use of marijuana, despite having no other identifiable risk factors for an acute cardiovascular event. We review the published medical literature regarding acute cardiovascular events following marijuana use and postulate a possible mechanism for this unusual pathological consequence of marijuana use. *European Journal of Emergency Medicine* 00:000–000 © 2005 Lippincott Williams & Wilkins.

European Journal of Emergency Medicine. 2005, 00:000–000

Keywords: Cannabis, infarction, ischaemia, marijuana

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CLINICAL TOXICOLOGY, 2015
http://dx.doi.org/10.3109/15563650.2015.1110590

Taylor & Francis
Taylor & Francis Group

RESEARCH ARTICLE

A systematic review of adverse events arising from the use of synthetic cannabinoids and their associated treatment

Robert J. Tait[a], David Caldicott[b,c,d], David Mountain[e,f], Simon L. Hill[g] and Simon Lenton[a]

[a]Faculty of Health Sciences, National Drug Research Institute, Curtin University, Perth, WA, Australia; [b]Emergency Department, Calvery Hospital, Canberra, ACT, Australia; [c]Department of Emergency Medicine, Australian National University, Canberra, ACT, Australia; [d]Department of Health & Design, University of Canberra, Canberra, ACT, Australia; [e]Academic Emergency Medicine, School of Primary, Aboriginal & Rural Health Care, University of Western Australia, Perth, WA, Australia; [f]Department of Emergency Medicine, Sir Charles Gairdner Hospital, Perth, WA, Australia; [g]National Poisons Information Service, Newcastle upon Tyne Hospitals NHS Foundation Trust, Newcastle University, Newcastle upon Tyne, UK

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No apologist for cannabis…

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What do we know for sure…?

- >85% support for medicinal cannabis in community
- Roughly 100,000 Australians are already using illicit cannabis for medicinal purpose
- Far, far easier to source through illicit market market than through TGA

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What do we know for sure…?

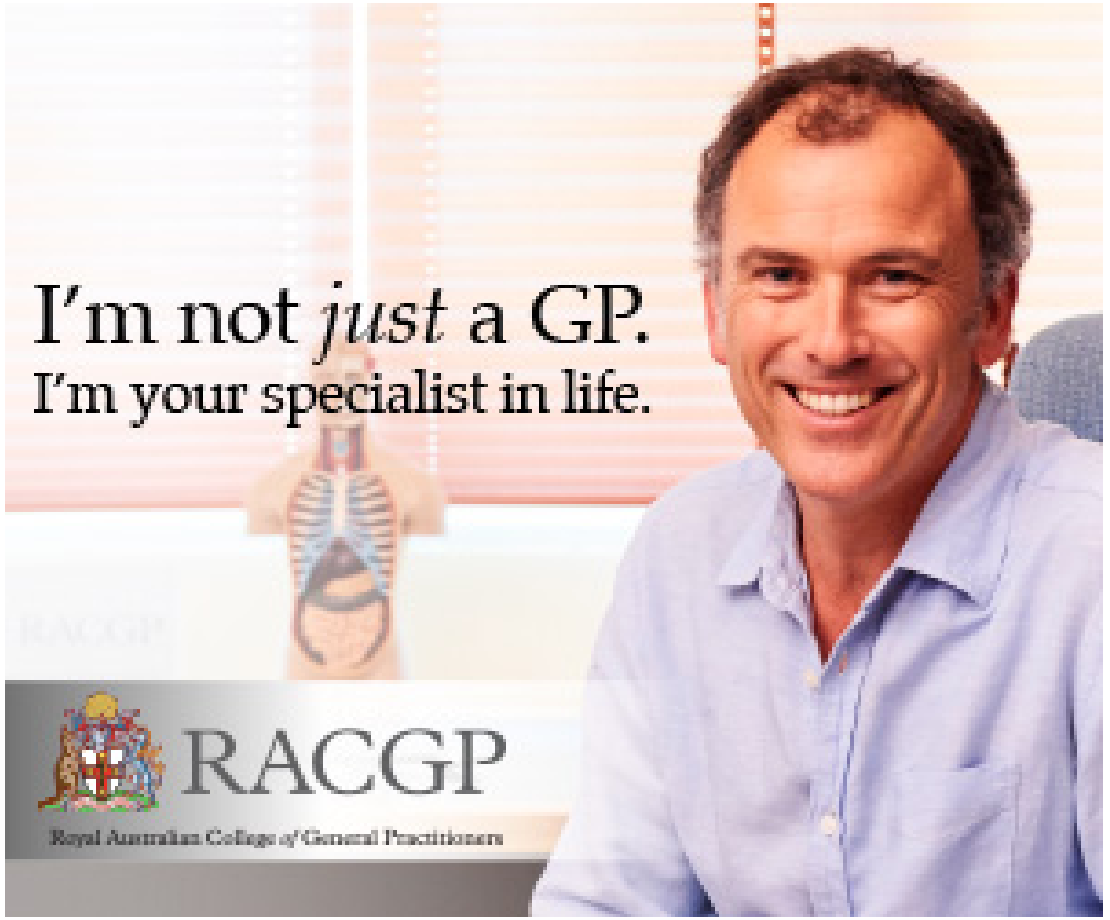
- Huge overseas experience…

>200,000 officially approved patients

>30,000 officially approved patients

Family practitioners considered as proper doctors

(#NotJustAGP)



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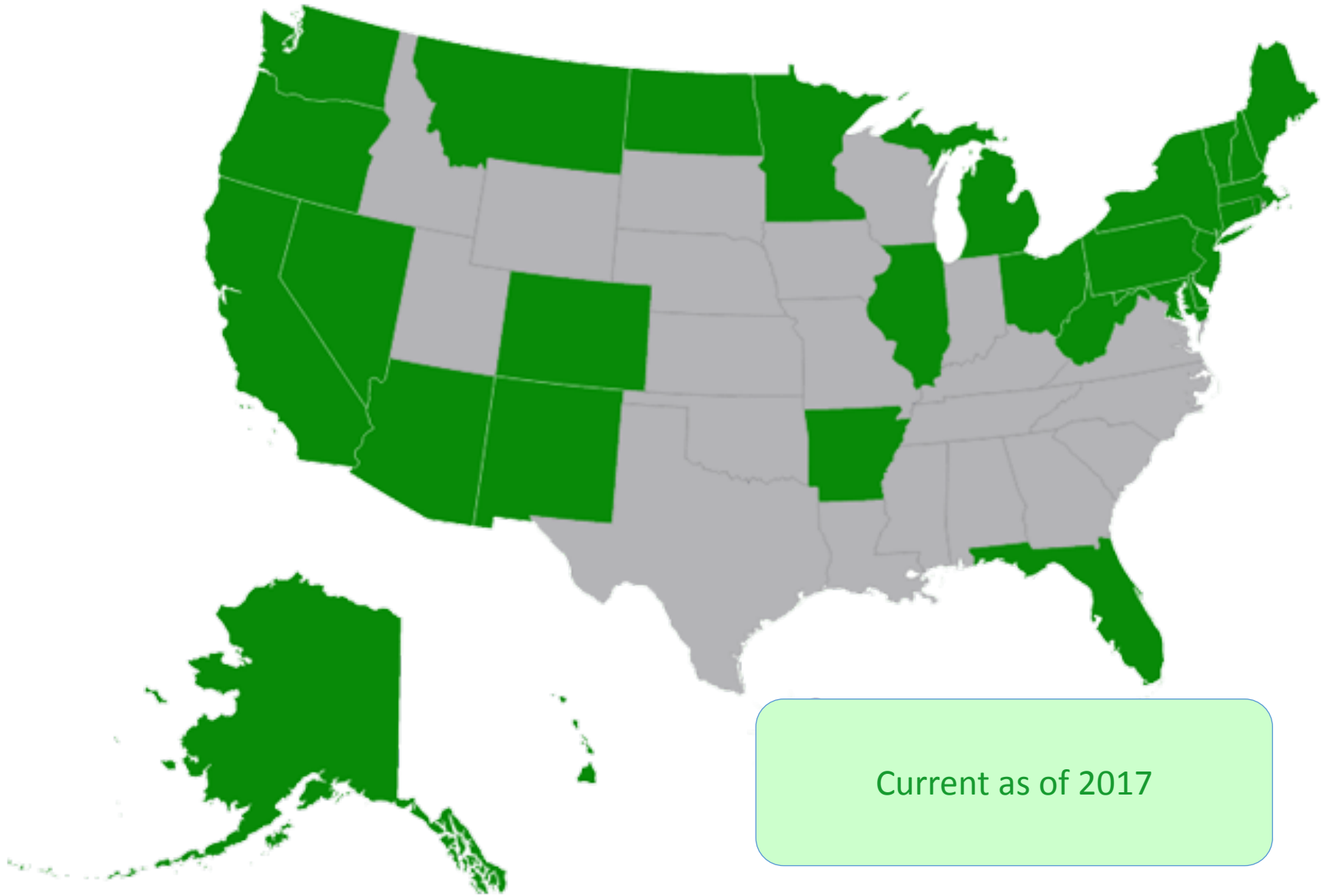
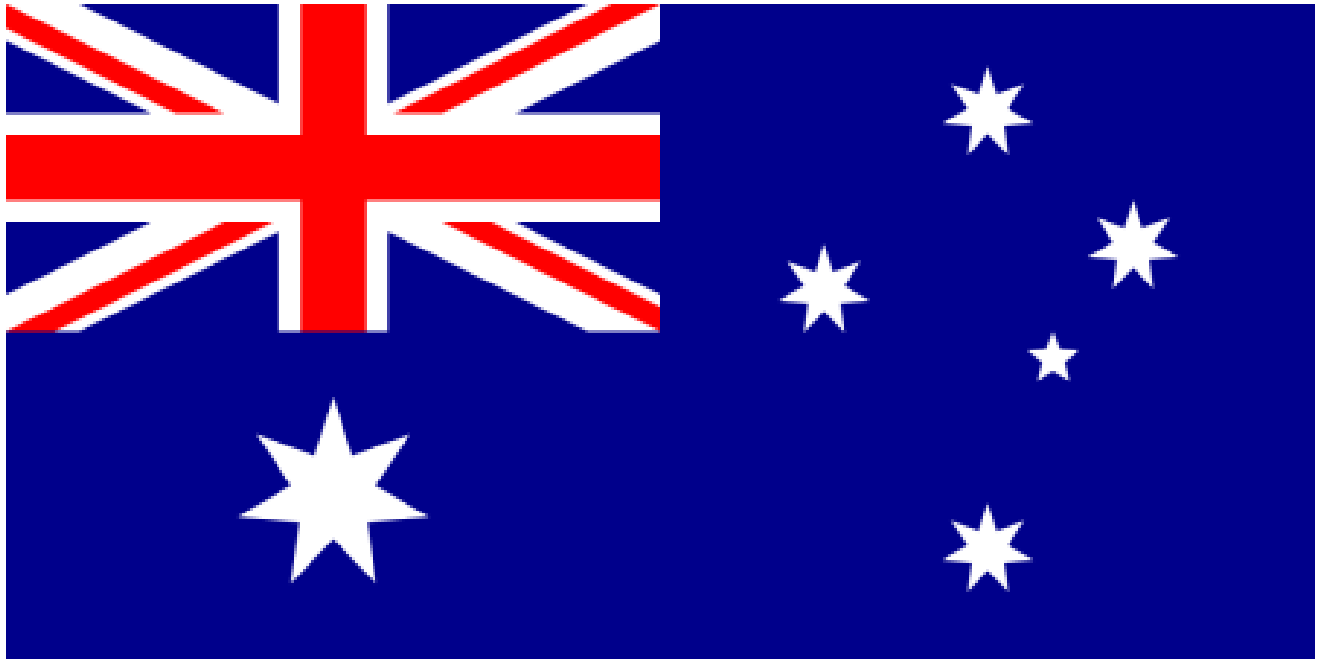
29 Legal Medical Marijuana States and DC



Current as of 2017

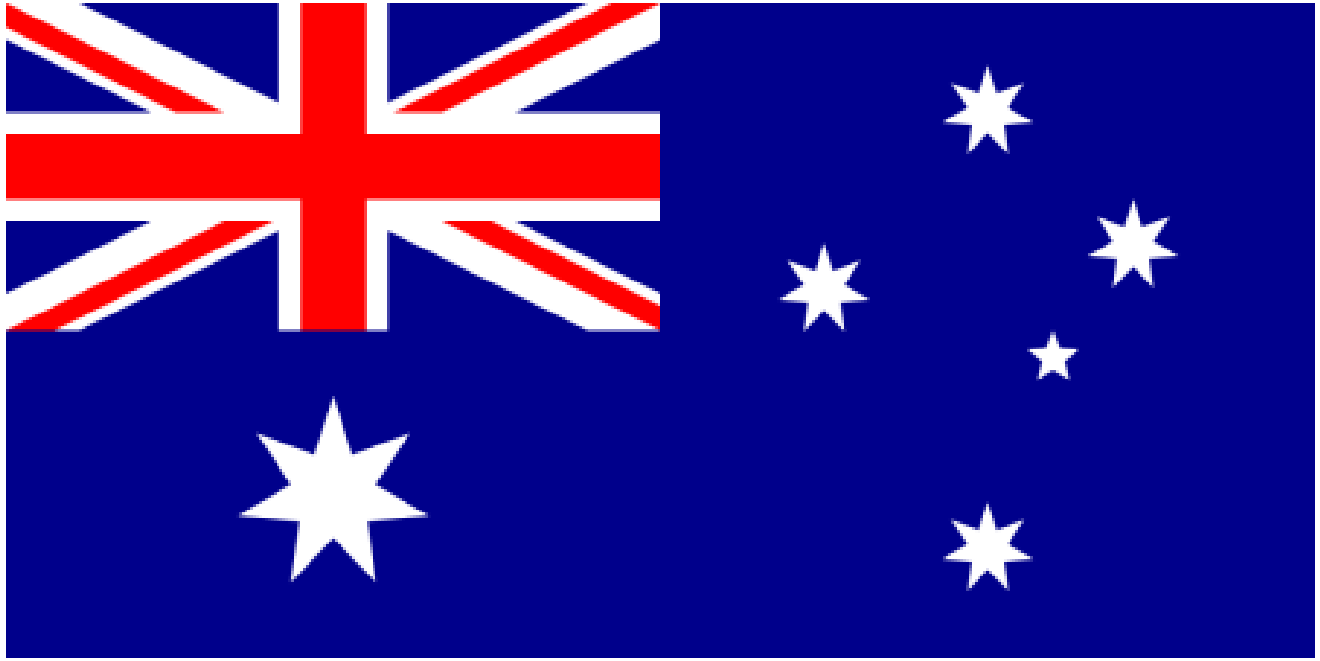
What do we know for sure…?

- In Australia…



What do we know for sure…?

- In Australia…not so much



153 Patients under Special Access Scheme
101 Patients via around 30 Authorized Prescribers

What mythologies are out there?

- “There is no evidence”
- “It’s dangerous”
- “You can’t dose botanical products”
- “Opposition is purely scientific / medical”

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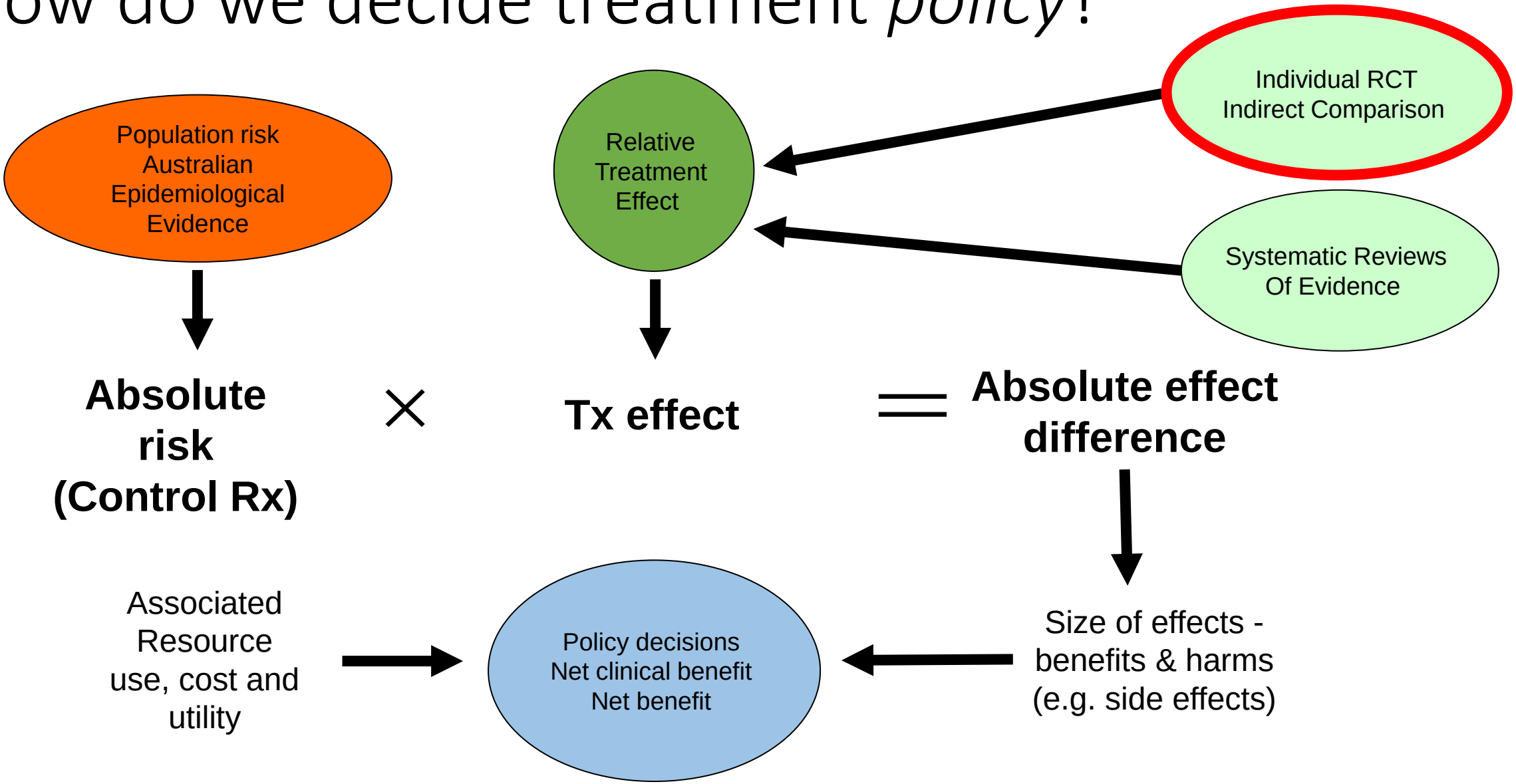
How do we decide treatment *policy*?



“There’s no evidence”

- Why ***don’t*** we have more compelling, contemporary evidence than we seem to for the therapeutic use of cannabis?

“As the National Institute on Drug Abuse, our focus is primarily on the negative consequences of marijuana use.
We generally do not fund research focused on the potential beneficial medical effects of marijuana.”

Shirley Simson, NIDA
New York Times, 2010

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Medical Condition	# of favourable trials	# of unfavourable trials
Chemotherapy-induced nausea and vomiting	✓✓✓✓✓✓✓✓✓✓ ✓✓✓✓✓✓✓✓✓✓ ✓✓✓✓✓✓✓✓✓✓ ✓✓✓✓✓✓✓✓✓✓	×
Chronic neuropathic pain	✓✓✓✓✓✓✓✓✓✓✓✓	××
Other chronic pain (cancer, rheumatism, fibromyalgia)	✓✓✓✓✓✓✓✓✓✓✓	××
Spasticity resulting from disseminated sclerosis	✓✓✓✓✓✓✓✓✓	×××
HIV/AIDS-related cachexia	✓✓✓✓✓✓✓	none
Cancer-related cachexia	✓✓✓	×

From Grotenhermen F, Müller-Vahl K. The therapeutic potential of cannabis and cannabinoids. *Dtsch Arztebl Int* 2012; 109: 495-501.

(Referenced by the Australian Medical Association in their assessment ***against*** medical cannabis, 2014)

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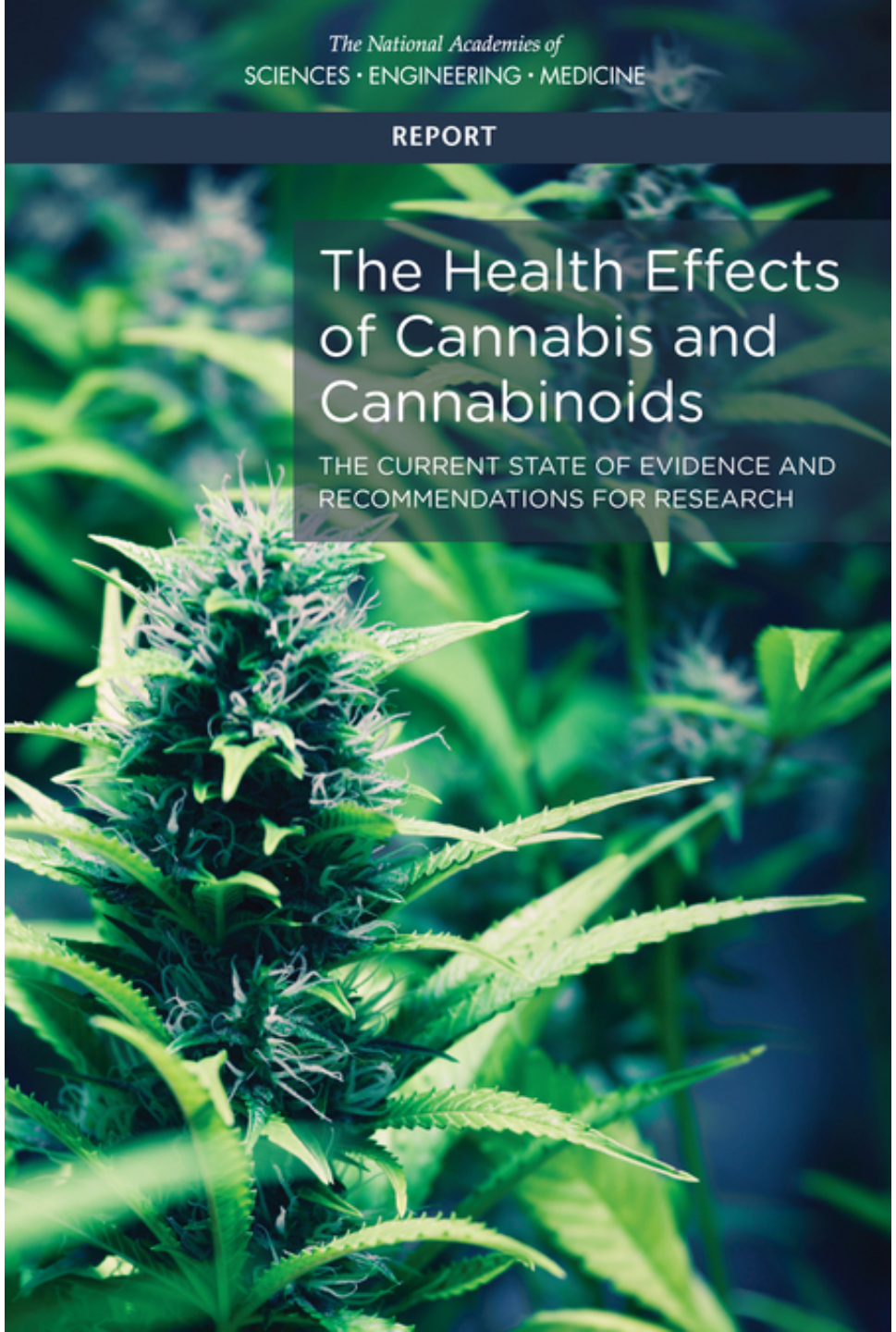

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Bunch of Nobodies…

- **MARIE C. McCORMICK** (*Chair*), Sumner and Esther Feldberg Professor, Harvard T.H. Chan School of Public Health, Harvard University, Boston, MA
- **DONALD I. ABRAMS,** Professor of Clinical Medicine, University of California, San Francisco, and Chief of Hematology–Oncology Division, Zuckerberg San Francisco General Hospital, San Francisco
- **MARGARITA ALEGRÍA,** Professor, Departments of Medicine and Psychiatry, Harvard Medical School, and Chief, Disparities Research Unit, Massachusetts General Hospital, Boston
- **WILLIAM CHECKLEY,** Associate Professor of Medicine, International Health, and Biostatistics, Division of Pulmonary and Critical Care, Johns Hopkins University, Baltimore, MD
- **R. LORRAINE COLLINS,** Associate Dean for Research, School of Public Health and Health Professions and Professor, Department of Community Health and Health Behavior, State University of New York at Buffalo–South Campus
- **ZIVA D. COOPER,** Associate Professor of Clinical Neurobiology, Department of Psychiatry, Columbia University Medical Center, New York
- **ADRE J. dU PLESSIS,** Director, Fetal Medicine Institute; Division Chief of Fetal and Transitional Medicine; and Director, Fetal Brain Program, Children's National Health System, Washington, DC
- **SARAH FELDSTEIN EWING,** Professor, Department of Child and Adolescent Psychiatry, Oregon Health & Science University, Portland
- **SEAN HENNESSY,** Professor of Epidemiology and Professor of Systems Pharmacology and Translational Therapeutics, University of Pennsylvania Perelman School of Medicine, Philadelphia
- **KENT HUTCHISON,** Professor, Department of Psychology and Neuroscience and Director of Clinical Training, University of Colorado Boulder
- **NORBERT E. KAMINSKI,** Professor, Pharmacology and Toxicology, and Director, Institute for Integrative Toxicology, Michigan State University, East Lansing
- **SACHIN PATEL,** Associate Professor of Psychiatry and Behavioral Sciences, and of Molecular Physiology and Biophysics, and Director of the Division of Addiction Psychiatry, Vanderbilt University Medical Center, Nashville, TN
- **DANIELE PIOMELLI,** Professor, Anatomy and Neurobiology, School of Medicine and Louise Turner Arnold Chair in Neurosciences, Department of Anatomy and Neurobiology, University of California, Irvine
- **STEPHEN SIDNEY,** Director of Research Clinics, Division of Research, Kaiser Permanente Northern California, Oakland
- **ROBERT B. WALLACE,** Irene Ensminger Stecher Professor of Epidemiology and Internal Medicine, Department of Epidemiology, University of Iowa Colleges of Public Health and Medicine, Iowa City
- **JOHN WILEY WILLIAMS,** Professor of Medicine, Duke University Medical Center, Durham, NC

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There is conclusive or substantial evidence that cannabis or cannabinoids are effective:

- For the treatment of chronic pain in adults (cannabis) (4-1)
- As antiemetics in the treatment of chemotherapy-induced nausea and vomiting (oral cannabinoids) (4-3)
- For improving patient-reported multiple sclerosis spasticity symptoms (oral cannabinoids) (4-7a)

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conclusive or substantial evidence

Where's the evidence?

- Prescribing Practice

Daily doses filled per physician per year in states with and without a medical marijuana law

Condition category	Annual number of daily doses prescribed per physician in states: Without a medical marijuana law	With a medical marijuana law	Difference
Anxiety	11,220.29	10,113.77	1,106.51***
Depression	9,576.73	8,296.25	1,280.47***
Glaucoma	2,551.40	2,616.04	–64.64***
Nausea	10,067.92	9,040.22	1,027.70***
Pain	31,810.07	28,165.54	3,644.53***
Psychosis	11,421.46	10,298.60	1,122.86***
Seizures	9,398.60	8,028.74	1,369.85***
Sleep disorders	7,557.97	6,942.94	615.03***
Spasticity	2,067.82	1,645.43	422.38***

Bradford AC, Bradford WD.
Medical Marijuana Laws Reduce Prescription
Medication Use In Medicare Part D.
Health Aff (Millwood). 2016 Jul 1;35(7):1230-6.

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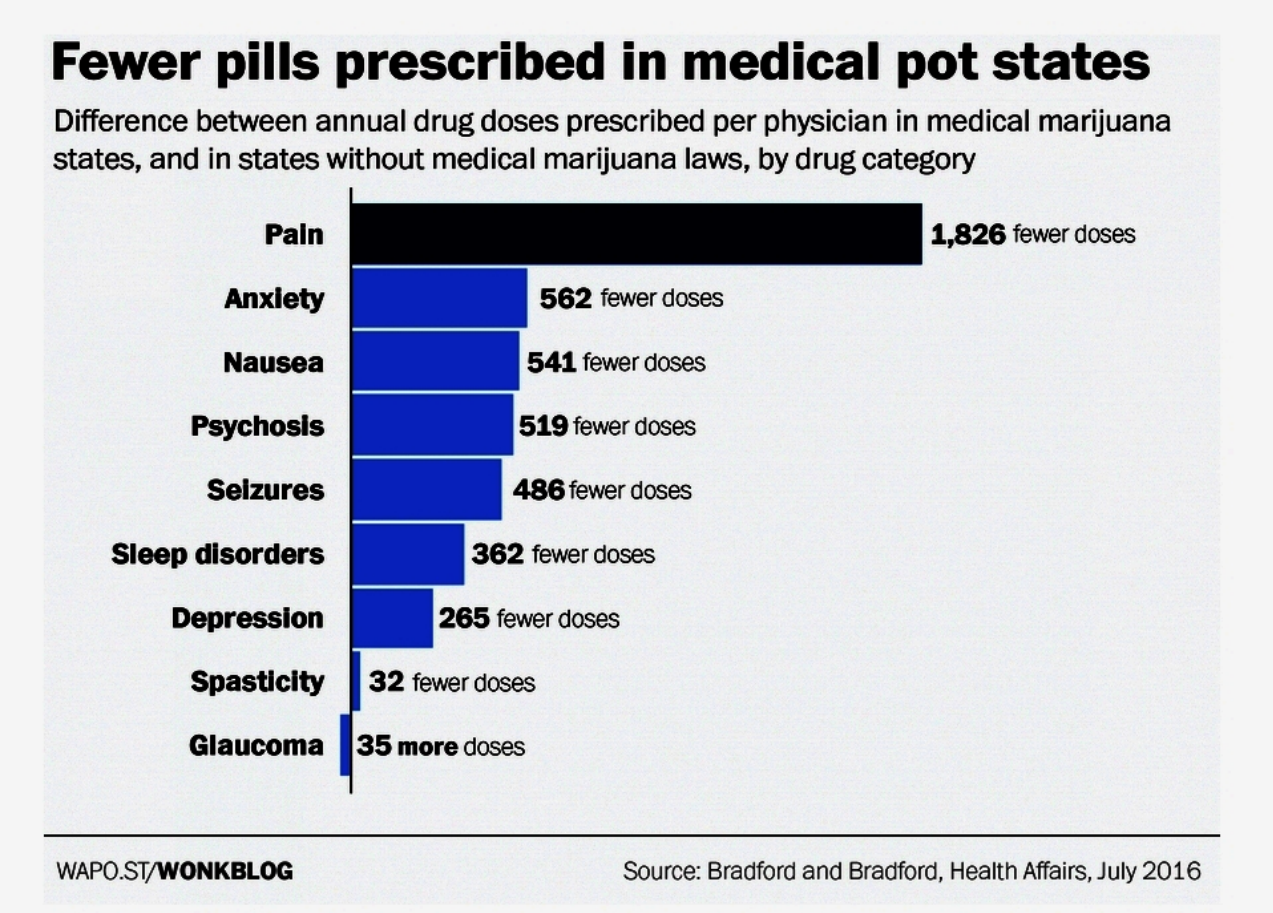
Where's the evidence?



Where's the evidence?

- Prescribing Practice
  - "found no changes after implementation of a medical marijuana law in the number of daily doses filled in condition categories with no medical marijuana indication"
  - "provides strong evidence that the observed shifts in prescribing patterns were in fact due to the passage of the medical marijuana laws."

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Where's the evidence?

- Total estimated Medicaid savings associated with these laws ranged from $260.8 million in 2007 to $475.8 million in 2014
- If all states had legalized medical marijuana in 2014, "The national savings for fee-for-service Medicaid would have been approximately $1.01 billion"
- This works out to an average per state savings of $19.825 million a year

Bradford AC, Bradford WD. Medical Marijuana Laws May Be Associated With A Decline In The Number Of Prescriptions For Medicaid Enrollees. Health Aff (Millwood). 2017 May 1;36(5):945-951.

Where's the evidence?

- Epidemiology

Original Investigation FREE

October 2014

Medical Cannabis Laws and Opioid Analgesic Overdose Mortality in the United States, 1999-2010

Marcus A. Bachhuber, MD[1,2,3]; Brendan Saloner, PhD[3,4]; Chinazo O. Cunningham, MD, MS[5]; et al

» Author Affiliations | Article Information

JAMA Intern Med. 2014;174(10):1668-1673. doi:10.1001/jamainternmed.2014.4005

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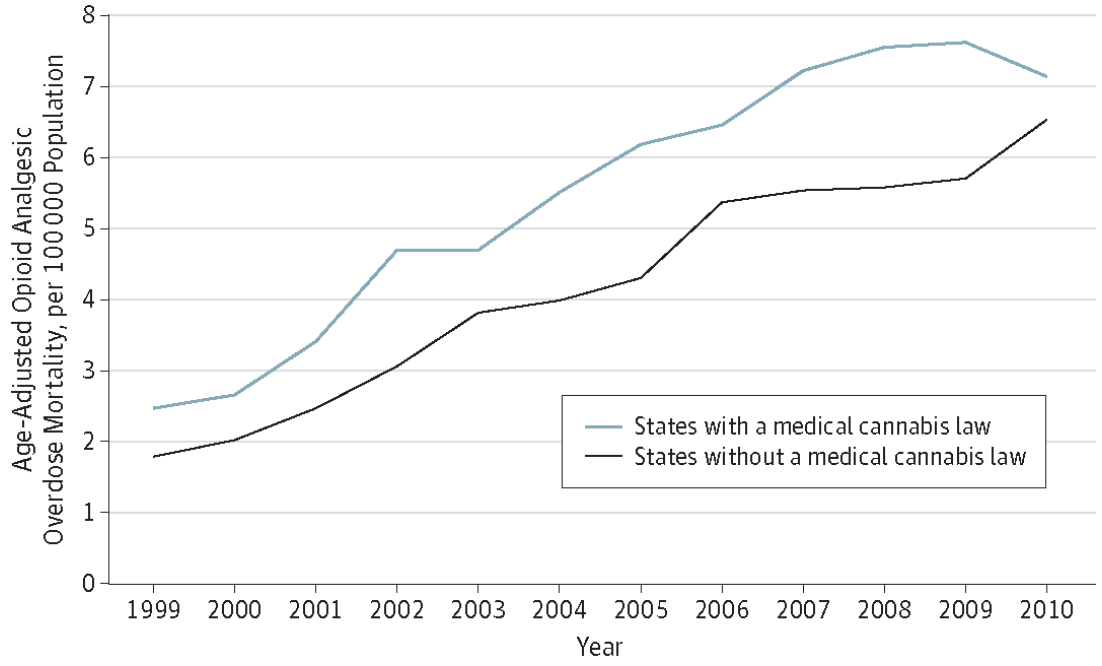
Where's the evidence?



- "states with medical cannabis laws had a 24.8% lower mean annual opioid overdose mortality rate…compared with states without medical cannabis laws."
- "such laws were associated with a lower rate of overdose mortality that generally strengthened over time,"
- about 1,700 fewer deaths in 2010 alone

Where’s the evidence?

- Why?
  - patients with chronic non-cancer pain who would have otherwise initiated opioid analgesics choose medical cannabis instead
  - patients already receiving opioid analgesics who start medical cannabis treatment experience improved analgesia and decrease their opioid dose, thus potentially decreasing their dose-dependent risk of overdose
  - medical cannabis laws lead to decreases in polypharmacy—particularly with benzodiazepines—in people taking opioid analgesics, overdose risk would be decreased

Do Medical Marijuana Laws Reduce Addictions and Deaths Related to Pain Killers?

David Powell, Rosalie Liccardo Pacula, Mireille Jacobson

NBER Working Paper No. 21345
Issued in July 2015, Revised in August 2015
NBER Program(s): HC HE

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Findings…

- Extended Bachhuber et al.’s analysis by including three more years of data.
- also looked at drug treatment admissions related to opioids
- less common in states that implemented medical marijuana laws
- longer medical marijuana was legally available, the bigger the apparent benefit.

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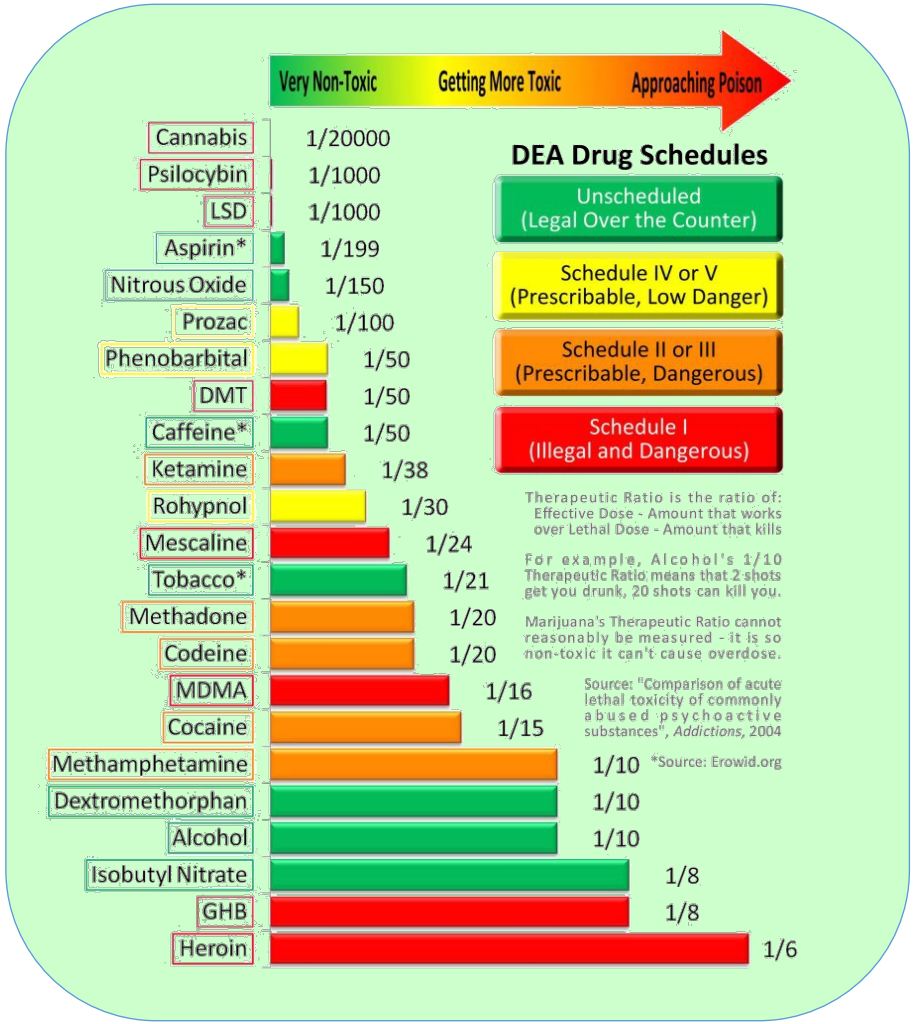
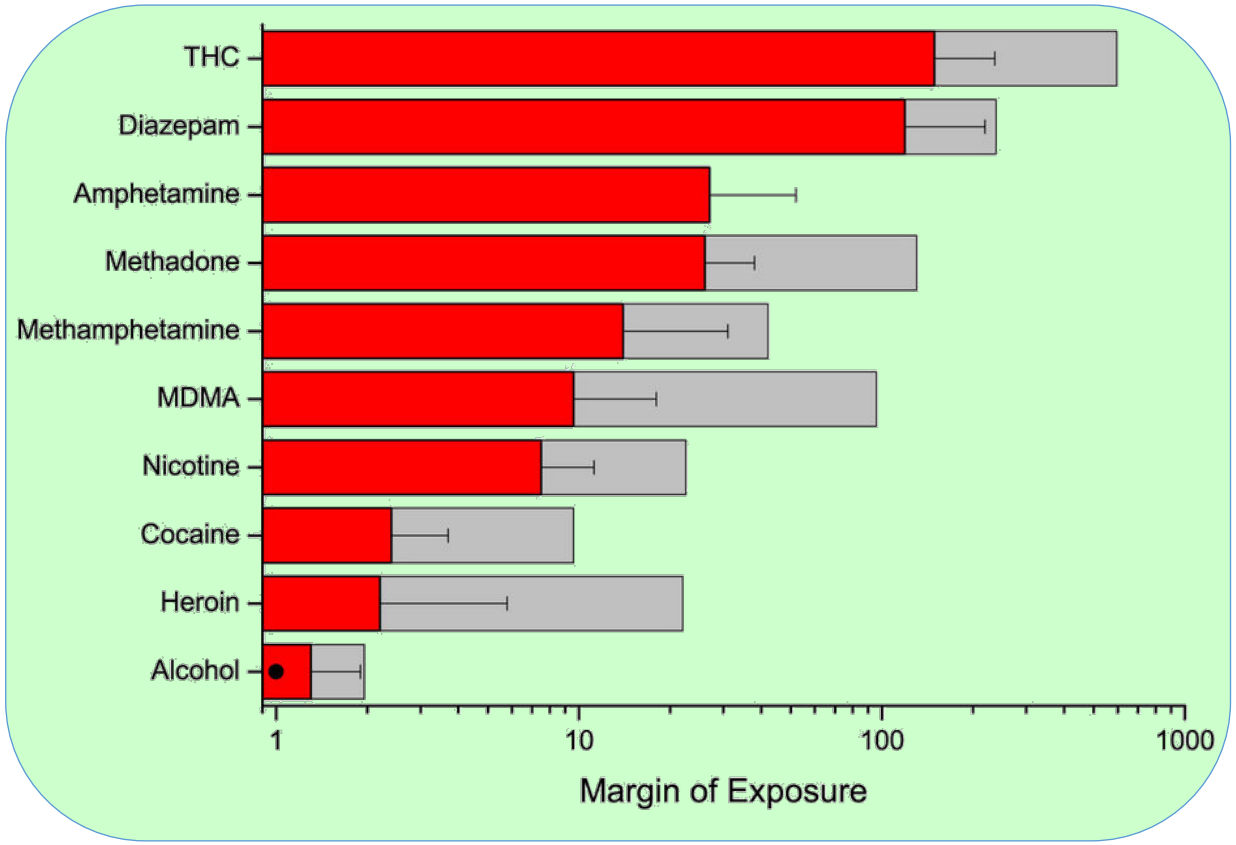
“It’s dangerous”





Lachenmeier DW, Rehm J. Comparative risk assessment of alcohol, tobacco, cannabis and other illicit drugs using the margin of exposure approach. Sci Rep. 2015 Jan 30;5:8126.

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“You can’t dose a botanical product…”

- Sure, you can…

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“You can’t dose a botanical product…”

- Sure, you can…

Type	Item	THC	CBD
CBD Rich	T0/C24 CBD Medical Cannabis	0% (0.0% - 0.5%)	24% (20% - 28%)
	T1/C20 CBD Medical Cannabis	1% (0.0% - 2.5%)	20% (16% - 24%)
	T3/C15 CBD Medical Cannabis	3% (0.5% - 5.5%)	15% (11% - 19%)
	T5/C10 CBD Medical Cannabis	5% (2.5% - 7.5%)	10% (6% - 14%)
	T10/C10 Medical Cannabis	10% (6% - 14%)	10% (6% - 14%)
THC Rich	T10/C2 Sativa Medical Cannabis	10% (6% - 14%)	2% (0.2% - 3.8%)
	T10/C2 Indica Medical Cannabis	10% (6% - 14%)	2% (0.2% - 3.8%)
	T15/C3 Sativa Medical Cannabis	15% (11% - 19%)	3% (0.5% - 5.5%)
	T15/C3 Indica Medical Cannabis	15% (11% - 19%)	3% (0.5% - 5.5%)
	T20/C4 Sativa Medical Cannabis	20% (16% - 24%)	4% (1% - 7%)
	T20/C4 Indica Medical Cannabis	20% (16% - 24%)	4% (1% - 7%)

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“You can’t dose a botanical product…”

- Sure, you can…

Indication	Recommended Product for Start of Treatment	Recommended Gradual E.P. Course for Further Treatment
Chemotherapy, up to 6 months, nausea, vomiting or treatment-associated pain	T10/C2	T10/C10 → T15/C3 →T20/C4
Stage IV cancer pain	T10/C2	T10/C10→T15/C3→T20/C4
Neuropathic pain of a clear organic source	T10/C10	THC-rich products for immediate relief + CBD-rich products for long-term treatment
AIDS, to improve appetite, relieve vomiting, digestive system symptoms after all accepted medication treatment has been exhausted, who also suffer from severe weight loss (cachexia – more than 10% loss of body weight	T10/C10	T10/C2→T15/C3→T20/C4

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“You can’t dose a botanical product…”

	CBD RICH							THC RICH							
Cannabis product	T0 C24		T1 C20		T3 C15		T5 C10		T10 C2		T10 C10		T15 C3		T20 C4
Monthly cannabis amount (grams)	**20**	↔	**20**	↔	20	↔	**20**	↔	**20**	↔	20	→	20	→	20
	↓	↗	↓	↗	↓	↗	↓		↓	↗	↓	↗	↓	↗	↓
	30	←	30	←	30	←	30	↔	30	←	30	←	30	←	30
	↓		↓		↓		↓		↓		↓		↓		↓
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	50	←	50	←	50	←	50		50	←	50	←	50	←	50
			↓		↓		↓		↓	↗		↗			
			60	←	60	←	60		60	→	60				

A titration protocol (depending on potency) of cannabis products

- Start at any of the boxes
- Treatment progresses in any direction of an arrow
- If the next treatment grade causes an undesired response, return to the previous amount, or to another starting point determined by the physician

“You can’t dose a botanical product…”

- Sure, you can…

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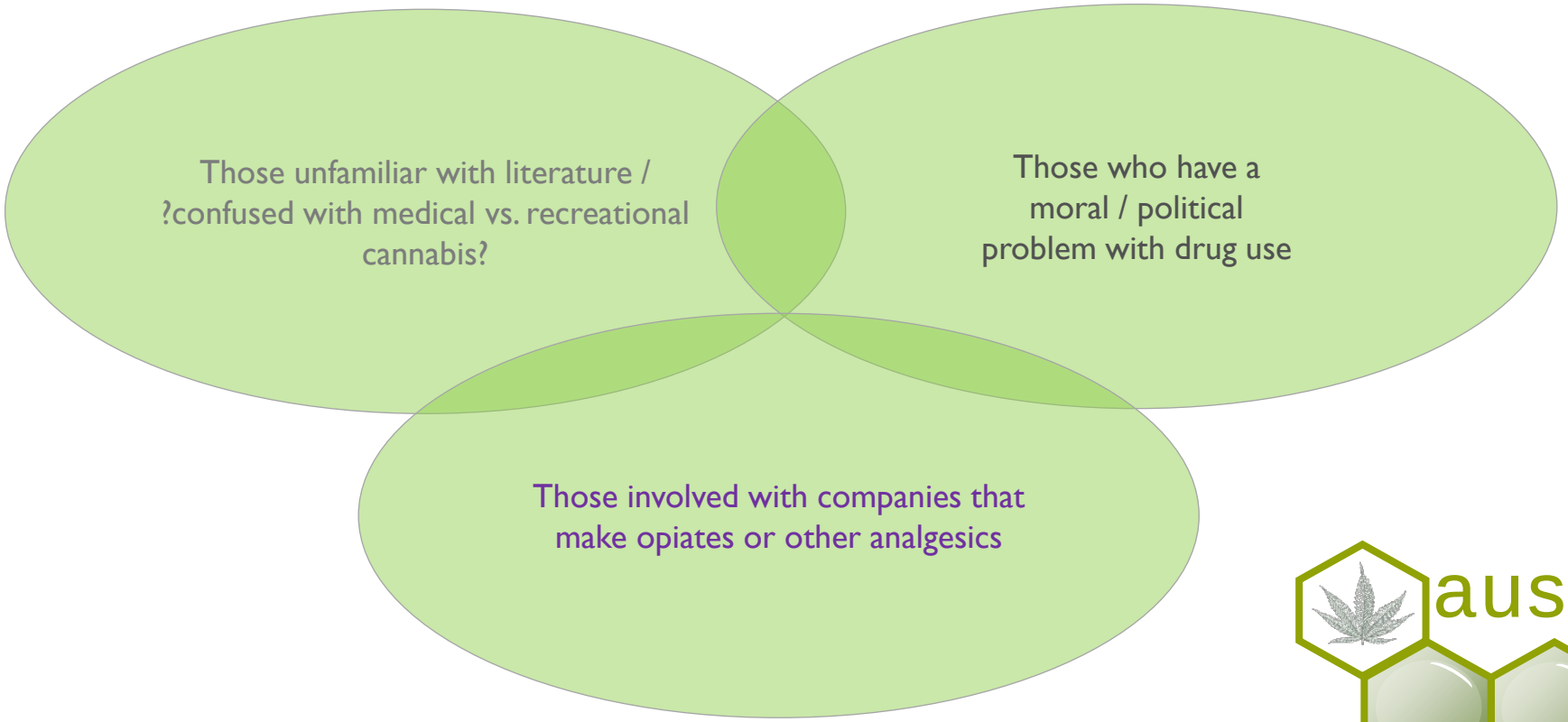
Who is opposed to medicinal cannabis?

- 3 main groups of opponents…



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Who is opposed to medicinal cannabis?

Dr. Mark L. Kraus

Dr. Herbert Kleber

Dr. A. Eden Evins

Pfizer

Reckitt Benckiser

PURDUE

(OxyContin)

ENVIVO PHARMACEUTICALS

Alkermes

(Zohydro)

gsk GlaxoSmithKline

Pfizer

Who is opposed to medicinal cannabis?

- One other subcategory…

Those involved with companies that would block use of a 'botanical' product

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Who is opposed to medicinal cannabis?

- But why would anybody *do* that?
- Because it competes with their own product…
- E.g. …
  - Sativex (THC:CBD= 1:1)
  - Made from cannabis
  - Can make you high
  - Only one indication
  - ***Stunningly*** expensive

Lu L, Pearce H, Roome C, Shearer J, Lang IA, Stein K. Cost effectiveness of oromucosal cannabis-based medicine (Sativex®) for spasticity in multiple sclerosis. Pharmacoeconomics. 2012 Dec 1;30(12):1157-71.

Boehringer Ingelheim

Janssen

Lilly

mundipharma

National Pain Strategy

inova pharmaceuticals

Pain Management for all Australians

Pfizer AUSTRALIA

Medtronic

MSD

CSL Biotherapies

http://www.health.nsw.gov.au/PainManagement/Documents/appendix-1-national-pain-strateg.pdf

The pharmaceutical industry does not just create ‘cures’…

It also creates customers


DH 99 161 395
50
Australia
DH 99 161 395


MARIJUANA

Can Medicinal Cannabis Meet 2 Criteria?

- Make your patient feel better?

- Benefits exceed the risks (by a wide margin)?

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In Summary…

- “There is no evidence”
- “It’s dangerous”
- “You can’t dose botanical products”
- “Opposition is purely scientific / medical”

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In Summary…

- There’s actually quite a lot of evidence, and it’s growing
- It’s far less dangerous than many drugs, esp. when use supervised
- Of course you can- it’s already being done
- Much opposition is political / ideological / commercial

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