Cannabis policy and harm: The example of Canada after legalization

at “360 Degrees about Cannabis Use: Effects and Safety”, Bangkok Thailand

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Topics covered

- The global picture on legal and medical cannabis
  - The world is changing
  - Legal status
  - Implications for the health and well-being of the population
- Experiences from Canada
  - History until legalization including medical marijuana
  - Cannabis-attributable harm
  - Changes after legalization
- Conclusions

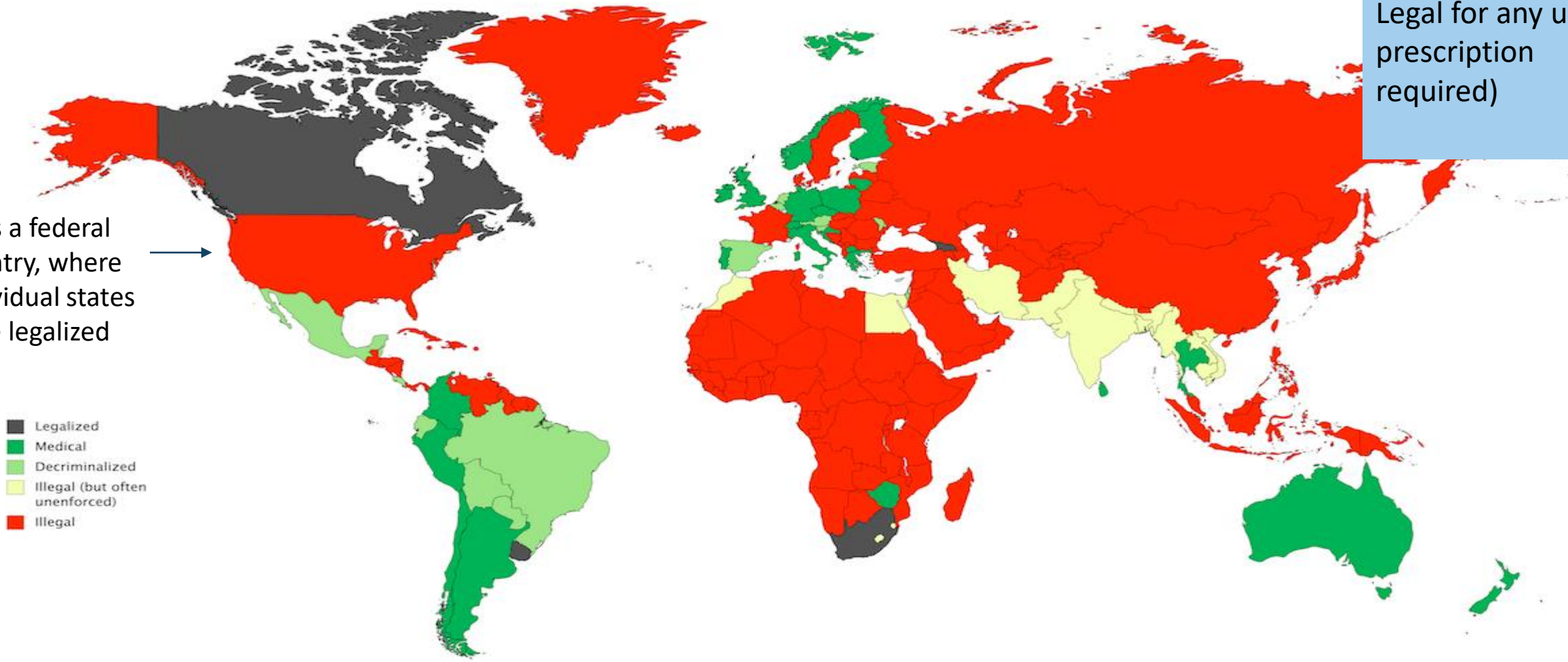
The global picture on legal and medical cannabis

The world is changing – what should be our priorities?

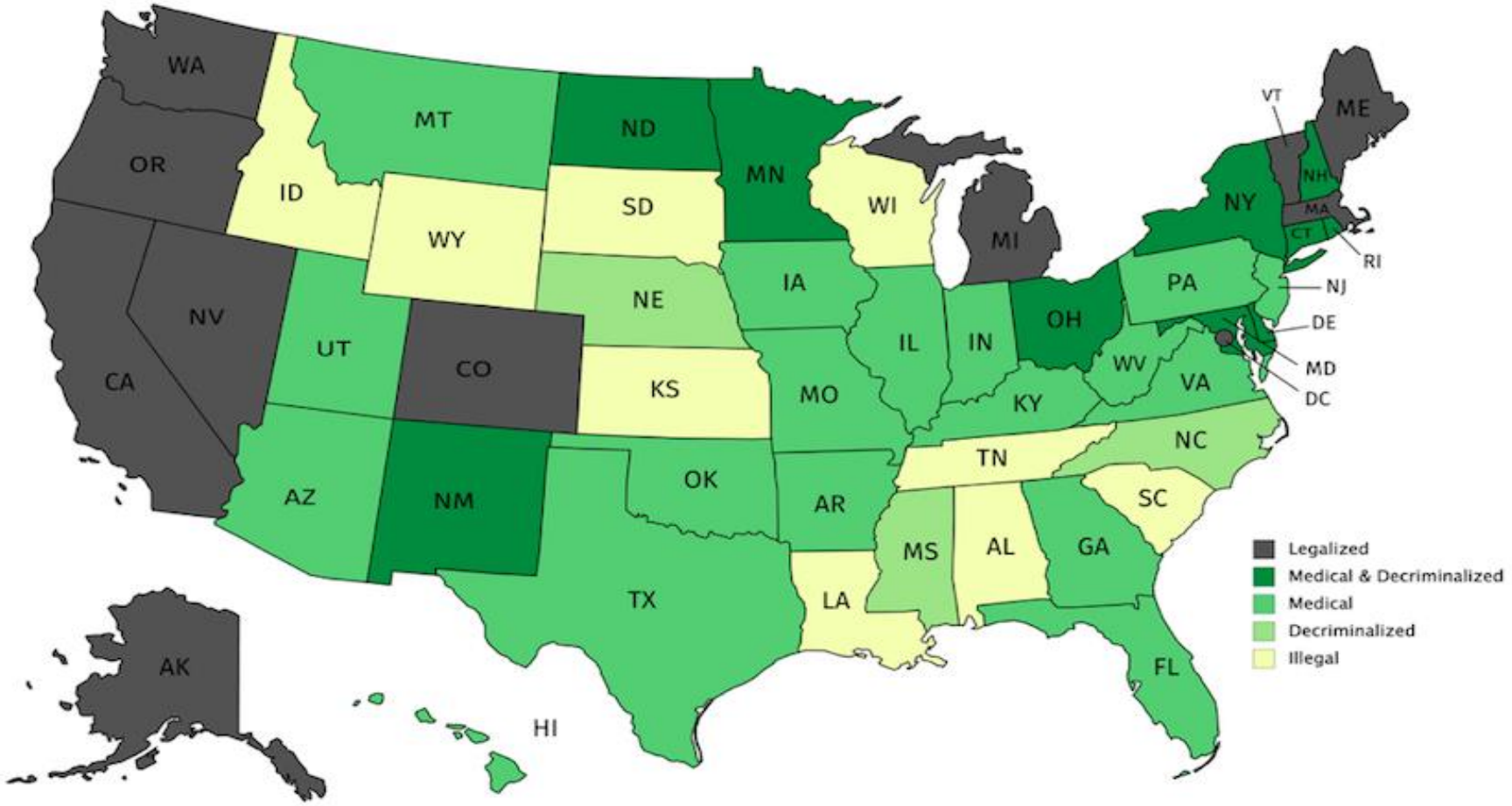
More and more countries allow medical marijuana or legalize marijuana (2021)

Map showing legal status of medical cannabis across the world. Green: Legal as authorized by a physician. Grey: Legal for any use (no prescription required)

US is a federal country, where individual states have legalized



The current map of the US re: legal status of marijuana



Four different main scenarios

- Marijuana use (cannabis plant and resin) is legal for recreational and medical use (very few countries)
- Marijuana use is legal for medical use
- Marijuana use is illegal, but the law is not enforced (often in combination with medical marijuana)
- Marijuana use is tolerated but only for some marijuana products
- *In addition: cannabis based medical products are legal (e.g., Sativex, which contains THC and CBD), but the cannabis plant and resin itself are not legal*

The gold rush! How many billions??

On the same day in 2019: 150 billion today, 146.4 billion by the end of 2025, 166 billion in 2025… and so on!

The Global Cannabis Industry | The Green Fund
https://thegreenfund.com › Education
Mar 15, 2019 - The **global cannabis market** is thought to be worth USD$150 billion today. Barclays, in their European Consumer Staples Report in September ...

Legal Marijuana Market Worth $146.4 Billion by 2025 | CAGR: 34.6%
https://www.grandviewresearch.com/press-release/global-legal-marijuana-market
The **global** legal **marijuana market** is expected to reach USD 146.4 billion by end of 2025, according to a new report by Grand View Research, Inc. Growing ...

Global Legal Cannabis Market to Reach US$166 Billion By 2025 ...
https://blog.euromonitor.com/global-legal-cannabis-market-to-reach-us166-billion-by...
Feb 26, 2019 - Legal **cannabis** will reach US$166 billion by 2025, based on estimates from **global market** research company Euromonitor **International**.

Overall, the tone is a bit more pessimistic these days:

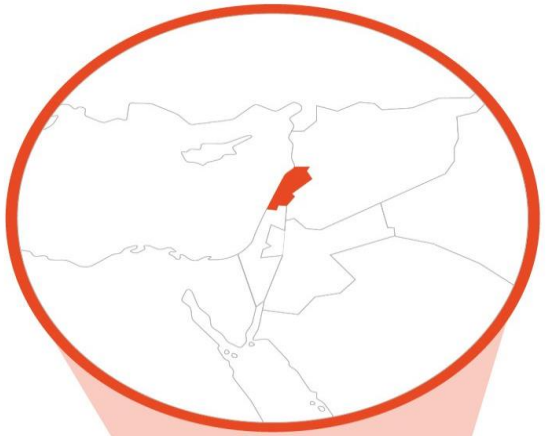
The global legal marijuana market size was valued at USD 24.6 billion in 2020 and is expected to expand at a compound annual growth rate (CAGR) of 14.3% from 2021 to 2028. One of the major factors fueling the market growth is the expanding demand for legal marijuana owing to the growing number of legal cannabis countries. Owing to the recent legalizations in different countries, the use of medical marijuana for various aliments is gaining momentum worldwide.

Projections

- Huge global market!
- Many countries try to get a share (but not all will obtain the profit expected or “promised”!)
- The same market share is already planned in very many different budgets in different countries
- Cultivation is not too hard, and many countries can grow marijuana (and suddenly almost any country with warm climate believes they will be **the** winner and change their laws—not only to cultivate it, but to allow their population to use cannabis legally under certain circumstances)
- Most likely scenario: there will be a market consolidation with only a few multinational companies dictating the market!

COUNTRIES WHERE CANNABIS IS LEGAL

Lebanon becomes the first Arab country to legalize the use of cannabis for medical purposes



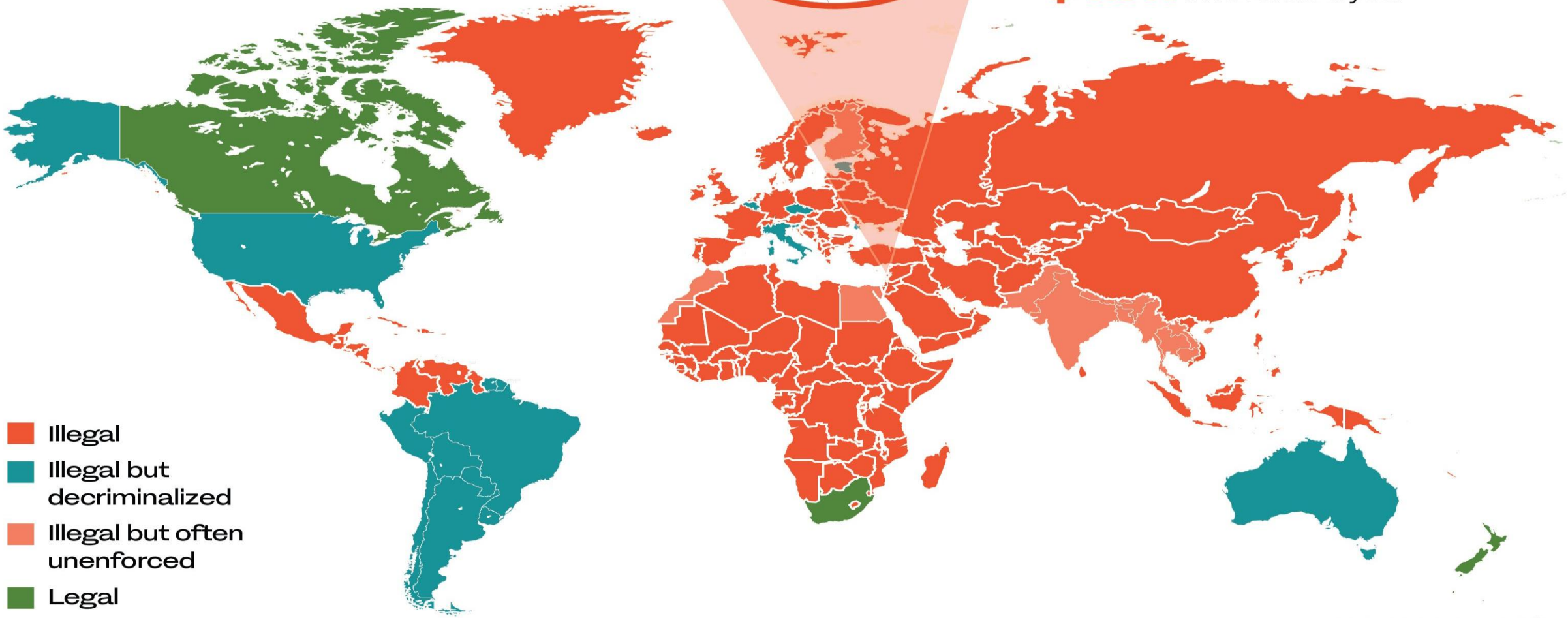
Lebanon

Estimates suggest that up to 100,000 hectares could come into hashish farming within a period of five to ten years, with a crop value of about

$1–$1.2bn

Legalizing marijuana could generate

$1bn in revenue a year



Source: WorldPopulationReview/Bloomberg

Updated 27 April 2020 ARAB NEWS

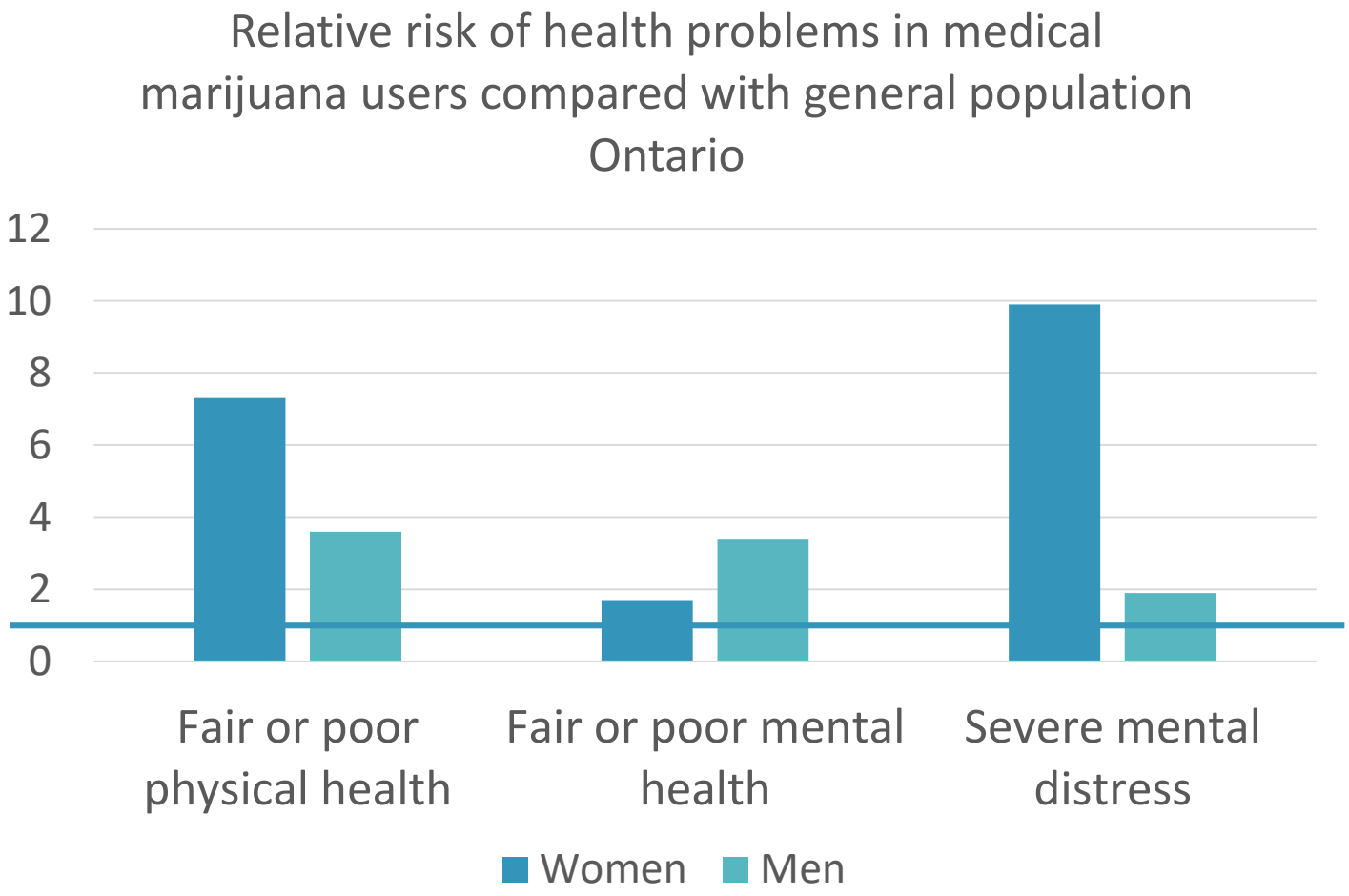
Experiences from Canada

A little history from a country which legalized recreational and medical use as the first high income country

Medical Marijuana in Canada – brief history

- Establishment of federal ‘Medical Marijuana Access Regulations’ (MMAR) in 2001 following seminal Supreme Court decisions forcing government to do so
- Initial program relied on government approval; marijuana was provided by government and ‘designated’ growers
- MMAR: Extremely bureaucratic, convoluted and lengthy => only several hundred approved participants in the Federal Medical Marijuana program of Canada by 2007
- In the meantime, tens of thousands of (largely un-approved) ‘medical marijuana users’ rely on (illegal but tolerated) community-based ‘medical marijuana dispensaries’ (different practices in different communities)

Typical users of medical marijuana under the original law (registered users; Fischer et al., 2017)



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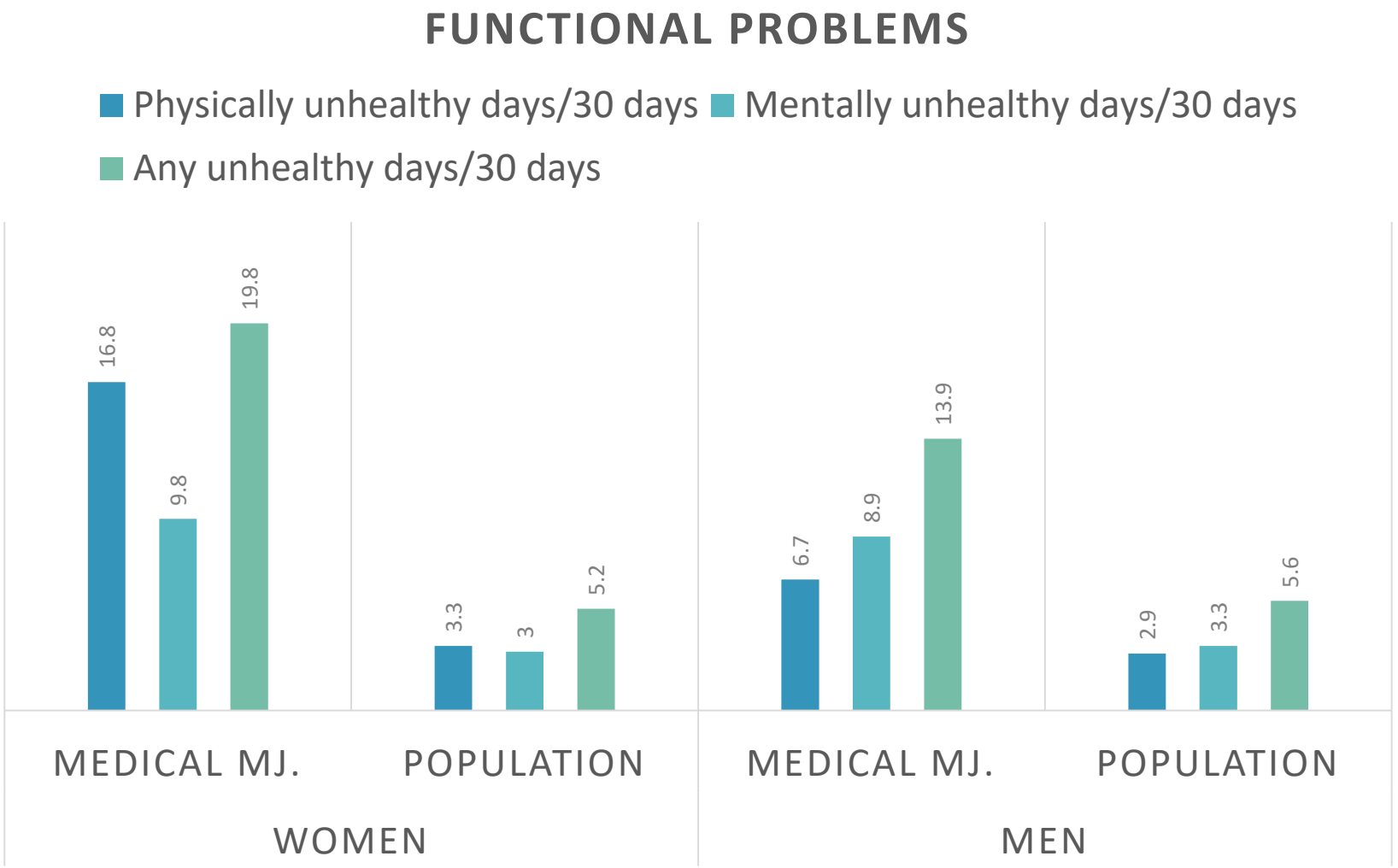


Revised Medical Marijuana access program (MMPR)

- New (federal) Marijuana for Medical Purposes Regulations (MMPR) implemented in April 2014 following legal/user pressure
- Major changes:
  - Government no longer involved in approval/provision (federal government only acts as regulator)
  - MMPR participation by physician 'endorsement'
  - Widened catalogue of criteria (de facto anything where 'health benefit' is endorsed by a medical doctor)
  - Medical cannabis obtained from one of (<20) government-licensed private MedMj producers
- Widespread easy and "legal" access to MMPR (e.g., through 'brokers', Skype assessments, 'clinics')
- ~38,000 MedMj participants in 2014; (estimated) 60,000 now (Canada total population: ~34 million)
- may go as high as 200,000-400,000 in Canada => approximately 1/3 in Ontario (Canada's most populous province)

Amendments to the *Narcotic Control Regulations* and the *Marihuana for Medical Purposes Regulations* (Communication of Information)

May lead to user registries in several provinces -> research opportunities

Information to be provided to healthcare licensing authorities

When a request is made, the regulations require that licensed producers provide healthcare licensing authorities with the following information (see subsection 102.1(2) of the MMPR):

(a) the client's given name, surname and date of birth;

(b) the postal code for the place where the client ordinarily resides or for the institution that provides social services to the client, as specified under subparagraph 108(1)(b)(i) or (ii), together with the name of the province in which that place or institution is located;

(c) the given name, surname and business address of the health care practitioner who signed the medical document and the number assigned by the province to the practitioner's authorization to practise;

(d) the daily quantity of dried marihuana that is specified in the medical document;

(e) the period of use that is specified in the medical document;

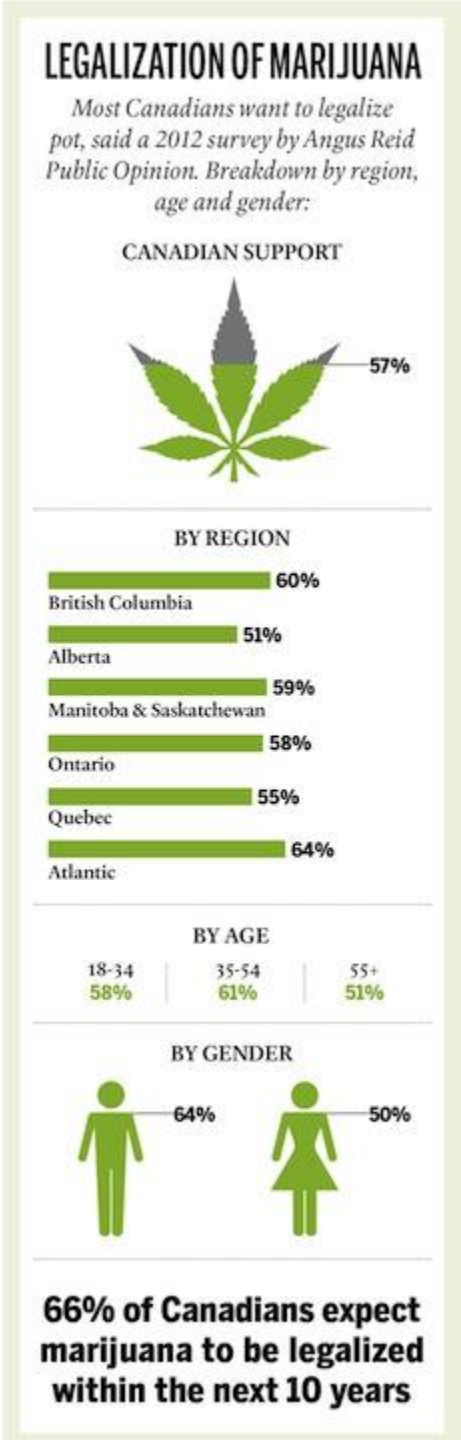
(f) the date on which the medical document was signed by the practitioner; and

(g) if dried marihuana was shipped to the client during the quarter, the quantity of dried marihuana, expressed in grams, contained in each shipment and the dates of the shipments.

If a provincial or territorial healthcare licensing authority makes a request for quarterly reports, but the licensed producer does not have any client registrations from that jurisdiction during that period, the licensed producer is required to send a notice to the authority to that effect as per subsection 102.1(5) of the MMPR by the relevant deadline referred to in subsection 102.1(3) of the MMPR.

Cannabis policy and the federal election

- Cannabis policy was one major theme in the federal election in 2015 (top 5 themes in surveys of all themes underlying a decision)
- Three major parties with different policy options:
  - Conservatives (med MJ)
  - Liberals (legalization of recreational use)
  - NDP (decriminalization of any use)



Cannabis policy and the federal election (example of Tuesday, 8-11-15)

Relaxed pot laws would hurt Canadians' health, Stephen Harper says

Conservative leader doubles down on pot policy, despite government polling indicating only 13 per cent of Canadians support the status quo.

Conservative Leader Stephen Harper says legalization of marijuana in Canada would lead to the drug being 'more readily available to children'

By: **Alex Boutilier** Ottawa Bureau Reporter, **Bruce Campion-Smith** Ottawa Bureau, Published on Tue Aug 11 2015

OTTAWA—Conservative Leader Stephen Harper says his party still remains staunchly opposed to relaxing marijuana laws, despite federal polling indicating a majority of Canadians would support the move. Speaking at an election campaign event in Markham on Tuesday, Harper said both his party and a majority of Canadians oppose the "full legalization" of marijuana.

Colorado was cited as prime example of problems encountered with legalization

Legislation for legal cannabis

https://www.youtube.com/watch?v=avH9QCqkPqE

The status of medical marijuana?

- Legalization for recreational purposes is clear, but what role should medical marijuana play
- It was de facto used as “legalization through the back door”; most prescriptions were for depression which makes no sense since cannabis has detrimental effects on the course of depression
- It is time to develop a law whereby medical marijuana is dealt with in the same manner as any other prescription medication (i.e., indication only after randomized trials show efficacy – effectiveness – for the respective outcome)
- However, the policy makers in Canada now have a problem: what to do with all the medical marijuana shops?

Cannabis-related harm

Cannabis is not a benign substance, and incurs harm.

Cannabis is not a benign substance! Public health burden (Fischer et al., 2016; Imtiaz et al., 2016)

Known (causal) impact on:

- Traffic collisions, traffic injury, traffic fatalites
- Course of psychosis
- Cannabis use disorders

Likely causal impact on:

- Lung cancer

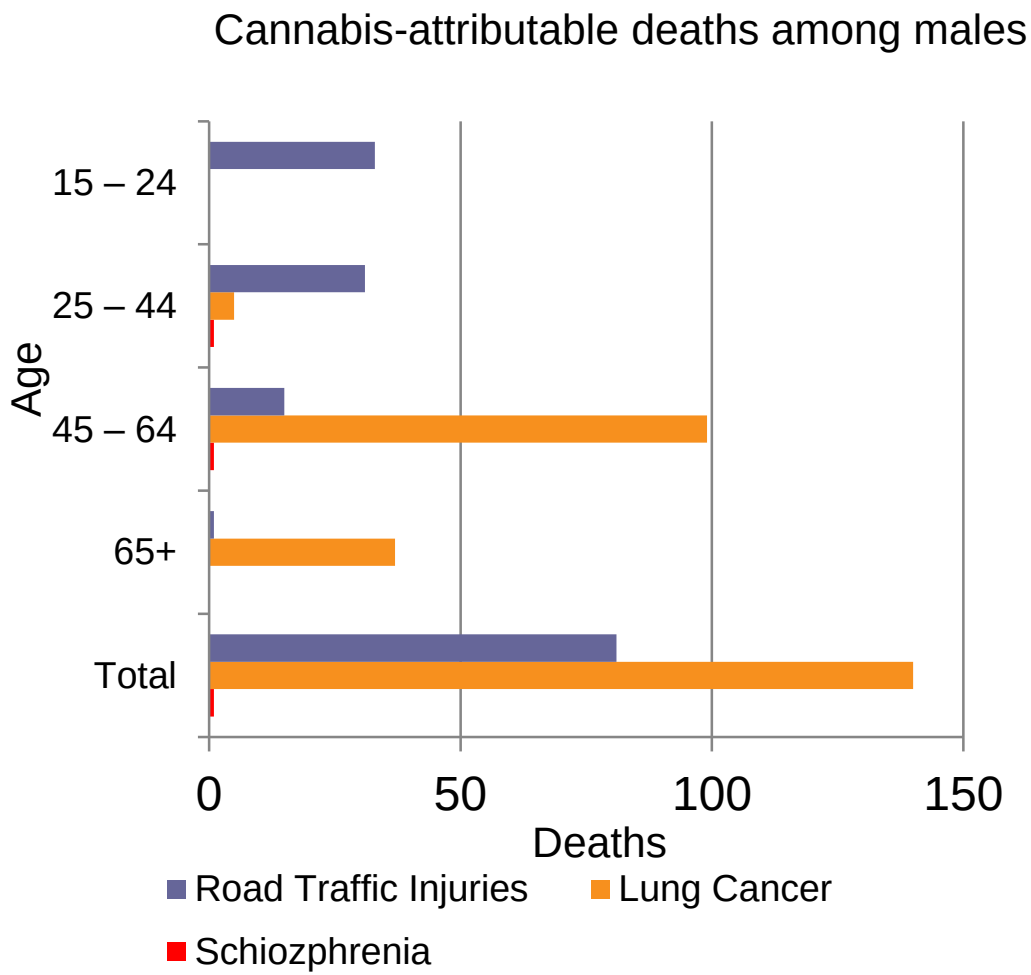
At least 50 more conditions are currently examined!

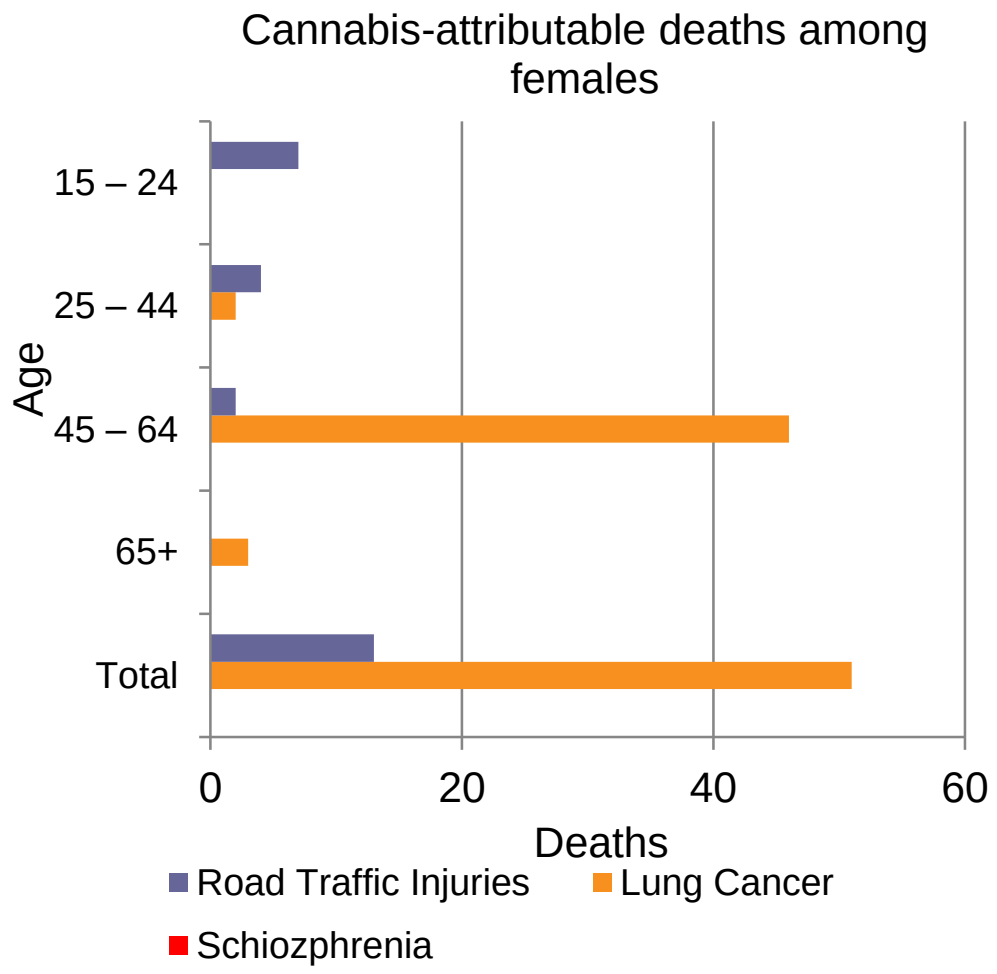
Fischer et al: *MVAs (89–267 cannabis-attributable MVA fatalities in 2010), and lung cancer (130-280 deaths) are the only domains where cannabis-attributable mortality is estimated to occur. While cannabis use results in morbidity in all domains, MVAs (6,800 – 20,500 injuries) and use disorders (380,000 prevalence; 76,000–95,000 in treatment) by far outweigh the other domains in the number of cases; the popularly debated mental health consequences (e.g., psychosis) translate into relatively small case numbers.*

More formal comparative risks assessment of Imtiaz et al. (2016)

- Adverse health effects judged as causally-related to cannabis use included cannabis use disorders (by definition), schizophrenia/psychosis, lung cancer, and road traffic injuries.
- There were 287 cannabis-attributable deaths in 2012.
  - All cannabis-attributable adverse health effects could include mortality outcomes except cannabis use disorders.
  - Cannabis-attributable mortality peaked among people 45 to 64 years of age, and it was higher for men than for women (all-cause death ratio of 3.5).
  - Road traffic injuries were responsible for most cannabis-attributable deaths among people less than 45 years of age, but lung cancer was the dominant source of cannabis-attributable deaths among people 45 years of age and older.

More formal comparative risks assessment Imtiaz et al. (2016)





Changes after legalization

Prevalence of use increases, but not necessarily more problematic daily use or using cannabis and driving.

Changes in use after legalization after 1 year

https://www150.statcan.gc.ca/n1/pub/82-003-x/2020002/article/00002/tbl/tbl01-eng.htm

- In 2019, more than 5.1 million people nationally, or 16.8% of Canadians aged 15 or older, reported using cannabis in the three months before being surveyed. This was higher than the 14.9% (4.5 million) reporting use, on average, in 2018.
- On average, in 2019, 6.0% of Canadians aged 15 or older reported using cannabis daily or almost daily; about the same level as 2018 (5.9%). Regardless of year, daily or almost-daily users were also more likely to be male and aged 18 to 44. Despite reaching 2.6% in 2019, persons 65 and older continued to be the least likely to consume cannabis DAD but the only population since legalization for whom DAD use increased.

Changes in cannabis and driving after 1 year

https://www150.statcan.gc.ca/n1/pub/82-003-x/2020002/article/00002/tbl/tbl01-eng.htm

- The likelihood of reporting driving after cannabis use did not change with legalization. For example, in 2019, 13.2% of cannabis users with a valid driver's license reported driving within two hours of using cannabis—unchanged from 2018.
- Males remained more likely to engage in this behaviour than females (15.6% compared to 9.4%, respectively).
- The proportion who reported driving within two hours was also more than five times higher among drivers with daily/almost daily cannabis use compared to drivers who used less than daily/almost daily (e.g., 28.8% compared to 5.2%, respectively in 2019).

Official conclusions in 2019 (after 1 year)

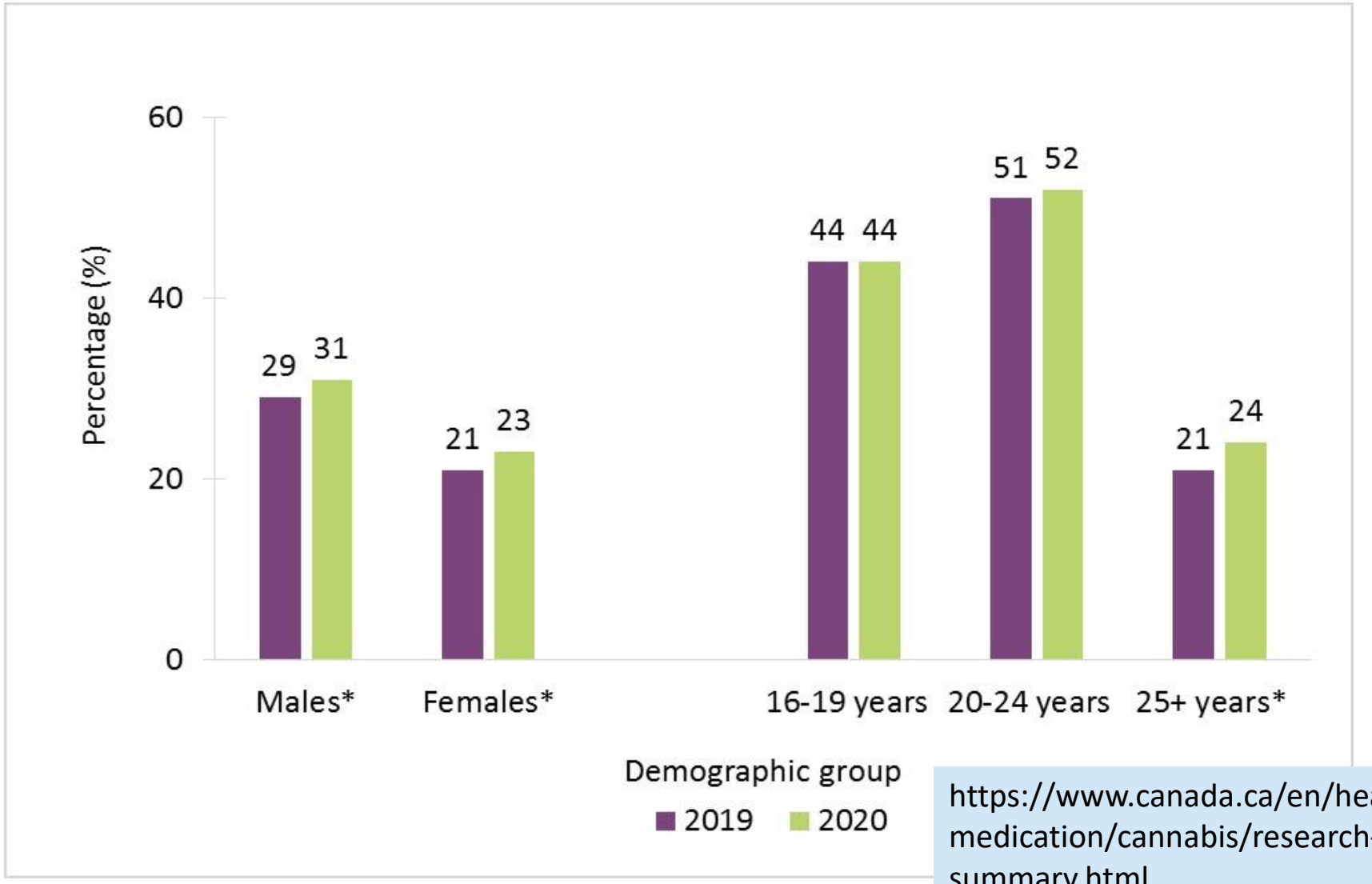
There is consensus that cannabis use can harm adolescent brains and that cannabis use initiated at a younger age increases the likelihood of developing problem cannabis use.

Cannabis use during adolescence is also associated with worse mental health and educational outcomes, and longer-term personal disadvantage. More frequent users are at the highest risk of problems.

Because reported cannabis use prevalence tends to be higher after legalization (although some of the increase could be owing to a greater willingness to disclose) many feared that youth use would also rise. Early indications from this NCS study suggests use among Canadian youth has not increased. This finding is consistent with the Colorado experience—the first state in North America to legalize non-medical cannabis.

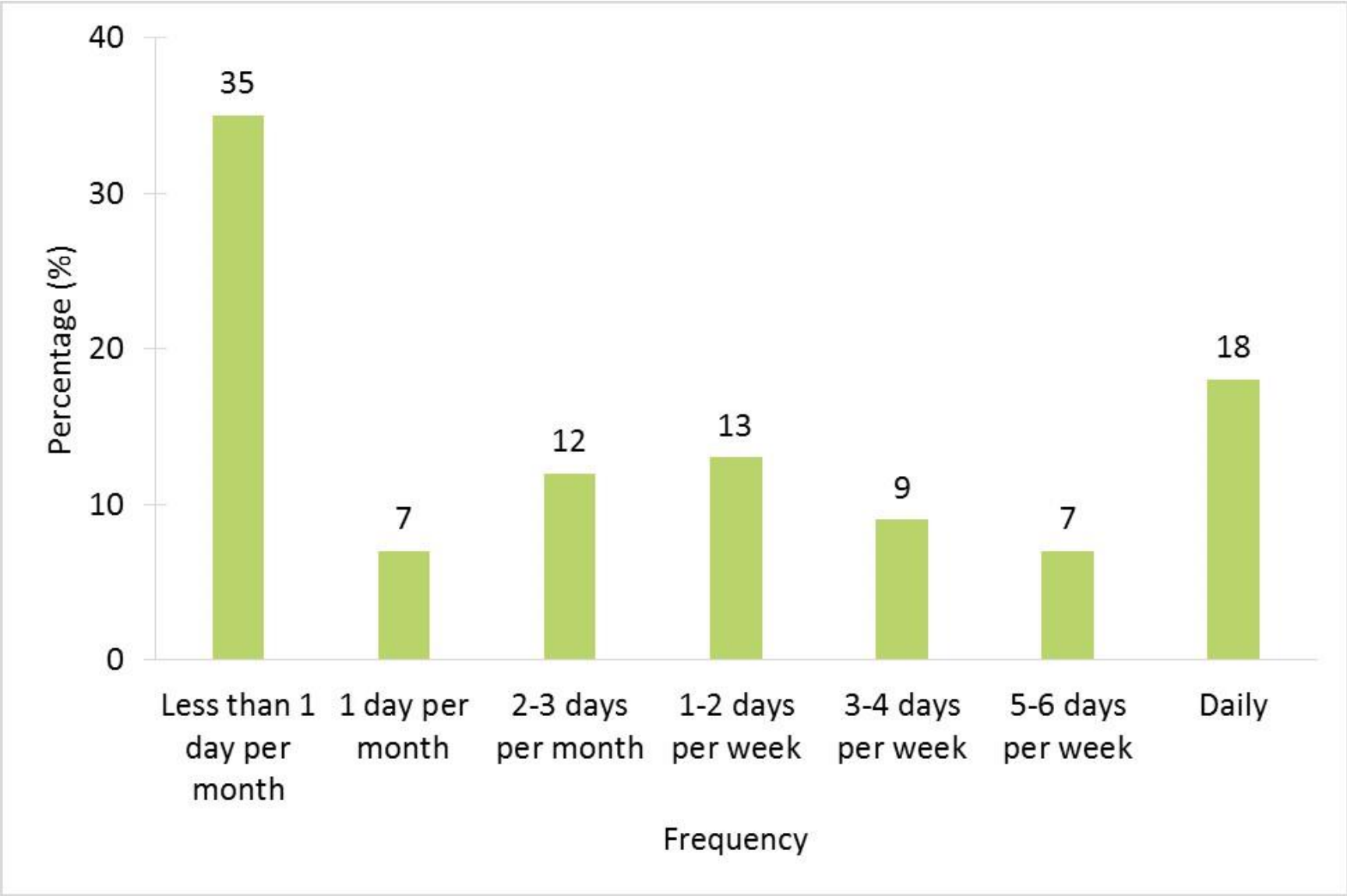
However, cannabis use at older ages and overall prevalence did increase, not only during the years covered by the NCS, but also over the longer term.

Past 12-month cannabis use, by sex and age group, 2019 to 2020 - Stable at a high level

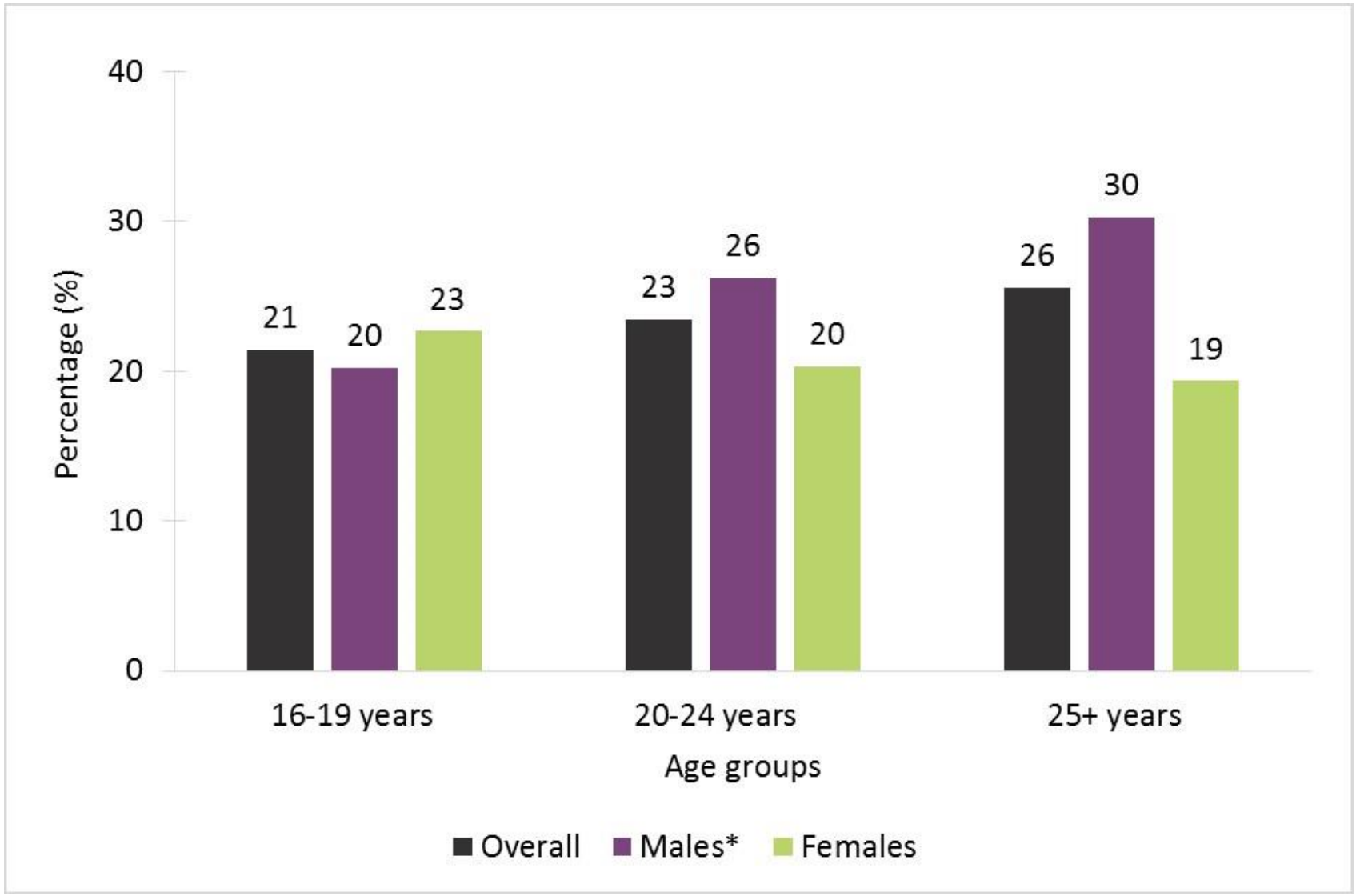


https://www.canada.ca/en/health-canada/services/drugs-medication/cannabis/research-data/canadian-cannabis-survey-2020-summary.html

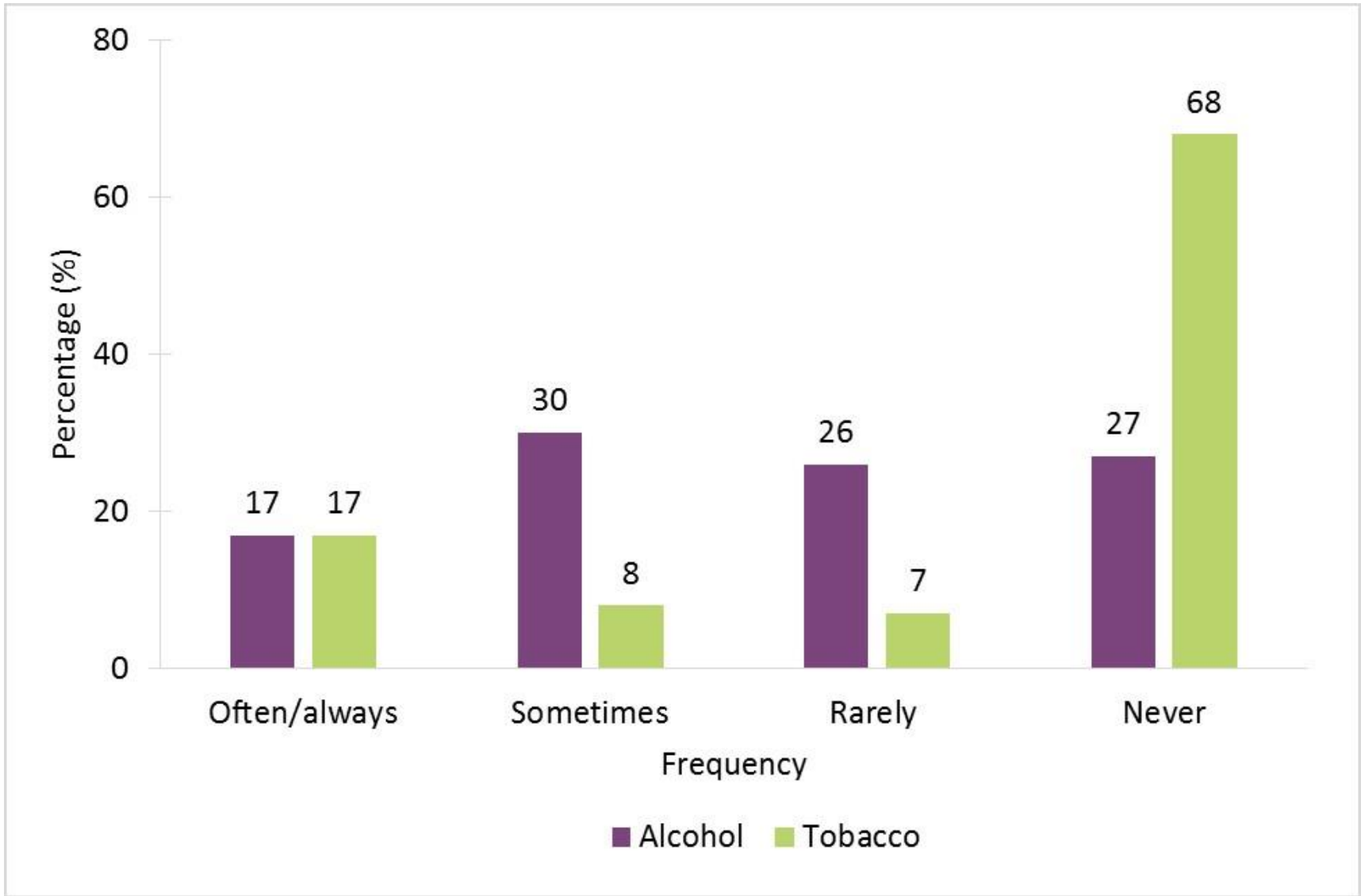
Frequency of use in 2020 (among users)



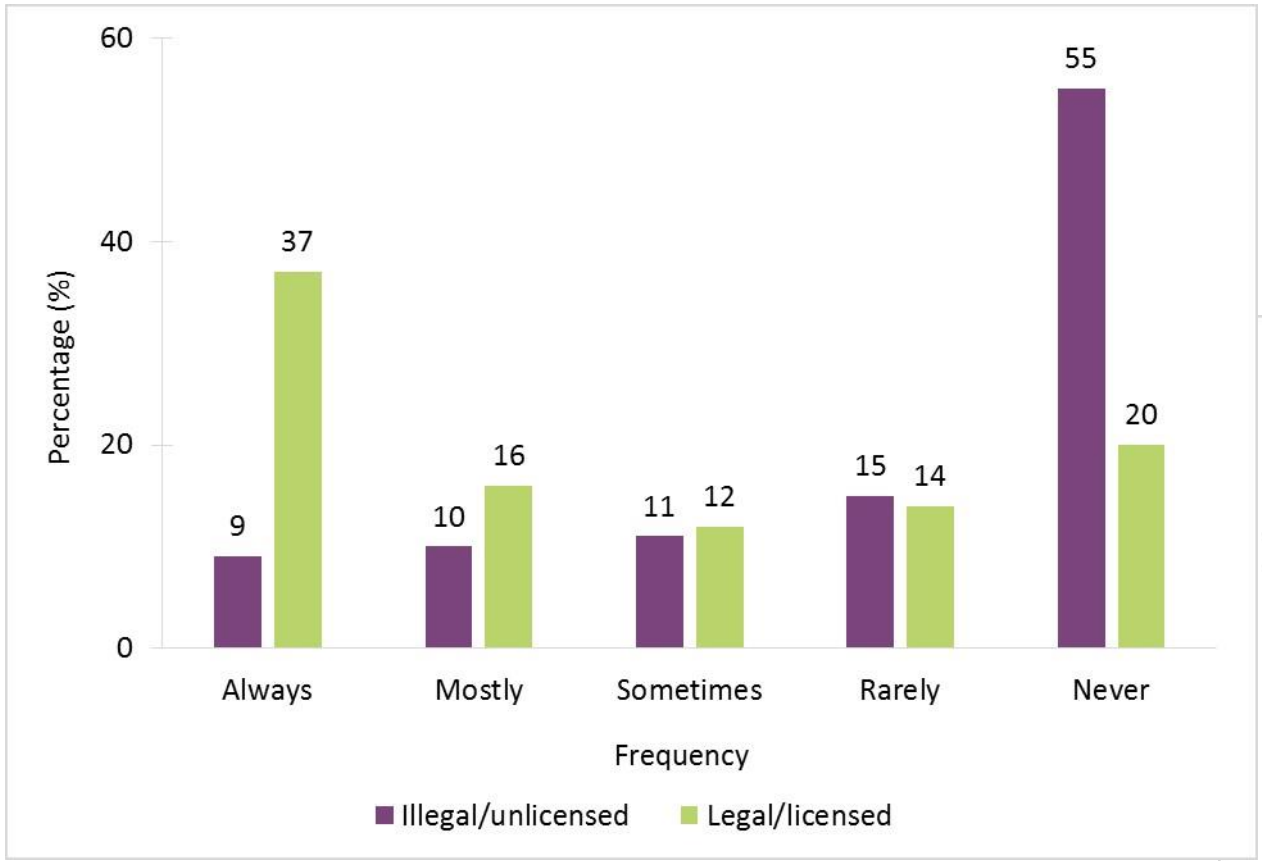
Frequency of use in 2020 (among users) by sex and age

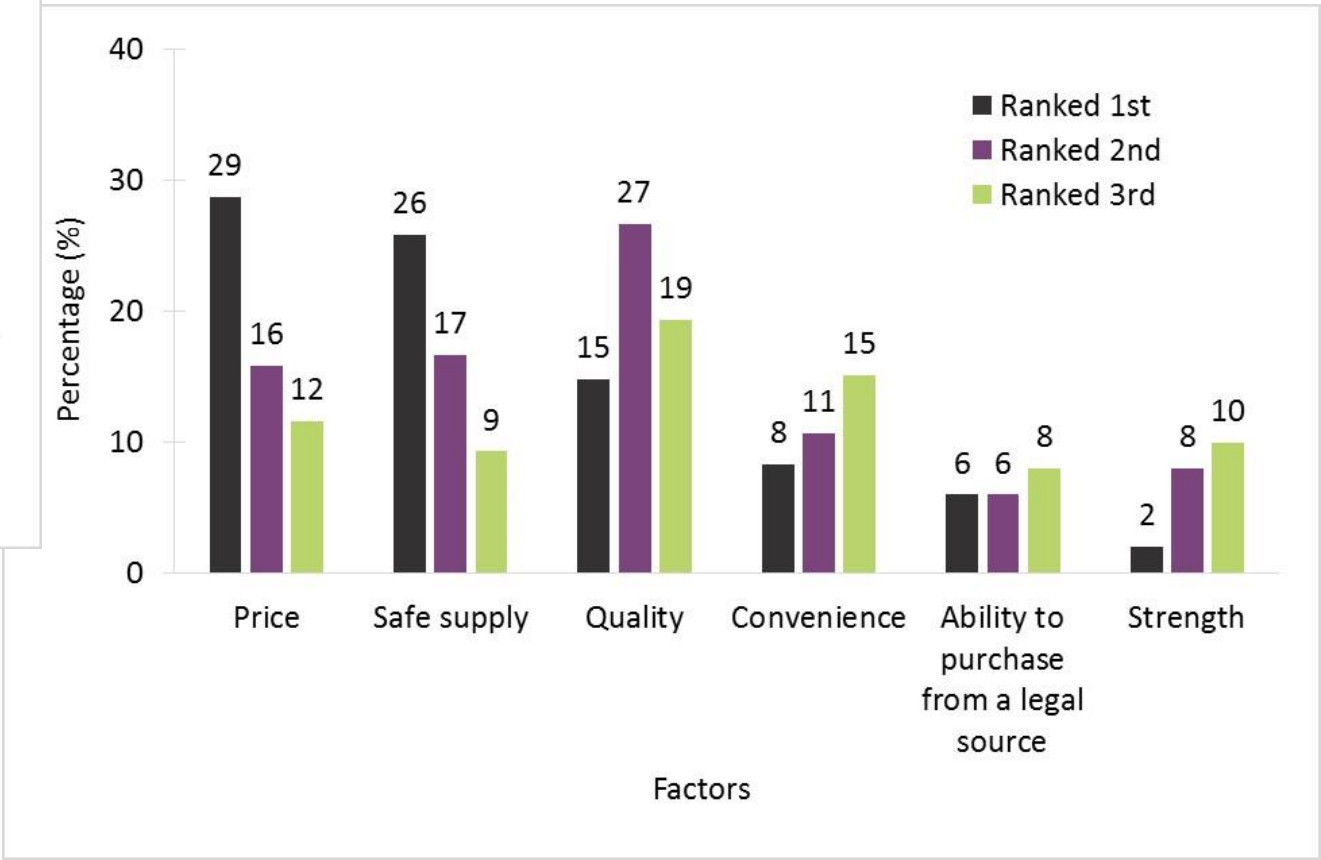


Use of cannabis with other products in 2020

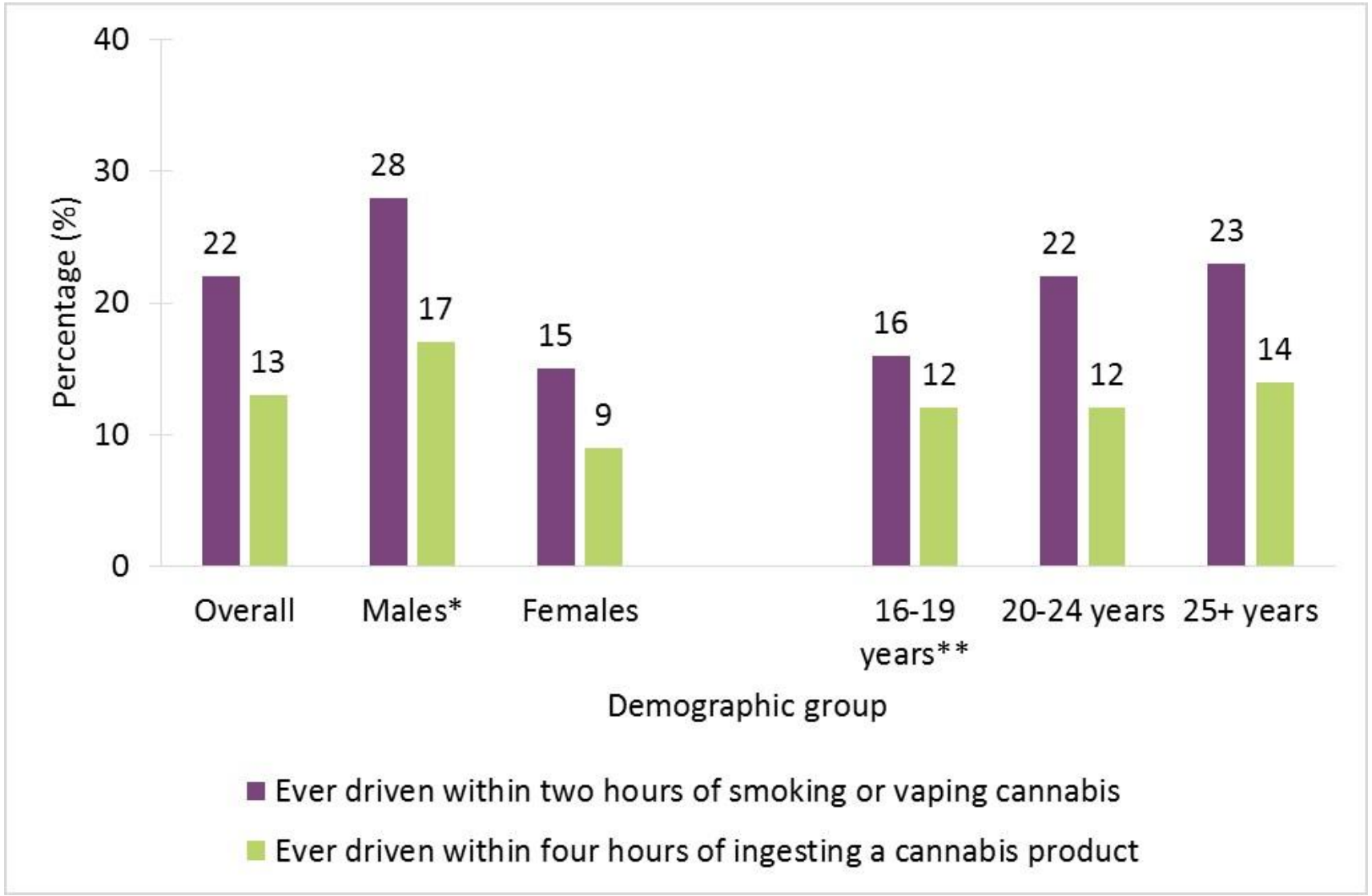


Legal of illegal products and reasons to buy





Driving and cannabis – no increase from past year, but still high numbers!!



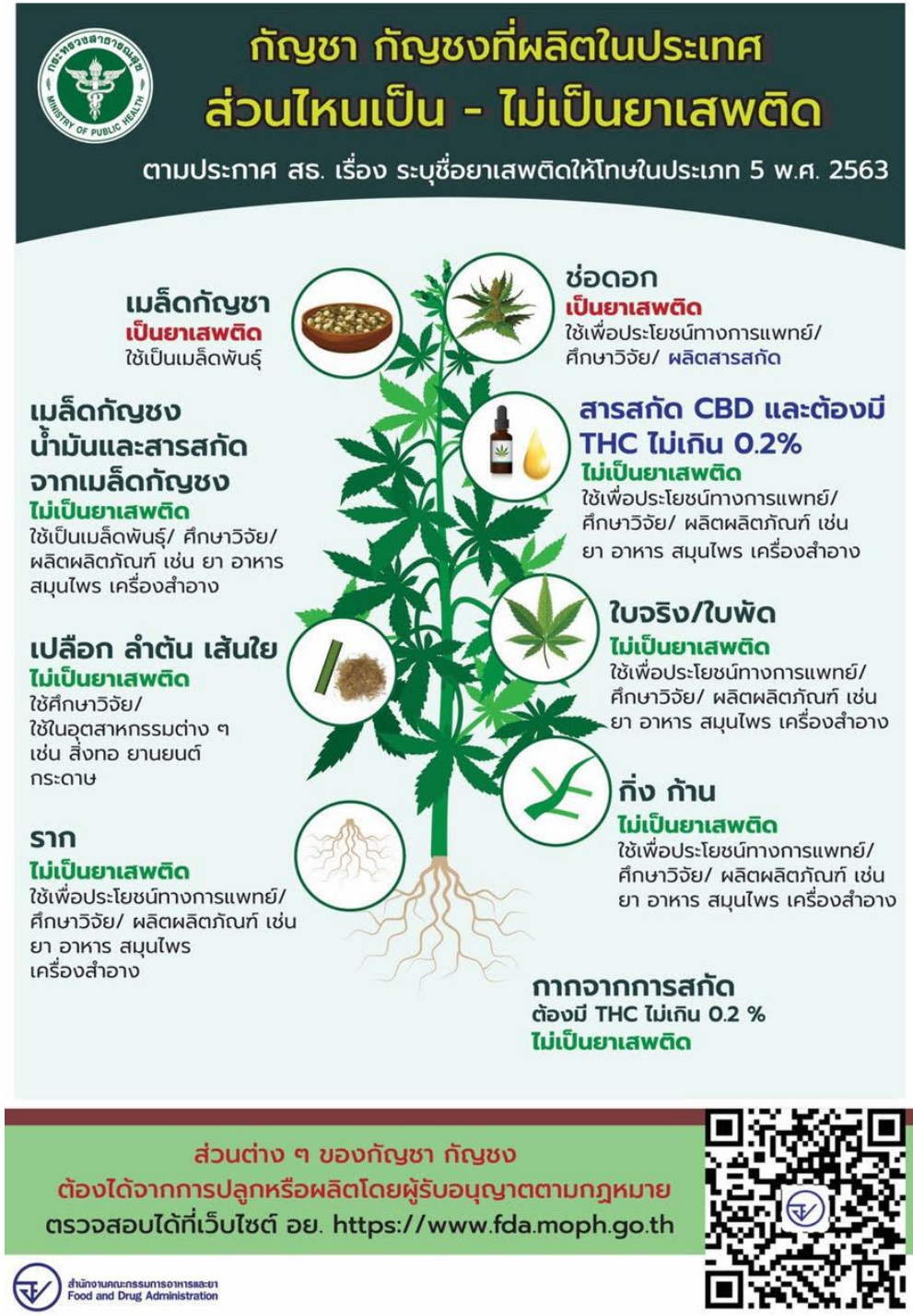
What could be learnt for the Thai situation?

Specific questions: changes in legislature (fresh leaves with low THC content)

1) Cannabis use in Thai culture was with low prevalence and restricted to traditional medicine
2) Now, in Thailand cannabis use and cannabis legislation has become very important, and all points to a “normalization of cannabis use” (similar as introduction of alcohol-free beer in Arab countries -> prepare for cannabis use as a normal behaviour).
3) And cannabis use is only associated to positive consequences (FREEDOM!), laughing, healing, quality of life, modern people!

Specific questions: changes in legislature (fresh leaves with low THC content are permitted)

- As a consequence, cannabis will become an ordinary commodity
- Cannabis is not an ordinary commodity, but a psychoactive substance, which needs to be controlled like alcohol or other such substances
- Home growing: who will control that really only the leaves are used?
- Medical marijuana: during prohibition, alcohol had > 60 medical indications in Canada without trials. We are heading towards a similar situation for cannabis, not only in Thailand.



Specific questions: cannabis use and traffic

1) With the new laws, cannabis use is normalized and getting “cool” -> in such a climate potential risks are often overlooked.
2) While risk for crashes and injury depends on THC concentration (the higher the concentration, the higher the risk), this must be made clear to traffic participants.
3) And there should be policing of potential active THC (active THC can come from medical cannabis or from people not respecting the thresholds of the law) in traffic participants with saliva tests or with blood tests for those who behave intoxicated.
4) Thailand does not want a situation like in some Western countries, where cannabis use in some regions causes more traffic deaths than alcohol!

Conclusions

The devil is in the details

In all countries

- Combined pressure of industry and – in part “sponsored” – patient movements (i.e., patient movements in countries which had no marijuana patients 3 years ago!!; industry-sponsored activist groups in HICs such as Germany)
- Movement toward medical marijuana (if I put in the number of countries with medical marijuana law now, it will be too low next week)
- Helplessness of governments and the WHO or the UN to deal with the problem -> one clear message would be necessary from international organizations that countries should uphold scientific standards for market authorization of medications!
- Surely economic analyses are key, but they should be done based on evidence and facts!

Conclusions

- The impact of any medical or other cannabis legislation on budget must be considered; in order to do these calculations, population health must be included.
- Public health impact will depend on various factors such as:
  - The amount of cannabis use in the society before allowing medical use;
  - The exact rules of medical (strict medical model vs. more or less “liberal”) or of legal recreational cannabis use (public health model vs. commercial model);
  - The specifications/indications for medical cannabis use, and the control of these regulations;
  - The control of potential diversion, and the enforcement of restrictions;
  - The handling of self-medication and home grow;
  - The regulation of traffic.
- Budget considerations include:
  - Control of production of cannabis;
  - Taxation schemes (on producers, wholesale, the user);
  - Level of enforcement of regulations;
  - Level of control of traffic.

Monitoring the public health impact and gathering evidence is key!