

Cannabis Use: Considerations for Public Health Policy

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Cannabis Use Prevalence (past 12 months)

- Adults: 14.1% (2004) vs. 7.4% (1994)
[CAS 2004, NADS 1994]
 - 61.2% of users use less than once a month;
18.1% use daily
 - Use associated with ‘single’ status, higher level of education/income and urban residence
 - Approx. 1/3 report “failure to control use” or “strong desire to use” experience

Cannabis Use Prevalence (past 12 months)

- Students (grade 7 – 12): 26.5% (2005) vs. 9.9% (1991) [OSDUS 2005]
- In 2005:
 - 65% of users used < 20 times in past year; yet 19% used weekly and 12% used daily in past 4 weeks
 - Highest use prevalence in grades 11 (48.1%) – compare to alcohol (76.1%) and tobacco (40.1%)
 - 45% of users report at least 1 of 3 problem indicators regarding ‘control of use’
 - Less than 1/3 of students disapprove of “trying cannabis”; 54% see harms associated with “regular cannabis use”; 46% perceive cannabis to be “easy” or “very easy” to obtain

Cannabis in Canada: Current Law and Enforcement

- 67,832 cannabis offenses in 2004 (70% of all CDSA offenses) → approx. 100% increase in past decade
- 50,246 cannabis possession offenses (2002) → >50% of all drug offenses under CDSA
- Some 1,000,000 + cannabis possession arrests since 1965 → approx. 700,000 Canadians with criminal records for cannabis possession conviction
- Estimated annual costs of cannabis enforcement (as proportion of) CJS costs: \$400 - \$500 million (Fischer et al. 1998)
- Limited – if any – deterrent effect of enforcement on individual or system level (Reuter/McCoun, Lenton)
- Cannabis possession is highly inconsistently and discretionarily enforced across Canada

Cannabis Use in Canada: Wider Policy Context (1)

- Cannabis prohibited by criminal law since 1923 – initial prohibition ‘by accident’
- No systematic enforcement until the 1960s, then became law enforcement’s prime ‘drug of choice’
- Numerous proposals for cannabis control reform (e.g., ‘Le Dain Commission’, 1972),
- Recent ‘Senate’ (→ ‘*legalize*’!) and ‘House’ (‘*decriminalize*’!) committees → but focus on legal status rather than ‘public health’

Cannabis Use in Canada: Wider Policy Context (2)

- Limited role of evidence-based input in cannabis policy debate → highly ideological (e.g., Strang et al. BMJ, 2000)
 - Categorically binary or “good or bad” constellation of proposed regimes (also reflective of public opinion)
 - Policy debate does not occur in ‘neutral space’ but before background of (criminalization) status quo, and is highly influenced by vested stakeholder interests (e.g., law enforcement for legal and resource reasons)
- *What are possible anchor points for a public health-driven policy framework for cannabis use?*

Principles for Public Health Policy Framework

- Focus on empirically measurable and real-life assessment of 'harms' as well as interventions
- Consider and acknowledge the difference between genuine 'use/user' and 'systems/environment' generated harms
- Cannabis area dominated by 'problem bias' – hesitancy to acknowledge not only 'harms' but potential 'benefits' of use (e.g., social or pleasure)
- Focus not only on efficacy but also cost-benefit assessment of interventions

Public Health Policy Framework: Example of Alcohol (see Babor et al. 2003)

- High prevalence of alcohol use as well as social, health and economic harm consequences
- Yet: Incidence and level of harms is highly differentiated by characteristics of a) user; b) use patterns; c) setting/environment of use
- General acceptance of alcohol use while systematic focus on reducing those forms of alcohol use resulting in highest levels of harms (e.g., binge drinking → LRDG; D&D → *per se* laws)
- Systematic empirical focus on choosing and combining optimal mix of interventions per target area (e.g., taxation levels, access&quality control, RBT for D&D, etc.)

Comparative Harms of Cannabis: 'Roques Report' 1998 (French government)

	Héroïne (opioïdes)	Cocaïne	MDMA "ecstasy"	Psycho- stimulants	Alcool	Benzo- diazépines	Canabi- noïdes	Tabac
"Suractivation dopaminergique"	+++	++++	+++	++++	+	±	+	+
Etablissement d'une hypersensibilité à la dopamine.	++	+++	?	+++	±	?	±	?
Activation du système opioïde.	++++	++	?	+	++	+	±	±
Dépendance physique	très forte	faible	très faible	faible	très forte	moyenne	faible	forte
Dépendance psychique	très forte	forte mais intermittente	?	moyenne	très forte	forte	faible	très forte
Neurotoxicité	faible	forte	très forte (?)	forte	forte	0	0	0
Toxicité générale	forte ^{a)}	forte	éventuellement très forte	forte	forte	très faible	très faible	très forte (cancer)
Dangerosité sociale	très forte	très forte	faible (?)	faible (exceptions possibles)	forte	faible ^{b)}	faible	0
Traitements substitutifs ou autres existants.	oui	oui	non	non	oui	non recherché	non recherché	oui

^{a)} pas de toxicité pour la méthadone et la morphine en usage thérapeutique ; ^{b)} sauf conduite automobile et utilisation dans des recherches de "soumission" ou "d'auto-soumission", où la dangerosité devient alors très forte.

Cannabis Use: Physical Health Effects

“On current patterns of use, cannabis appears to pose a much less serious public health problem than is currently posed by alcohol and tobacco in Western societies” (WHO 1999:495).

- Main physical health concerns:
 - Psycho-motor control (single-incident)
 - Respiratory/carcinogenic (long-term)
 - Reproductive system (long-term)
 - Dependence (long-term)
 - Methodological issues: Mostly animal studies; correlation vs. causality; role of confounding factors in humans
- Major negative health effects of cannabis use related to specific behaviors or contexts (Hall et al 1994, 1999):
- chronic/daily use
 - specific patterns and techniques of use (e.g., deep inhalation)
 - use in combination with other risk activities (e.g. driving)

Cannabis Use: Mental Health Effects

- Concerns about negative mental health effects of cannabis use, mainly:
 - Cause psychosis, precipitate schizophrenia or exacerbate symptoms of psychotic episodes: e.g., rates of schizophrenia among cannabis users are estimated to be 2 - 3-fold compared to non-users (Arsenault et al. 2004)
 - Systematic reviews: Evidence for cannabis-caused psychosis is “weak”, yet “reasonable” evidence for precipitation of schizophrenia or exacerbation of psychotic symptoms due to cannabis use (Hall et al. 2004, Arsenault et al. 2004, Semple et al. 2005)

Cannabis Use: Mental Health Effects

- Important empirical patterns:
 - 1) Overall incidence of psychosis in cannabis users is small on population basis (although individually significant)
 - 2) Several empirically established predictors:
 - Cannabis use onset at young age (i.e., <16 years)
 - Positive dose (use frequency)/response relationship
 - Higher incidence in “vulnerable” populations, e.g., pre-existing psychotic symptoms or family history of psychosis or “other” psycho-social vulnerabilities (Hall et al. 2004, Arsenault et al. 2004, Semple et al. 2005)

Treatment Admissions for Cannabis, Ontario (2000/01)

- DATIS (N=47,995; Urbanoski et al. 2005, EAR)
- 13.0% report cannabis as primary problem substance (alc: 57.6%; coc: 12.7%); 30.5% report cannabis as 1st, 2nd or 3rd problem drug
- 43.6% of primary cannabis admissions report use of 3 or more substances
- Predictors of primary cannabis admissions:
 - Younger age (56.3% 20 yrs or younger)
 - Less than high-school (74.6%)
 - Legal system as primary referral source (17.0%)
- Of primary cannabis admissions:
 - 60.8% use 3 or more times a week
 - 45.2% use daily

Cannabis use and driving/accident risks

- ~ 2% of all Canadian drivers used cannabis & drove in past year; higher prevalence (5% - 9%) in ages 16 – 35 years (Walsh & Mann 1999; Beirness et al. 2003)
- 22.8% of Ontario cannabis users have driven within 2 hrs of use (Walsh & Mann 1999)
- 20.0% of Ontario high-school students w/ license drove within 1 hr of cannabis use in past year (Adlaf et al. 2005)
- Cannabis use clearly produces cognitive and psychomotor impairment relevant for driving → Level of impairment determined by dose; amplified by co-use of alcohol; Raemakers et al. 2005)
- Elevated risk (OR 2 – 4) for fatal or non-fatal accident-involvement among THC-impaired drivers (Kelly et al. 2004; Drummer et al. 2005; Bates and Blakely 1999)

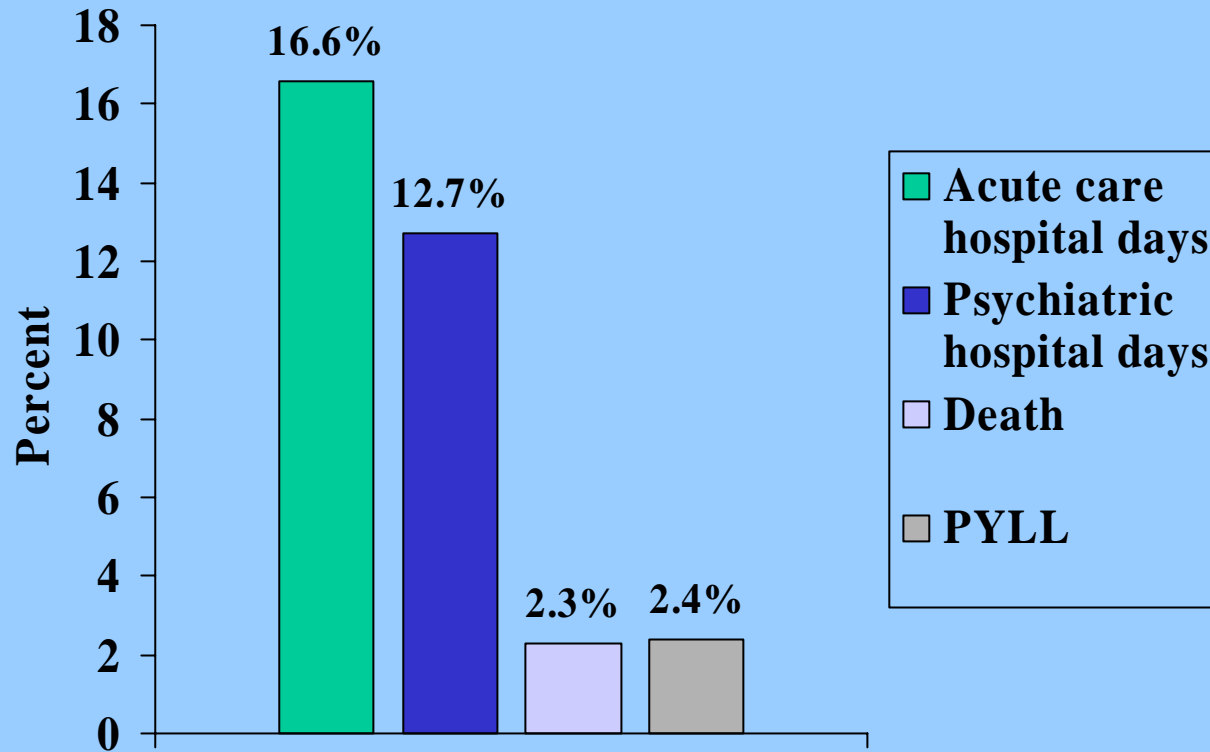
Cannabis use and driving/accident risks

- Cannabis use and driving (CUD) among Ontario university students (Pilot N=45; Fischer et al. in press)
- Half (53%) indicated CUD 6 times + in past year
- Most incidents arise from social setting and involve other cannabis users as passengers
- Perceived impairment of cannabis as '*high*' or '*considerable*': 34.2%; yet for themselves: 7.7%
- Clear perceptions of *lower* impairment from cannabis compared to alcohol, but *higher* from can & alc combined
- High frequency of cannabis use (i.e., multiple times/week) associated ($p < .01$) with both high CUD frequency (6+ episodes) in past year and high level of anticipated CUD in coming year

Social Costs of Substance Use – Illicit Drugs, 1992, in million \$ (Single et al. '96)

	Costs (in \$ million)	% of Total
Health care (direct)	\$88.0	6.4%
Productivity loss	\$823.1	60.0%
Crim. justice (direct)	\$400.3	29.2%
Other (direct)	\$59.6	4.4%
TOTAL	\$1,371.0	100.0%

Percent of cannabis-attributable hospital days, deaths, and potential years of life lost (PYLL) of burden attributable to all illicit drugs, Canada, 2002 (Rehm et al. 2006)



Cannabis and Social Costs – Key implications

- Despite its predominant role in the prevalence of illicit drug use, cannabis attributes only a very small fraction to mortality and morbidity costs (and thus productivity losses)
- The vast bulk of cannabis related costs are related to criminal justice system costs
- CJS costs are not ‘natural’ but determined by system, and hence modifiable (but impact on other cost fields may also change)

Recent Legal Cannabis Use Control Developments

- Bill C-17 (non-criminal ‘Contraventions’ offense for cannabis possession of limited amounts) and ‘Conditional Sentencing’ (see Fischer et al. 2003)
- Key concerns:
 - Not clear to which extent bill was developed with primary vision of public health objectives
 - ‘Net-widening’: Will easy way of ‘ticketing’ pull more users into enforcement net (CEN/Australia example; Lenton et al. 2000)?
 - How will police execute their explicit realm of discretion (I.e., whether to ticket or charge for larger possession amounts; Fischer et al. 2003; Boyd 1998)?
 - Increasing use of ‘conditional sentencing’ for drug offenders via treatment order (Fischer&Manzoni)
→ Yet: are treatment orders needs-based, or function as penal substitute?

Cannabis and Public Health Policy: Conclusions (1)

- Cannabis use is widely present in the Canadian population, and likely here to stay (although may fluctuate)
- Current policies focus on legal status and enforcement, and are not primarily guided by ‘public health’ objectives or measures
- ‘Public health framework’: Focus on preeminent harms, and use effective measures to reduce incidence of these problems, incl.:
 - Physical and mental health problems
 - Need for treatment
 - Cannabis-impaired driving
 - Social costs

Cannabis and Public Health Policy: Conclusions (2)

- Overall evidence suggests that several key characteristics of cannabis use predict high level of problems, e.g.
 - Early onset of use
 - High frequency-, dose- and long-term of use
 - Other psycho-social host vulnerabilities (incl. heavy use of other drugs)
- High-risk behaviors should be targeted by evidence-based interventions (e.g., ‘cannabis check-up’ brief intervention; Martin et al. 2005)
- Disproportionate legal expenditures for cannabis control with limited public health benefits → alternative legal control models need to be explored with focus on ‘avoidable costs’, incl. the systematic monitoring of use and harm indicators