

# Trajectories of marijuana use across a decade:

Their predictors in adolescence and impact on the  
health, academic, social and economic outcomes  
of Canadian young adults



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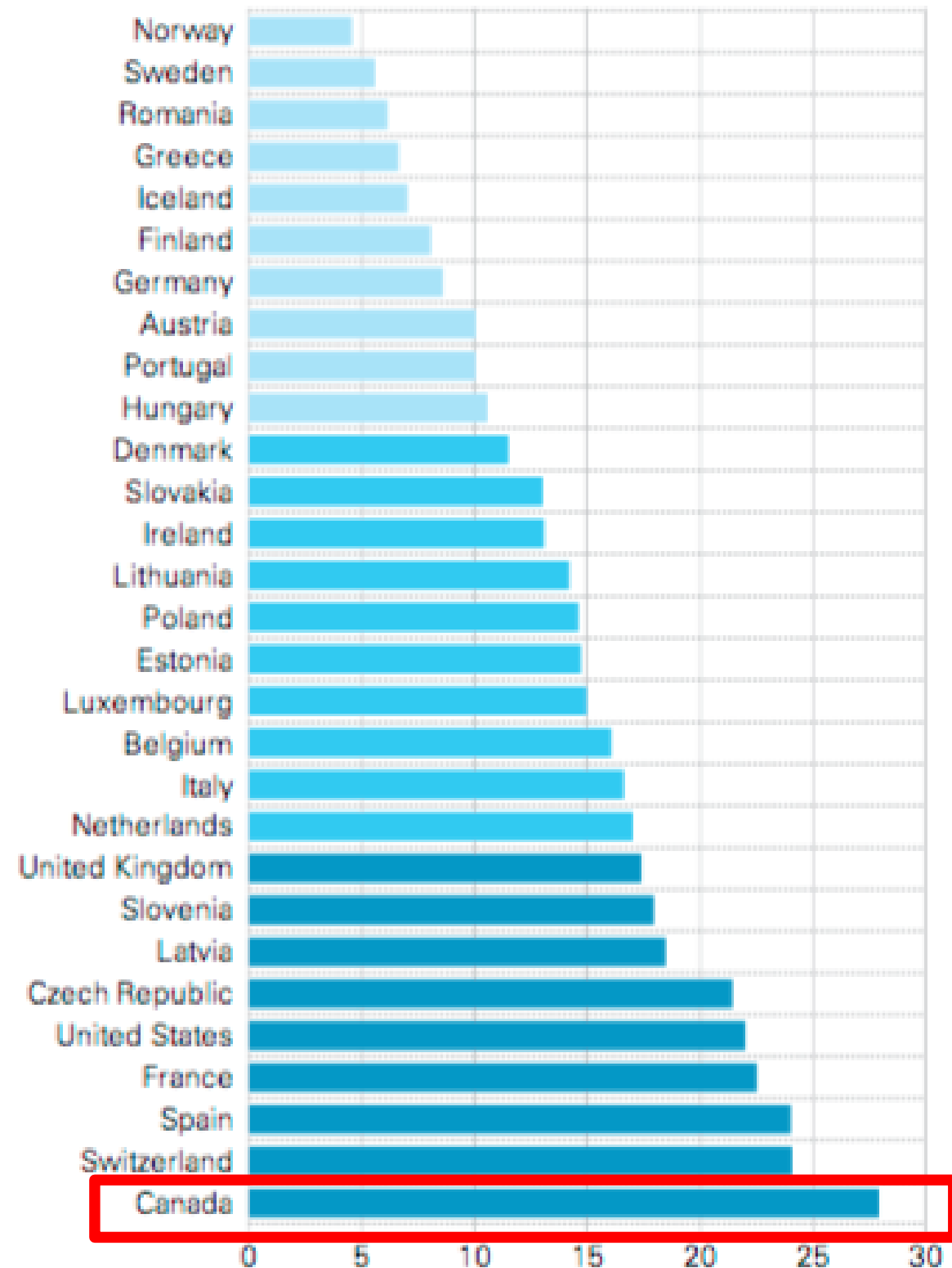


Cannabis Legalization and Youth Symposium  
Boulder, Colorado  
November 15, 2018

# Marijuana use among Canadian youth

**Figure 4.2d Cannabis**

% of children aged 11, 13 and 15 who report having used cannabis in the last 12 months



**28% of 11-15  
year olds  
report using  
marijuana in  
the last year**

UNICEF Office of Research (2013). 'Child Well-being in Rich Countries: A comparative overview', Innocenti Report Card 11, UNICEF Office of Research, Florence.

# The Victoria Healthy Youth Survey

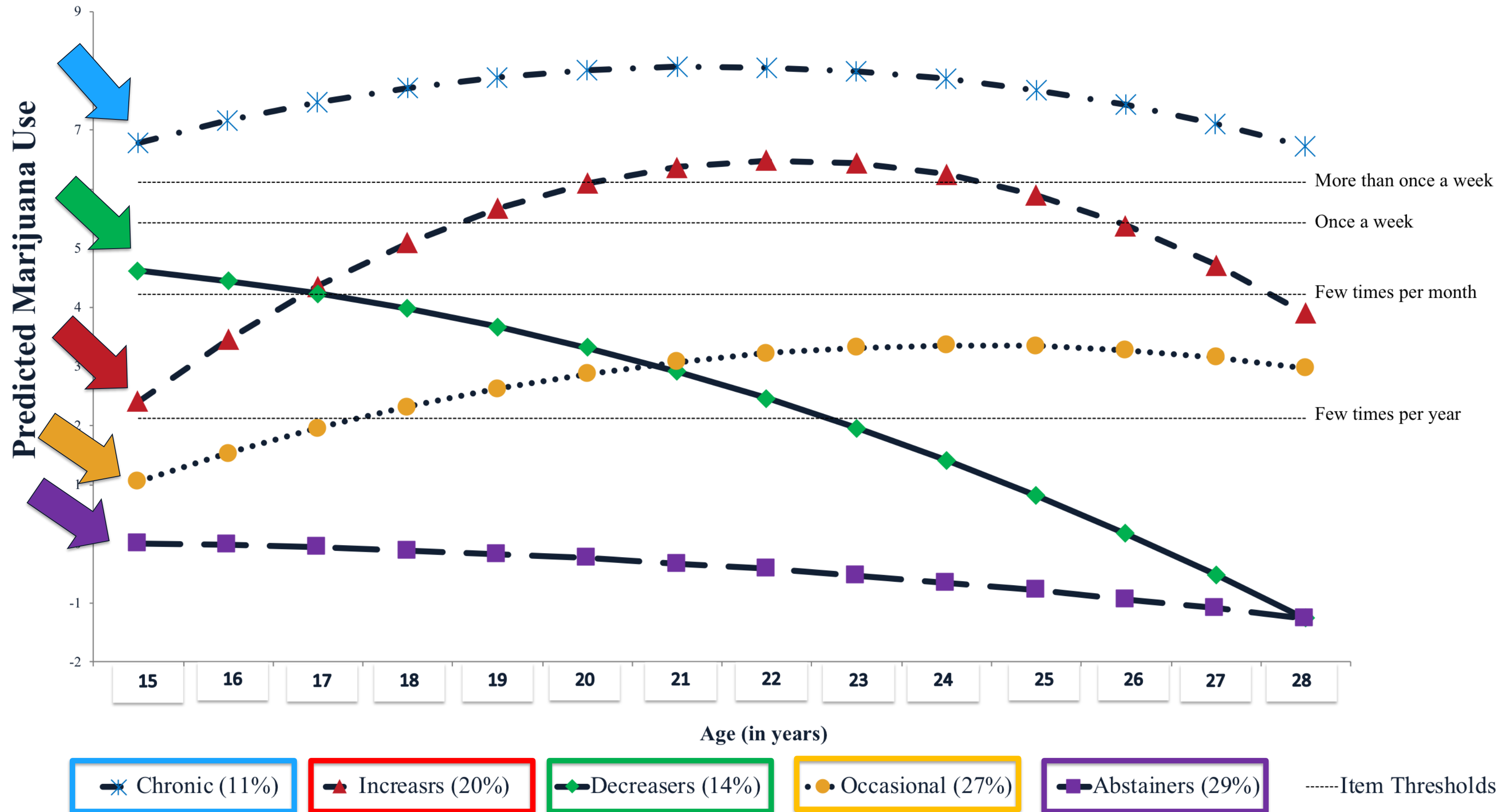


	Time 1 2003	Time 2 2005	Time 3 2007	Time 4 2009	Time 5 2011	Time 6 2013
Sample Size	662	578	539	459	464	478
Response Rate	64%	87%	81%	69%	70%	72%
Mean Age	15.5	17.1	19	22	24	26
Age Range	12-18	14-21	16-23	18-26	20-27	22-29
% Male	48%	47%	46%	44%	46%	45%



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# Patterns of Marijuana Use (LCGA)



# Marijuana Use Groups

	Abstainers (n = 183; 29%)	Occasional (n = 172; 27%)	Decreasers (n = 89; 14%)	Increasesers (n = 127; 20%)	Chronic (n = 69; 11%)
Sex (% male)	40%	42%	47%	61%	59%
SES	6.66 (1.69)	6.75 (1.63)	6.64 (1.76)	6.56 (1.82)	6.00 (1.85)
Age of First Use	17.0 (2.68)	16.5(2.53)	14.4 (1.76)	15.1(1.65)	13.3 (1.98)

## Marijuana Use T6

Never	95%	21%	78%	6%	2%
More than once a week	0%	7%	0%	38%	71%
Average Amount of Marijuana Used T6	0.04 (0.23)	0.55 (0.73)	0.17 (0.40)	1.27(1.12)	2.60 (2.33)





# How do these patterns compare to the US?

- Number and shape of trajectories are similar to high-risk US samples
- Early onset use is associated with the highest-risk trajectories in multiple studies
- A greater percentage of “high-risk” users
- Chronic users in our sample used at a higher frequency (>once per week)



# Adolescent and Young Adult Correlates

- Results show group comparisons with Abstainers (29%)
  - ✓ significantly different from Abstainers at ages 12-18
  - ✓ significantly different from Abstainers at ages 22-29



# Substance Use

	Occasional (n = 172; 27%)		Decreasers (n = 89; 14%)		Increaseers (n = 127; 20%)		Chronic (n = 69; 11%)	
	12-18	22-29	12-18	22-29	12-18	22-29	12-18	22-29
Cigarette use						✓	✓	✓
Heavy drinking	✓	✓	✓		✓	✓	✓	
Illicit drug use			✓				✓	
Alcohol use disorder	--	✓ .75	--	.43	--	✓ .87	--	.74
Cannabis use disorder	--	.19	--	--	--	.33	--	.85

\*Abstainers (n = 183; 29%) are the reference group.



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Thompson, K., Merrin, G., Ames, M., & Leadbeater, B. (2018). Marijuana trajectories in Canadian youth: Associations with substance use and mental health. *Canadian Journal of Behavioural Science*, 50(1), 17–28. <http://doi.org/http://dx.doi.org/10.1037/cbs0000090>



# Mental Health

	Occasional (n = 172; 27%)		Decreasers (n = 89; 14%)		Increaseers (n = 127; 20%)		Chronic (n = 69; 11%)	
	12-18	22-29	12-18	22-29	12-18	22-29	12-18	22-29
Depressive symptoms								✓
Anxiety symptoms			✓					✓
ADHD symptoms							✓	
ODD symptoms		✓					✓	✓
Conduct disorder		✓	✓		✓		✓	
Psychosis*	--		--		--		--	✓

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# Physical Health

	Occasional (n = 172; 27%)		Decreasers (n = 89; 14%)		Increaseers (n = 127; 20%)		Chronic (n = 69; 11%)	
	12-18	22-29	12-18	22-29	12-18	22-29	12-18	22-29
Physical symptoms							✓	✓
Physical self-concept			✓				✓	
Less physical activity								✓
Poorer eating practices			✓				✓	
Less sleep							✓	
Early sexual debut	--		--	✓	--		--	✓
# of sexual partners		✓		✓	✓	✓	✓	✓
STI	--		--		--		--	✓
# of serious injuries								✓

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Ames, M. E., Leadbeater, B. J., Merrin, G. J., & Thompson, K. (accepted). Patterns of marijuana use and physical health indicators among Canadian youth. *International Journal of Psychology*.

# Work Outcomes (T6; ages 22-29)

	Occasional (n = 172; 27%)	Decreasers (n = 89; 14%)	Increases (n = 127; 20%)	Chronic (n = 69; 11%)
Lower educational attainment			✓	✓
Lower occupational prestige			✓	✓
Financial strain				
Any debt	✓	✓		✓
Delay of medical attention	✓			✓
Lower annual income			✓	

\*Abstainers (n = 183; 29%) are the reference group.



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Thompson, K., Leadbeater, B. J., Ames, M. E., & Merrin, G. J. (2018). Associations between marijuana use trajectories and educational and occupational success for Canadian youth. *Prevention Science*.  
<https://doi.org/10.1007/s11121-018-0904-7>

# Summary of High Risk Use Patterns: Chronic & Increasers

## Adolescent (ages 12-18) correlates:

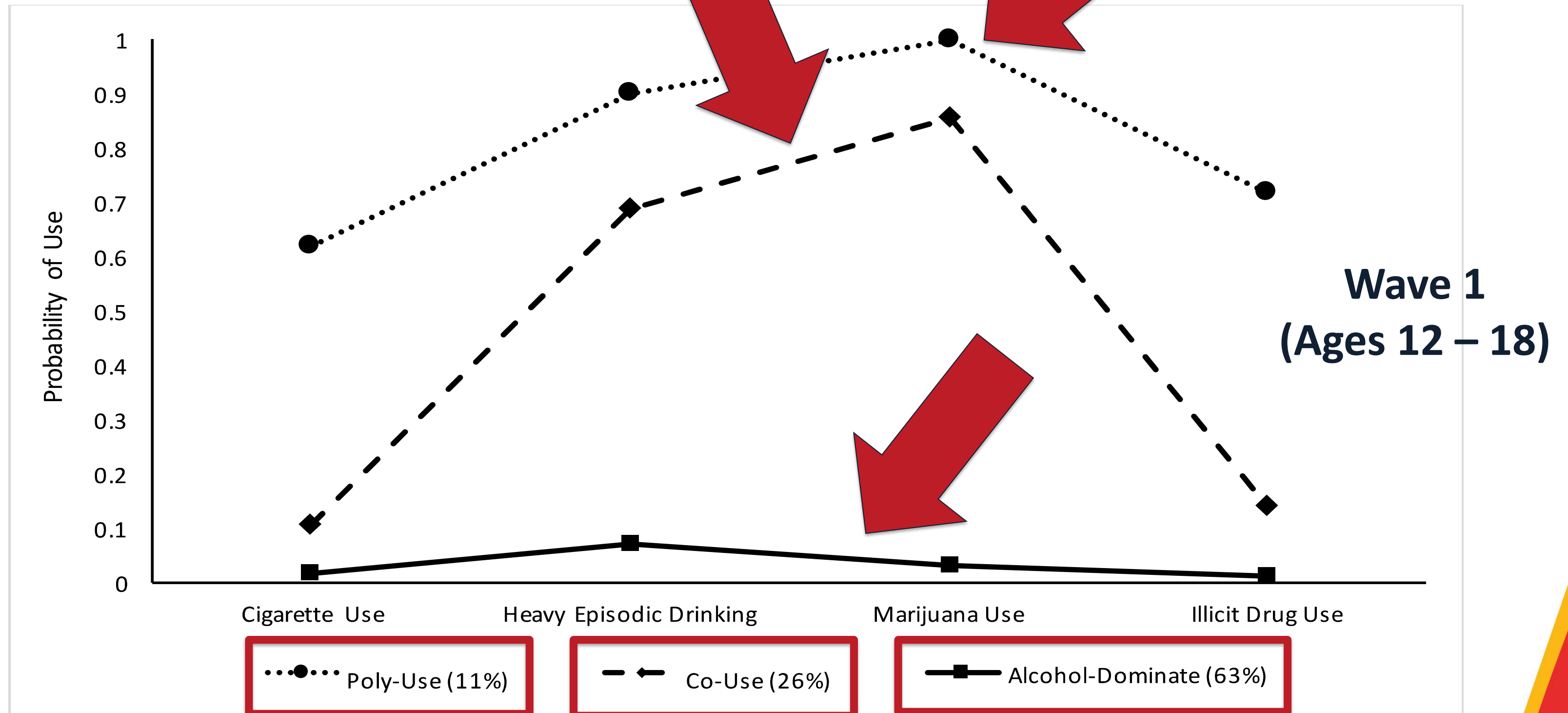
- High levels of externalizing problems
- Poor physical health and poor eating and sleeping patterns
- Engagement in other risky behaviours

## Young adulthood (ages 22-29) correlates:

- Internalizing problems
- Substance use problems
- Poorer physical health
- More serious injuries
- Poorer educational outcomes



# Classes of Poly-Substance Use



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Merrin, G. J., & Leadbeater, B. J. (2018). Do adolescent patterns of polysubstance use predict differential growth of substances used in the transition to young adulthood? *Substance Use & Misuse*.  
<https://doi.org/10.1080/10826084.2018.1455702>



# Transitions Between Classes from Wave 1 to Wave 6

	Alcohol-Dominate	Co-Use	Poly-Use
Wave 1 to Wave 6			
Alcohol-Dominate	0.524	0.211	0.265
Co-Use	0.086	0.587	0.327
Poly-Use	0.217	0.247	0.537



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Merrin, G. J., Thompson, K., & Leadbeater, B. J. (2018). Transitions in the use of multiple substances from adolescence to young adulthood. *Drug and Alcohol Dependence*, 189(May), 147–153.  
<http://doi.org/10.1016/j.drugalcdep.2018.05.015>



# Take Home Messages

- The majority of Canadian youth are using marijuana
- Use is not independent of other concerns (alcohol and behaviour problems)
- Anxiety, depression, and psychotic symptoms (i.e., disturbing thoughts, hallucinations) may worsen when youth use, particularly in chronic/heavy manner
- Our workforce may be the losers- 1 in 10 youth fall behind when they start use early and sustain it
- **Targets:** policy makers, press, primary care, psychologists, counsellors, parents, public...



# Inspiring “collective responsibility”?

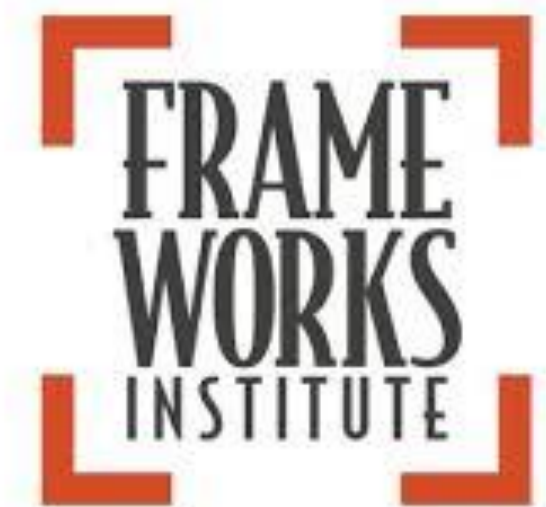
Levels of effectiveness in changing policy

1. We have *moral obligation* to do something about youth problems created by legalizing and producing a psychotropic drug
2. The consequences for *societal economic well* being of reduced education and productivity of 11% of our work force may be costly?
3. The consequences of marijuana use for *youth development* (health and happiness are important)



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REF: Frameworks Institute: [Turning Down the Heat on Adolescent Substance Use \(MAY, 2018\).](#)



# WHO & HOW?

- Who will be *required to/responsible for* acting to prevent use or prevent increasing use in children and youth (experts, pediatricians, primary care, ER staff, teachers, parents, peers)
- Opening “conversations” and “youth participation” may be better than talk about screening (how), fear-based messages (car crashes), and didactic education (the facts)



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