

Oh the products you'll try:
Examining tobacco and nicotine product transitions
among a sample of Ontario secondary school students

Adam G Cole (PhD Candidate) & Scott T Leatherdale (PhD)

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Disclosure Statement

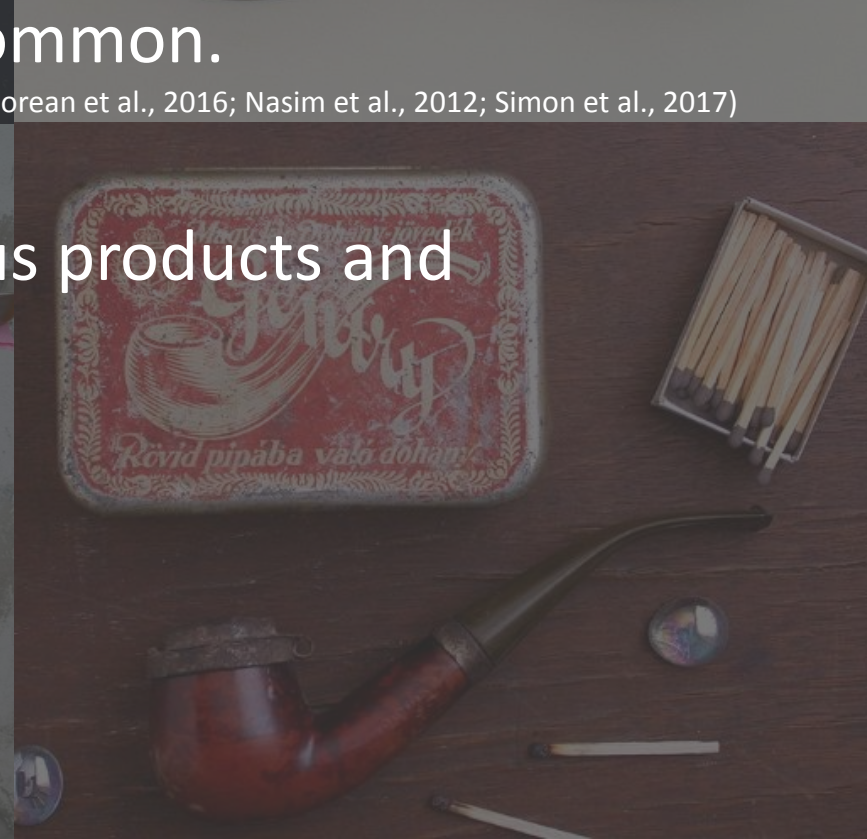
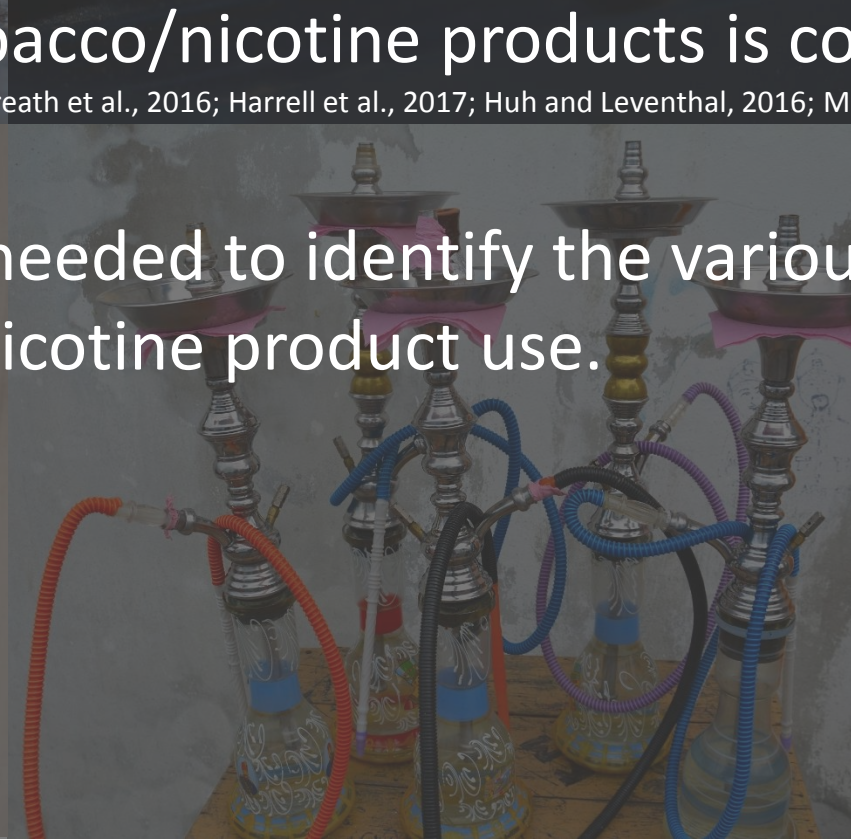
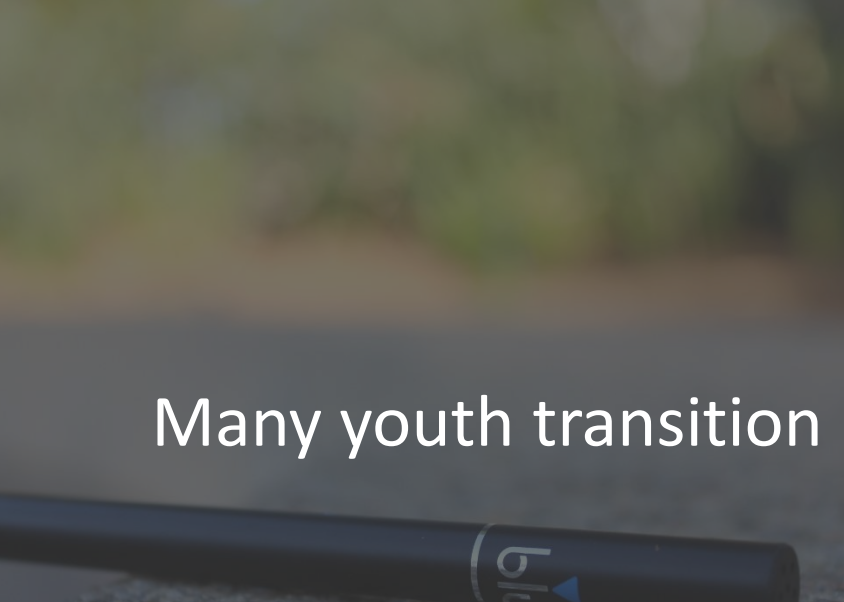
- I have no affiliation (financial or otherwise) with a pharmaceutical, medical device, or communications organization

Many youth transition into and out of tobacco/nicotine product use.

The use of multiple tobacco/nicotine products is common.

(Gilreath et al., 2016; Harrell et al., 2017; Huh and Leventhal, 2016; Morean et al., 2016; Nasim et al., 2012; Simon et al., 2017)

Additional research is needed to identify the various products and pathways of tobacco/nicotine product use.



Objective

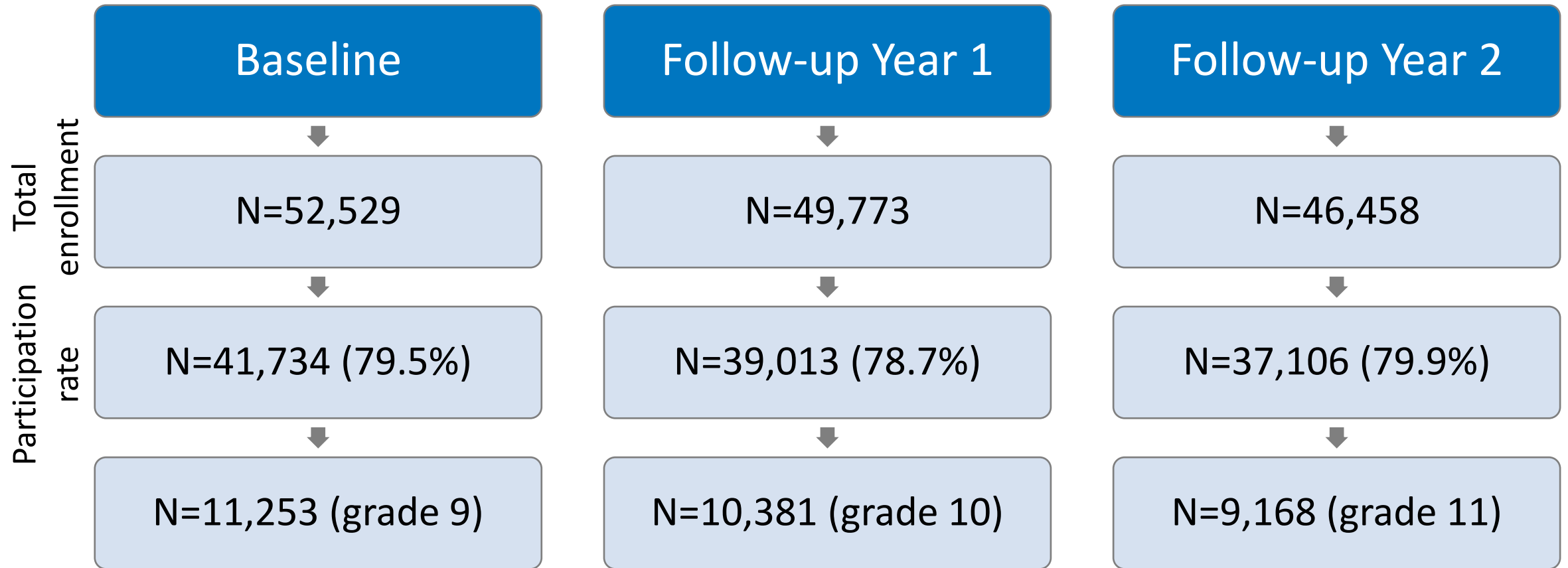
To identify the **transitions in tobacco/nicotine product use clusters** and the **characteristics of various groups** over three years among a longitudinal sample of Ontario secondary school students.



This analysis used linked data from Year 2 to Year 4 (2013-16 school years)

(Leatherdale et al., 2014)

Methods



N=4,651 linked across all 3 years (grade 9 at baseline)

40. On how many of the last 30 days did you smoke one or more cigarettes?

- None
- 1 day
- 2 to 3 days
- 4 to 5 days
- 6 to 10 days
- 11 to 20 days
- 21 to 29 days
- 30 days (*every day*)

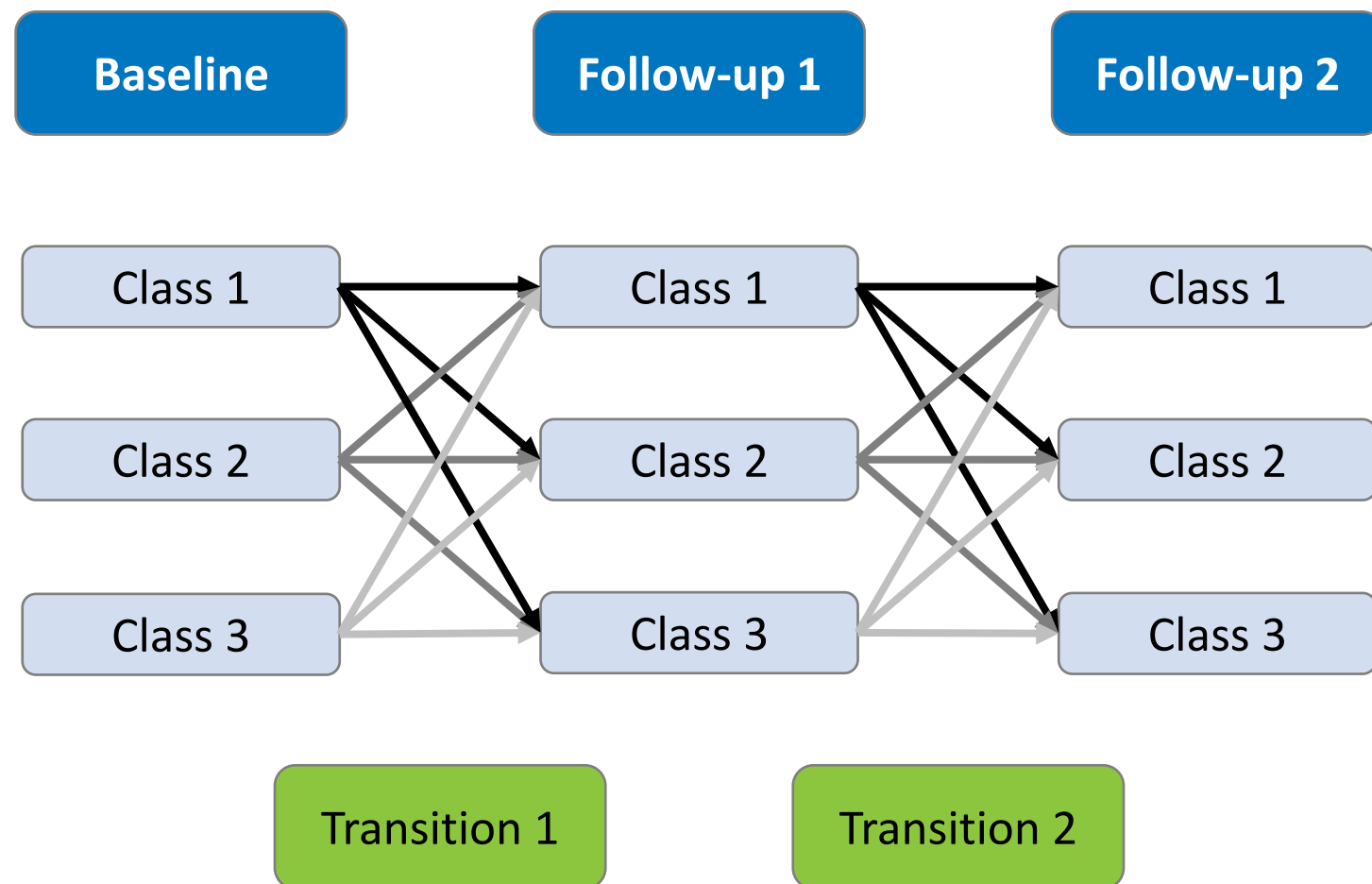
44. In the last 30 days, did you use any of the following? (*Mark all that apply*)

- Pipe tobacco
- Cigarillos or little cigars (*plain or flavoured*)
- Cigars (not including cigarillos or little cigars, *plain or flavoured*)
- Roll-your-own cigarettes (tobacco only)
- Loose tobacco mixed with marijuana
- E-cigarettes (electronic cigarettes that look like cigarettes/cigars, but produce vapour instead of smoke)
- Smokeless tobacco (chewing tobacco, pinch, snuff, or snus)
- Nicotine patches, nicotine gum, nicotine lozenges, or nicotine inhalers
- Hookah (water-pipe) to smoke tobacco
- Hookah (water-pipe) to smoke herbal sheesha/shisha
- Blunt wraps (a sheet or tube made of tobacco used to roll cigarette tobacco)
- I have not used any of these things in the last 30 days

1. Latent Class Analysis (LCA)

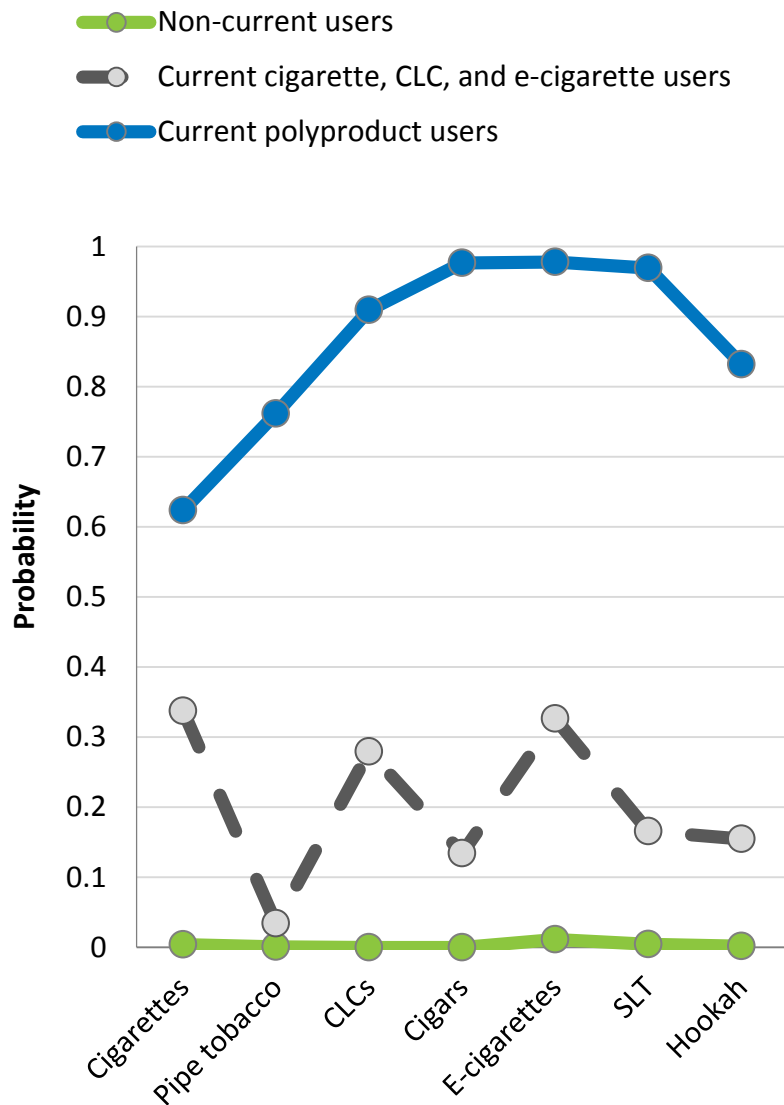
2. Identification of pathways

3. Multinomial multilevel regression analysis

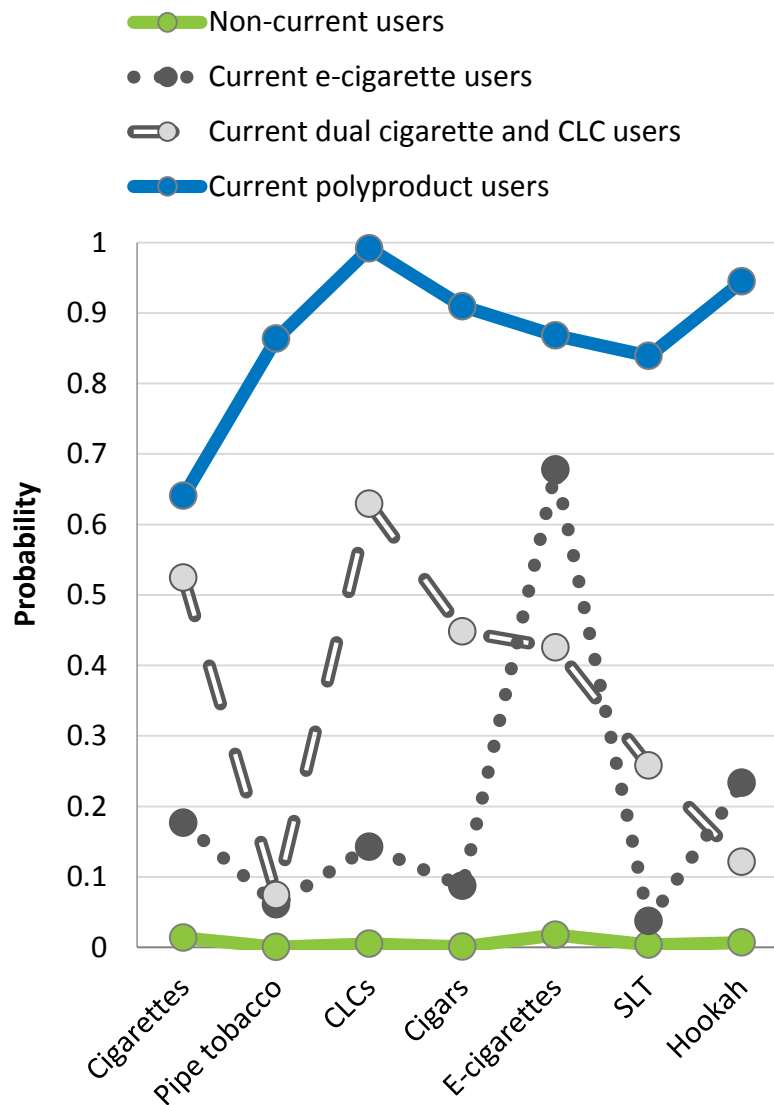


Results – Latent Class Analysis

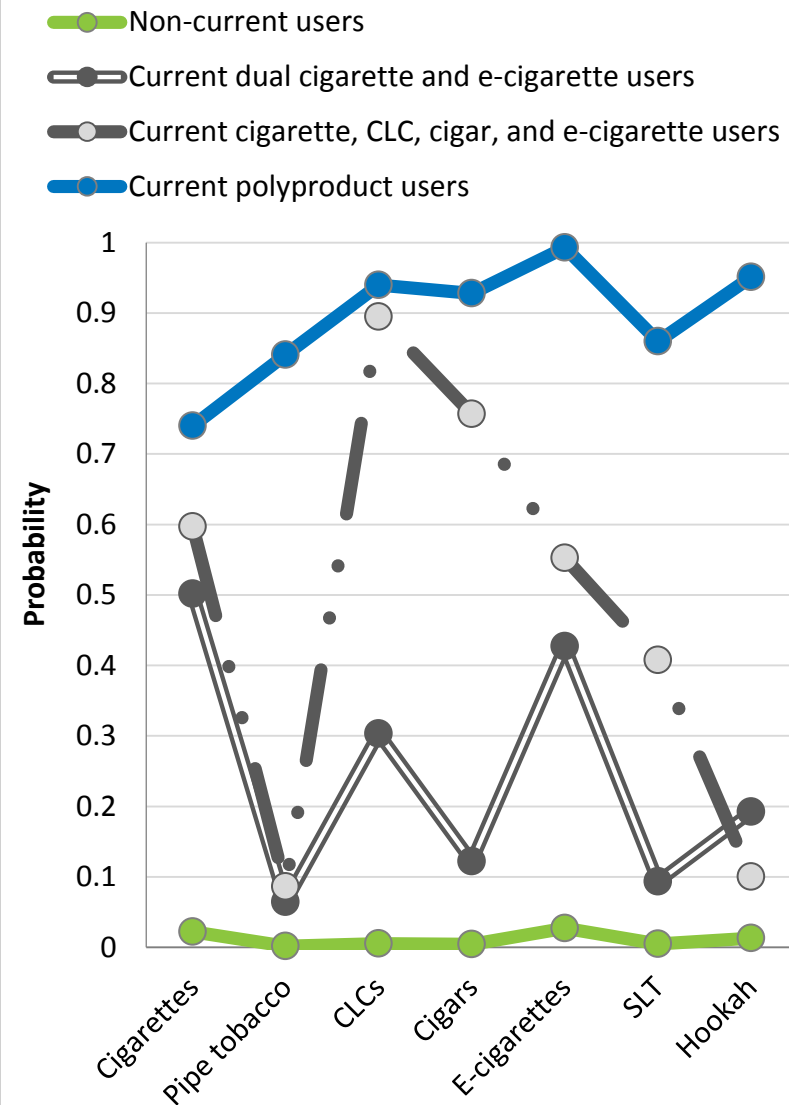
Classes at Baseline



Classes at Follow-up 1



Classes at Follow-up 2



Results – Identifying Pathways

4 pathways are apparent:

Pathway 1: Stable non-current users

- Non-current users → non-current users

Pathway 2: Discontinuers

- Users (any product use class) → Non-current users

Pathway 3: Initiators

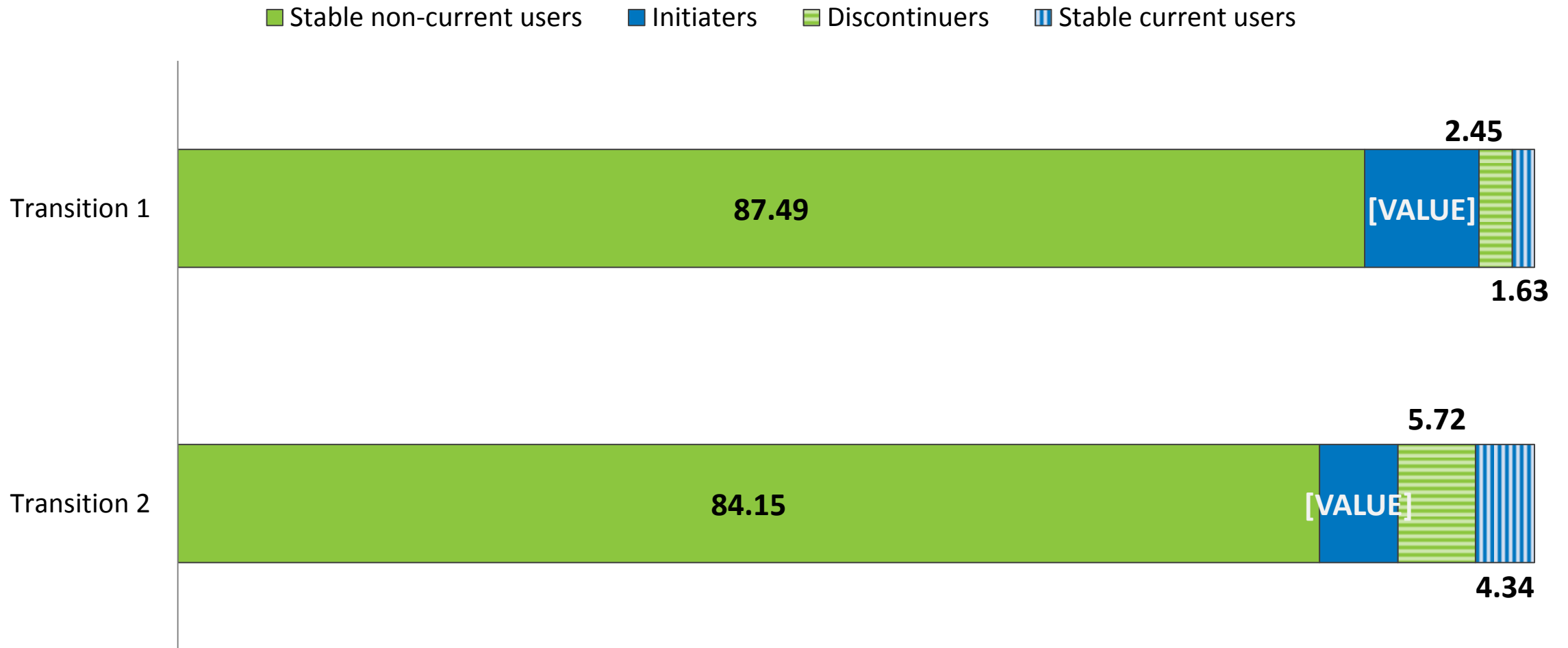
- Non-current users → users (any product use class)

Pathway 4: Stable current users

- Users (any product use class) → Users (any product use class)

Results – Identifying Pathways

Prevalence of pathways at each transition



Results – Multinomial Regression Models

Student-level predictors of pathway membership between baseline and follow-up 1

		Pathway 2 Discontinuers	Pathway 3 Initiators	Pathway 4 Stable current users
Gender	Male (vs female)	-	↑	↑
Spending money	\$1-\$20 (vs zero)	-	-	-
	\$20-\$40 (vs zero)	-	↑	-
	More than \$41 (vs zero)	-	↑	-
Number of friends that smoke cigarettes	1-2 (vs none)	↑	↑	↑
	3 or more (vs none)	↑	↑	↑
School connectedness score	(each unit increase)	-	-	↓
Binge drinking status	Non-current binge drinker (vs never)	↑	↑	↑
	Current binge drinker (vs never)	↑	↑	↑
Marijuana use status	Non-current marijuana user (vs never)	↑	↑	↑
	Current marijuana user (vs never)	↑	↑	↑
Number of classes skipped	Any (vs none)	↑	↑	↑
Number of school days at breakfast	5 days (vs less than 5 days)	-	↓	-

Results – Multinomial Regression Models

Student-level predictors of pathway membership between follow-up 1 and follow-up 2

		Pathway 2 Discontinuers	Pathway 3 Initiators	Pathway 4 Stable current users
Gender	Male (vs female)	↑	↑	↑
Spending money	\$1-\$20 (vs zero)	-	↑	↑
	\$20-\$40 (vs zero)	-	-	↑
	More than \$41 (vs zero)	-	-	↑
Number of friends that smoke cigarettes	1-2 (vs none)	↑	↑	↑
	3 or more (vs none)	↑	↑	↑
School connectedness score	(each unit increase)	↓	-	-
Binge drinking status	Non-current binge drinker (vs never)	↑	↑	↑
	Current binge drinker (vs never)	↑	↑	↑
Marijuana use status	Non-current marijuana user (vs never)	↑	↑	↑
	Current marijuana user (vs never)	↑	↑	↑
Number of classes skipped	Any (vs none)	-	-	↑
Number of school days at breakfast	5 days (vs less than 5 days)	-	-	-

Polyproduct use was common and there was always a subgroup of youth that were at highest risk of using multiple products.

(Gilreath et al., 2016; Harrell et al., 2017; Huh and Leventhal, 2016; Morean et al., 2016; Nasim et al., 2012; Simon et al., 2017)

- Inclusive prevention and cessation programs are warranted

Membership in the “stable non-current user” group decreased over time.

- Consistent prevention messaging may be important throughout secondary school

Some students transitioned to a higher or lower risk cluster group.

(Fix et al., 2014; Hammal et al., 2016; Humfleet & Haas, 2004; Morean et al., 2016; Richter et al., 2008)

- Additional research is needed to identify predictors of transitioning to different risk groups.

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Co-Authors

Dr. Scott T Leatherdale

Contact

agcole@uwaterloo.ca



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