Washington State Young Adult Health Survey Update

CPWI Learning Community Meeting

May 25, 2016

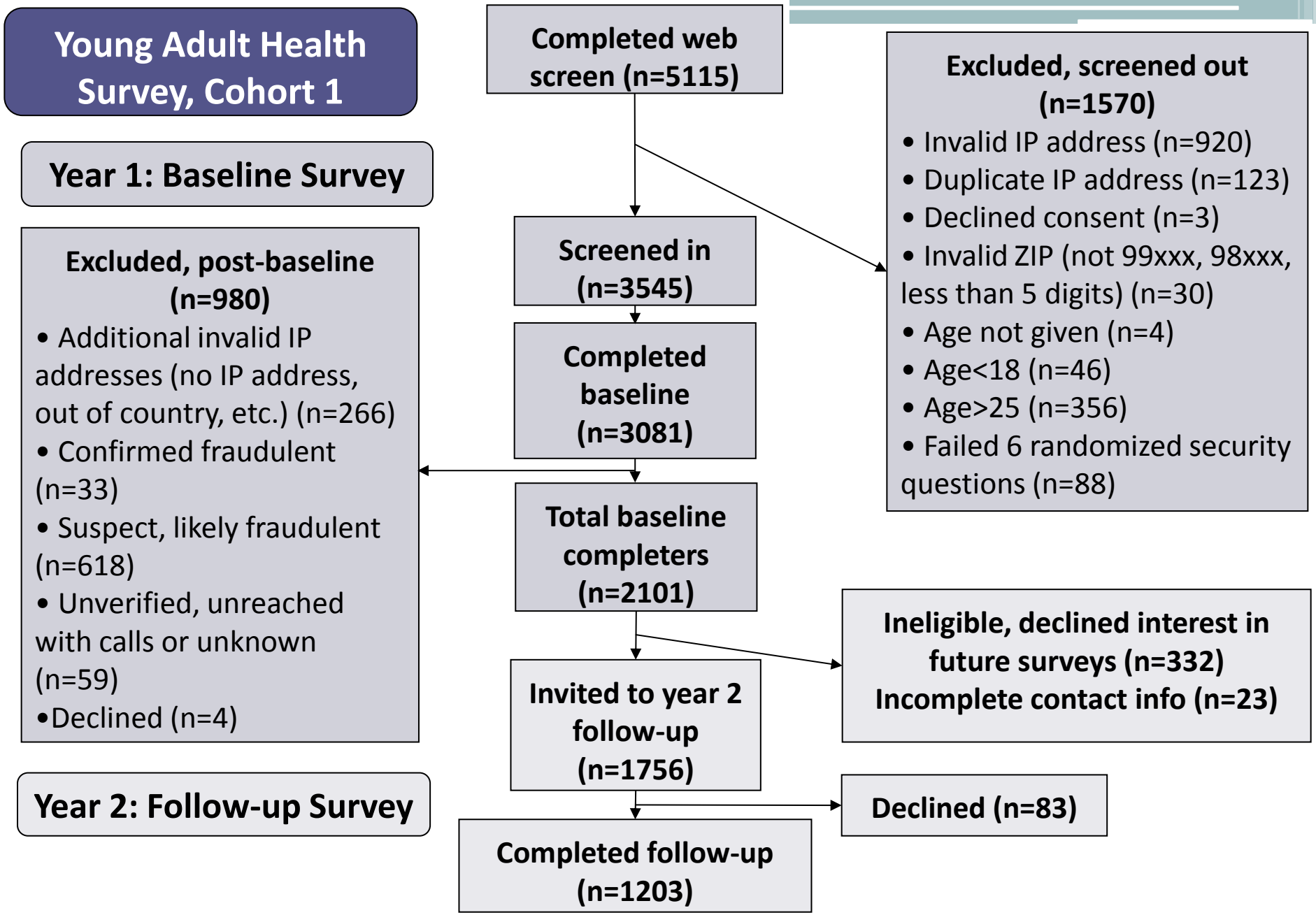
Jason R. Kilmer, Ph.D. & Mary E. Larimer, Ph. D.
Department of Psychiatry & Behavioral Sciences
University of Washington

Funded by Contract from DBHR



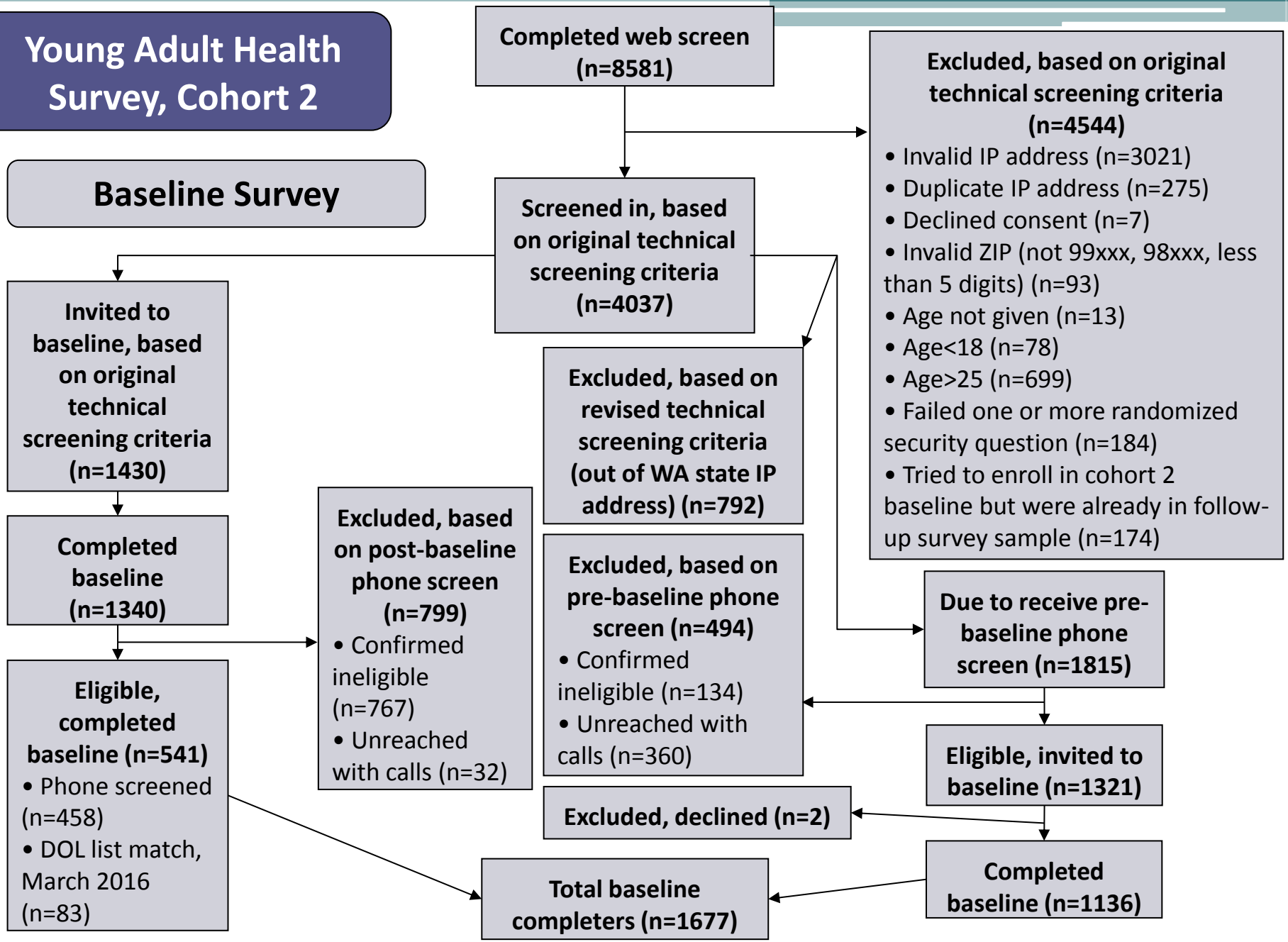
Young Adult Heath Survey Method and Procedures

- **UW Center for the Study of Health and Risk Behaviors (CSHRB) partnered with DBHR to conduct internet survey**
- **Survey developed using existing validated measures when possible, with input from multiple experts, stakeholder groups, and state offices**
- **Cohort 1: Internet based survey conducted May through early July 2014 (N=2101)**
- **Cohort 2: Internet based survey conducted late May through October 2015 (N=1677 new participants, N = 1203 cohort 1 one-year follow up)**
- **Participants recruited using a combination of direct mail advertising to a random sample from DOL, as well as online advertising (Facebook, Craigslist, Amazon Mechanical Turk, study website, Facebook fan page)**


Young Adult Health Survey, Cohort 1
Year 1: Baseline Survey
Completed web screen (n=5115)
Excluded, screened out (n=1570)
• Invalid IP address (n=920)
• Duplicate IP address (n=123)
• Declined consent (n=3)
• Invalid ZIP (not 99xxx, 98xxx, less than 5 digits) (n=30)
• Age not given (n=4)
• Age<18 (n=46)
• Age>25 (n=356)
• Failed 6 randomized security questions (n=88)
Screened in (n=3545)
Excluded, post-baseline (n=980)
• Additional invalid IP addresses (no IP address, out of country, etc.) (n=266)
• Confirmed fraudulent (n=33)
• Suspect, likely fraudulent (n=618)
• Unverified, unreached with calls or unknown (n=59)
•Declined (n=4)
Completed baseline (n=3081)
Total baseline completers (n=2101)
Ineligible, declined interest in future surveys (n=332)
Incomplete contact info (n=23)
Invited to year 2 follow-up (n=1756)
Year 2: Follow-up Survey
Declined (n=83)
Completed follow-up (n=1203)

Young Adult Health Survey, Cohort 2

Baseline Survey



YAHS Method Continued

- **Assessed demographics on an ongoing basis and modified strategies to recruit under-represented groups**
- **Convenience sample, not a random sample**
- **To improve generalizability, used state census data to conduct post-stratification weighting to more accurately reflect the demographic and geographic diversity of Washington**
- **Weighted results closely mirror the unweighted results**

Distribution of demographic characteristics in the general Washington State young adult population according to the US Census and YAHS study samples

Characteristic	Census %	YAHS Cohort 1 %	YAHS Cohort 2 %
Female sex	48.5	59.3	67.6
Race/ethnicity			
White, non-Hispanic	66.2	68.6	68.5
Black, non-Hispanic	4.0	2.1	1.5
Asian, non-Hispanic	7.7	11.7	12.3
Native American, non-Hispanic	1.6	1.0	.9
Pacific Islander, non-Hispanic	.8	.9	.6
Multiracial, non-Hispanic	4.6	5.9	6.7
Other race, non-Hispanic	.2	.7	.9
Hispanic, any race	14.9	9.1	8.7
Washington State DSHS Region			
1: East	25.1	19.5	16.7
2: Northwest	44.7	54.8	59.0

Distribution (%) of participant characteristics in the Alcohol Research Group Washington State Survey and the Washington State Young Adult Health Survey, Cohort 1 Year 1

		Unweighted		Weighted		
Characteristic	ARG N=194	YAHS N=2101	p-value	ARG	YAHS	Census 2010
Hispanic ethnicity	9.8	9.1	.76	14.9	14.9	14.9
White race, non-Hispanic	73.1	68.6	.14	65.2	66.3	66.2
Female sex	44.9	59.3	<.001	47.1	48.4	48.5
Age 21-25	66.5	61.3	.16	65.5	60.7	62.1
Any past year marijuana	39.1	44.3	.16	40.7	44.9	--
Any past year alcohol	76.2	84.3	.003	74.6	84.3	--

Distribution (%) of participant characteristics in the Alcohol Research Group Washington State Survey **WAVE 1** and the Washington State Young Adult Survey, Cohort 1 Year 1

		Unweighted		
Characteristic	ARG N=118	YAHS N=2101	p-value	
Hispanic ethnicity	11.9	9.1	.32	
White race	72.0	68.6	.44	
Female sex	40.7	59.3	<.001	
Age 21-25	72.0	61.3	.020	
Any past year marijuana	34.2	44.3	.032	
Any past year alcohol	76.9	84.3	.034	

Distribution of characteristics in the ATLAS sample at 24-month study visit and Young Adult Health Survey Cohort 1 Year 1

	ATLAS N = 552	YAHS N = 557	P-value
Hispanic ethnicity	13.0	10.2	.16
White race	68.0	65.9	.46
Female sex	65.2	57.1	<.001
Any past year marijuana	42.8	46.1	.26
Any past year alcohol	70.2	75.5	.046

ATLAS subjects restricted to those living in Washington State at time of visit
YAHS subjects restricted to 19 and 20 year-olds to match ATLAS

Unweighted comparison of participants recruited via DOL records versus online and alternative advertising in the Washington Young Adult Health Survey Cohort 2 baseline sample

	N	%
DOL	570	34.13
Other	1,100	65.87

Race/ethnicity*	DOL	Other
Asian, non-Hispanic	11.93	12.29
Black, non-Hispanic	0.6	1.85
White, non-Hispanic	69.98	67.93
American Indian/Alaskan, non-Hispanic	0.99	0.83
Native Hawaiian or Pacific Islander	1.19	0.28
More than one race	5.37	7.39
Other	1.59	0.55
Hispanic, any race	8.35	8.87
Age*		
<21	39.17	32.99
21+	60.83	67.01

*p <.05

Unweighted comparison of participants recruited via DOL records versus online and alternative advertising in the Washington Young Adult Health Survey Cohort 2 baseline sample (Cont.)

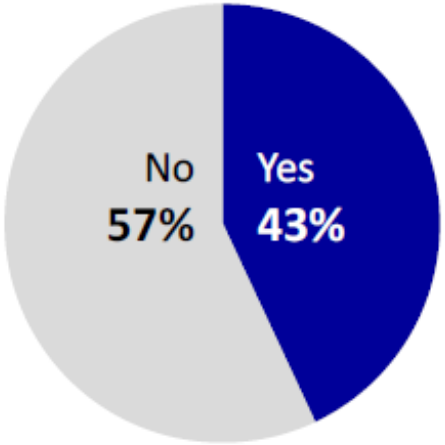
Region	DOL	Other
1	16.3	16.91
2	58.65	59.06
3	25.05	24.03
Sex*		
Female	59.24	71.53
Male	40.76	28.47
Past year medical marijuana use*		
No	91.05	84.83
Yes	8.95	15.17
Past year recreational marijuana use*		
No	61.55	49.26
Yes	38.45	50.74
Past year alcohol use*		
No	17.53	11.18
Yes	82.47	88.82

*p <.05

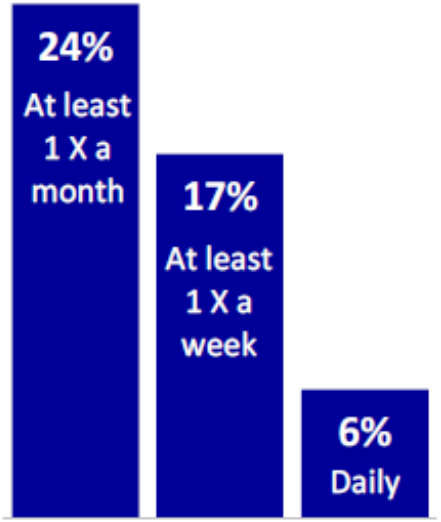
Past Year Frequency of Marijuana Use

RECREATIONAL USE

*Used marijuana for **recreational** purposes in the past year?*

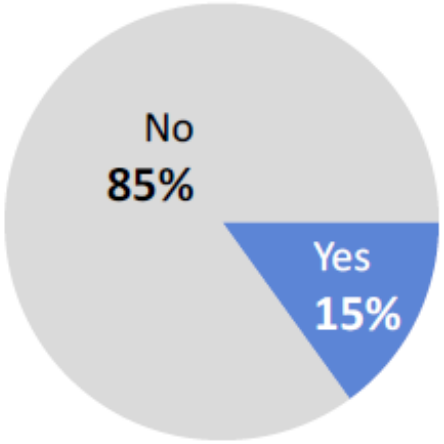


How often?

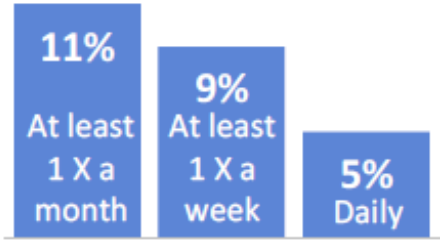


MEDICAL USE

*Used marijuana for **medical** purposes in the past year?*

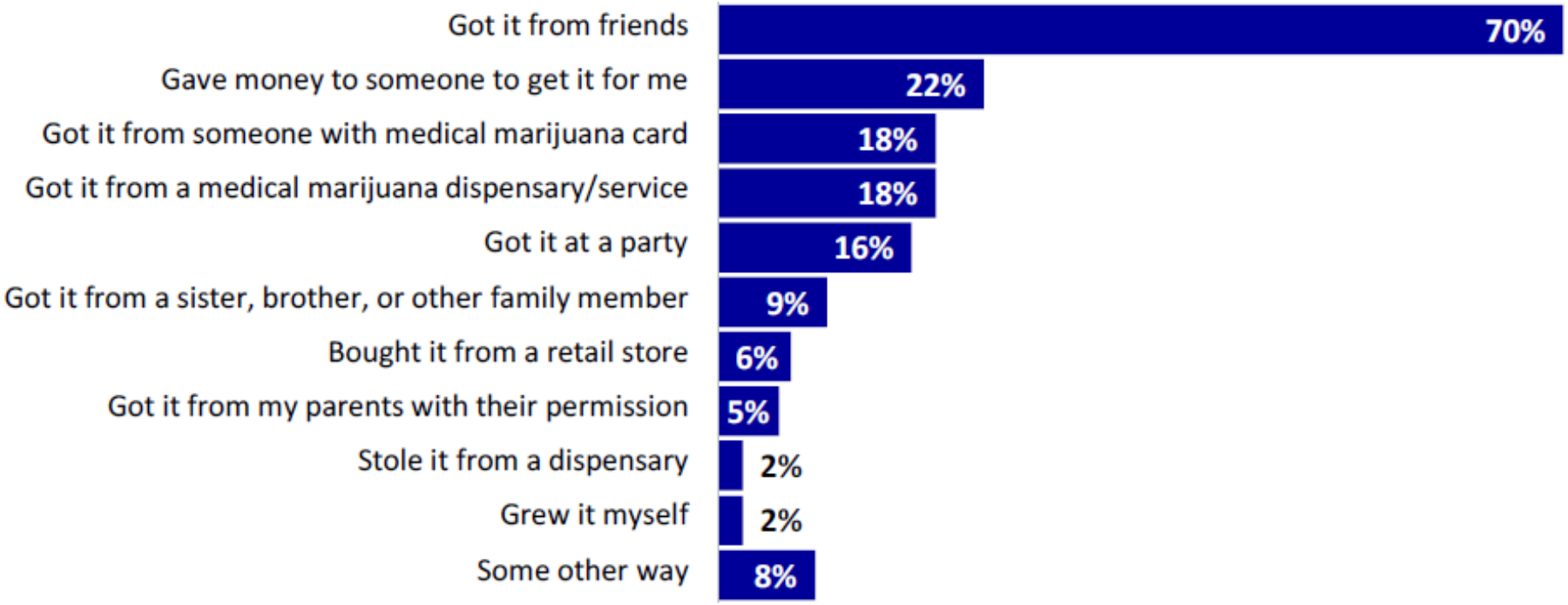


How often?

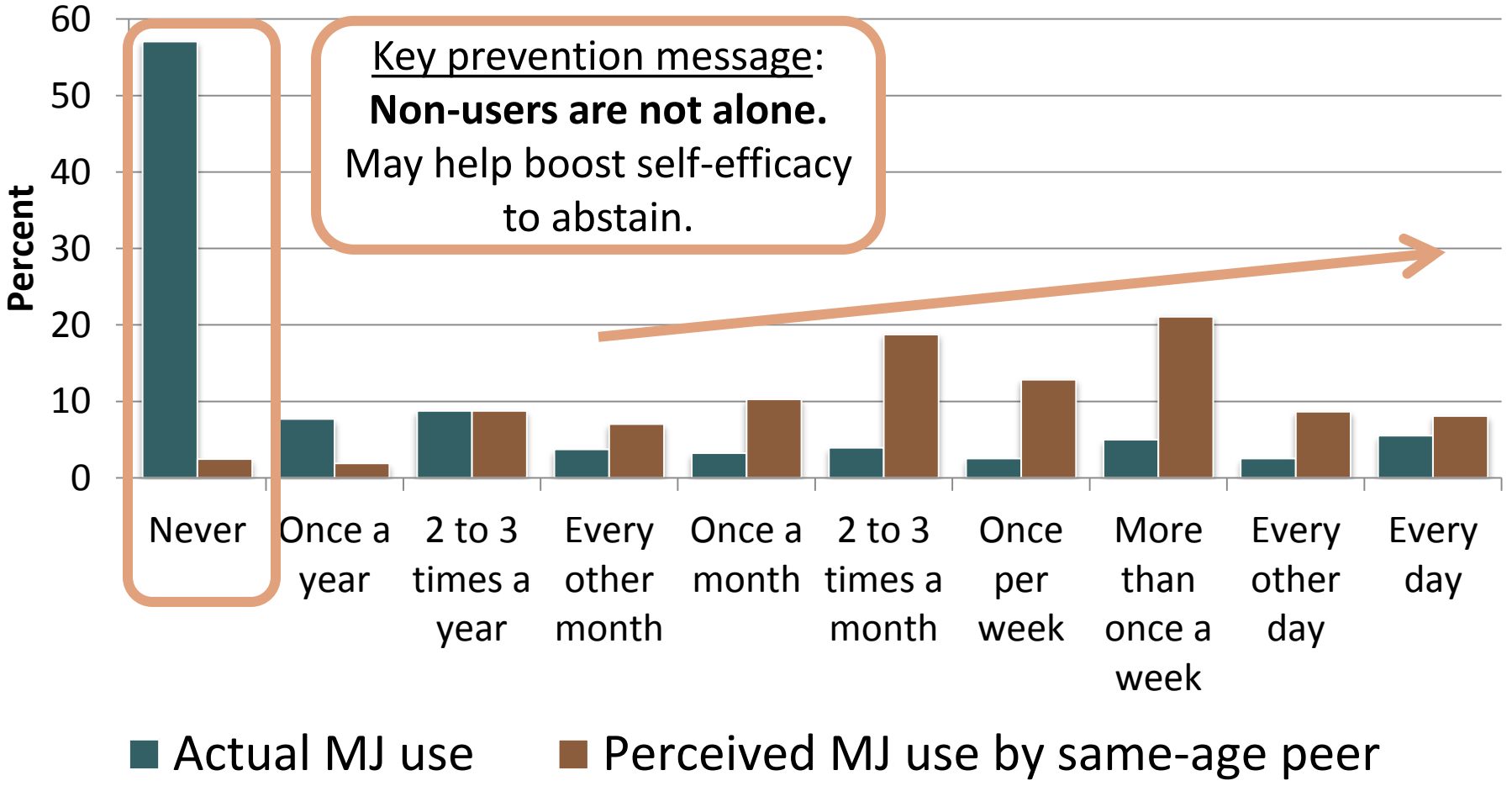


Top Places Where People Get Marijuana

(among those who used at least once in the past 30 days)
Before widespread retail sales

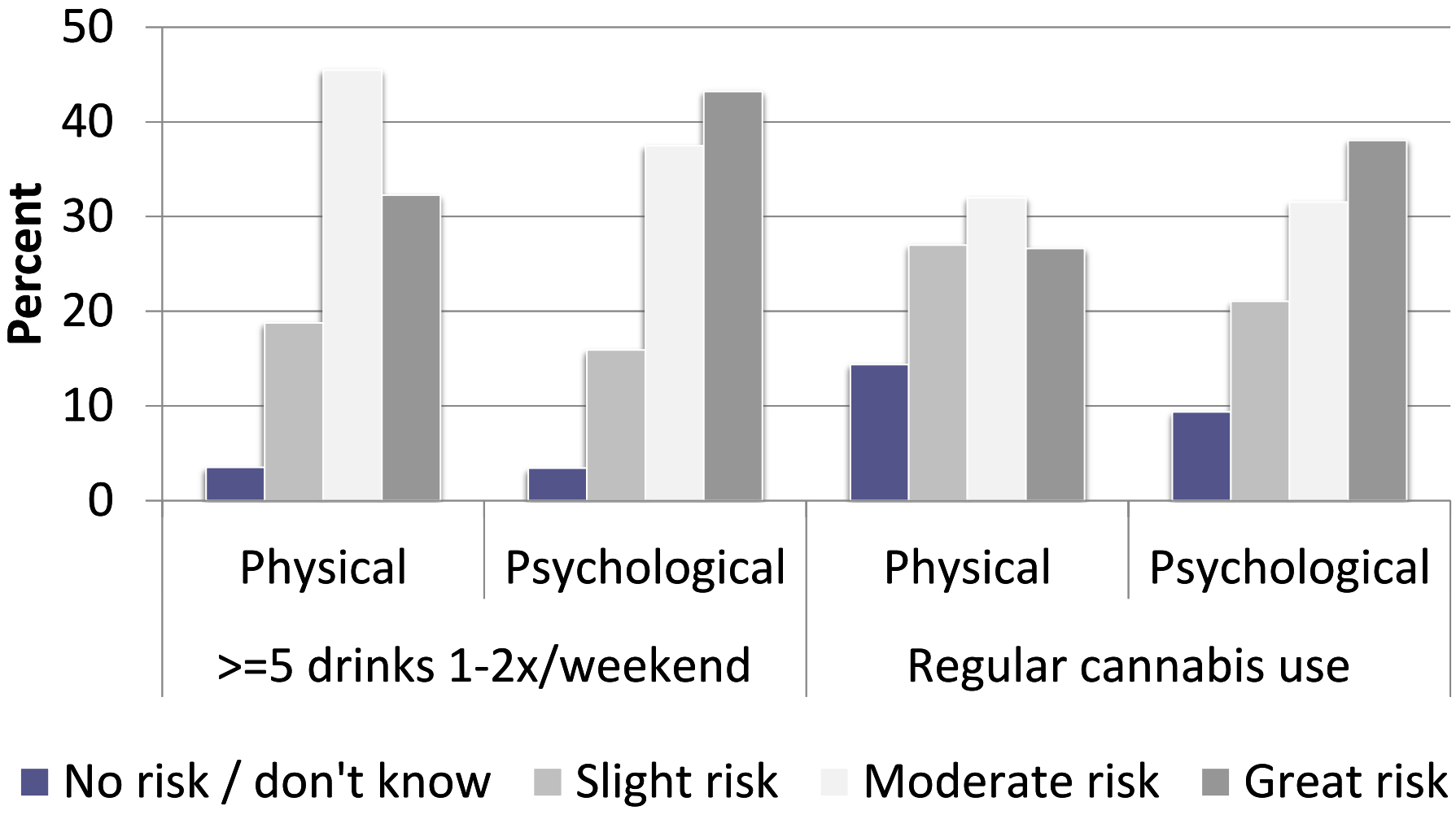


Frequency of recreational cannabis use vs. perceived use (social norms)



Underestimation of abstinence: see Kilmer et al. (2006); Overestimation of frequent use: see Wolfson (2000)

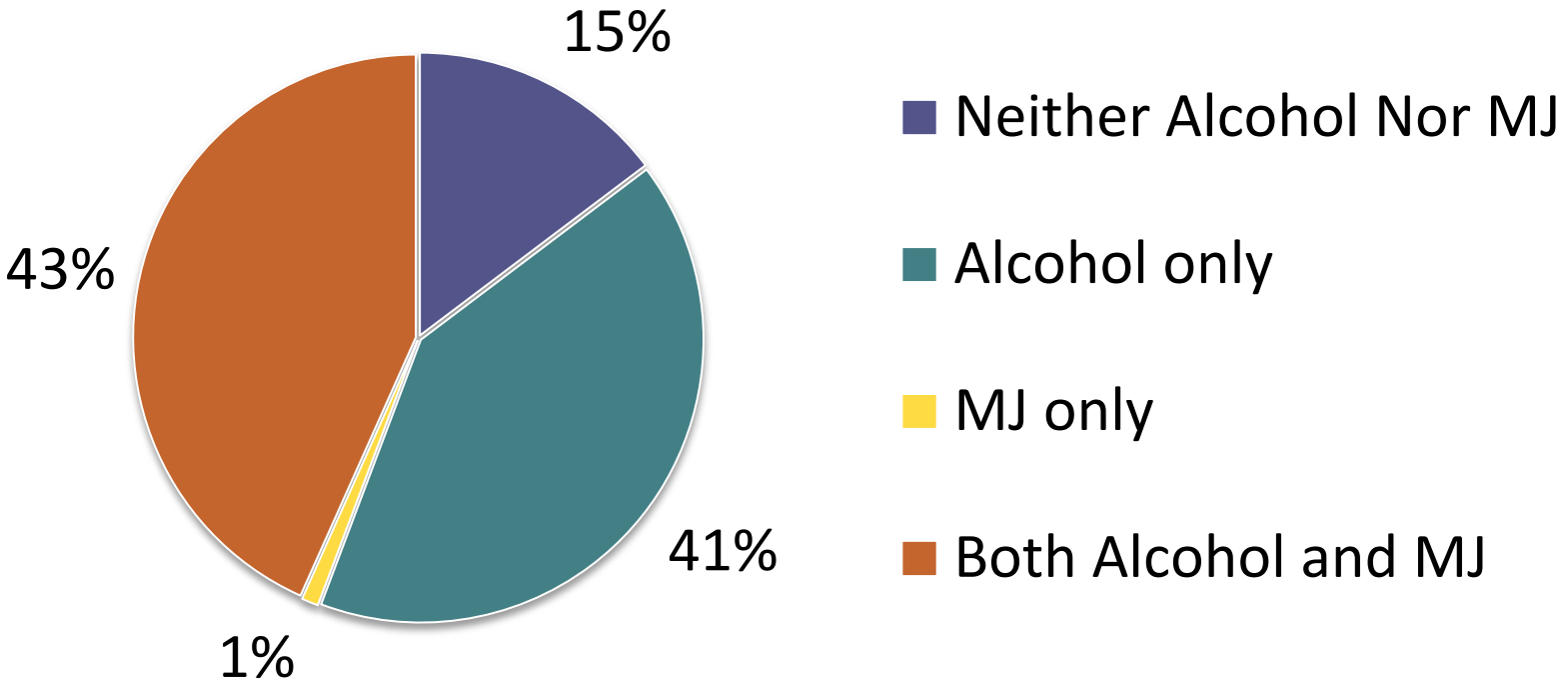
Perceived risk of regular alcohol and cannabis use



Perceived Risk and Relationship to Use

- **Cannabis use is negatively correlated with:**
  - Perceived physical risk from occasional use
    - WEIGHTED: (r=-.3943, p<.001)
  - Perceived physical risk from regular use
    - WEIGHTED: (r=-.4265, p<.001)
  - Perceived psychological risk from occasional use
    - WEIGHTED: (r=-.3836, p<.001)
  - Perceived psychological risk from regular use
    - WEIGHTED: (r=-.3847, p<.001)

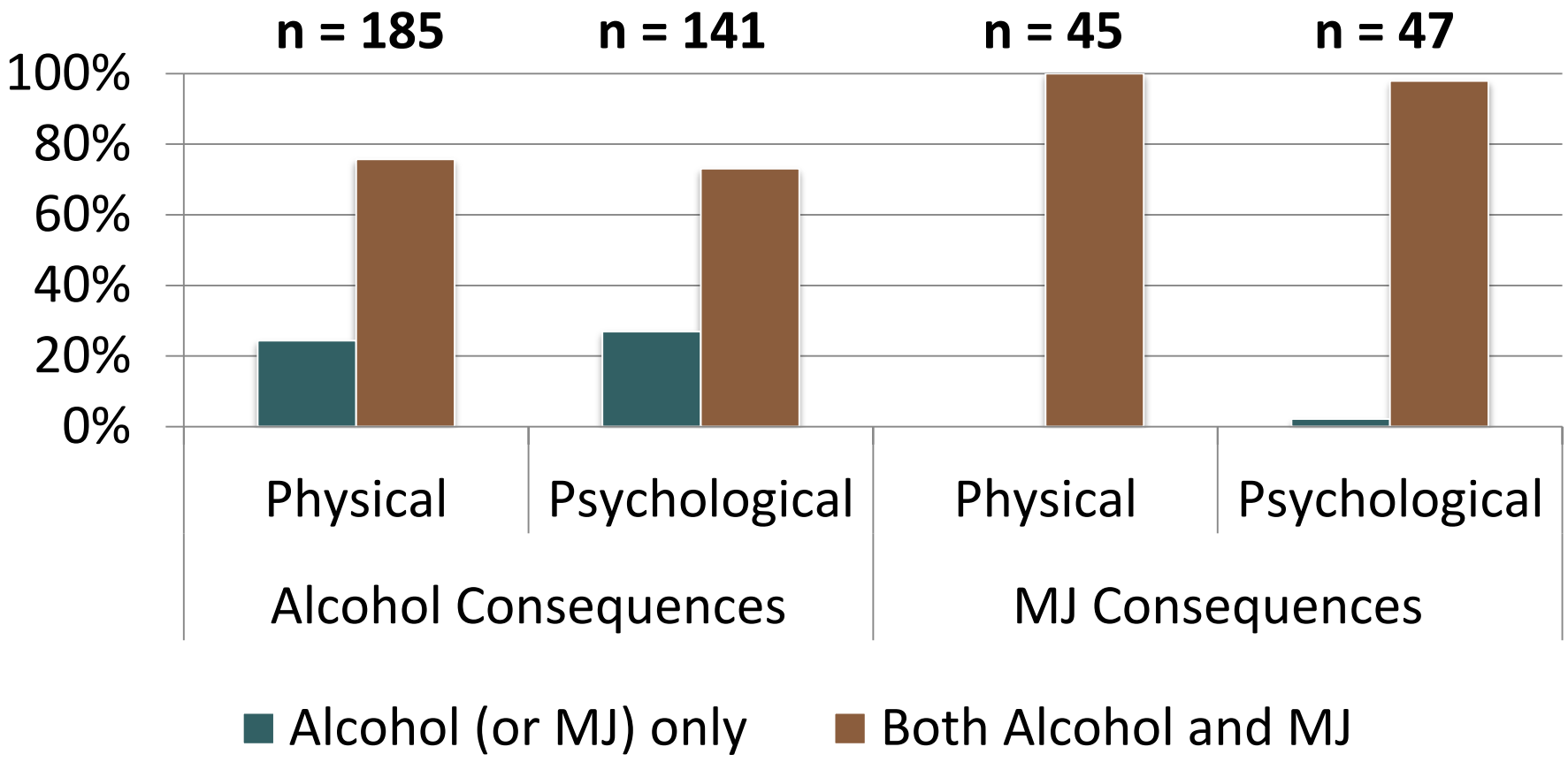
Past year use of alcohol and cannabis



- The 44% who reported any past year recreational MJ use at baseline is higher than Monitoring the Future data for 12th graders (36.4%), college students (35.5%), and young adults in general (32.2%) in US.

Consequences by individual vs. co-occurring use

Of those who reported, “Yes” my use of alcohol or cannabis caused or made problems in these domains worse in the past 30 days…

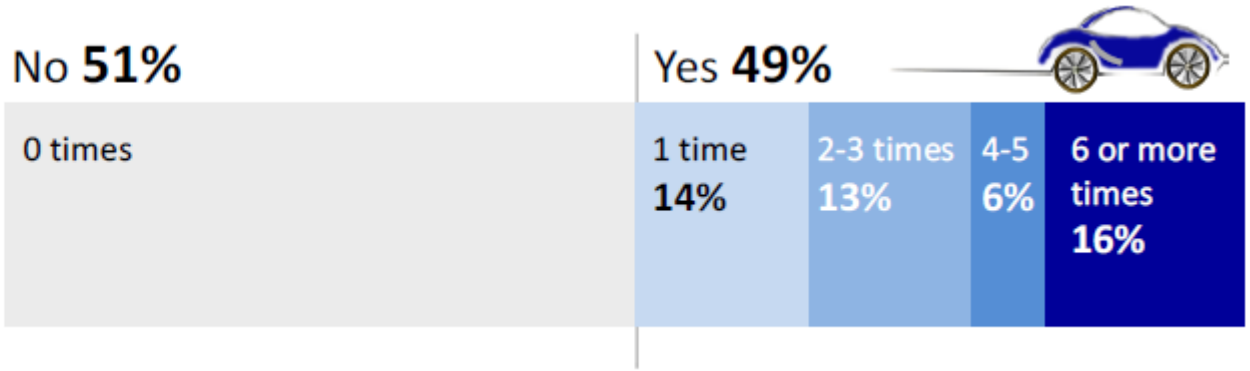


Impaired driving and duration of effects

- **Effects on the brain**
  - **Reaction time is impacted**
    - **DUI implications – WA State limit set at 5 ng THC/ml of blood**
    - **Why 5 ng? Same deficits behind wheel of car that we see at .08% for alcohol**
    - **How long does it take to drop below 5 ng?**
    - **Grotenhermen, et al., (2007) suggest it takes 3 hours for THC levels to drop to 4.9 ng THC/ml among 70 kg men**
    - **From a public health standpoint, Hall (2013) recommends waiting up to 5 hours after use before driving**
    - **Colorado prevention materials recommend 6 hrs after smoking marijuana, 8 hrs after consuming edibles.**

Driving (among those who reported using at least once in the past 30 days at Cohort 1 baseline)

Among the young adults who have used marijuana in the past month, almost half report they have driven a car within three hours of using marijuana



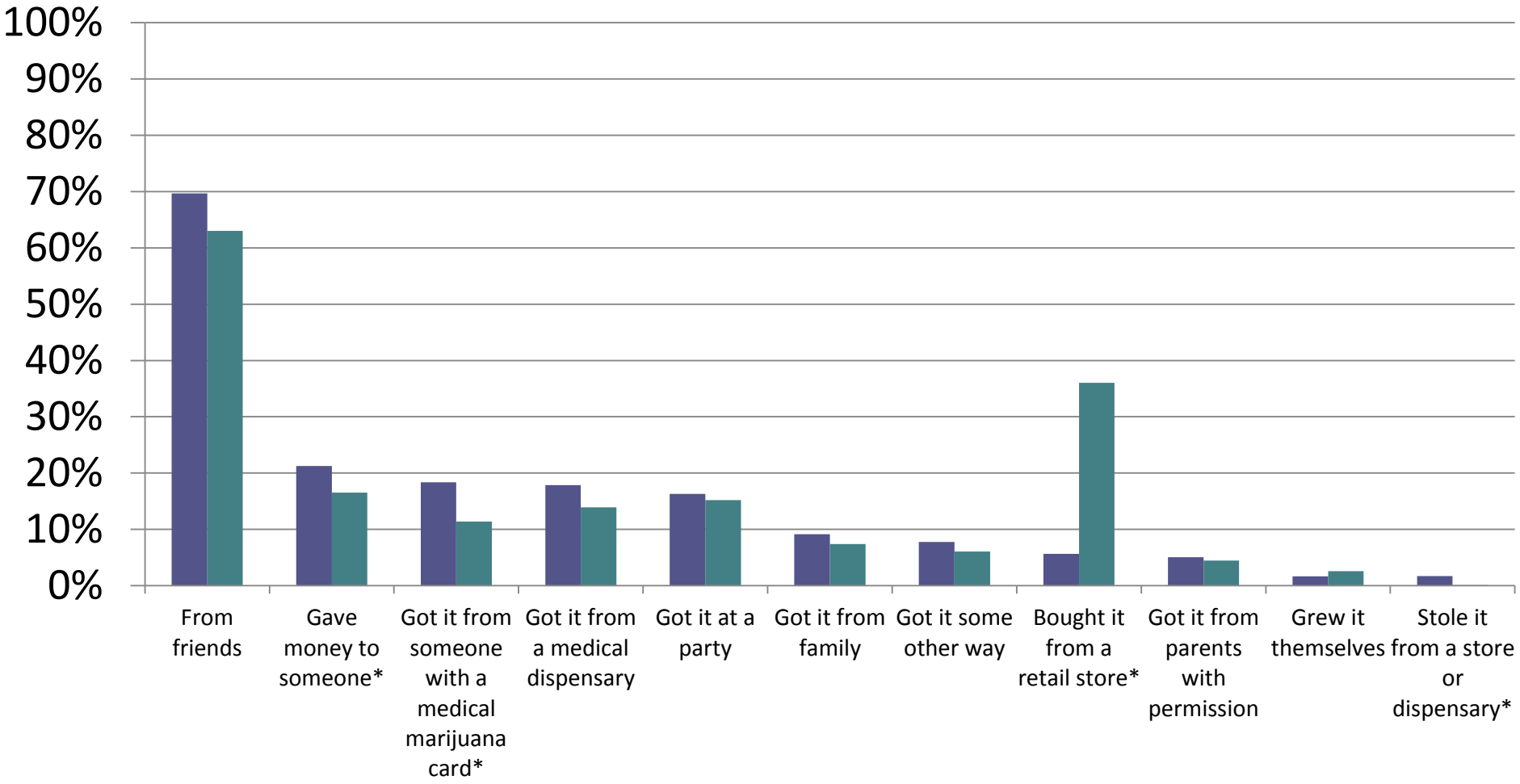
Cohort-sequential design allows for multiple comparisons:

- Comparisons of the first cohort's data from 2014 (n=2,101) to the second cohort's data from 2015 (n=1677).
  - These analyses compare changes over one year in two separate cross-sectional samples.
- Comparisons of the first cohort's data from 2014 to 2015 (n = 1203 participants).
  - These findings describe changes over one year within the same cohort of individuals.

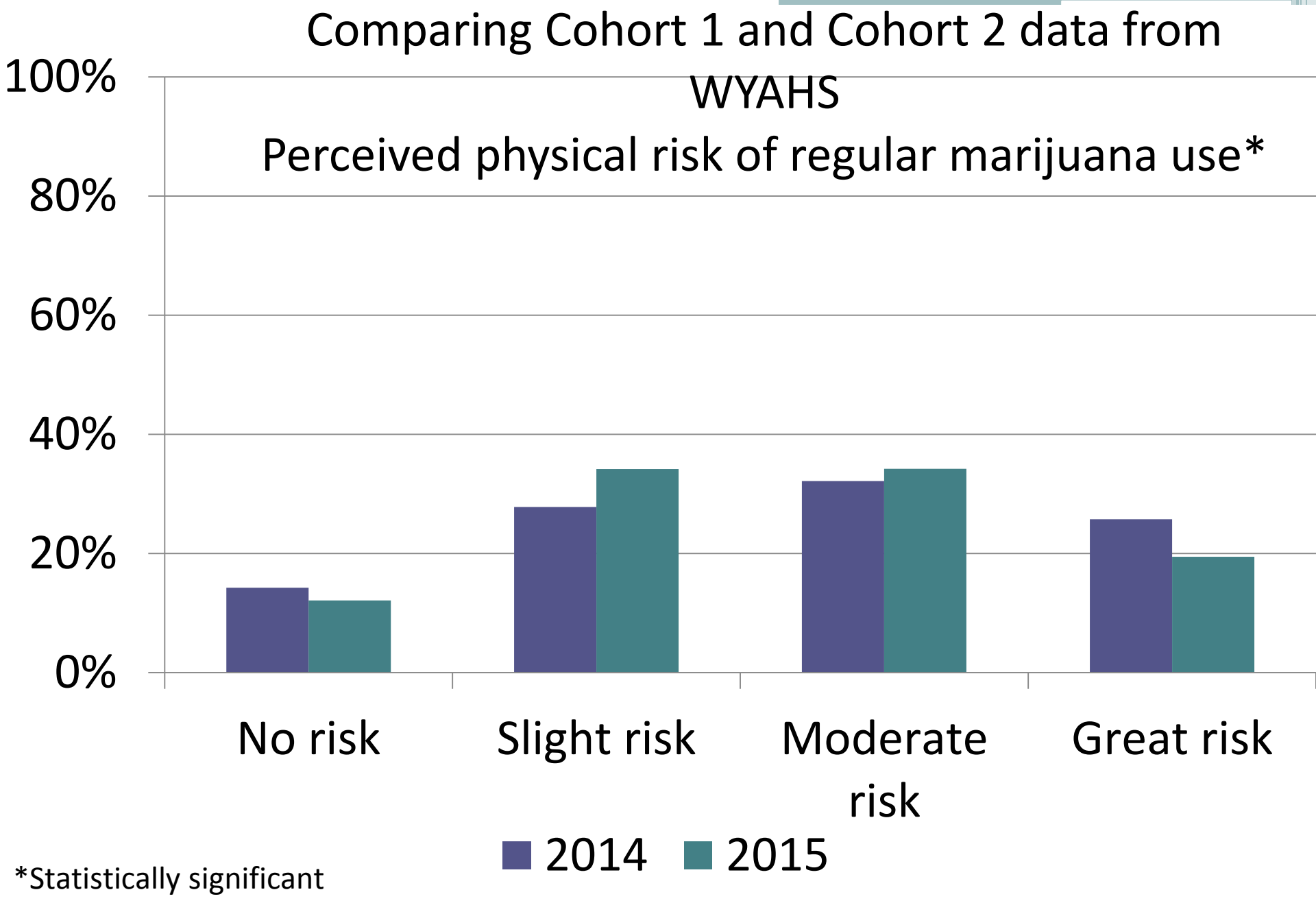
Cohort One (year one, 2014) to Cohort Two (year one, 2015)

Comparing Cohort 1 and 2 data from WYAHS

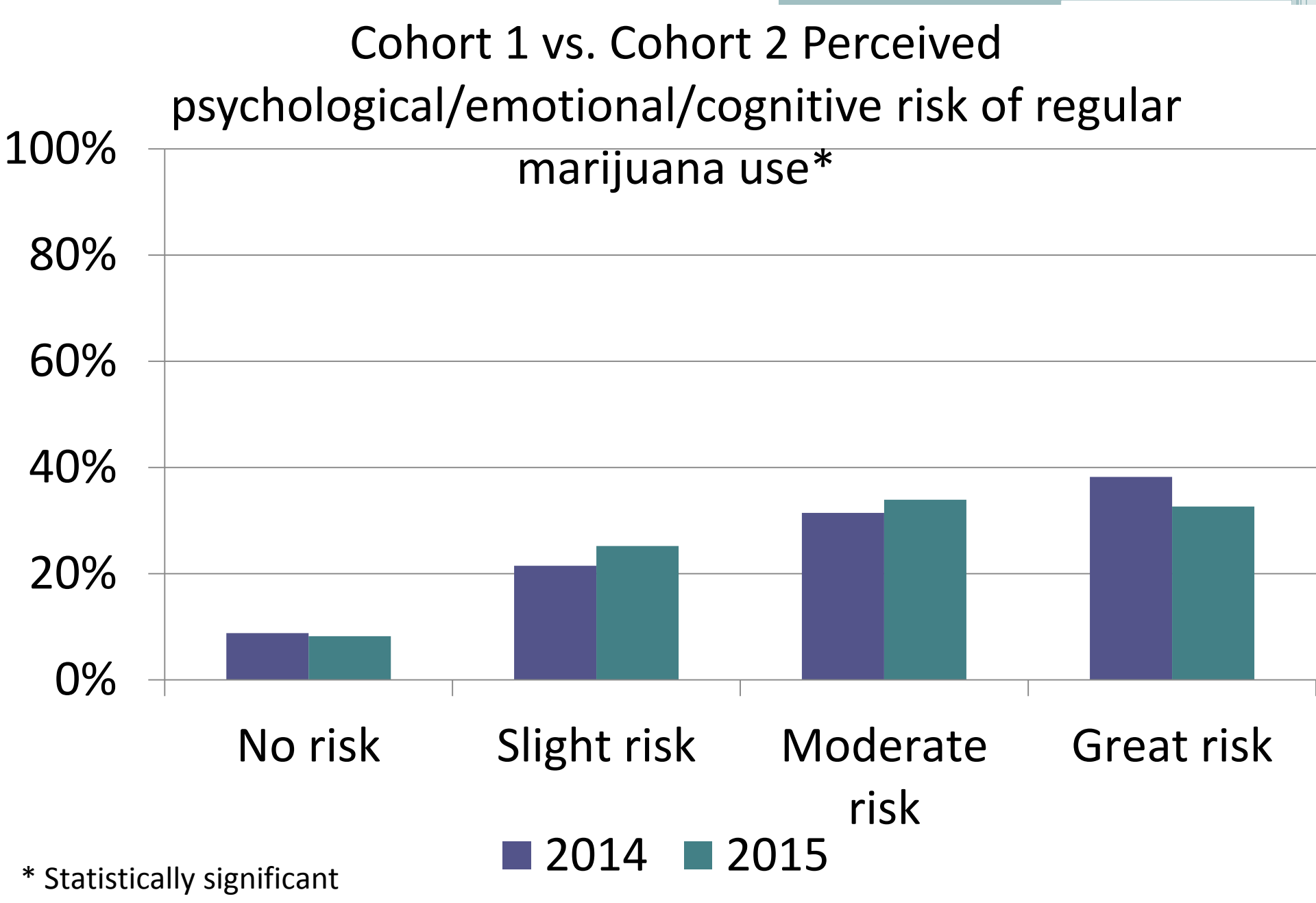
Where people got marijuana in the past 30 days



* Statistically significant



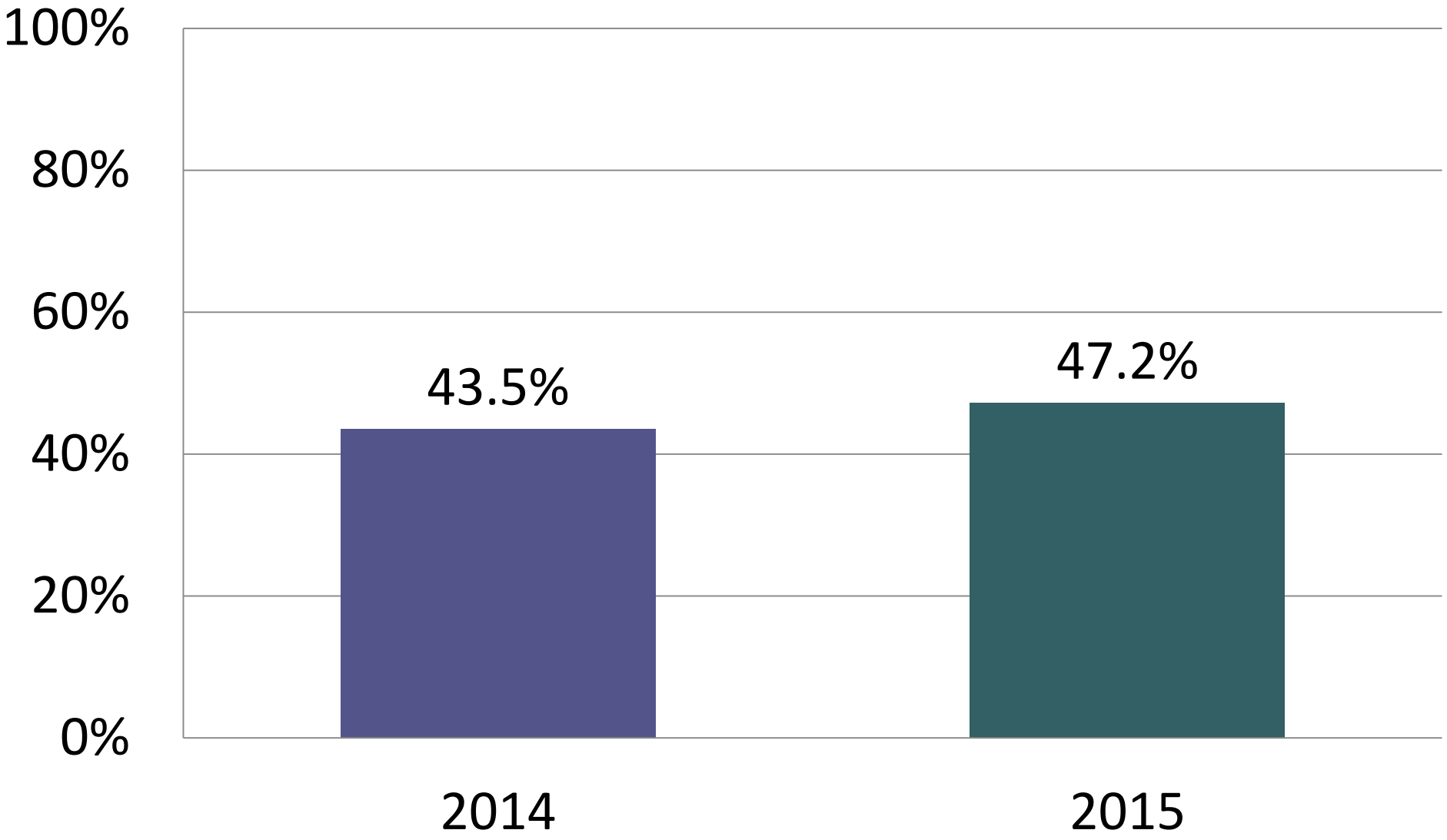
*Statistically significant



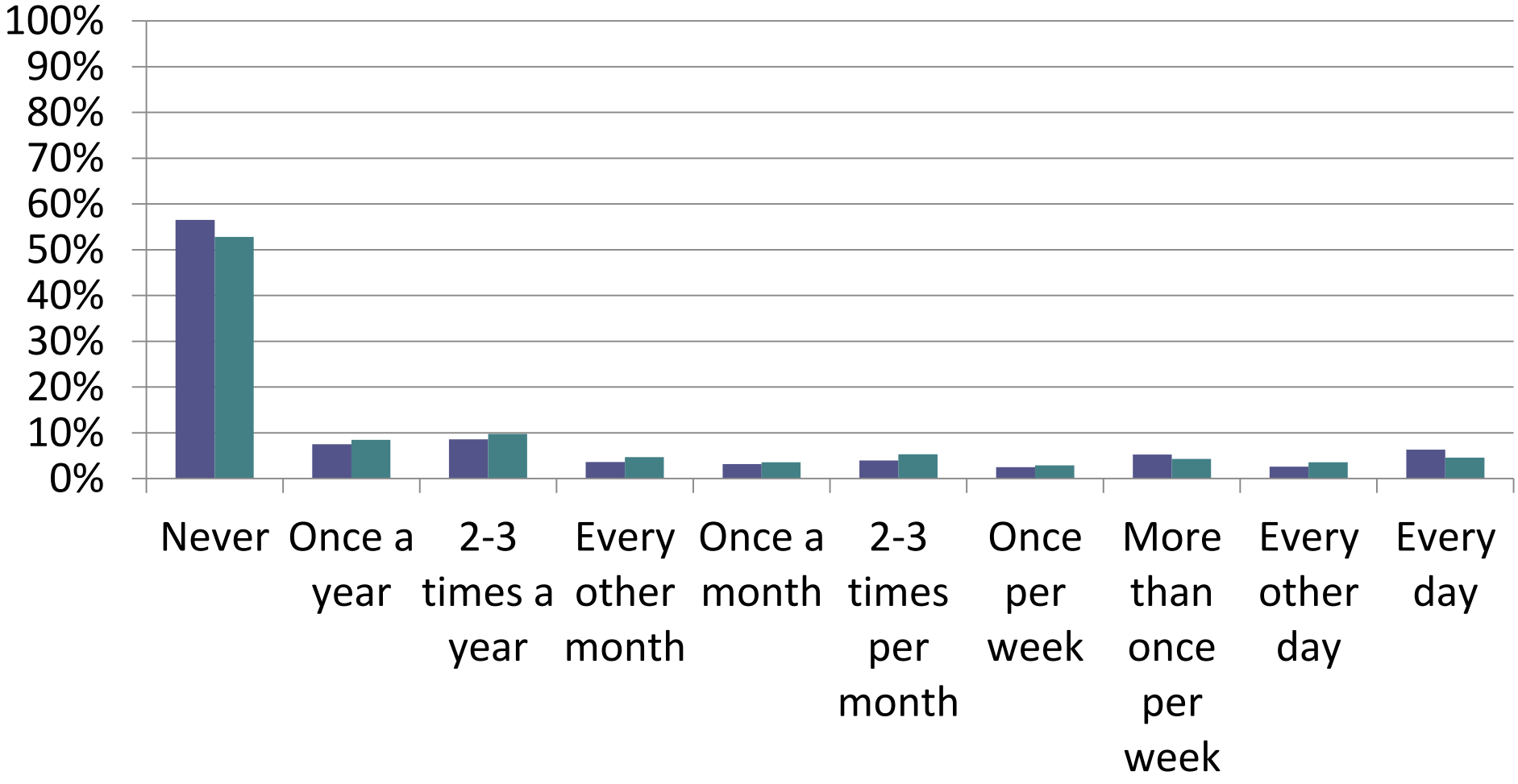
* Statistically significant

Cohort 1 vs. Cohort 2 WYAHS

Past year recreational marijuana use



Comparing Cohort 1 vs. Cohort 2 WYAHS
Past year recreational marijuana use frequency



Cohort 1 vs. Cohort 2 driving within 3 hrs of marijuana use

among those with use in the past 30 days

(no significant difference in rates)

	Cohort 1 (2014)	Cohort 2 (2015)
0 times	50.59%	54.66%
1 time	14.13%	13.73%
2-3 times	13.28%	12.77%
4-5 times	6.43%	4.12%
6 or more times	15.57%	14.72%

Cohort One (one-year follow-up)

Cohort 1 12-month follow-up Changes in Perceived Risk of Marijuana Use

Physical risk – regular use

	2014	2015
No risk:	12.34%	11.29%
Slight risk:	28.92%	32.00%
Moderate risk:	34.36%	36.11%
Great risk:	24.38%	20.61%

Psychological/emotional/cognitive risk – regular use *

	2014	2015
No risk:	6.57%	7.85%
Slight risk:	21.09%	26.40%
Moderate risk:	33.03%	33.14%
Great risk:	39.32%	32.61%

Changes in medical and recreational marijuana use cohort 1 baseline to 12-month follow-up WYAHS

Medical Marijuana Use

Use in the past year ($p<.05$)

- 2014: 11.73% with any past year use
- 2015: 13.72% with any past year use

Recreational Marijuana Use

Use in the past year ($p< .05$)

- 2014: 40.16% any past year use
- 2015: 42.84% any past year use

Cohort 1, baseline to 12-month followup, driving within 3 hours after using marijuana

Among those with past 30-day use ($p<.05$)

	2014 (n=295)	2015 (n=316)
0 times	53.99%	61.00%
1 time	15.95%	13.60%
2-3 times	11.19%	13.00%
4-5 times	5.12%	3.17%
6 or more times	13.75%	9.24%

Cohort 1, 12-month follow-up driving within 3 hours after simultaneous alcohol & marijuana use(so effects overlap) past 30 days

Among those with past year marijuana use:

	2015 (n=487)
0 times	89.51%
1 time	5.76%
2-3 times	3.23%
4-5 times	0.73%
6 or more times	0.78%

How Can We Use This Information to Prevent & Reduce Harm from Marijuana?

- Correct Normative Misperceptions
- Increase Risk Perception
  - Target consequences young people report they do not like
  - Provide information relevant to their individual concerns
- Reduce Motivation to Use/Misuse
  - Effective coping; healthy alternatives
- Increase Motivation to Change for Heavier Users
  - Brief Motivational Interventions show promise
- Enforce Policy Restrictions on Access, Public Use
- Provide resources for prevention, treatment, & research

Thank You!

- DBHR for funding this research
- Washington Young Adult Health Survey Team Members
  - Jason Kilmer (PI), Mary Larimer, Jessica Cronce, Isaac Rhew, Theresa Walter, Tim Pace
- Slides courtesy of:
  - Mary Larimer, Jason Kilmer, Jessica Cronce, Tim Pace, Isaac Rhew