

Marijuana Use Surveys Matrix:

Different Methodologies Produce Different Estimates

Given the high prevalence of marijuana use and policy changes in Washington, questions about changing estimates of marijuana use over time may arise. Data from numerous national, regional, and state surveys are available to describe use in Washington State, and to compare Washington to other states and to the nation. This matrix describes the **major surveys for both youth and adults** that provide state-level estimates; the methods, population, and other characteristics of the survey to help explain reasons for different estimates across surveys. Several of these sources can be used to find estimates for smaller area, such as school districts or counties. The **wording of survey questions is essential to interpretation and comparisons**; questions often differ across surveys and sometimes change within a single survey over time. Other important factors include the age ranges included, differential non-response patterns, and the time of year for school-based surveys.

Source	Sampling		Survey methods			Marijuana question wording	
	Population sampled	Weighting	Mode	When/Language	Data quality	Lifetime use	30-day use
Monitoring the Future (MTF) ; MJ data available since 1976 (national sample)	8 th , 10 th , and 12 th graders in Lower 48, public or private schools with 25+ in grade (20+ for 8 th), plus continuous follow-up of subsample (n=2400) of seniors from each year.	Accounts for complex sample; also produce 12 th grade estimates adjusted for absentees and dropouts	Self-administered machine-readable survey conducted usually in class period by Michigan Survey Research Center employee. Parents given advance notice and options for refusal.	Spring of each school year	Check for logical inconsistencies in each drug-specific Q triplet of Qs. Those above a minimum number of inconsistent triplets are dropped. Also check for improbably high reported use of multiple drugs.	On how many occasions (if any) have you used marijuana (grass, pot) or hashish (hash, hash oil)...in your lifetime?	On how many occasions (if any) have you used marijuana (weed, pot) or hashish (hash, hash oil)... during the last 30 days?
Healthy Youth Survey (HYS) ; since 2002 (but note wording changes) (state, county, school districts)	Washington 6 th , 8 th , 10 th , and 12 th graders in public schools 15+ students per grade. Added 7 th , 9 th , and 11 th for small schools in 2016, but not included in statewide results.	State-wide sample accounts for clustering of respondents within schools; no non-response correction	Self-administered machine-readable survey conducted in class period by teacher. Parents given advance notice and options for refusal.	Fall of even numbered school years English and Spanish	Screens for dishonest or inconsistent answers; tends to increase with grade. Screening incorporates Q about fictitious drug and Q about honesty of responding, plus logical inconsistencies	[Grades 8-12 through 2012, 2 pages after 30-day Q; 2014, 1 page after] How old were you the first time you... Smoked marijuana? [6 th grade, after 30-day Q] Have you ever, even once in your lifetime...Smoked marijuana? [In 2014, "Smoked" changed to "Used" in all Qaires]	During the past 30 days, on how many days did you...Use marijuana or hashish (grass, hash, pot)? [In 2014, "grass" changed to "weed"]
Youth Risk Behavior Surveillance System (YRBSS) ; since 1991 (national sample)	National sample: 9 th -12 th graders in public or private schools in 50 states + DC; oversamples black & Hispanic students Participating state samples: 9 th -12 th graders in public schools; few states inc. private schools. Washington does not participate, but Seattle Public Schools has for 2009-2013.	Accounts for complex sample and non-response	Self-administered machine-readable survey conducted usually in class period by (usually) contractor. Parents given advance notice and options for refusal.	Usually spring of odd numbered school years	Screens for illogical & implausible responses & patterns.	The next 3 questions ask about marijuana use. Marijuana is also called grass or pot. During your life, how many times have you used marijuana?	During the past 30 days, how many times did you use marijuana?

Source	Sampling		Survey methods			Marijuana question wording	
	Population sampled	Weighting	Mode	When/Language	Data quality	Lifetime use	30-day use
Young Adult Health Survey (YAHS) ; since 2014	Convenience sample of Washington state young adults 18-25; following up initial cohort and beginning wave 2 summer 2015. No Rs from 5 of Washington's 10 smallest counties. 5" screening survey followed by researcher phone call to confirm eligibility→given URL for survey	Initial discussion indicated no plan to post-stratify, but factsheet claims 2014 results weighted to better represent WA population on demographics, student status, and geography.	Web, 15"		"Complex screening and validation strategies were used to prevent duplicate or false responses." Lifetime use actually assessed twice—not sure what happens if not consistent.	[In introduction] When we say "cannabis," we mean any form of the drug, including marijuana (weed, pot), hashish, or kief, and any method of use, including dried buds/flowers/leaves for smoking or in edibles, or hash oil. [Later, after a past year Q] How long has it been since you last used the following substances?... Cannabis (e.g., marijuana, hashish)	[response option in lifetime use Q] Within the past 30 days
Behavioral Risk Factor Surveillance System (BRFSS), state-added questions on Form A; MJ data available since 2009 in WA and a few other states	Adult (18+), non-institutional, civilian, telephone-owning US population, inc. territories: WA started adding cell phones in 2008*, a dual-frame sample (land line and cell phone) was used nationwide in 2011; should not compare before/after 2011. Eligibility expanded to residents of college housing in 2012. * 2008 was a pilot year only for cell sampling; there is no weighted dual-frame dataset for 2008.	Accounts for complex sampling; combination of design weights and raking plus trimming	CATI ~25-30 minutes	Year-round data collection; new sample fielded monthly. Interviewing 7 days a week, day and evening. English and Spanish	Routine call monitoring. Data collection contractor, CDC, and state all perform various data processing and quality controls.	[2009 and prior] How old were you the first time you smoked marijuana? [2012] How old were you the first time you smoked marijuana, if ever? [Since 2013] How old were you the first time you used marijuana in any form, if ever? [In 2013, both the "smoked" and "used" version of the Q was asked. In 2014 and 2015, only "used" version asked.]	[immediately after lifetime Q, asked if ever smoked/used] During the past 30 days, on how many days did you use marijuana or hashish (grass, hash, or pot)?
National Health and Nutrition Examination Survey (NHANES); MJ Qs added in 2005-2006 cycle (national sample)	Resident, civilian, non-institutionalized population in 50 states + DC (inc. non-institutional group quarters). Regular public use files only have MJ data for 18+ or 20+ (varies by cycle); data for 12+ available through NCHS RDC; through age 59 for 2005-2006, 69 for 2007-2008 on. HHD screening→ scheduling exams at mobile site; maximum of 15 sites in a given year (at least since 1999). Continuous cycles oversample low income, black, and older residents.	Weights adjust for sampling, non-response, and coverage.	Drug use Qs in CASI (with audio) portion of physical exam, at exam center in private room with headphones	Throughout 2-year cycle English and Spanish	CASI system has numerous consistency checks with immediate feedback to Rs, including flagging unlikely responses which require confirmation.	The first questions are about marijuana and hashish. Marijuana is also called pot or grass. Marijuana is usually smoked, either in cigarettes, called joints, or in a pipe. It is sometimes cooked in food. Hashish is a form of marijuana that is also called 'hash.' It is usually smoked in a pipe. Another form of hashish is hash oil. Have you ever, even once, used marijuana or hashish?	[immediately after lifetime Q] During the past 30 days, on how many days did you use marijuana or hashish?

Source	Sampling		Survey methods			Marijuana question wording	
	Population sampled	Weighting	Mode	When/Language	Data quality	Lifetime use	30-day use
National Survey on Drug Use and Health (NSDUH); since 1971 (but note sampling and method changes) (national and state sample)	Civilian, non-institutionalized pop 12+ residing in 50 states + DC. Before 1991, did not inc. AK and HI, non-institutional group quarters, and civilians on military bases. Increased sample size in 1999, equally allocated across 12-17, 18-25, and 26+ (thus, younger groups relatively oversampled) through 2013, then at 25%, 25%, and 50%, respectively, for 2014. In 2002 added pair sampling strategy for HDDs with older residents. Sampling redesigned for 2005.	Complex weighting accounts for design and non-response at multiple levels, plus trimming; were plans to redesign sample for 2014.	In-person CAI since 1999—most Qs, inc. drugs, answered directly on laptop by R (CASI). ~1 hour. Incentive added 2002	English and Yearly, throughout year English and Spanish	Qaire includes refusal conversion attempts for drug Qs. CAI has extensive internal consistency checks, often forcing R to re-do Q or otherwise address conflict. 2006 reliability study found generally good reliability for drug Qs, with variation in error by demographics.	The next questions are about marijuana and hashish. Marijuana is also called pot or grass. Marijuana is usually smoked, either in cigarettes, called joints, or in a pipe. It is sometimes cooked in food. Hashish is a form of marijuana that is also called "hash." It is usually smoked in a pipe. Another form of hashish is hash oil. Have you ever, even once, used marijuana or hashish?	[2 Q after lifetime Q] How long has it been since you last used marijuana or hashish?
National Epidemiologic Survey on Alcohol and Related Conditions, Waves 1 and 2 (NESARC)	Representative of adult (18+) civilian, noninstitutionalized US population in 50 states plus DC in 2000, including group quarters and military living off base. Black and Hispanic and 18-24 oversampled. Conducted by Census Bureau. Wave 2 is longitudinal follow-up of Wave 2 sample.	Accounts for complex sampling, nonresponse (and attrition), and coverage.	In-person CAI	Wave 1 2001-2002 Wave 2 2004-2005	CAI has internal consistency checks to prompt interviewer to fix inconsistencies.	Now I'd like to ask you about your experiences with medicines and other kinds of drugs that you may have used ON YOUR OWN—that is, either WITHOUT a doctor's prescription; in GREATER amounts, MORE OFTEN, or LONGER than prescribed; or for a reason other than a doctor said you should use them. People use these medicines and drugs ON THEIR OWN to feel more alert, to relax or quiet their nerves, to feel better, to enjoy themselves, or to get high, or just to see how they would work. Have you EVER used any of these medicines or drugs?... Marijuana, hash, THC, or grass	When was the most recent time you used marijuana?

Source	Sampling		Survey methods			Marijuana question wording	
	Population sampled	Weighting	Mode	When/Language	Data quality	Lifetime use	30-day use
NESARC-III : Wave 3 is similar to first 2 waves but not a follow-up, with an added DNA test	Representative of adult (18+) civilian, noninstitutionalized US population in 50 states plus DC in 2010, inc. group quarters. Oversamples high- and moderate-minority neighborhoods (black, Hispanic, Asian). Conducted by Westat on contract for NIAAA.	Accounts for complex sampling and non-response, with post-stratification to ACS 2012 population.	In-person CAI	April 2012-June 2013 in 4 quarterly waves English, Spanish, Mandarin, Cantonese, Korean, and Vietnamese	CAI has internal consistency checks, with further correction by Westat main office. Over 10% validated (briefly, not drug Qs) by telephone follow-up. Some supervisor observation of interviews.	Now I'd like to ask you about your experiences with medicines and other kinds of drugs that you may have used ON YOUR OWN - that is, either WITHOUT a doctor's prescription; in GREATER amounts, MORE OFTEN, or LONGER than prescribed; or for a reason other than a doctor said you should use them. People use these medicines and drugs ON THEIR OWN to feel more alert, to relax or quiet their nerves, to feel better, to enjoy themselves, to get high or just to see how they work.... Have you EVER used any of these medicines or drugs?...Marijuana, including THC, for example...weed, pot, dope, hashish, Mary Jane, joint, blunt.	When was the most recent time you used marijuana?

Glossary: MJ = Marijuana, R = Respondent, Q = Question, Qaire = Questionnaire, HHD = Household, CAI = Computer-Aided Interview, CASI = Computer-Aided Self-Interview, CATI = Computer-Aided Telephone Interview

This document was produced by ADAI (Jason R Williams and Caleb Banta-Green), supported by Marijuana Dedicated Funds for Research. An earlier version was published in February 2015), supported by the DSHS Division of Behavioral Health and Rehabilitation (DBHR), and reviewed by DBHR, Department of Health, and Research and Data Analysis (DSHS) staff.