

Biennial MARIJUANA RESEARCH REPORT

2017-2019

University of Washington Alcohol & Drug Abuse Institute



The Alcohol & Drug Abuse Institute (ADAI), a multidisciplinary research center at the University of Washington's Health Sciences Administration, has been the recipient of the **Washington State Dedicated Marijuana Fund for research at the University of Washington** since July 2015.

This report presents the activities and products developed by ADAI with support from the Dedicated Marijuana Fund during the 2017-2019 Biennium.

IN THIS REPORT

Page 2 | **Message from the Director**

Dr. Susan Ferguson summarizes ADAI research and projects supported by the Marijuana Dedicated Fund in 2017-2019, and previews our ongoing work in this important area.

Page 2 | **Research Funding**

ADAI's Marijuana Small Grants Program supported UW departments to conduct studies on the long and short term effect of marijuana use. Intramural projects analyzed marijuana advertising in Washington and state and national data on marijuana use among vulnerable populations.

Page 4 | **Science-Based Education and Dissemination**

Dissemination of research findings involved the ADAI marijuana website, a UW symposium, and the ADAI Clearinghouse. ADAI scientists developed Research Briefs and Factsheets summarizing research findings for the public.

Page 5 | **Collaboration and Outreach**

Collaboration with various state, county and non-government agencies brought education, research and community outreach opportunities.



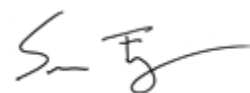
2019 North American Cannabis Summit

MESSAGE FROM THE DIRECTOR

As the new director of the UW Alcohol and Drug Abuse Institute, I'm pleased to present this report on marijuana-related activities over the 2017-2019 biennium. During this period the Institute supported 8 marijuana pilot research projects by scientists throughout the university, bringing the total to 15 small grants funded since 2015, and 5 intramural projects within ADAI. Findings from these grants continue to lead to full projects with outside funding, and numerous publications and presentations. ADAI also conducted scientific literature reviews in order to develop 9 research-based fact sheets and policy briefs that can be found at <https://adai.uw.edu/information/publications-reports> and <http://learnaboutmarijuanawa.org>.



Our scientists and information specialists bring a wealth of expertise to aid policy makers, clinicians, and the public to better understand and respond to the impacts of legal marijuana in Washington. Looking forward, ADAI will continue funding marijuana pilot research projects, with a current RFA soliciting proposals for the 2019-2021 biennium. We're also starting to plan the 4th Symposium on Marijuana Research for Spring 2020, where we will again share UW marijuana research with policy makers, healthcare providers, and the marijuana research community within the UW. I have joined my ADAI colleague Dr. Bia Carlini on the board of the university's Center for Cannabis Research. In all these efforts, ADAI anticipates extending our collaborative work with colleagues across the University community, the state, and beyond.



Susan Ferguson, PhD
Director, Alcohol & Drug Abuse Institute

RESEARCH FUNDING

UW Extramural Research Projects

ADAI issued a Request for Applications for small grants on marijuana research in 3 funding cycles in FY2018–FY2019. The RFA generated applications across multiple disciplines and University of Washington departments. Through peer review, **eight projects** were selected for funding:

Read more about these projects:
<http://bit.ly/MJSmallGrants2017-2019>

Defining Safe Cannabis Use in a Legal Context: A Market Perspective
Michele Cadigan and Alexes Harris, PhD, Sociology

Exploring the Potential of "Budtenders" as Harm Reduction Agents: A Study among Cannabis Retail Workers in WA
Bia Carlini, PhD, MPH, Alcohol & Drug Abuse Institute

Assessing Impact of Changes in State Marijuana Policy on Adolescent Substance Use and Related Behaviors.
Katarina Guttmannova, PhD, Psychiatry & Behavioral Sciences

Brain and Behavioral Correlates of Prenatal Marijuana Exposure
Natalia Kleinhans, PhD, Co-Investigator: Stephen Dager, MD, Radiology

Do Edible Cannabinoids Prevent Morphine Tolerance in a Mouse Neuropathic Pain Model?
Benjamin Land, PhD, Pharmacology

Cannabis Use and Persisting Post-Concussive Symptoms in Veterans with Mild Post-Traumatic Brain Injury
Kathleen Pagulayan, PhD, Elaine Peskind, MD, Todd Richards, PhD, School of Medicine, Psychiatry & Behavioral Sciences

Cannabis Identity as a Cognitive Risk Factor for Young Adult Cannabis Misuse
Jason Ramirez, PhD, Co-Investigators: Christine Lee, PhD, and Kristen Lindgren, PhD, School of Medicine, Psychiatry & Behavioral Sciences

I-502 County-Level Voting and Local Youth Marijuana Use: Do Risk Factor Associations and Trends Differ by Grade?
Andrea Stone, PhD, Nursing and Health Sciences, UW Bothell

ADAI Intramural Research Projects

This low-cost and expedient internal funding mechanism resulted in meaningful small projects that will generate academic publications presenting new data on marijuana advertisement, use among older adults, and an analysis of the Washington State marijuana traceability system. **Five projects** were funded:

Find detailed descriptions and updates:
http://bit.ly/ADAI_Intramural2017-2019

Non-Medical Marijuana Advertisement in Washington State
Beatriz Carlini, PhD, MPH

Project 1: Non-medical marijuana advertisement in WA State: content analysis of two freely distributed magazines.

Publication: Carlini BH, Harwick R & Garrett SB. Anytime is the right time: A content analysis of marijuana ads in freely distributed print media in Washington State, USA. Substance Use & Misuse (under review).

Project 2: Marijuana Industry and marketing regulations in WA State: an analysis of WA Liquor and Cannabis Board (LCB) advertisement violations database, 2014-17.

Presentation: Garrett S, Carlini BH & Firth C. Marijuana Advertisement Violations in WA State: 2014-2017 Poster presented at North American Cannabis Summit, January 2019, Los Angeles, CA.

Cannabis Use among Older Adults in the US
Susan Stoner, PhD

Project 3: Analysis of 2016 Behavioral Risk Factor Surveillance System (BRFSS) data examining correlates of marijuana use in the past 30 days among older adults in Washington State and nationally.

Publication: Stoner SA, Carlini BH & Donovan D. Correlates of marijuana use by older adults in the context of legalization. Cannabis (2019, under review).

Project 4: Correlates of marijuana use among older adults from the National Survey on Drug Use and Health (NSDUH), 2012-2016.

Presentation: Stoner, S. A. *Cognitive and behavioral risk correlates of marijuana use by older adults*. Poster presented at 2nd Annual Meeting of the Research Society on Marijuana, Fort Collins, CO. Abstract in Cannabis 2018; 2(1), 89-90.

Improving Measurement of THC Sales and Consumption
Jason Williams, PhD, Caleb Banta-Green, PhD, MPH

Project 5: Estimating THC from marijuana sales data in King County: An analysis from sales records and suggestions for improvement.

Presentation: Williams J. Alcohol & Drug Abuse Institute: Estimating Cannabinoids Sold from Messy Marijuana Sales Data. Presented at North American Cannabis Summit, January 2019, Los Angeles, CA.

SCIENCE-BASED EDUCATION AND DISSEMINATION

Learn About Marijuana

Science-based information for the public



I-502 directed \$20,000 annually to ADAI for the "creation, maintenance, and dissemination of science-based public education materials," resulting in the website LearnAboutMarijuanaWA.org.

There, ADAI publishes Research Briefs and Factsheets on dozens of marijuana topics; special pages for parents, teens, adult consumers, Spanish-speakers, and people seeking help for problem use.

In the 2017-2019 Biennium, the website received 1,180,459 page views. It is widely viewed as an authoritative source for information about marijuana, with more than 700 organizations in Washington and other states linking to it.

Research Briefs and Fact Sheets

In the 2017-2019 biennium, ADAI Research Scientists developed 13 research summaries and factsheets on topics that are frequently requested by providers, community groups, students, and professionals. These resources are available on the LearnAboutMarijuanaWA.org website and also distributed by the ADAI Clearinghouse at provider conferences and community events across Washington State. These reports were developed with support from the Dedicated Marijuana Fund and Washington State Division of Behavioral Health and Recovery.

Cannabis potency.

<http://learnaboutmarijuanawa.org/factsheets/potency.htm>

Medicinal cannabis as substitute for opioid use to control chronic pain.

<https://adai.uw.edu/pubs/pdf/2018cannabissubstituteforopioids.pdf>

People at risk for problems with marijuana.

<http://learnaboutmarijuanawa.org/factsheets/atrisk.htm>

Marijuana and prescribed medications.

<http://learnaboutmarijuanawa.org/factsheets/prescribedmeds.htm>

Medical cannabis and opioid-related deaths: what is the evidence?

<https://adai.uw.edu/pubs/pdf/2018medicalcannabisopioiddeaths.pdf>

Marijuana and risky sexual behavior among youth and young adults.

<http://adai.uw.edu/pubs/pdf/2018MarijuanaRSB.pdf>

Second hand exposure to marijuana smoking.

<http://learnaboutmarijuanawa.org/factsheets/secondhand.htm>

Marijuana use and alcohol consumption.

<http://learnaboutmarijuanawa.org/factsheets/alcohol.htm>



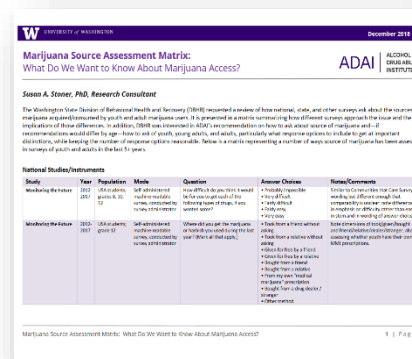
Marijuana and racial disparities in criminal justice.
<https://adai.uw.edu/pubs/pdf/2018racialdisparitiescrimjustice.pdf>

Latino youth and cannabis.
<http://learnaboutmarijuanawa.org/factsheets/latinoyouth.htm>

Marijuana source assessment matrix: what do we know about marijuana access?
<https://adai.uw.edu/pubs/pdf/2018MarijuanaSourceQuestions.pdf>

Estimating cannabinoid mass sold from noisy cannabis sales data.
<https://adai.uw.edu/pubs/pdf/2018estimatingcannabinoidmasssold.pdf>

Intellectual disability and marijuana use.
<http://learnaboutmarijuanawa.org/factsheets/intellectualdisability.htm>



The screenshot shows the title page and the beginning of the 'National Studies/Instruments' table. The title is 'Marijuana Source Assessment Matrix: What Do We Want to Know About Marijuana Access?' by ADAI. The author is Susan A. Stoner, PhD, Research Consultant. The text explains that the Washington State Division of Behavioral Health and Recovery (DBHR) requested a review of how national, state, and other surveys ask about the sources of marijuana acquired/used by youth and adult marijuana users. It is presented as a matrix summarizing how different surveys approach the issue and the implications of those differences. In addition, DBHR was interested in ADAI's recommendations on how to ask about source of marijuana and if recommendations would differ by age, choice to ask of youth, young adults, and adults, particularly what response options to include to get at important distributions, while keeping the number of response options reasonable. Below is a matrix representing a number of ways source of marijuana has been assessed in surveys of youth and adults in the last 15 years.

Study	Year	Population	Mode	Question	Answer Choices	Notes/Comments
Washington Recovery	2017	DBHR clients, youth, 18-24	Self-administered online survey, conducted by DBHR	How often do you use marijuana? (0 = never, 1 = once a month or less, 2 = 2-3 times a month, 3 = 4-5 times a month, 4 = 6-7 times a month, 5 = 8 or more times a month)	• Multiple response • No 'other' choice • No 'not sure' choice	DBHR is currently in the process of reviewing the survey and will be implementing changes to better assess the use of marijuana in the future.
National Survey on Drug Use and Health	2015	U.S. adults, 18+	Self-administered online survey, conducted by NSDUH	Where did you get the marijuana you used to get high the last time? (0 = Not at all, 1 = From a friend, 2 = From a family member, 3 = From a dealer, 4 = From a grower, 5 = From a medical marijuana dispensary, 6 = From a medical marijuana doctor, 7 = Other)	• Multiple response • No 'other' choice • No 'not sure' choice	DBHR is currently in the process of reviewing the survey and will be implementing changes to better assess the use of marijuana in the future.

Social Media



From the Twitter account [@MarijuanaUW](https://twitter.com/MarijuanaUW), ADAI tweets about publications and news about marijuana science to its nearly 650 followers, with a special focus on activities and news in Washington State.

Workforce Training

In the previous biennium ADAI created online trainings about marijuana for medical providers and for the staff of the Washington Recovery Help Line. In 2018, we revised the 5-module training to reach a broader audience of people in the helping professions and the general public. These short, interactive modules answer frequently asked questions on topics related to marijuana.

Learn About Marijuana E-Learning Modules.

Developed by Beatriz Carlini, PhD, MPH; Sharon Garrett, MA, MPH; and Meg Brunner, MLIS. <http://www.learnaboutmarijuanawa.org/elearning.htm>



COLLABORATION AND OUTREACH

3rd Symposium on Marijuana Research in WA State: Partnership with WSU



This UW-WSU event was held in May 2018 on the UW Seattle Campus, with approximately 200 attendees. Its intent was to share with policy makers, legislators, and community partners the research being conducted by the two universities. Washington State Attorney General Bob Ferguson provided the keynote address.

Video of the complete program is available at:
<http://adai.uw.edu/mjsymposium>

Research Society on Marijuana Annual Meetings

Five UW researchers were awarded a stipend to speak and present posters at two annual meetings of the Research Society on Marijuana.

2018, Fort Collins, CO, July 28-30

Stoner, S. A. *Cognitive and behavioral risk correlates of marijuana use by older adults*. Poster, 2nd Annual Meeting of the Research Society on Marijuana, Fort Collins, CO. Abstract in Cannabis 2018; 2(1), 89-90.



2019, Vancouver, WA, July 26-28

Symposium: Customers, Retails Staff and “Stoners”: Young Adults’ New Roles and Identities in a Legal Marijuana State.

Chair: Beatriz Carlini

Discussant: Susan Stoner

- Marijuana Customers: Product Preferences amongst Different Types of Young Adult Consumers. *Devon A. Abdallah*
- Cannabis Retails Workers: Exploring the Potential of Budtenders and Harm Reduction Agents. *Beatriz Carlini*
- Marijuana Identities: Developing and Examining Implicit Association Tests That Measure Associations Between Marijuana and The Self Among WA State Young Adults. *Jason Ramirez*

2019 North American Cannabis Summit

Nine UW researchers and graduate students were awarded scholarships to present workshops and posters at the 2019 [North American Cannabis Summit](#) in Los Angeles, California, January 28-30, 2019.



Meg Brunner, ADAI: *Helpline Staff Knowledge of Marijuana: Evaluation & Training*

Michele Cadigan, Sociology: *Defining Safe Cannabis Consumption within the Retail Space*

Michele Cadigan, Sociology: *Access to Economic Opportunities: Lessons from Washington State*

Bia Carlini, ADAI: *Content Analysis of Marijuana Advertisement in Print Media*

Caislin Firth, Epidemiology: *Juvenile Marijuana Arrests in the Era of Adult Legalization*

Sharon Garrett, ADAI: *Marijuana Advertisement Violations in WA State: 2014-2017*

Katarina Guttmanova, Psychiatry & Behavioral Sciences: *Substance Use among Youth in Washington State*

Susan Stoner, ADAI: *Increasing Marijuana Use by Older Adults: Causes for Concern*

Denise Walker, Social Work: *Interventions for Adolescent Cannabis Misuse*

Jason Williams, ADAI: *Estimating Cannabinoids Sold from Messy Marijuana Sales Data*

UW Center for Cannabis Research



The UW Center for Cannabis Research (CCR) was created in 2017, representing the Schools of Medicine, Social Work, Public Health, Law, the Alcohol and Drug Abuse Institute, and the College of Arts and Sciences, reflecting the strong interest in cannabis research across the university.

ADAI Senior Scientist Bia Carlini has been a member of the CCR Board since its inception; ADAI Director Susan Ferguson joined the CCR Board in July 2019. ADAI helped to plan and support the first CCR research retreat, where cannabis researchers from both UW and WSU, and the private sector met to engage in strategic discussions to identify research priorities. <http://bit.ly/CCRretreat2018>

Outreach to Government and Community Organizations

ADAI staff continue to work with local and national organizations around issues related to marijuana. Examples of this consultation and partnership include:

Collaborations and Consultation with State and County Agencies

Health Care Authority, Washington State Division of Behavioral Health and Recovery (DBHR)
Youth Marijuana Prevention & Education Program, King County
Washington State Liquor and Cannabis Board
Washington State Institute for Public Policy report on I-502

Presentations to Community Organizations

WA Cannabis Summit. "Cannabis Advertising", presented by Beatriz Carlini. Cannabis Alliance. SeaTac, January 2019.
Associates in Behavioral Health. "Marijuana and Anxiety," presented by Susan Stoner. Seattle, WA, April 2019
Olympic Area Agency on Aging. "Older Adults and Marijuana Use," by Susan Stoner to, Shelton, WA, November 2018 and Sequim, WA, May 2018

International Outreach

ADAI hosted meetings with representatives from the New Zealand Drug Foundation and Quebec Public Health discuss and advise about Washington's experience with legalization and marijuana potency.



LOOKING FORWARD

As the recipient of I-502 funds for the 2019-2021 Biennium, ADAI will continue to promote research through the Marijuana Dedicated Funds Small Grants Program and intramural projects, emphasizing collaboration with state and national organizations.

Research dissemination and training will continue and expand through ADAI's [Learn About Marijuana](#) website, the ADAI Clearinghouse, and training events.



UNIVERSITY *of* WASHINGTON

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This report was created on September 18, 2019.
Designed by ADAI Staff | Erinn McGraw