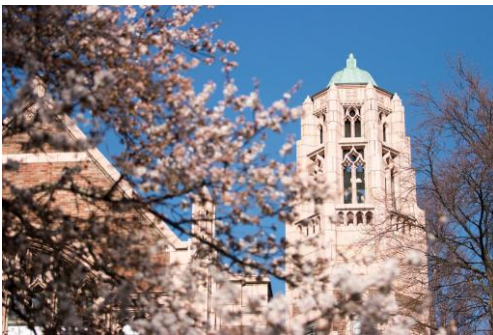


Biennial

MARIJUANA RESEARCH REPORT

2015-2017

University of Washington Alcohol & Drug Abuse Institute

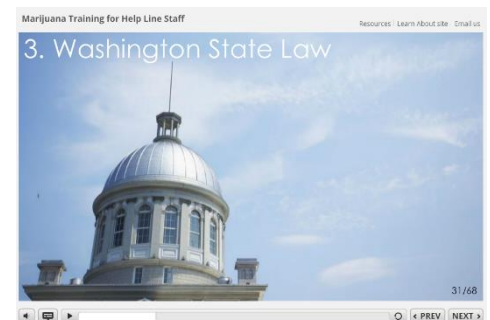


The Alcohol & Drug Abuse Institute (ADAI), a multidisciplinary research center at the University of Washington's Health Sciences Administration, has been the recipient of the **Washington State Dedicated Marijuana Fund for research at the University of Washington** (Dedicated Marijuana Fund) since July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

This report presents the activities and products developed by ADAI with support from the Dedicated Marijuana Fund during the 2015-2017 Biennium.

IN THIS REPORT

- Page 2 **Message from the Director**
Dr. Dennis Donovan outlines priorities for the ADAI Marijuana Dedicated Fund, in alignment with the spirit of the Initiative 502 and state legislative intent.
- Page 3 **Research Funding**
ADAI's Marijuana Small Grant Program supported UW departments to conduct studies on the long and short term effect of marijuana use. Intramural projects analyzed state and national data on marijuana use among vulnerable populations.
- Page 5 **Workforce Training**
Online trainings supported the dissemination of scientific information to health and social service providers in Washington.
- Page 6 **Informing the Public**
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 7 **Collaboration and Outreach**
Collaboration with various state, county and non-government agencies brought education, research and community outreach opportunities.



ADAI Cannabis Workgroup

MESSAGE FROM THE DIRECTOR

Passage of Initiative 502 (I-502), which legalized the sale of recreational marijuana to adults in Washington State, also called for funds to support prevention, treatment, public health, and public education related to marijuana use and misuse in Washington. The original legislation following the implementation of I-502 also specified that a percentage of excise taxes on the growth, processing, and sale of recreational marijuana be provided to the University of Washington and Washington State University “for research on the short and long-term effects of marijuana use, to include but not be limited to formal and informal methods for estimating and measuring intoxication and impairment, and for the dissemination of such research.”



This report details how ADAI applied the \$454,000 received from the Dedicated Marijuana Fund in 2015-2017 for research on the short and long-term effects of marijuana use and for the dissemination of such research.

The University of Washington Alcohol and Drug Abuse Institute (ADAI) was also specifically included in the original I-502 legislation: Funds were earmarked for ADAI “for the creation, maintenance, and timely updating of web-based public education materials providing medically and scientifically accurate information about the health and safety risks posed by marijuana use” and the legislation specified that “In deciding which programs and practices to fund, the Secretary of the Department of Social and Health Services shall consult, at least annually, with the University of Washington’s Social Development Research Group and the University of Washington’s Alcohol and Drug Abuse Institute.”

Consistent with ADAI’s mission and with the original intent of the I-502 legislation, ADAI chose to utilize the Dedicated Marijuana Funds to support a number of related and synergistic activities:

- Develop and manage a peer-reviewed marijuana small grants program for University investigators, with primary emphasis on the legislatively suggested topics of short and long term consequences of marijuana use and misuse, prevention, treatment, and public health.
- Establish ADAI’s Cannabis Workgroup to conduct and publish intramural research, conduct scientific literature reviews, develop research-based fact sheets and policy briefs, and develop collaborative research opportunities with researchers at the University of Washington, Washington State University, state agencies, and other research groups.
- Maintain its dissemination efforts through its marijuana-related website (<http://learnaboutmarijuanawa.org>), workforce training, marijuana-related symposia; public and professional presentations; and distribution of marijuana-related materials and resources at statewide substance-related conferences and through the ADAI Clearinghouse.

The present report provides information about the activities in each of these three general areas that ADAI has facilitated, supported, and conducted during the 2015-2017 Biennium. As will be seen, a considerable amount of significant work has been accomplished during the biennium despite the fact that the level of funding was substantially less than the originally specified six-tenths of one percent of the taxes derived from recreational marijuana sales and the budget proviso that requires that funds be spent within a fiscal year without the possibility of being carried forward.

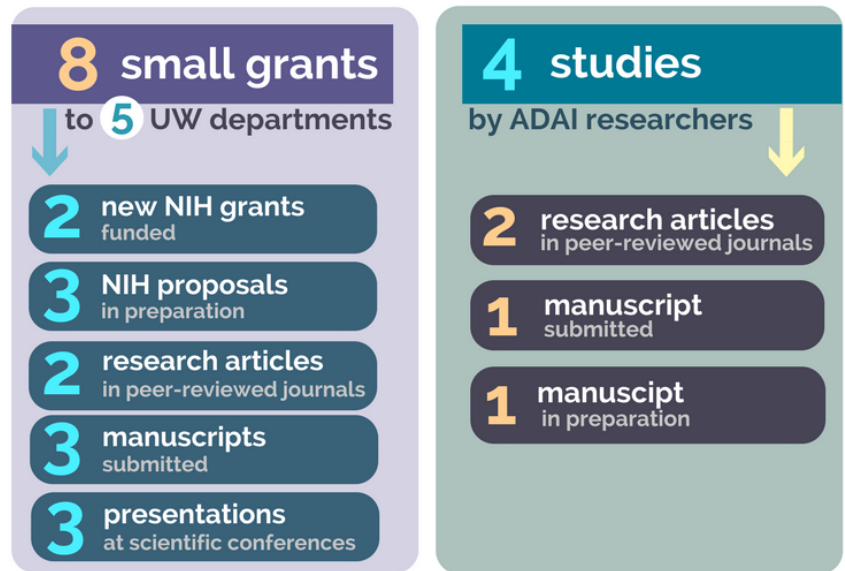
A handwritten signature in black ink, reading "Dennis M. Donovan".

Dennis M. Donovan, PhD
Director, Alcohol & Drug Abuse Institute

The ADAI Marijuana Dedicated Fund supported knowledge advancement through both extramural and intramural projects.

In the 2015-2017 biennium, ADAI awarded 8 UW investigators with funds of up to \$30,000 each. Projects included studies on the impact of legalization among adolescents, the use of cannabis to treat post-traumatic stress disorder (PTSD) among war veterans in Washington State, and the role of social media on adolescent marijuana use, among others.

Four ADAI intramural research projects produced novel insights through secondary data analysis. The focus of these projects was on marijuana use and the impact of marijuana legalization among at-risk and vulnerable populations.



Results from these research projects will be updated as they continue to develop.

UW Extramural Research Projects

A Request for Proposals (RFP) for marijuana research solicited projects across multiple disciplines for studies on the “short and long-term effects of marijuana use and related consequences.” The RFP was framed by I-502 and legislative language, including the impact of marijuana use and legalization on public health in Washington State, community norms, and individual and group behaviors.

Characterizing Cannabis Use in Veterans with Posttraumatic Stress Disorder
Kendall Browne, PhD, et al, Psychiatry & Behavioral Sciences

Steps Toward a Nation-wide Examination of the Effect of Marijuana-related Legislation on Adolescent Substance Use and Related Risk Factors
Katarina Guttmanova, PhD, and Charles Fleming, MA, School of Social Work

Development of a Novel and Translational Model of Binge Ethanol and Tetrahydrocannabinol Intake in Adolescent Rats
Lauren Kruse, PhD, and Jeremy Clark, PhD, Psychiatry & Behavioral Sciences

Marijuana Use and Disorders from Adolescence into Young Adulthood: Examining Descriptive Epidemiology and Mental Health Risk Factors in a Community-based Prospective Cohort
Isaac Rhew, PhD, and Ann Vander Stoep, PhD, Psychiatry & Behavioral Sciences

Linking Sight and Smell: fMRI Correlates of Marijuana Craving in Adults
Natalia Kleinhans, PhD, Radiology

Consumers' Perspectives on the Function of Marijuana in Their Lives
Robin M. Harwick, PhD, and Tatiana Masters, Alcohol & Drug Abuse Institute

Assessing Marijuana Promotions on Social Media: Theory, Health Information and Youth Targeting
Megan A. Moreno, MD, MEd, MPH, Pediatrics

An Investigation of Craving and Cannabis Misuse among Young Adults Using Multiple Levels of Analysis
Matthew C. Enkema, Psychology and Mary E. Larimer, PhD, Psychiatry & Behavioral Sciences

Find detailed descriptions and updates at:

http://bit.ly/SmallGrants_DMf

ADAI Intramural Research Projects

This low-cost and expedient internal funding mechanism resulted in meaningful small projects that generated academic publications presenting new data on marijuana use among people receiving HIV care and among mothers in WA State who are at high risk for substance use.

Marijuana Use among High-Risk Mothers in Washington State

Therese M. Grant, PhD, Fetal Alcohol & Drug Unit

Medical Cannabis in HIV-positive Substance Users

Howard Newville, PhD, Center for AIDS Research

Multi-State Examination of Cannabis Use Disorder Rates in HIV Care

Bryan Hartzler, PhD

Comparative Examination of Cannabis Use Disorder as a Risk Factor in HIV Care

Bryan Hartzler, PhD

Find detailed descriptions and updates at:

<http://bit.ly/ADAIResearchDMF>

ADAI Cannabis Workgroup

Beatriz Carlini (Bia), PhD, MPH

Meg Brunner, MLIS

Dennis Donovan, PhD

Sharon Garrett, MPH

Bryan Hartzler, PhD

Susan Stoner, PhD

Nancy Sutherland, MLS

Jason Williams, PhD

Dr. Carlini coordinates the ADAI Cannabis Workgroup, which conducts intramural projects on the long and short term consequences of cannabis use and the public health impact of legalization.



Influencing Policy: Letters & Commentary by ADAI Researchers

ADAI scientists published their views on marijuana legalization in Washington State through editorials, view points and commentaries:

- Carlini BH, Garrett SB, Harwick RM. Beyond joints and brownies: Marijuana concentrates in the legal landscape of Washington State. *International Journal of Drug Policy* 2017 Apr;42:26-29.
- Roll JM, Donovan DM. Guest Editorial: Washington Should Keep Supporting the Vision of I-502 by Allotting Research Funds to WSU and UW. *The Stranger*, June 27, 2017.
- Williams J, Banta-Green C, & Burgard D (2017). Commentary on Smart et al (2017): The need for better marijuana sales data. *Addiction*, 112(12), 2179–2180. <http://doi.org/10.1111/add.14037>.
- Carlini BH. Commentaries on Smart et al. (2017) Potency Increase, product development and marijuana marketing in times of legalization. *Addiction*, 112, 2178-2181.

Legalization brought new challenges to health and social service providers who work with marijuana users. To help train the provider workforce, ADAI produced two science-based online trainings using principles of instructional design and adult learning.

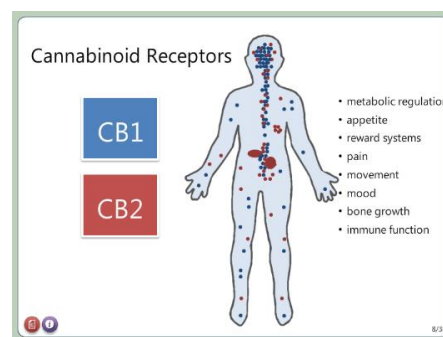
Content was developed following a thorough review of available educational resources for health care providers, and formal and informal assessments of target audiences.*

Medicinal Cannabis and Chronic Pain

Developed for health professionals, this 2-module online training presents current information and clinical practice guidelines on the use of medicinal cannabis for the treatment of chronic pain.

Continuing Medical Education/Continuing Professional Education credits (CME/CPE) are available for physicians, nurses, osteopaths, pharmacists, and physician assistants. The first module is a basic primer on the mechanism of action of medicinal cannabis, its medical uses, and Washington State law. The second module focuses on the best clinical practices associated with the recommendation of medicinal cannabis. This training also provides tools that may be useful to health care providers in their discussion with patients about the use of medicinal cannabis in the treatment of chronic pain.

Originally developed in 2014 through a Cy Pres grant from the WA Attorney General Office, this online training was updated and Continuing Medical Education credits renewed in 2017, using ADAI Marijuana Dedicated Funds. <http://adai.uw.edu/mcacp/>



Cannabis and the Washington State Recovery Help Line

This training was designed for helpline staff and volunteers in Washington to be better equipped to answer caller questions about marijuana use within a legal market. It aims to increase knowledge about state laws, marijuana products, mechanisms of action, and to suggest resources that helpline staff may not yet have in their tool box.

The content of this training was based on an ADAI-funded [assessment of helplines' staff](#) in four states which found that helpline staff and volunteers are empathetic and non-judgmental, but often unable to answer specific questions about marijuana use, or to find resources in the community that would address the needs of people who wanted help with their marijuana use.

The online format allows for ongoing, on the spot training – an important feature given the quarterly change of Helpline volunteers.

<http://adai.uw.edu/helpline>



Meg Brunner, Bia Carlini, Robyn Smith, Sharon Garrett

* Publications:

1. Carlini BH, Garrett SB, Carter GT. Medicinal Cannabis: A Survey among Health Care Providers in Washington State. *American Journal of Hospice and Palliative Care*. 2017 Feb;34(1):85-91.
2. Carlini BH, Garrett SB. Drug helplines and adult marijuana users: an assessment in Washington, Colorado, Oregon, and Alaska. *Substance Abuse*. 2017 Jul 17:1-3. [Epub ahead of print] 2017

INFORMING THE PUBLIC: SCIENCE-BASED EDUCATION AND DISSEMINATION

Learn About Marijuana

Science-based information for the public



I-502 directed \$20,000 annually to the Alcohol & Drug Abuse Institute for the “creation, maintenance, and dissemination of science-based public education materials,” resulting in the website LearnAboutMarijuanaWA.org.

On the website, ADAI publishes Research Briefs, Factsheets, and Resource pages on dozens of marijuana topics; special resource pages are available for parents, teens, adult consumers, Spanish-speakers, and people seeking help for problem use. In June 2016, the site was enhanced to work on mobile devices.

In the 2015-2017 Biennium, the website received 1,665,992 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 2015-2017 biennium, ADAI Research Scientists developed 11 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.

Treatment Approaches for Adolescents with Cannabis Use Disorders

<http://adai.uw.edu/pubs/pdf/2016youthsubstusebrief.pdf>

Screening and Assessment of Cannabis Use Disorders

<http://adai.uw.edu/pubs/pdf/2016marijuanascreenassess.pdf>

Marijuana Use by Older Adults

<http://LearnAboutMarijuanaWA.org/factsheets/olderadults.htm>

Marijuana Use Surveys: Different Methodologies Produce Different Estimates

<http://adai.uw.edu/pubs/pdf/2016marijuanasurveymatrix.pdf>

Marijuana Use: Marijuana Impact in WA State

<http://LearnAboutMarijuanaWA.org/factsheets/impactWA.htm>

Marijuana Trends in WA State: Interactive Data

<https://adai.washington.edu/WAdata/marijuana.htm>

Marijuana Impaired Driving: Toxicological Testing in Washington State

http://adai.uw.edu/pubs/pdf/2016marijuanadriving_testing.pdf

Marijuana Law and Policy – 2017 Update

<http://learnaboutmarijuanawa.org/policy.htm>

Marijuana and Sexual Assault

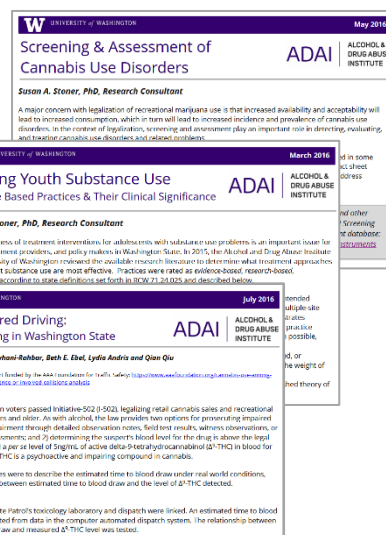
http://adai.uw.edu/pubs/pdf/2017mj_sexualassault.pdf

Tobacco and Marijuana

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

Vaping Marijuana

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



Symposium on Legal Marijuana in Washington State



ADAl's second day-long marijuana symposium in May 2016 featured researchers from the University of Washington, and speakers from the community, with interactive discussion and Q&A sessions. Presentations explored new and persistent questions within the changing landscape of legal marijuana, e.g. new policies, challenges, and opportunities; marijuana and public health; and prevention, brief intervention, and treatment. Nearly 200 researchers, policy makers and staff, treatment providers, and other stakeholders participated.

Video of presentations available to the public:
<http://adai.uw.edu/mjsymposium/>

ADAl Clearinghouse

Supported by ADAl and the Northwest High Intensity Drug Trafficking Area (HIDTA), ADAl Clearinghouse is a resource center serving the residents of Washington State. It provides free materials from federal, state, and community agencies, as well as materials produced by ADAl and its partners, e.g. state agencies such as the Department of Health, and the Liquor and Cannabis Board.

During the 2015-2017 Biennium, 4,500 educational materials were printed using Marijuana Dedicated Funds, contributing to 62,000 marijuana-focused resources (brochures, posters, fact sheets), distributed at 14 community and professional events across Washington. <http://adaiclearinghouse.org>



COLLABORATION AND OUTREACH

ADAl's work on marijuana involves collaboration with state and national organizations through education, research and community outreach. The products and activities from these partnerships were partially supported by the Dedicated Marijuana Fund and/or funded through other funds and disseminated through channels supported by the Fund. Highlights of these collaborations in the biennium 2015-2017 were:



ADAl and WA Division of Behavioral Health and Recovery (DBHR, Washington Department of Social & Health Services)

Under a contract with DBHR, the ADAl Cannabis Workgroup reviewed and synthesized the literature on the *Effects of Marijuana Use on Mental Health*. The result of this partnership is available to clinicians and researchers online:



Marijuana and ADHD
<http://adai.uw.edu/pubs/pdf/2017mjadhd.pdf>
Marijuana and Anxiety Disorders
<http://adai.uw.edu/pubs/pdf/2017mjanxiety.pdf>
Marijuana and Bipolar Disorders
<http://adai.uw.edu/pubs/pdf/2017mjbipolar.pdf>

Marijuana and Depression
<http://adai.uw.edu/pubs/pdf/2017mjdepression.pdf>
Marijuana and Psychotic Disorders
<http://adai.uw.edu/pubs/pdf/2017mjpsychosis.pdf>
Marijuana and PTSD
<http://adai.uw.edu/pubs/pdf/2017mjptsd.pdf>

International Collaboration

International collaboration was largely sponsored by the countries involved. ADAI's role was to share UW expertise, and maximize networking and learning opportunities in Washington state and respective countries.



Canada: Canadian Centre on Substance Abuse. ADAI hosted a multi-disciplinary delegation from Canada interested in learning from experts in Washington about our experience with 1-502. August 2015. <http://www.ccsa.ca/Resource%20Library/CCSA-Cannabis-Regulation-Lessons-Learned-Report-2015-en.pdf>



France: Cannalex Project (France). ADAI organized a visit and hosted representatives from the French Monitoring Centre for Drugs & Drug Addiction to discuss marijuana research in Washington, for their comparative analysis of marijuana public policy models. April 2016. <https://en.ofdt.fr/international-projects/>



Australia: Wayne Hall, Professor, Director Centre for Youth Substance Abuse Research. The University of Queensland, Australia. ADAI hosted and organized Dr. Hall's visit to Washington to learn more about marijuana legalization implementation and outcomes. Dr. Hall delivered talks and was available for consultation and collaboration in projects. June 2016.



Brazil: ADAI partnered with the Federal University of São Paulo in translating the online training on Medicinal Cannabis and Chronic Pain to Portuguese. Dr. Carlini was an invited keynote speaker at the 5th International Marijuana Symposium in São Paulo, May 22 2017. <http://www.cebrid.com.br/v-simposio-internacional-maconha-outros-saberes/>

Presentations and Attendance at Events

Scientific Meetings

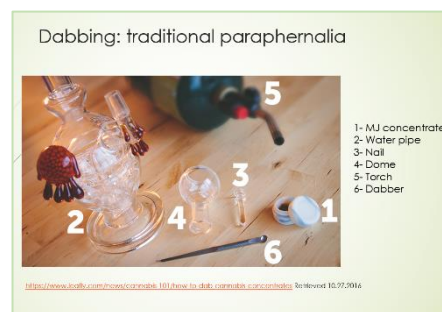
- Marijuana and Cannabinoids: A Neuroscience Research Summit. Dr. Carlini presented. Hosted by the National Institutes of Health, March 2016. <http://apps1.seiservices.com/nih/mj/2016/>
- Cannabis Science & Policy Summit. Dr. Carlini attended. Hosted by BOTEC Analysis in New York, April 2016. <http://cannabis-summit.org/>
- 2016 Addiction Health Services Research Conference. Dr. Carlini presented. June 2016. Seattle, WA.
- 2017 Institute of Cannabis Research Conference. Dr. Harwick presented. Colorado State University-Pueblo, April 2017.
- Cannabis Research Workshop at Washington State University. Drs. Donovan and Carlini attended. Spokane, WA, April 2017.

Legislative Committees

- Washington State House of Representatives Commerce and Gaming Committee's Cannabis Work Session on "Marijuana Research at the University of Washington". Dr. Donovan presented. Olympia, WA, June 13, 2016.

Community Organization Events

- "Beyond Brownies and Joints: Product development in times of legalization," a webinar delivered by Dr. Carlini to the College Coalition for Substance Abuse Prevention (CCSAP), November 18th, 2016.
- Northeast Seattle Together (NEST) on Cannabis and Care. Dr. Carlini presented, December 2016. <http://nestseattle.org/event/december-nestcafe-cannabis-and-care/>
- 2017 National Cannabis Summit. Ms. Sutherland served on the planning committee.
- "Seniors and Marijuana," a presentation made by Dr. Stoner for the staff and clients of Sno-Valley Senior Center, April 2017.



From "Beyond Brownies and Joints" by Dr. Carlini

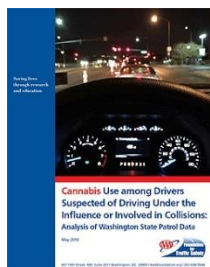
Research Projects Funded by External Organizations

Dr. Hartzler is co-investigator with Dr. Walker (School of Social Work, UW) on a National Institute on Drug Abuse-sponsored 5-year study “*A Hybrid Effectiveness-Implementation Trial of a School-Based Teen Marijuana Checkup*”. The study assesses how the Teen Marijuana Checkup (TMCU), an intervention with documented efficacy under controlled conditions, translates to real-world effectiveness in Washington State public schools for teens who voluntarily seek services for their marijuana use. The TMCU is a brief, school-based motivational enhancement therapy approach that has been systematically evaluated in three randomized controlled trials with reliable beneficial effects in prompting voluntary participation in the intervention and decreasing adolescent marijuana use.

https://projectreporter.nih.gov/project_info_details.cfm?aid=9003775&icde=30041612



Dr. Bryan Hartzler, PhD



Dr. Banta-Green collaborated with the Harborview Injury Prevention Research Center in an analysis of Washington State Patrol Data in a study funded by AAA Foundation on “Cannabis Use among Drivers Suspected of Driving Under the Influence or Involved in Collisions.”

<https://www.aaafoundation.org/cannabis-use-among-drivers-suspected-driving-under-influence-or-involved-collisions-analysis>

LOOKING FORWARD



As the recipient of I-502 funds for the 2017-2019 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.

MARIJUANA RESEARCH REPORT

2015-2017



UNIVERSITY *of* WASHINGTON

ADAI

ALCOHOL &
DRUG ABUSE
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This report was created on October 10, 2017.
Designed by ADAI Staff (Erinn McGraw)