Research News

Treating PTSD with MDMA-Assisted Psychotherapy

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Researchers for MAPS-sponsored MDMA-assisted psychotherapy for PTSD studies gathered in a pre-conference meeting ahead of Psychedelic Science 2017 for an Investigators Meeting to prepare for the launch of Phase 3 studies.

Phase 3 Trials: FDA and MAPS Discuss Protocol for Phase 3 Trials of MDMA-Assisted Psychotherapy for PTSD

On June 13, 2017, as part of U.S. Food and Drug Administration's (FDA) Special Protocol Assessment process, MAPS submitted a revised Phase 3 protocol evaluating MDMA-assisted psychotherapy for posttraumatic stress disorder (PTSD). The protocol was revised based on discussions between MAPS and FDA during our May 11 Type A meeting and on FDA's official meeting minutes we received on May 30. Based on our discussions during the May 11 Type A meeting and subsequent submission on June 13, FDA sent us an Agreement Letter on July 28, 2017. We expect to initiate our first Phase 3 clinical trial in the coming months, which will last 2–3 years and enroll at least 230 participants.

On November 29, 2016, the FDA hosted staff and researchers from MAPS and the MAPS Public Benefit Corporation (MPBC) for a formal End of Phase 2 Meeting to discuss clinical trials of MDMA-assisted psychotherapy for PTSD. During the 90-minute meeting at the FDA's White Oak Campus in Silver Spring, Maryland, the FDA stated they are now ready for MAPS to move forward with Phase 3 clinical trials of MDMA-assisted psychotherapy for PTSD.

On November 30, *The New York Times* published a feature article announcing the outcome of our End of Phase 2 meeting with the FDA. Trial participants Ed Thompson and CJ Hardin spoke with the *NYTimes* about how MDMA-assisted psychotherapy helped them overcome treatment-resistant PTSD. "It changed my life," explains Ed. "It allowed me to see my trauma without fear or hesitation and finally process things and move forward." CJ speaks about the results from his treatment, stating, "The MDMA sessions showed me a light I could move toward. Now I'm out of the darkness and the world is all around me."

There are no roadblocks to moving forward with Phase 3 as the FDA gave favorable feedback to MAPS and MPBC responses to FDA questions. MAPS and MPBC staff are optimistic and excited to reach this milestone toward bringing healing to those diagnosed with PTSD through MDMA-assisted psychotherapy. Donations are currently being sought to reach MAPS' goal of raising $25 million, with $12.5 million already raised, to successfully execute the Phase 3 studies required to gain approval from FDA for MDMA-assisted psychotherapy by 2021. There is now a clear path ahead to make MDMA a legal medicine for millions of people suffering from PTSD.

PTSD Study in Boulder Officially Completed

Study completed
Location: Boulder, Colorado
Principal Investigator: Marcela Ot'alora, M.A., L.P.C.
Estimated study budget: $895,000
This study has been fully funded.

On February 24, 2017, investigators gathered for the formal closeout of our Phase 2 study of MDMA-assisted psychotherapy in 23 subjects with chronic PTSD in Boulder, Colorado, led by Principal Investigator Marcela Ot'alora, M.A., L.P.C. The closeout was conducted by Senior Clinical Research Associate Charlotte Harrison, and included a thorough review of the study's documentation, database, files, and adherence to regulations. All treatment sessions and long-term follow-up interviews for this study have now been completed. The final results are being prepared for publication, which is expected in 2017.

Twenty-three subjects will be included in our per protocol analysis, while all 28 subjects, including five who dropped out or were excluded for not meeting study criteria, will be included in our intent-to-treat analysis.

In addition to obtaining Phase 2 data on the safety and effectiveness of MDMA-assisted psychotherapy for PTSD, this study compared outcomes between different combinations of male/female co-therapist teams and dose response.

Goals for this study include (1) gathering evidence for the safety and effectiveness of MDMA-assisted psychotherapy for subjects with PTSD from a variety of causes, (2) comparing different doses of MDMA for therapeutic effectiveness and ability to create a successful double-blind, (3) exploring whether using intern co-therapists can reduce costs while maintaining treatment effectiveness, and (4) training the next generation of psychedelic psychotherapists.

Israeli PTSD Study Officially Completed

Study completed
Location: Beer Yaakov, Israel
Clinical Investigator: Moshe Kotler, M.D.
Estimated study budget: $509,000
This study has been fully funded.

On July 16, 2017, the 10th and final participant completed their 12-month follow-up interviews in our Israeli Phase 2 study of MDMA-assisted psychotherapy for PTSD. On February 2 and February 7, the eighth and ninth participants completed their 12-month follow-up interviews, and the seventh participant completed their 12-month follow-up interview on December 8, 2016. All treatment sessions and long-term follow-up interviews for this study have now been completed. Led by Principal Investigator Moshe Kotler, M.D., this Phase 2 study has treated 10 subjects with chronic, treatment-resistant PTSD from any cause. Data from this study will be included in an international meta-analysis of the safety and efficacy of MDMA-assisted psychotherapy for the treatment of PTSD.

Goals for this study include (1) gathering evidence for the safety and effectiveness of MDMA-assisted psychotherapy for subjects with PTSD mostly related to war and terrorism, (2) comparing different doses of MDMA for therapeutic effectiveness and ability to create a successful double-blind, (3) working in direct association with the Israeli Ministry of Health, and (4) exploring the use of MDMA-assisted psychotherapy in other cultural contexts.

Canadian PTSD Study Officially Completed

Study completed
Location: Vancouver, British Columbia, Canada
Principal Investigator: Ingrid Pacey, M.D.
Estimated study budget: $425,000
Already raised: $46,000 + $22,500 raised by partners
Needed to complete this study: $353,500

On November 27, 2016, investigators gathered for the formal closeout of our Phase 2 pilot study of MDMA-assisted psychotherapy for PTSD in Vancouver, Canada. Conducted by Clinical Data Scientist Alli Feduccia, Ph.D., the closeout included a thorough review of the study's documentation, database, files, and adherence to regulations. All treatment sessions and long-term follow-up interviews for this study have now been completed. Led by Principal Investigator Ingrid Pacey, M.D., this small pilot study gave Canadian therapists experience delivering MDMA-assisted psychotherapy for PTSD, with data collected from six participants. The final results are being prepared for publication as a part of a global meta-analysis of MDMA-assisted psychotherapy results.

Goals for this study include (1) gathering evidence for the safety and effectiveness of MDMA-assisted psychotherapy for subjects with PTSD from a highly skilled co-therapist team, (2) comparing different doses of MDMA for therapeutic effectiveness and ability to create a successful double-blind, and (3) initiating the first Canadian research into the potential benefits of psychedelic psychotherapy in over 40 years.

Therapist Training Study Enrolls 31st Participant

Ongoing study
Location: Charleston, South Carolina, and Boulder, Colorado
Principal Investigators: Michael Mithoefer, M.D. (Charleston), and Marcela Ot'alora, M.A., L.P.C. (Boulder)
Sub-Investigator: Annie Mithoefer, B.S.N. (Charleston),
Estimated study budget: $687,000
Already raised: $160,000
Needed to complete this study: $527,000

On July 12, 2017, the 31st of 100 participants enrolled in our ongoing Phase 1 study of the psychological effects of MDMA when used in a therapeutic setting by healthy volunteers. Enrollment in this study is limited by invitation only to therapists in training to work on MAPS-sponsored clinical trials of MDMA-assisted psychotherapy for PTSD. The new participants were enrolled at the Boulder, Colorado, study site led by Principal Investigator Marcela Ot'alora, M.A., L.P.C. Michael Mithoefer, M.D., is serving as Principal Investigator at the site in Charleston, South Carolina with Sub-Investigator Annie Mithoefer, B.S.N.

Conjoint Therapy for PTSD: Four Pairs of Participants Receive Treatment, Follow-Up Interviews Begin

Ongoing study
Location: Charleston, South Carolina
Principal Investigator: Michael Mithoefer, M.D.
Sub-Investigator: Candice Monson, Ph.D.
Estimated study budget: $325,000
Already raised: $165,000
Needed to complete this study: $160,000

On July 7, 2017, the fourth dyad received their first experimental treatment in our study of MDMA combined with Cognitive Behavioral Conjoint Therapy (CBCT) for PTSD at our Charleston, South Carolina site led by Principal Investigator, Michael Mithoefer, M.D., and Sub-Investigator, Candice Monson, Ph.D. The fourth dyad was enrolled on June 29. Three dyads have finished receiving experimental treatments, and will now move on to follow-up interviews. On March 11, the first pair

of participants completed their six-month follow-up interview.

The study will enroll dyads with one participant diagnosed with PTSD and one concerned significant other who does not have PTSD but does experience psychosocial distress. MDMA will be administered to both participants to help facilitate communication and connection between participants and therapists.

The primary goal of this study is to develop a combined method of MDMA with CBCT for PTSD. This is the first MAPS-sponsored MDMA study conducted with VA-affiliated researchers and the first to employ measures developed for the DSM-5. There are several important reasons to include significant others in PTSD treatment, in addition to the data supporting the efficacy of CBCT for PTSD.

Fear Extinction Learning with MDMA: FDA and DEA Clear Study to Proceed

Ongoing study
Location: Emory University in Atlanta, Georgia
Principal Investigator: Barbara Rothbaum, Ph.D.
Estimated study budget: $276,000
Funds already raised by Rothbaum/Emory.

On November 30, 2016, the FDA cleared the upcoming MAPS-sponsored Phase 1 study on the effect of MDMA on fear extinction learning in healthy volunteers. Principal Investigator Barbara Rothbaum, Ph.D., a leading PTSD researcher, will conduct the study at Emory University in Atlanta, Georgia. On January 3, 2017, the Institutional Review Board (IRB) at Emory University approved the first protocol amendment for the study. On June 5, the U.S. Drug Enforcement Administration (DEA) conducted a formal inspection of the study site at Emory University. The DEA has approved the study through their provision of a Schedule I research license for MDMA. The site initiation visit is taking place in August 2017. This study will be followed by another study exploring the combination of MDMA with Prolonged Exposure in PTSD patients.

MDMA Therapy Training Program: Group Trainings Take Place in New York and Colorado

Ongoing Training Program for FDA, EMA and Expanded Access
Location: Charleston, South Carolina and Boulder, Colorado
Therapy Training Team: Michael Mithoefer, M.D., Annie Mithoefer, B.S.N., and Marcela Ot'alora G., M.A., L.P.C.
Estimated study budget: $905,000
Already raised: $399,000
Needed to complete this study: $506,000

From March 18–23, 2017, 42 trainees from 7 U.S. states, 3 Canadian provinces, Israel, and the Netherlands participated in MAPS' MDMA Therapy Training Program (Part D) in Stony Point, New York. From April 1–7, another 42 Phase 3 therapists from the U.S., Canada, and Israel were trained at the YMCA of the Rockies, Estes Park, Colorado.

These were the first times MAPS offered a Part D training, which consists of five and a half days of experiential learning in non-directive therapy, working with a co-therapist, bodywork, art, and non-ordinary states of consciousness. One day at each training consisted of Holotropic Breathwork™. Trainees got to experience non-ordinary states induced by breathing, alternating with the experience of sitting for another person. As is the case with MAPS' Therapist Training Study, it is important for therapists to understand non-ordinary states of consciousness before treating subjects with MDMA-assisted psychotherapy. Holotropic Breathwork™ provides an accessible avenue for more trainees to gain this kind of hands-on training. Experiential work continued with role plays of situations that take place during MDMA-assisted psychotherapy sessions.

Michael Mithoefer, M.D., and Annie Mithoefer, B.S.N., shared case studies highlighting the non-directive approach as well as some of the unique challenges Phase 3 therapy teams might face, such as transference/countertransference and working with transpersonal experiences. Marcela Ot'alora G., M.A., L.P.C., led a dialogue on team development. MAPS Public Benefit Corporation (MPBC) Executive Director Amy Emerson and MPBC Clinical Data Scientist Alli Feduccia, Ph.D., joined the training staff to provide important information about screening, study design, and protocol. MPBC Training Program Coordinator Shannon Clare Carlin oriented trainees on the therapeutic use of music in psychedelic psychotherapy. MAPS Founder Rick Doblin, Ph.D., joined each group for the first several days of the training. Prior to these Part D trainings, 44 trainees gathered in Stony Point, New York, to participate in Part B of the MDMA Therapy Training Program from January 15–21.

The program is a prerequisite for anyone working on a therapy team in a MAPS-sponsored Phase 3 trial. The MAPS Therapist Training Program plans to train approximately 300 therapists before 2021, when we anticipate completing Phase 3 clinical trials investigating MDMA-assisted psychotherapy for chronic, treatment-resistant PTSD.

At this point, the training program is not accepting applications, however you can sign up to receive updates when future training opportunities become available. Learn more by visiting **maps.org/therapists**.

Forty-two Phase 3 therapists attended a seven-day training led by Michael Mithoefer, M.D., Annie Mithoefer, B.S.N., and Marcela Ot'alora, M.A., L.P.C., in Estes Park, Colorado, from April 1–7, 2017.

MDMA-Assisted Therapy for Social Anxiety in Autistic Adults

Social Anxiety Study Officially Completed

Study completed
Location: Los Angeles, California
Principal Investigators: Charles Grob, M.D., and Alicia Danforth, Ph.D.
Estimated study budget: $358,000
Already raised: $13,000 raised + $15,000 raised by partners
Needed to complete this study: $330,000

On July 10, 2017, investigators gathered for the formal closeout of our study of MDMA-assisted therapy for social anxiety in adults on the autism spectrum. On April 28, the 12th and final participant completed the final follow-up visit and unblinding in our ongoing study of MDMA-assisted therapy for social anxiety in adults on the autism spectrum. All treatment sessions and long-term follow-up interviews for this study have now been completed. Led by Principal Investigators Charles Grob, M.D., and Alicia Danforth, Ph.D., this is a collaborative study between MAPS and the Los Angeles Biomedical Research Institute at Harbor-UCLA Medical Center, with plasma biomarker collaboration with researchers at Stanford University.

Goals for this study include (1) gathering evidence for the safety and effectiveness of MDMA-assisted therapy for autistic adults diagnosed with social anxiety, (2) determining if additional studies in this area are warranted, and (3) initiating a new program of research into a possible beneficial use of MDMA building on collected case accounts.

MDMA-Assisted Psychotherapy for Anxiety Associated with Life-Threatening Illness

18th and Final Participant Completes Treatment in Marin Study

Ongoing study
Location: Marin, California
Principal Investigator: Phil Wolfson, M.D.
Co-Therapist: Julane Andries, L.M.F.T.
Estimated study budget: $700,000
Already raised: $253,000
Needed to complete this study: $447,000

On May 1, 2017, the 18th and final participant received their last experimental treatment in our ongoing Marin, Calif., study of MDMA-assisted psychotherapy for anxiety associated with life-threatening illness. As of July 17, seven participants have completed their 12-month follow-up interviews. Led by Principal Investigator Phil Wolfson, M.D., with Co-Therapist Julane Andries, L.M.F.T., this study is gathering preliminary data about the safety and efficacy of MDMA-assisted psychotherapy for anxiety associated with a diagnosis of a life-threatening illness.

Goals for this study include (1) gathering data on the safety and effectiveness of MDMA-assisted psychotherapy for subjects with anxiety associated with life-threatening illness; (2) determining if additional studies are warranted; and (3) initiating MDMA-assisted psychotherapy research for a new clinical indication.

Medical Marijuana Research

20th Participant Enrolls in Smoked Marijuana Trial for Chronic PTSD in Veterans

Ongoing study
Location: Phoenix, Arizona
Coordinating Principal Investigator: Marcel Bonn-Miller, Ph.D. (University of Pennsylvania)
Co-Investigators/Site Principal Investigator: Sue Sisley, M.D. (private practice)
Co-Investigator: Paula Riggs, M.D. (University of Colorado)
Estimated study budget: $2,156,000
Already raised: $2,156,000 grant awarded by the State of Colorado

As of July 10, 2017, a total of 20 of 76 participants have enrolled and received study drug in the first-ever clinical trial of smoked marijuana (cannabis) for PTSD in U.S. veterans, and participant screening is ongoing. Taking place at the Scottsdale Research Institute (SRI) in Phoenix, Arizona, this clinical trial will evaluate the safety and efficacy of four different potencies of marijuana for symptoms of PTSD.

On March 10, before enrolling a single subject, Johns Hopkins University elected to not participate as a clinical trial site for this study. JHU researchers wanted to focus just on the science but MAPS felt it necessary to focus both on the science and on the politics of the quality of NIDA's marijuana and on ending NIDA's monopoly on the supply of federally legal marijuana for FDA-regulated research. The funding agency, the Colorado Department of Public Health and Environment, signed a new contract with MAPS with SRI in Phoenix being the sole site where all subjects are now being recruited.

Researchers and scientists conducting MAPS' study of medical marijuana for PTSD in veterans met for a site visit in Phoenix, Arizona, from June 12–15, 2017.

Application Submitted to DEA for License to Grow Medical Marijuana

MAPS is currently working with Professor Lyle Craker, Ph.D., of the University of Massachusetts-Amherst to end the

NIDA monopoly on marijuana for research by obtaining a license from the DEA to grow marijuana for research. MAPS and Prof. Craker have been working since 1999 to obtain this DEA license.

On August 11, 2016, the DEA announced their intention to grant licenses to additional marijuana growers for research. Craker reapplied for his license on February 14, 2017, and received a set of questions from the DEA on March 24. Craker responded to the DEA's questions on April 12, and has not yet received a response.

It is now up to Attorney General Jeff Sessions and the Trump administration to end the obstructive NIDA monopoly, encourage independent marijuana research, and take action in granting Craker's license.

Statement on the Adequacy of Marijuana Provided by NIDA for Phase 2 Clinical Trials for PTSD in Veterans

MAPS is testing the safety and efficacy of four different potencies of smoked NIDA cannabis to manage symptoms of chronic, treatment-resistant PTSD in 76 veterans in a placebo-controlled clinical trial. Prior to initiating enrollment in the study, laboratory testing of the NIDA cannabis was conducted over five months. To maintain transparency to the public and to ensure the reporting of accurate information, MAPS has released the results of the five rounds of secondary analytical testing of the chemical composition of NIDA cannabis (see below).

All six batches of cannabis tested negative for harmful microbes, mycotoxins, pesticides, arsenic, cadmium, and mercury. Two batches tested negative for lead. Four batches tested positive for low levels of lead. Based on exposure limits set by the World Health Organization (WHO) Guidelines for Assessing Quality of Herbal Medicines with Reference to Contaminants and Residues, the International Programme on Chemical Safety, the American Herbal Pharmacopoeia's Cannabis Inflorescence monograph, and the study protocol, the amount of possible lead exposure from NIDA cannabis was found to be well within the guidelines provided, and thus was considered safe for use in this clinical trial.

All test results were reviewed by an independent Institutional Review Board (IRB). Based on the NIDA-provided document Microbiology Safety Testing of Cannabis (Cannabis Safety Institute, May 2015) as well as test results that showed absence of harmful microbes and mycotoxins, and subsequent consultation with plant experts, MAPS concluded that the cannabis is safe for use in this clinical trial based on exposure limits and dispensation procedures specified by the amended study protocol. Only physically healthy participants who are not immunocompromised and without allergies or past adverse reactions to marijuana will be enrolled in this study. To our knowledge, there is no known case of NIDA cannabis contamination which interfered with a clinical trial or was the cause of an adverse event in a patient enrolled in the study.

Of the six batches tested, only one batch differed significantly from the potency information provided by NIDA in the certificate of analysis. It is believed the discrepancy in test results is due to homogenization issues as well as the analytical sampling technique used with the fine particulate nature of the specific batch. For this reason, treatment outcomes from a range of potencies will be reported from relevant cannabis treatment groups at the end of the trial.

Release specifications for NIDA cannabis, such as pass/fail or upper limits guidance for impurities, have not been set. NIDA is currently working with the FDA to identify appropriate tests and limits for marijuana used in Investigational New Drug (IND) studies. Despite the absence of federal guidance on quality, NIDA states that their cannabis is within the acceptable range of quality according to several common sets of guidelines for microbial contamination of dietary supplements. Two independent Schedule I-licensed and ISO17025 accredited analytical laboratories tested samples of cannabis provided by NIDA.

MAPS had initially planned to store the packaged cannabis at refrigerated temperatures prior to dispensing to participants. However, refrigerated storage was reported to exacerbate mold growth. Total Yeast and Mold (TYM) testing was conducted to determine appropriate storage conditions and dispensation procedures for study cannabis. Though many legal medical marijuana states have set varying acceptable levels of TYM, there is no agreement on whether TYM should be a required test. After review of testing, dispensation procedures were revised to limit likelihood of yeast and mold growth.

This study is funded by a $2.156 million grant from the Colorado Department of Public Health and Environment (CDPHE) to MAPS, which is sponsoring the research.

Ayahuasca Research

Data Collection Survey Underway

Ongoing study

Principal Investigator: Jessica Nielson, Ph.D.

As of May 31, 2017, we have received a total of 351 completed responses for our anonymous questionnaire about the potential risks and benefits associated with using ayahuasca as a therapy for PTSD. A total of 171 participants (49%) reported a past or current diagnosis of PTSD, and 162 (46%) reported no history of a PTSD diagnosis.

The results of the survey are currently being summarized and prepared for publication, at which point the survey will shift its focus to general ayahuasca use for a variety of conditions, including PTSD, depression and substance abuse/addiction. The data collection is being sponsored by MAPS, with Jessica Nielson, Ph.D., as the Principal Investigator for this study.

The revised survey is a shorter and simplified version of the first version, and we welcome participation from anyone that has tried ayahuasca in any context or setting, including those who took the first version of the survey. To participate, take the survey at **surveymonkey.com/r/AyaPTSD**.

Ibogaine Treatment for Drug Addiction

Observational Research Published in *American Journal of Drug and Alcohol Abuse*

Study completed
Locations: Mexico and New Zealand
Principal Investigators: Thomas Kingsley Brown, Ph.D. (Mexico) and Geoff Noller, Ph.D. (New Zealand)

The promising results of two observational studies into treating opioid dependence with ibogaine, a naturally occurring psychedelic compound, have been published in the peer-reviewed *American Journal of Drug and Alcohol Abuse*. Sponsored by MAPS in Mexico and New Zealand, both studies show that ibogaine should be further studied as a potential treatment for opioid dependence through rigorously controlled studies.

Ibogaine is a psychoactive compound usually extracted from the West African *Tabernanthe iboga* plant. In animals, a single dose of ibogaine decreases signs of opioid withdrawal and produces sustained reductions in the self-administration of heroin, morphine, cocaine, nicotine, and alcohol. Ibogaine is illegal in the U.S., and legal but unregulated in Canada and Mexico. New Zealand, South Africa, and Brazil authorize the use of ibogaine by licensed medical practitioners. While its mechanism of action is not yet fully understood, it differs from that of standard opioid agonist treatments such as methadone and buprenorphine which maintain dependence, and thus may show promise as an innovative pharmacotherapy for opioid addiction.

The results are particularly notable given the growing opioid epidemic, which the U.S. Centers for Disease Control and Prevention estimate caused 91 deaths per day in the United States in 2016, and which has been recognized as a health policy priority by the White House's Commission on Combating Drug Addiction and the Opioid Crisis.

The Mexico study, published on May 25, showed that ibogaine administration was associated with substantive effects on opioid withdrawal symptoms and drug use in subjects for whom other treatments had been unsuccessful. Using the Addiction Severity Index and Subjective Opioid Withdrawal Scale as primary outcome measures, the study enrolled 30 participants who received ibogaine treatment at an independent clinic in Mexico. 12 out of 30 participants reported 75% reductions in their drug use 30 days following treatment, and 33% reported no opioid use three months later. The paper is co-authored by Thomas Kingsley Brown, Ph.D. (University of California, San Diego) and Kenneth Alper, Ph.D. (New York University School of Medicine).

As one participant in the Mexico study reported: "Iboga could give an opiate addict several months to half a year of freedom from craving, and a period of time in which to get their life together and learn to face things straightforwardly, directly and honestly. Iboga will not do the work for you."

The New Zealand study, published on April 12, showed that a single ibogaine treatment could reduce opioid withdrawal symptoms and achieve either cessation from opioids or sustained, reduced use for up to 12 months following treatment. The results indicate that ibogaine may have a significant pharmacological effect on opiate withdrawal. All participants in the study described their ibogaine experience in positive terms. The analysis includes data from 14 out of 15 participants enrolled, with one participant disqualified and one who died during treatment while under the supervision of a qualified medical practitioner. The paper is co-authored by Geoffrey E. Noller, Ph.D., (Dunedin School of Medicine); Chris M. Frampton, Ph.D. (University of Otago); and Berra Yazar-Klosinski, Ph.D. (MAPS).

Historically, a number of other ibogaine treatment deaths have occurred outside of medically supervised environments. Although there was no evidence that the deceased participant had a preexisting cardiac condition, the coroner's report suggested that the death was likely related to ibogaine ingestion, though not necessarily to cardiotoxicity. Though an experienced physician, the practitioner "nonetheless was adjudged to have failed in their duty of care" through a failure to appropriately monitor the patient, according to a second investigation into the death. The authors acknowledge the potential shortcoming of ibogaine treatment highlighted by the mortality associated with the therapy, especially in non-medical settings, specifically concerns about potential cardiovascular complications related to ibogaine's metabolism in the body.

Although the Mexico study had no adverse events, the authors acknowledge specific limitations to this study including the number of participants, the lack of a control group, and the reliance on self-reporting. The authors of both studies emphasize the need for further studies, stating that randomized controlled clinical studies are required to further explore ibogaine's potential as a legal, regulated treatment option in the U.S.

Ultimately, the authors of the studies conclude that given the potential demonstrated by ibogaine's substantive treatment effect in opioid detoxification, its novel (though not yet fully understood) pharmacological mechanism of action, and its clinical effect in opioid-dependent subjects who have not satisfactorily responded to other treatments, ibogaine has promise for future research and development as a novel pharmacotherapy for opioid addiction. Download both articles for free at **maps.org/ibogaine**.

Principal investigator Thomas Kingsley Brown, Ph.D, and study participant Kevin Franciotti attended Psychedelic Science 2017.