



# Vermont Center on Behavior & Health

The University of Vermont

## 6<sup>th</sup> Annual Conference

*The US Opioid Epidemic: The Need for Innovation &  
Greater Treatment Capacity*

**October 11-12, 2018  
Burlington Hilton Hotel**



## ***Program***

Opening Remarks

Keynote Speaker

Schedule: Day One

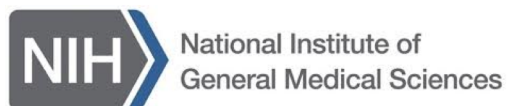
Schedule: Day Two

Poster Presentations

Session Chair & Speaker Bios

## ***Funding***

Funded in part by the NIGMS ***Centers of Biomedical Research Excellence*** (COBRE), the NIDA/FDA ***Tobacco Centers of Regulatory Science*** (TCORS), & the ***New England Addiction Technology Transfer Center*** (ATTC).

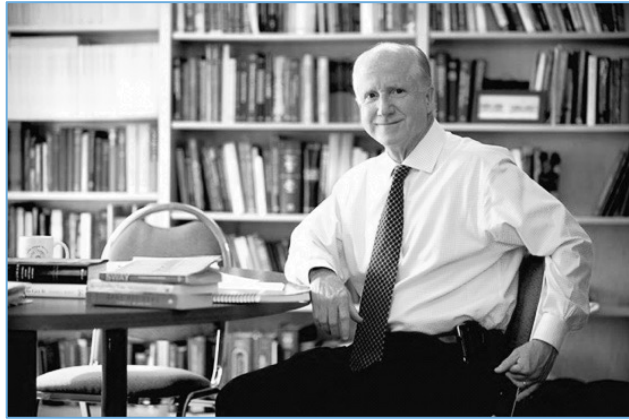


## ***Day 1 Opening Remarks***

**Stephen T. Higgins, PhD**

***Director, Vermont Center on Behavior & Health***

Stephen T. Higgins, PhD, is Director of the University of Vermont's (UVM), Vermont Center on Behavior and Health, and

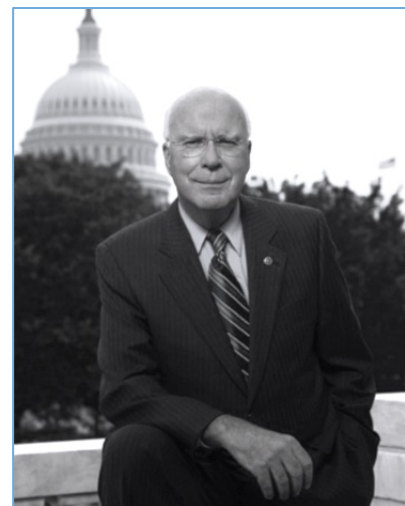


Principle Investigator on five NIH grants on the general topic of behavior and health, namely the UVM Center of Biomedical Research Excellence and the Tobacco Center of Regulatory Science, as well as two research grants and an institutional training award. He is the Virginia H. Donaldson Endowed Professor of Translational Science in the Departments of Psychiatry and Psychological Science and serves as Vice Chair of Psychiatry. He has held many national scientific leadership positions, including terms as President of the College on Problems of Drug Dependence and the American Psychological Association's Division on Psychopharmacology and Substance Abuse. He is the author of more than 350 journal articles and invited book chapters and editor of a dozen volumes and therapist manuals in the area of behavior and health.

**The Honorable Patrick J. Leahy**

***United States Senator from Vermont***

The conference kicks off with a special video message of appreciation and support from U.S. Senator Patrick Leahy of Vermont. Leahy is the Vice Chairman of the Senate Appropriations Committee. He is the senior-most member of the Senate Judiciary Committee and of the Senate Agriculture Committee. Leahy is the Ranking Member of the Appropriations Subcommittee on State Department, Foreign Operations and Related Programs. He ranks first in seniority in the Senate.



## ***Keynote Address***

### **“Deploying Science and Ethics to Change Hearts and Minds: The American Opioid Crisis”**

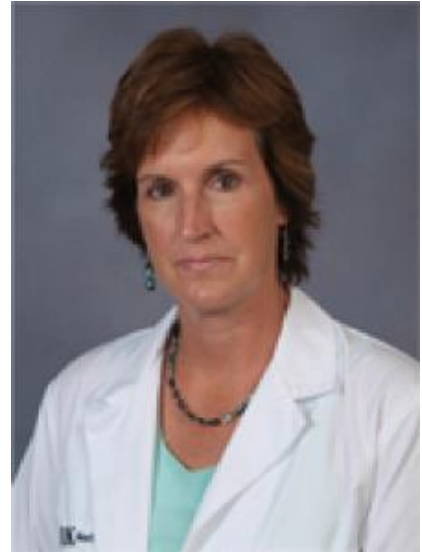
**Sharon L. Walsh, PhD**

***Director, Center on Drug and Alcohol Research***

***Professor, Behavioral Science***

***University of Kentucky***

Sharon Walsh, PhD, is a Professor of Behavioral Science, with secondary appointments in Psychiatry, Pharmacology and Pharmaceutical Sciences, in the Colleges of Medicine and Pharmacy at the University of Kentucky, and Director of the Center on Drug and Alcohol Research. She earned her PhD from Rutgers University in Behavioral Neuroscience and, after postdoctoral training, joined the faculty at Johns Hopkins University School of Medicine Behavioral Pharmacology Research Unit. Her clinical research focuses on pharmacological and behavioral issues in opioid abuse and dependence, including studies on the pharmacodynamic and pharmacokinetic characteristics of opioid pharmacotherapies and widely used and misused opioid analgesics. She has also conducted human studies on cocaine, nicotine and marijuana dependence and contributed to clinical practice guidelines and board specialty requirements in addiction medicine. She has had continuous NIH funding for 25 years, published over 130 manuscripts and book chapters, and lectures nationally and internationally on opioid use disorder and its treatment. Her honors include the Presidential Early Career Award for Scientists and Engineers, Joseph Cochin Young Investigator Award, Betty Ford Award, Marian Fischman Lectureship Award and serving as President of the College on Problems of Drug Dependence.



## ***Day 2 Opening Remarks***

**Thomas J. Donovan Jr. (T.J.)**

***Vermont State Attorney General***

Vermont State Attorney General, Thomas J. Donovan Jr. (T.J.), is a Vermont native and began his career as an Assistant District Attorney in Philadelphia, PA before returning to Vermont to work as Deputy Chittenden County State's Attorney. As Attorney General, he continues to fight to make Vermont communities healthier, safer, and more prosperous. He is committed to providing greater access to justice, fighting to end the opioid epidemic, supporting businesses and protecting consumers, defending the environment, and standing up for the civil rights of all Vermonters.



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## ***Thursday, October 11: Adirondack AB & CD***

7:15-8:00 **Registration & Breakfast** (*Prefunction & Adirondack AB*)

8:05-8:15 **Opening Remarks:** Stephen T. Higgins, PhD, VCBH Director (*Adirondack CD*)

8:20-8:25 **Video Welcome:** U.S. Senator Patrick J. Leahy of Vermont

**Session Chair:** Stephen T. Higgins, PhD, Director, University of Vermont (UVM) Tobacco Center of Regulatory Science; Virginia H. Donaldson Professor in Translational Science, Departments of Psychiatry and Psychological Science, UVM

### ***Keynote Address: Deploying Science and Ethics to Change Hearts and Minds: The American Opioid Crisis***

8:30-9:25 Delivered by Sharon Walsh, PhD, Director, Center on Drug and Alcohol Research, Professor of Behavioral Science, University of Kentucky

9:30-9:40 **BREAK**

### ***Panel on Pain and Addiction Management***

**Session Chairs:** A. Thomas McLellan, PhD, Founder, Treatment Research Institute; Jack E. Henningfield, PhD, Vice President, Research, Health Policy, and Abuse Liability, Pinney Associates, Professor of Psychiatry and Behavioral Sciences, Johns Hopkins University School of Medicine

#### ***9:45-10:10 Pain Management in Opioid Addiction Populations: An Overview***

A. Thomas McLellan, PhD, Founder, Treatment Research Institute

#### ***10:15-10:40 Pain Management Addiction and Medication Development***

Jack E. Henningfield, PhD, Vice President, Research, Health Policy, and Abuse Liability, Pinney Associates, Professor of Psychiatry and Behavioral Sciences, Johns Hopkins University School of Medicine

#### ***10:45-11:10 Pain Management in Addicted Populations in Primary Care***

Jeffrey H. Samet, MD, MPH, Editor, Addiction Science & Clinical Practice, Chief, General Internal Medicine, John Noble MD Professor in General Internal Medicine, Professor of Public Health, Boston University Schools of Medicine and Public Health, Boston Medical Center

#### ***11:15-11:40 Development and Pilot Testing of a Behavioral Intervention for Chronic Pain Tailored to People Living with HIV***

Jessica S. Merlin, MD, PhD, Associate Professor of the Division of General Internal Medicine, Department of Medicine, University of Pittsburgh

11:45-12:10 **PANEL DISCUSSION**

12:15-1:25 **LUNCH** (*Adirondack AB, To-go Boxes Available*)

***Panel on Innovative Efforts to Initiate Treatment***

**Session Chair:** George E. Bigelow, PhD, Director, Behavioral Pharmacology Research Unit, Professor, Psychiatry and Behavioral Sciences, Johns Hopkins School of Medicine

1:30-1:55 ***Initiating Medication Assisted Treatment among People who are Incarcerated***

Lauren Brinkley-Rubinstein, PhD, Assistant Professor of Social Medicine, University of North Carolina Chapel Hill

2:00-2:25 ***Initiating Treatment During Hospitalization for Injection-Related Infections***

Laura C. Fanucchi, MD, MPH, Assistant Professor of Internal Medicine, University of Kentucky College of Medicine

2:30-2:40 **BREAK**

2:45-3:10 ***Initiating Treatment as Part of Prenatal Care***

Marjorie C. Meyer, MD, Associate Professor of Maternal Fetal Medicine, Vice Chair for Obstetrics, Department of Obstetrics, Gynecology and Reproductive Science, Larner College of Medicine, University of Vermont

3:15-3:40 ***Initiating Treatment in the Emergency Room: Implementation***

Andrew Herring, MD, Associate Research Director, Emergency Medicine Specialist, Alameda Health System

3:45-4:10 **PANEL DISCUSSION**

4:15-5:45pm **RECEPTION & POSTER SESSION** (*Prefunction & Montpelier Room*)

*\*See Poster Abstracts on page 10*

## ***Friday, October 12: Adirondack AB & CD***

7:15-8:00 **Registration & Breakfast** (*Adirondack AB*)

8:05-8:25 **Opening Remarks:** Thomas J. Donovan Jr. (T.J.), Vermont State Attorney General (*Adirondack CD*)

### ***Panel on Treatment Capacity in States Lacking Adequate Infrastructure***

**Session Chairs:** Stacey C. Sigmon, PhD, Tenured Associate Professor of Psychiatry and Psychological Science, University of Vermont; Richard A. Rawson, PhD, Research Professor, Vermont Center on Behavior and Health, Department of Psychiatry, University of Vermont, Professor Emeritus, Department of Psychiatry and Biobehavioral Sciences, University of California Los Angeles

#### ***8:30-8:55 Unlikely Beginnings: How Appalachia became the Epicenter of the Opioid Epidemic***

Jennifer R. Havens, PhD, MPH, Associate Professor, Center on Drug and Alcohol Research, Department of Behavioral Science, University of Kentucky College of Medicine

#### ***9:00-9:25 Opioid Overdose Education Efforts***

Kelly E. Dunn, PhD, Associate Professor, Behavioral Pharmacology Research Unit, Department of Psychiatry and Behavioral Sciences, Johns Hopkins University School of Medicine

9:30-9:40 **BREAK**

#### ***9:45-10:10 Technology-assisted Buprenorphine for Expanding Treatment Access***

Stacey C. Sigmon, PhD, Tenured Associate Professor of Psychiatry and Psychological Science, University of Vermont

#### ***10:15-10:40 Naloxone and Beyond: Clinical and Public Health Interventions to Address Overdose***

Alexander Y. Walley, MD, MSc, Associate Professor of Medicine, Director, Addiction Medicine Fellowship, Clinical Addiction Research and Education Unit, Boston Medical Center/Boston University School of Medicine

#### ***10:45-11:10 Comprehensive Medical Response to the Opioid Epidemic***

Adam Bisaga, MD, Professor of Psychiatry, Columbia University Medical Center, Research Scientist, New York State Psychiatric Institute

11:15-12:25 **LUNCH** (*Adirondack AB*)



12:30-12:55 ***Evaluation of Treatment Impact in the Vermont Hub and Spoke Model***

Richard A. Rawson, PhD, Research Professor, Vermont Center on Behavior and Health,  
Department of Psychiatry, University of Vermont, Professor Emeritus, Department of Psychiatry  
and Biobehavioral Sciences, University of California Los Angeles

1:00-1:25 ***Injection Opioid Use and Hepatitis C & HIV in New England***

Peter D. Friedmann, MD, MPH, Associate Dean for Research, University of Massachusetts  
Medical School - Baystate, Chief Research Officer, Baystate Health

1:30-1:55 ***Addiction and Suicide: An Overview***

Sanchit Maruti, MD, Department of Psychiatry, University of Vermont Medical Center Addiction  
Treatment Program, University of Vermont

1:55-2:20 ***PANEL DISCUSSION***

2:20 ***ADJOURN***

## 2018 VCBH CONFERENCE POSTER ABSTRACTS

*Odd posters numbers: 4:15-5:00pm*

*Even posters numbers: 5:00-5:45pm*

### **1. Experiences of care for patients with opioid use disorder-associated endocarditis**

Benjamin Bearnot, Julian Mitton,

Division of General Internal Medicine, Department of Medicine, Massachusetts General Hospital, Boston, Massachusetts Harvard Medical School, Boston, Massachusetts

**Background:** Infectious complications of opioid use disorder (OUD), including endocarditis, are rising in the U.S. Optimal care for individuals with OUD-associated endocarditis is not well understood. The objective of this study was to elucidate the experiences of care for patients with OUD-associated endocarditis and the healthcare providers who deliver that care.

**Methods:** This qualitative study was conducted among patients and providers at a single academic medical center in Boston, Massachusetts. We conducted semi-structured interviews with patients and healthcare providers between May 2017 and February 2018. Patients meeting DSM-5 criteria for at least mild OUD and a culture positive diagnosis of endocarditis were recruited from inpatient and ambulatory settings. Multidisciplinary care providers were recruited from clinical teams and hospital units that regularly care for patients with OUD and endocarditis. **Results:** Patients (n=11) had a median age of 38, with more than half identifying as white, unemployed or disabled, without stable housing, and female. Of healthcare providers (n=12), most were white, female, and cared for patients with opioid use disorder "almost always." Five dominant themes emerged including: 1) inequity of care relative to those without addiction, 2) severe social and medical comorbidities, 3) relapsing substance use as an anticipated outcome following discharge, 4) differing experiences of prolonged hospitalizations for patients and their care providers, and 5) lack of care integration within institutions and discontinuity of longitudinal care. **Conclusions:** This qualitative analysis highlights multiple patient and health system factors that may explain poor clinical outcomes experienced by individuals with OUD-associated endocarditis. Further study is needed to test interventions to innovate and improve care for these individuals.

### **2. Comparing one month retention of opioid overdose knowledge after one of two computer-based interventions among three different opioid using populations**

Cecilia L. Bergeria, PhD, Andrew Huhn, PhD, Kelly Dunn, PhD, Department of Psychiatry and Behavioral Sciences Johns Hopkins University School of Medicine, Baltimore, MD

**Background:** In the past 20 years, opioid overdose death rates have more than tripled in the United States (Hedegaard, Warner & Minino, 2017). As such, scalable interventions are sorely needed to instruct at-risk populations how to prevent and appropriately respond to overdose scenarios. This study builds on previous efforts to test the efficacy of promising computerized interventions to increase overdose knowledge. **Method:** Individuals with illicit opioid use (n = 40), acute pain and an opioid prescription (n = 25), or chronic pain and an opioid prescription (n = 32) were recruited via Amazon Mechanical Turk (MTurk). Participants were tested on their opioid overdose knowledge using the Brief Opioid Overdose Knowledge (BOOK) questionnaire

and then randomized to one of two computerized interventions. Both interventions consisted of 25 educational content slides. One intervention consisted of embedded questions with corrective feedback (Presentation + Mastery), the other presented only the information without questions (Presentation). Participants completed the BOOK immediately following the intervention and again 30 days later. **Results:** Relative to baseline total BOOK scores, both Presentation and Presentation + Mastery interventions increased total BOOK scores immediately (3.5- and 4.5-point increases, respectively) and 30 days later (3.5- and 2.9-point increases, respectively). Both groups showed no statistically significant decreases in retention at 30-day follow-up, ( $p$ 's > .05). **Conclusions:** Results largely replicated previous studies and extended them to the 30-day follow-up period. Data suggests that both computerized interventions demonstrate the ability to increase opioid overdose knowledge and that information is sustained one month later. These are preliminary results from a recently completed study. Additional analyses will investigate group X intervention interactions for both the primary and follow-up timepoints.

### **3. The contribution of obesity to chronic pain and prescription opioid use in the United States**

Andrew Stokes, Kaitlyn M. Berry, Jason M. Collins, Eric M. Ammann, Chia-Wen Hsiao, Bethany F. Grant, Jason R. Waggoner, Stephen S. Johnston  
Boston University School of Public Health, Boston, Massachusetts Johnson & Johnson, Inc., New Brunswick, New Jersey Ethicon Inc., Cincinnati, Ohio

**Background:** The prevalence of obesity has grown rapidly over the past several decades and has been accompanied by an increase in both the prevalence of chronic pain and the use of prescription opioids. Obesity, in its complex interactions with disability and pain, may represent an important root cause of the opioid epidemic. **Methods:** Using data from the National Health and Nutrition Examination Survey (NHANES, 2009- 2014), we investigated the association between obesity, chronic daily pain, and prescription opioid use among adults aged 35-79 using multivariable logistic regression. Additionally, we estimate the contribution of obesity to excess opioid use and chronic pain using population attributable fractions. **Results:** The adjusted proportion of chronic daily pain was 4.1% among normal weight and 16.9% among obese III individuals. We found the adjusted odds of chronic pain increased with increasing BMI (ORoverweight 1.37, ORobese I 1.66, ORobese II 2.63, ORobese III 5.15). Increasing BMI was also associated with a marked increase in prescription opioid use from 5.8% among normal weight to 14.3% among obese III individuals. Obese I, obese II, and obese III individuals had elevated adjusted odds of opioid use compared to normal weight individuals (ORobese I 1.37, ORobese II 1.91, ORobese III 2.83). We estimated 25.0% of chronic daily pain and 18.5% of prescription opioid use at the population-level was attributable to obesity. **Conclusions:** The obesity epidemic, through its association with chronic pain, may be partially responsible for the high prevalence of prescription opioid use in the United States and its population health consequences.

### **4. A survey study characterizing use of kratom (*Mitragyna speciosa*)**

Albert Garcia-Romeu, Kelly E. Dunn, Roland R. Griffiths

**Aims:** Characterize kratom user demographics, use patterns, perceived therapeutic benefits,

and adverse effects. **Methods:** Anonymous online survey responses were collected using Qualtrics between January and December, 2017. **Results:** A sample of 2802 current kratom users, mean age 40 (SD=12), completed the survey. Participants were predominantly White (90%;n=2517), female (61%;n=1703), and located in the US (99%;n=2771); 48% (n=1351) were college educated and 47% (n=1327) were married. The majority (81%;n=2258) reported using kratom in the 24 hours before completing the survey. Kratom was primarily taken orally in powder form in doses of 1-3 grams per occasion (49%;n=1362), with daily use (59%;n=1654), and 2-3 uses per day (61%;n=1704) being most common. Most reported using kratom to alleviate pain (91%;n=2558), anxiety (67%;n=1884), and depression (64%;n=1805). On a scale from 0 to 100, users rated kratom effectiveness for treating pain at a mean (SD) of 83.2 (18), for anxiety at 76.6 (24), and for depression at 76.5 (25). 1146 (41%) individuals reported using kratom to stop or reduce prescription or illicit opioid use, with 684 of these attributing >1 year of opioid use reduction to their kratom use, including 411 who reported continuous abstinence from opioids during the past year. 543 (19%) of the sample reported adverse effects of kratom use; of these only 17 individuals reported seeking treatment for adverse effects. Adverse effects were largely rated as mild in severity and lasted <24 hours. Based on past-year kratom use, 91 individuals (3%) met DSM-5 criteria for a moderate or severe kratom-related substance use disorder (SUD). 2042 (73%) stated they never experienced any kratom-related withdrawal symptoms. When asked how troubled they felt regarding their kratom use, participant ratings were a mean (SD) of 3.2 (9.8) on a scale from 0 to 100. **Conclusions:** Data indicate kratom is currently being used among White, educated, middle- aged Americans for symptoms of pain, anxiety, depression, and opioid withdrawal. Although daily use was common, moderate or severe kratom-related SUD and endorsement of being troubled by kratom use were very low. Thus kratom, whose effects are opioid receptor- mediated, may differ from typical prescription and illicit opioids. Controlled research on kratom pharmacology, therapeutic potential, and possible abuse liability is warranted. **Funding:** NIDA R01DA003889 & NIDA R01DA035246

## **5. Patient navigation & care management to facilitate entry and retention in medication-assisted treatment among pregnant/parenting individuals with opioid use disorder**

Dennis J. Hand, Alice Fischer, Kimberly A. McLaughlin

**Background:** People with opioid use disorder (OUD), face many barriers to treatment, including stigma, ambivalence about recovery, transportation issues, and complex healthcare and public welfare systems. We designed a patient navigation and care management (PN/CM) intervention to help pregnant and/or parenting individuals navigate these barriers and enter and remain engaged in medication-assisted treatment. **Method:** We conducted a retrospective cohort study comparing data from individuals who received PN/CM to those admitted in the 6 months prior to implementing the program. The PN/CM intervention involved face-to-face meetings between bachelor/master's level social workers and individuals seeking treatment to complete a brief assessment, including query of the prescription drug monitoring database, identify individuals' barriers to treatment, provide a behavioral plan for navigating those barriers, and conduct motivational interviewing. Following admission, the PN/CM team continued to navigate clients through the first steps of receiving MAT and used telephonic and text outreach for clients who were absent. Primary outcome measures were consecutive days retained in treatment and retention at 6 months post-admission. Secondary outcome measures

were time to biochemically-verified lapse to opioid and benzodiazepine use. **Results:** Individuals who received PN/CM completed a significantly higher number of consecutive treatment days than those before PN/CM was implemented. However, there were no significant differences in discharge at 6 months post-admission. There was no significant difference in time to lapse to opioid use. Time to lapse to benzodiazepine use trended toward significance with a longer time to lapse to benzodiazepine use among individuals who received PN/CM. **Conclusions:** PN/CM was effective at increasing early continuous engagement, and had nil or limited effects on lapse to opioid and benzodiazepine use. Extending the PN/CM team's interactions with individuals as barriers and needs change could help sustain increased retention in treatment.

## **6. Barriers to reproductive health services for women with opioid use disorder in substance use treatment across Michigan**

Roxanne Harfmann, Lindsay Cannon, Giselle Kolenic, Vanessa Dalton, Lauren MacAfee, University of Vermont, Burlington, VT, University of Michigan, Ann Arbor, MI

**Background:** Women with opioid use disorder have significantly higher rates of adverse reproductive health outcomes compared women without opioid use disorder. The objective of this study was to examine the needs for and barriers to reproductive health services for opioid using women in substance use treatment. **Methods:** English-speaking women ages 18-50 with an opioid use disorder were recruited from randomly selected substance use treatment facilities in Michigan. Participants completed an anonymous computer assisted self-interview on a tablet. **Results:** Surveys from 260 women were collected at 19 facilities. 91% of women reported ever being pregnant and 61% had experienced an unintended pregnancy. 57% of women reported they were not currently using a contraceptive method and only 19% of women reported using a highly effective method (i.e., sterilization, implant, IUD). Many women reported a history of abnormal cervical cancer screening (52%), chlamydia (32%), receiving money or drugs for sex (55%), and condom nonuse (60%). Women report multiple barriers to accessing reproductive health care, most commonly cost (43%) and stigma/fear of mistreatment (36%). Many women (51%) reported they would like to receive contraceptive services on-site or by referral; however very few (14%) currently receive such services through their treatment program. **Conclusion:** Women with opioid use disorder actively engaged in substance use treatment have significant unmet reproductive health needs. Women are interested in integration of services within their substance use treatment program, which could better meet patient needs and elicit improved reproductive health outcomes.

## **7. Prevalence and description of natural recovery from opioid use disorder using the National Epidemiologic Survey on Alcohol and Related Conditions**

Elias M. Klemperer, Terril Verplaetse, Sherry McKee  
Yale School of Medicine, Department of Psychiatry, New Haven, CT

**Introduction:** Recovery from substance use disorders without treatment is common. Greater knowledge of people with past opioid use disorder (OUD) who quit without treatment could improve understanding of addiction and inform treatment efforts in the US. **Methodology:** We used wave III of the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) to examine prevalence and characteristics of adults in remission from a DSM 5 diagnosis of

OUD who never received substance abuse treatment (i.e., self-quitters). We used logistic regression to compare self-quitters to those who 1) quit with treatment, 2) did not quit and or receive treatment, and 3) received treatment but did not quit. **Results:** Of the 688 who met criteria for lifetime OUD, 196 (28%) quit without treatment. Self-quitters were mostly middle aged (mean=39 years old), white (77%), men (54%), with  $\geq$  some college education (56%). 45% were married and 11% experienced drug-related arrests. Most were tobacco dependent (68%) and had co-occurring psychiatric (79%) or substance use disorders (SUD; 68%). In comparison to those who quit with treatment (n=162), self-quitters were more likely to be female (OR=1.5) and less likely to have drug-related arrests (OR=0.2). In comparison to those who did not quit or receive treatment (n=230), self-quitters were more likely to be white (OR=2.7) and have a co-occurring SUD (OR=4.3). In comparison to those who received treatment but did not quit (n=99), self-quitters were more likely to be married (OR=2.2) and have  $\geq$  some college (OR=2.4) and less likely to be tobacco dependent (OR=0.5) or have drug-related arrests (OR=0.2). **Conclusion:** Despite the common belief that addiction is a brain disease, approximately  $\frac{1}{4}$  with OUD quit without treatment. Self-quitters differ from those who received treatment or continue to use. Implications for treatment will be presented.

## **8. Impact of prescription opioid use on CD4+/CD8+ ratio in HIV-infected adults**

Lyndelle T. LeBruin, Benjamin Littenberg

Larner College of Medicine at the University of Vermont, Burlington, VT

**Objective:** To determine the impact of prescription opioid use on CD4+/CD8+ ratio in an HIV+ adult population. **Background:** The high incidence of chronic pain both locally and globally has made prescription opioid use and misuse an epidemic. Some associations have been made between HIV, immune function and immune senescence in animal models. However, the influence of prescription opioid use on CD4+/CD8+ ratio in HIV+ adults is understudied. A ratio of  $<1$  has been linked to HIV infection, inflammation and aging, and is consistent with T cell abnormalities associated with the immune risk phenotype: inverted CD4+/CD8+ ratio. This study investigated the influence of prescription opioid use on CD4+/CD8+ ratio in HIV+ adults. **Methods:** A cross-sectional analysis was performed using NHANES data from 1999-2006. Eight opioid users and 149 non users were identified from 157 eligible participants with CD4+/CD8+ ratio data. Fisher's Exact and Wilcoxon Rank-Sum tests were used to evaluate the association between prescription opioid use and CD4+/CD8+ ratio. **Results:** The mean CD4+/CD8+ ratio was higher for prescription opioid users compared to non- users (2.30 versus 1.46,  $P = 0.056$ ). Compared to non-opioid users, participants who used prescription opioids were more likely to have a CD4+/CD8+ ratio  $\geq 1$  versus  $<1$ , but the results were not statistically significant (Relative Risk = 1.20; 95% confidence interval 0.79, 1.82;  $P = 0.47$ ). **Conclusion:** Prescription opioid use did not appear to be associated with inversion of CD4+/CD8+ ratio in this representative, but small, population of HIV-positive adults.

## **9. Non-inferiority of hydromorphone compared to diacetylmorphine for long-term opioid dependence: A randomized clinical trial**

Eugenia Oviedo-Joekes, Scott MacDonald, Daphne Guh, Suzanne Brissette, Kirsten Marchand, Kurt Lock, Scott Harrison, Amin Janmohamed, Aslam H. Anis, David Marsh, Martin T. Schechter  
 Centre for Health Evaluation & Outcome Sciences, Providence Health Care, St. Paul's Hospital,

Vancouver, BC, Canada, School of Population and Public Health, University of British Columbia, Vancouver, BC, Canada, Providence Health Care, Providence Crosstown Clinic, Vancouver, BC, Canada, Centre de recherche du Centre Hospitalier de l'Université de Montréal, Montréal, QC, , Canada, Northern Ontario School of Medicine, Sudbury, ON, Canada

**Background:** Diacetylmorphine (pharmaceutical grade heroin), delivered under supervision, has been proven effective for the treatment of severe opioid use disorder. Due to political and regulatory barriers, it is not available in many settings around the world, limiting options available for long-term street opioid injectors not attracted or retained into other treatments.

**Objective:** To test if injectable hydromorphone is non-inferior to injectable diacetylmorphine in reducing illicit heroin use for chronic injection opioid users after six months of intervention.

**Methods:** SALOME (Study to Assess Longer-term Opioid Medication Effectiveness) was a phase III, double blind, non-inferiority trial of 202 long-term street opioid injectors in Vancouver, Canada. Participants were randomly assigned to receive injectable diacetylmorphine or hydromorphone (up to three times daily) for six months in a supervised clinic. Efficacy outcomes were days of street heroin use and days of any street opioid use in the prior 30 days respectively (non-inferiority margin = 4 days), and the proportion of urinalyses positive for street heroin metabolites (margin = 10% relative difference). Both intention-to-treat (ITT) and per protocol (PP) analyses were conducted. **Results:** Non-inferiority of hydromorphone was confirmed in the PP analysis although the margin of 4 days was not excluded in the ITT analysis. For total use of any opioids and urinalysis, non-inferiority was confirmed in both ITT and PP analyses. The most common related serious adverse events were opioid overdoses (n=14) and seizures (n=11), all successfully treated on site without hospitalization. **Conclusions:** This study provides evidence to suggest non-inferiority of injectable hydromorphone relative to diacetylmorphine for long-term opioid dependence.

## **10. Emergency department initiated buprenorphine intervention for opioid use disorder**

Scott Mackey, Daniel Wolfson, Michael Goedde, Roz Bidad, Kyle DeWitt, Bethany Mahler, Richard Rawson, Sanchit Maruti

Department of Psychiatry, University of Vermont Medical Center, Department of Surgery, Burlington, VT, University of Vermont Medical Center, Department of Pharmacy, University of Vermont Medical Center, Burlington, VT

Opioid-related overdose deaths have quadrupled since 1999 making drug overdose the new leading cause of accidental death in the U.S. The current practice of providing emergency department (ED) patients who endorse opioid use disorder (OUD) with only a referral to local treatment programs, which often have long waiting lists, represents a tragic missed opportunity to engage patients in sustained medical care. We hypothesize that a novel intervention at the UVM Medical Center (UVMHC), which will 1) initiate buprenorphine treatment in patients presenting at the ED with OUD, and 2) guarantee enrollment in the UVMHC Addiction Treatment Program (ATP) within 24 to 72 hours, will address the acute crisis period when individuals are most vulnerable to relapse and lead to increased long-term participation in Medication-Assisted Treatment (MAT). Patients admitted to the ED with indicators of OUD will be consented and screened for study eligibility. Eligible participants will be assigned randomly to the experimental intervention (i.e. immediate buprenorphine induction and referral to ATP)

or a control group (i.e. referral only to ATP). The ATP will supervise MAT with buprenorphine in all participants who enroll in the program until the individual is transferred to a long-term MAT provider, referred to a higher level of care or drops out of treatment. It is hypothesized that patients assigned to the ED-initiated/ATP intervention will have significantly reduced illicit opioid use at 1 week, and 3 & 6 months after randomization than patients who only receive contact information for local treatment providers

#### **11. New directions for MAT: Comprehensive treatment in Rhode Island's department of corrections**

Rosemarie Martin, Linda Hurley, Shelley Gresko, Josiah Rich, Jennifer Clarke  
Brown School of Public Health, Providence, RI, CODAC Behavioral Health, Cranston, RI, The Miriam Hospital, Providence, RI, Rhode Island Department of Corrections, Cranston, RI

The opioid epidemic and increased overdose risk among those with recent criminal justice involvement create an urgent need to address opioid use disorder (OUD) among this population. In October 2016, the Rhode Island Department of Corrections (RIDOC) became the first statewide prison to implement a comprehensive medication assisted treatment (MAT) program. RIDOC partnered with CODAC Behavioral Healthcare and Brown University to offer the three FDA-approved MAT drugs (methadone, buprenorphine, and naltrexone). Program goals are: identify individuals in need of MAT, initiate treatment, increase treatment retention, and reduce mortality. RIDOC providers developed standard operating procedures for administering MAT. Individuals screened positive for OUD with the Texas Christian University Drug Screen are assessed with ASAM criteria to determine MAT eligibility. To facilitate the transition to community MAT, discharge planning and post-release courtesy doses for up to 10 days is provided. Average number of individuals on MAT per day increased by 211% from October 2016-December 2017. Fifty-eight percent of commitments were screened, 25% screened reported OUD and of these individuals, 42% were assessed for eligibility. 93% assessed and eligible and/or continuing from community MAT received medication. From April 2016-October 2017, 93.8% continuing from community MAT and 35.8% inducted at RIDOC continued with treatment post-release (69.2% of total MAT patients). RIDOC's MAT expansion identifies systems to increase program capacity and challenges regarding administering MAT in correctional settings. More attention to new inductees is needed to increase treatment retention. MAT program expansion is feasible in correctional settings and can positively influence treatment participation post-release.

#### **12. Opioid use and rate of nicotine metabolism among pregnant smokers**

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**Background:** Smokers who use opioids smoke more cigarettes per day (CPD) than non-opioid users. This finding may be due to effects of opioid use on nicotine metabolism. Moreover, nicotine metabolism increases during pregnancy, potentially making quitting more difficult for pregnant smokers. We examined nicotine metabolism and its association with opioid use and



CPD in pregnant smokers. **Methods:** We recruited pregnant women who smoked  $\geq 5$  CPD ( $N=137$ ) for a clinical trial of smoking cessation during pregnancy. Plasma nicotine metabolite ratio (3-hydroxycotinine/cotinine) (NMR)—a biomarker of nicotine metabolism—opioid use, and CPD were assessed at baseline. Linear regression was used to examine the associations between log-transformed NMR, opioid use, and CPD, adjusting for baseline gestational age and race/ethnicity. **Results:** Among pregnant smokers, 25 (18%) were taking opioids; most were on methadone ( $n=14$ ). Mean baseline CPD was higher among opioid users than non-users (11.2 vs. 7.7, Wilcoxon-Mann-Whitney test  $p<0.001$ ). Preliminary results indicated that the mean baseline NMR was 0.51 ( $SD=0.25$ ). Opioid users had a higher NMR than non-users ( $\beta=0.31$ ,  $SE=0.11$ ,  $p=0.009$ ). When type of opioid was examined, only methadone was statistically significant compared to non-use ( $\beta=0.34$ ,  $SE=0.15$ ,  $p=0.021$ ). African Americans had a lower NMR than non-Hispanic whites ( $\beta=-0.69$ ,  $SE=0.13$ ,  $p<0.001$ ). CPD and gestational age were not associated with NMR. **Conclusion:** Our preliminary results show that opioid use is associated with a higher NMR in pregnant smokers. Further research is needed to replicate this finding and determine its clinical significance.

### 13. Contraceptive knowledge among patients receiving opioid agonist treatment

Heidi S. Melbostad, Catalina N. Rey, Stacey C. Sigmon, Meagan C. Haynes, Lauren K. MacAfee, Anne K. Dougherty, Veronica Ades, Sarah H. Heil

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**Aim:** The rate of unintended pregnancy among women with opioid use disorder (OUD) is nearly 80%. Among women with OUD who want to avoid pregnancy, less than half report current contraceptive use. Lack of contraceptive knowledge may be contributing to low rates of contraceptive use. The aim of this study was to characterize contraceptive knowledge among individuals with OUD. **Methods:** Participants were a convenience sample of women and men receiving opioid agonist treatment (OAT) ( $n=200$ ) and a comparison sample of women and men recruited from an internal medicine clinic ( $n=95$ ). Knowledge was assessed with the recently validated Contraceptive Knowledge Assessment (CKA), a self-administered 25-question multiple-choice survey. **Results:** Overall, individuals receiving OAT answered significantly more questions correctly than the comparison sample, 44% (11/25) vs. 36% (9/25) respectively,  $t(293)=4.5$ ,  $p<.001$ , although percent of total correct responses was low for both samples. Individuals in the comparison sample answered significantly more questions, “I don’t know,” than individuals receiving OAT, 36% (9/25) vs. 24% (6/25) respectively,  $t(293)=3.7$ ,  $p<.001$ . Analyzing sub-groups of questions revealed no differences in fertility awareness between samples; individuals receiving OAT demonstrated significantly more knowledge about general contraceptive information, short-acting (i.e. pills, patch, ring, injection) and long-acting (i.e. IUDs and implants) reversible methods than the comparison sample. **Conclusion:** Lack of knowledge and misinformation about fertility awareness and contraception were common among both samples, especially specific information about LARCs. Although individuals receiving OAT scored significantly higher on the CKA than the comparison sample, rates of unintended pregnancy among women receiving OAT are almost twice that of the general

population (86% vs. 45%, respectively). Individuals receiving OAT may encounter additional obstacles to accessing family planning services and utilizing contraception. More research is necessary to better understand how to affect behavioral change around family planning for men and women receiving OAT.

#### **14. Prescription for change: Facilitation to reduce opioid overdose risk in rural veterans of Vermont and New Hampshire**

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**Background:** A gap exists between best practice recommendations for pain management and opioid use disorder and available care and services. Guideline-discordant prescribing is related to poor outcomes in veterans, including overdose. Limited access to first-line psychotherapies for pain, insomnia and PTSD is a common barrier to optimal care, particularly in rural areas facing mental health service and provider shortages. Facilitation is a strategy to implement and sustain clinical practice change by engaging stakeholders (leadership, clinicians, and veterans). We coupled educational outreach focused on safe opioid prescribing with the provision of trainings in beneficial behavioral treatments with the goal of improving opioid safety and treatment access. **Methods:** Veterans Affairs' data tools provide real time prescribing and risk factor data for veterans treated at the White River Junction VA Medical Center and affiliated rural clinics in Vermont and New Hampshire. Individualized site and clinician visits were provided from 2016-2018 with the aim of increasing guideline-concordant pain and addiction care. Individual and system barriers identified in visits were addressed using implementation facilitation strategies. Psychotherapy trainings that included cognitive behavioral therapy for chronic pain (CBT-CP) and for insomnia (CBT-I) were offered. Prescribing trends of concurrent opioid and benzodiazepine, medication assisted treatment for opioid use disorder, and naloxone were followed for 4 years (2015 to 2018). **Results:** The use of concurrent sedatives steadily declined during the intervention and psychotherapy utilization increased. Treatment of OUD slowly increased and naloxone distribution dramatically increased. **Conclusion:** Facilitation was associated with desirable trends in medication utilization. Psychotherapy trainings were associated with increased delivery of non-medication treatments. These represent important findings in light of the current national opioid epidemic.

#### **15. Opioid treatment provider characteristics associated with perceived attributes of contingency management treatment and organizational readiness to change**

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**Rationale:** Adoption of evidence-based opioid treatment approaches by community-based treatment providers is crucial for combatting the opioid epidemic and can be influenced by many factors. The current study sought to examine associations between provider characteristics, organizational readiness to change, and perceived attributes of a contingency

management (CM) intervention. **Method:** Prior to participating in didactic CM training, treatment providers ( $n=60$ ) from opioid addiction treatment programs completed questionnaires assessing 1) provider characteristics (i.e., education, years of experience in substance counseling, time with current agencies, number of clients on caseloads), 2) organizational readiness to change (ORC: motivation for change, adequacy of resources, staff attributes, organizational climate), and 3) perceived attributes (i.e., relative advantage, compatibility, complexity, trialability, observability) of a CM intervention. **Results:** Educational attainment was associated with organizational climate ( $r = -.28$ ) and adequacy of resources ( $r = -.33$ ). Time in current job was also associated with organizational climate ( $r = -.32$ ). Number of clients was associated with perceptions of CM observability ( $r = -.31$ ) and trialability ( $r = -.26$ ). There were no associations with years of experience. **Discussion:** Individuals with higher educational attainment or who had worked for an organization longer perceived their organization as less prepared to change. In addition, providers who treated more clients believed that the use of CM would be less evident and that they would have less time to try CM before deciding whether or not to adopt it. Future work is needed to determine whether these factors predict likelihood of CM adoption post-training.

## **16. Opioid overdose prevention in prison re-entry**

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The risk of opioid overdose in the month following release from incarceration is incredibly high, and the re-entering population represents one of the highest risk groups for overdose in our nation. As part of a larger collaborative care based model for prison re-entry for individuals with substance use disorders, we have developed an opioid overdose plan that employs evidence based interventions. Approximately 30% of individuals who enter our prison re-entry program have an opioid use disorder (OUD). The plan involves systemic and client-based interventions to reduce the risk of overdose. Systemic efforts have focused on training for medication assisted treatments (MAT) and naloxone for all staff and partners. At the client level, key strategies are early identification of OUD (prior to release), meeting with an addiction psychiatrist to plan for MAT pre-release (during an escorted visit from prison), education on elevated risk post-release, and training on naloxone pre-release. Post-release, the plan enhances communication with community corrections for individuals with OUD, and employs a team-based approach including peer mentors with daily contact in the period immediately following release. We have had 65 individuals with primary opioid use disorders re-enter the community through this program. Of those individuals, all were provided education on overdose risks and intervention pre-release, only one client has refused naloxone, and 80% of individuals recommended to medication assisted treatment have begun medication (74% buprenorphine, 22% methadone, 4% naltrexone injection). We will present findings regarding treatment outcome, recidivism, and qualitative interviews regarding client experience with the opioid overdose plan.

## **17. Within-subject evaluation of interim buprenorphine treatment during waitlist delays**

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University of Vermont, Burlington, VT

**Aims:** Despite the effectiveness of opioid maintenance for opioid use disorder (OUD), delays to treatment are still prevalent in many regions of the US and associated with increased morbidity and mortality. We recently published a randomized 12-week study (n=50) demonstrating the initial efficacy of a novel, technology-assisted Interim Buprenorphine Treatment (IBT) vs. continued waitlist control (WLC) for reducing illicit opioid use and other risk behaviors during waitlist delays. Participants randomized to the WLC condition in that study were offered the opportunity to receive 12 weeks of IBT post-study, permitting an additional within-subject examination of IBT effects. **Methods:** Sixteen WLC participants crossed over to receive IBT at Week 12, which involved buprenorphine maintenance with bi-monthly visits for observed medication ingestion and the remaining doses dispensed via computerized device, daily monitoring calls via an Interactive Voice Response (IVR) phone system, and IVR-generated random call-backs. We evaluated biochemically-verified illicit opioid abstinence and other measures of psychosocial functioning during participants' initial WLC and subsequent IBT phases. We hypothesized that illicit opioid abstinence would be greater during their IBT vs. WLC phase. **Results:** During their initial WLC phase, 0%, 0% and 0% of participants provided urine specimens testing negative for illicit opioids at the 4-, 8-, and 12-week timepoints. During the cross over to IBT, participants provided significantly more negative specimens (75%, 63%, and 50%, respectively;  $p<.01$ ). Mean scores on the Beck Anxiety and Depression Inventories were also significantly lower during the IBT vs. WLC phase ( $p<.01$ ). Similar improvements were seen on the drug and psychiatric subscales of the Addiction Severity Index ( $p=.01$ ). **Conclusions:** This within-subject evaluation provides additional support for the ability of interim buprenorphine dosing to reduce illicit opioid use and improve mental health outcomes during waitlist delays for more comprehensive treatment.

#### **18. The association between nicotine dependence and physical health among people receiving injectable diacetylmorphine or hydromorphone for the treatment of chronic opioid use disorder**

Heather Palis, Scott MacDonald, Kirsten Marchand, Mohammad Karamouzian, Scott Harrison, Daphne Guh, Kurt Lock, Suzanne Brissette, Aslam H. Anis, David C. Marsh, Martin T. Schechter, Eugenia Oviedo-Joekes

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**Introduction:** People with chronic opioid use disorder often present to treatment with individual and structural vulnerabilities and remain at risk of reporting adverse health outcomes. This risk is greatly compounded by tobacco smoking, which is highly prevalent among people with chronic opioid use disorder. Despite the known burden of tobacco smoking on health, the relationship between nicotine dependence and health has not been studied among those receiving injectable opioid agonist treatment. As such, the present study aims to explore the association between nicotine dependence and physical health among participants of the Study to Assess Longer-Term Opioid Medication Effectiveness (SALOME) at baseline and

six-months. **Methods:** SALOME was a double-blind phase III clinical trial testing the non-inferiority of injectable hydromorphone to injectable diacetylmorphine for chronic opioid use disorder. Participants reporting tobacco smoking were included in a linear regression analysis of physical health at baseline (before receiving treatment) and six-months. **Results:** At baseline, nicotine dependence score, lifetime history of abuse and prior month safe injection site access were independently and significantly associated with physical health. At six-months nicotine dependence score was the only variable that maintained this significant and independent association with physical health. **Conclusions:** Findings indicate that after six-months, the injectable treatment effectively brought equity to patients' physical health status, yet the association with nicotine dependence remained. Findings could inform whether the provision of treatment for nicotine dependence should be made a priority in settings where injectable opioid agonist treatment is delivered to achieve improvements in overall physical health in this population.

### **19. Reasons for non-medical use of prescription opioids among young adults: Role of educational status**

Maria A. Parker, Kelly R. Peck, Stacey C. Sigmon

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**Background:** College-enrolled young adults report pain relief as a popular reason for non-medical use of prescription opioids; however, little is known about reasons for use among young adults not attending college. The present study examined the association between educational status and reasons for most recent non-medical prescription opioid use among young adults aged 18-25 years. **Methods:** Data came from the 2016 National Survey on Drug Use and Health (n = 56,897). The present sample included 941 unweighted young adults who reported past-year non-medical prescription opioid use. Self-reported reasons for most recent non-medical use of prescription opioid were compared by educational status (i.e., high school, college, college graduate, or not in college). **Results:** Among young adults, the four most commonly-endorsed reasons were to relieve physical pain (47.6%), feel good or get high (19.8%), relax or relieve tension (13.2%) and experiment/see what it feels like (6.8%). Reasons for non-medical prescription opioid use did not differ as a function educational status ( $p = 0.17$ ). **Conclusions:** Reasons for use centered primarily around pain relief. This finding suggests that efforts to address opioid misuse among young adults should include strategies for improving pain management.

### **20. Effects of interim buprenorphine treatment for opioid use disorder for patients with pain**

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**Introduction:** Although opioid agonist treatment is effective for treating individuals with opioid use disorder (OUD), individuals with concurrent chronic non-cancer pain (CNCP) may experience poor treatment outcomes. In this secondary analysis, we examined treatment outcomes between individuals with and without CNCP who received a 12-week Interim Buprenorphine Treatment (IBT) during waitlist delays to more comprehensive opioid treatment. **Methods:** Participants were 28 individuals with OUD who completed the Brief Pain Inventory at

study intake and received IBT consisting of buprenorphine maintenance with bi-monthly clinic visits and technology-assisted monitoring. At monthly follow-up assessments, participants completed staff-observed urinalysis, the Beck Anxiety Inventory (BAI), Beck Depression Inventory (BDI-II), the Brief Symptom Inventory (BSI), and Addiction Severity Index (ASI).

**Results:** At study intake, participants with CNCP ( $n=10$ ) were significantly less likely to be employed full-time ( $p=0.03$ ) relative to participants without CNCP ( $n=18$ ). No significant differences were observed in the percentages of participants with and without CNCP who provided urine specimens that tested negative for illicit opioids at Study Week 4 (90% vs. 94%), Week 8 (80% vs. 83%), and Week 12 (70% vs. 67%;  $p's>0.05$ ). Participants with CNCP also demonstrated significant improvements on the BAI, BDI-II, BSI ( $p's<0.05$ ); however, baseline differences on the ASI Medical subscale persisted such that participants with CNCP reported more medical problems at Study Week 12 compared to patients without CNCP. **Discussion:** Patients with and without CNCP achieved significant reductions in illicit opioid use and psychiatric symptomatology. However, additional medical support may be helpful for individuals with concurrent CNCP and OUD.

## **21. Parental opioid abuse: A review of child outcomes, parenting, and parenting interventions**

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Roughly 11.7 million adults misused opioids in 2015 (i.e., heroin and/or prescription pain relievers; National Survey on Drug Use and Health, 2015). As 74% of adults are parents (Gallup, 2013), and almost 70% of women in substance dependency treatment have children (Niccols et al., 2012), this suggests that a *substantial* number of children are living in families with a parent who abuses opioids. This poster aims to 1) review rigorously conducted studies (e.g., included a comparison group; utilized inferential statistics) examining the association of opioid abuse with parenting and child outcomes and 2) review parenting intervention programs with these caregivers. Only eight and seven non-intervention studies have examined parenting and child outcomes, respectively. These studies suggest that there is limited support for problematic child outcomes (e.g., child psychopathology) while some support emerged for negative parenting in these families (e.g., fewer positive parenting behaviors). In addition, only four parenting intervention programs have been evaluated using randomized control trials and inferential statistics. Changes in parenting and child outcomes have been limited in these studies. We conclude that there is limited well-controlled research currently addressing this aspect of the opioid epidemic. Recommendations for further research are delineated.

## **22. Knowledge and barriers to long-acting reversible contraceptives among opioid-maintained women**

Catalina N. Rey, Heidi S. Melbostad, Stacey C. Sigmon, Lauren K. MacAfee, Anne K. Dougherty, Sarah H. Heil  
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**Introduction:** Nearly 80% of pregnancies among women with opioid use disorder (OUD) are unintended while rates of effective contraceptive use are estimated at <10%. Long-acting reversible contraceptives (LARC), namely intrauterine devices (IUDs) and implants, are the most effective reversible forms of contraception because they are user-independent. Nevertheless, few women in opioid agonist treatment (OAT) for OUD report they are likely to use an IUD or implant (41% and 27%, respectively). The purpose of this study was to evaluate potential barriers to LARC use among women in OAT. **Methods:** 200 women in OAT for OUD completed a survey that included questions assessing reasons that may have prevented LARC initiation. **Results:** In the subset of 121 women who have never used an IUD, and 169 women who have never used an implant, 45 (37%) and 45 (27%), respectively, reported that they have thought about using the IUD or implant but decided not to. The most common reasons for deciding against an IUD and an implant were concerns about side effects and preferring a “controllable” method. **Conclusion:** Results suggest there may be similar barriers associated with IUD and implant use for women in OAT.

### **23. The effects of extended-release injectable naltrexone and incentives for opiate abstinence in heroin-dependent adults: A randomized trial**

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Extended-release injectable naltrexone (XR-NTX) is a once monthly formulation that was designed to improve adherence. However, recent clinical trials showed that 39%-53% of patients stopped taking it within six months. Adherence in observational studies has been even lower. We previously demonstrated that offering financial incentives for taking XR-NTX nearly tripled six-month adherence rates (74% vs. 26%). Yet, this increased adherence did not translate into increased opiate abstinence because participants continued to use opiates. To maximize its clinical potential, XR-NTX may need not only a targeted intervention to improve adherence but also additional components to address the opiate use that persists under XR-NTX blockade. The present study evaluated the combined effects of XR-NTX and incentives for opiate abstinence on opiate use. The aims were to determine whether XR-NTX, incentives for opiate abstinence, and their combination reduce opiate use compared to a usual care control and whether the combination reduces opiate use compared to either treatment alone.

### **24. An epidemic: Pain management in patients with opiate use disorder**

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**Purpose:** To identify best practice in treating acute pain during hospitalization in adults with a history of opiate use disorder. **Rationale and significance:** Evidence suggest that patients with opiate use disorder do not receive proper pain management in the acute healthcare setting. In 2013, two million Americans were found to have abused or are currently addicted to opiates. Substance abuse and mental health services administration found in 2015, 14% of hospital admissions were related to patients with drug abuse problems. Healthcare professionals typically lack the needed education and confidence to treat these patients, resulting in

improper pain management. **Methodology:** A literature search was completed utilizing CINAHL, PubMed, Up to Date, EBSCO databases. The search was limited to studies within the last 10 years, with the exception of two journal articles that were relevant to current best practices. The search term utilized were: competence, pain assessment, drug monitoring, and opiate administration, opiate use disorder, opiate addiction, opiate dependence, acute pain, inpatient practices, and pain assessment. Articles fitting inclusion criteria were then systematically appraised. **Findings:** 17 journal articles were critically appraised and the following themes were identified: increased nursing education, more research indicated, changing staff perception, use and education of motivational interviewing, improved nursing assessment, substance abuse team, and better pain management regimens. **Conclusion:** Increased nursing education was found to be the most identified theme, with the goal of increased nursing education to improve pain assessments and decrease stigmatization of these patients to result in better pain management. Literature was somewhat limited in due to the ethical limitation of studying pain in this patient population.

## **25. Sexual dysfunction among rural adults in treatment for opioid use disorder**

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**Abstract background:** Rural America is experiencing an opioid epidemic (CDC, 2016). Treatment for opioid use disorder has expanded, but there are still many gaps in treatment services such as integration of reproductive health services. **Methods:** Participants enrolled in a rural opioid treatment clinic ( $n = 212$ ; 72% female;  $M \pm SD = 33.7 \pm 8.5$  yr. old; 91.5% Caucasian) were administered a computer-based survey on sexual health. Female participants were asked a range of questions about their overall menstrual functioning. Male participants were asked items from the International Index of Erectile Function (IIEF-5) about past 6-month erectile functioning and the PROMIS Sexual Functioning Aid subscale. **Results:** All 152 females completed questions about their menstrual cycle. In the past 6- months, 32.2% ( $n = 49$ ) reported having irregular periods. Prior to opiate use, 59.3% ( $n = 90$ ) were nearly always regular to fairly regular. When using opiates, 42.1% ( $n = 64$ ) were nearly always regular to fairly regular. All 60 males completed the survey items related to erectile dysfunction. In all, 58.3% ( $n = 35$ ) had no erectile dysfunction while 41.7% reported mild to moderate dysfunction ( $n = 25$ ). PROMIS Sexual Functioning Aid items show that most males had not use pharmacotherapy (81%,  $n = 49$ ) to address sexual dysfunction. **Discussion/Conclusions:** Overall, females and males in MAT reported high levels of sexual dysfunction. These needs remain unmet in MAT clinics. Sexual health screening and services offered in conjunction with their treatment appointments could be a way to close this gap. **Support:** West Virginia Clinical and Translational Science Institute (WVCTSI): 2U54GM104942- 02

## **26. Subjective effects of cigarettes varying in nicotine content among opioid-maintained individuals**

Joanna M. Streck, Stacey C. Sigmon, Maria A. Parker, Maxine L. Stitzer, Jennifer W. Tidey, Sarah H. Heil, Diann E. Gaalema, Cecilia L. Bergeria, Danielle R. Davis, Jeff Priest, Anthony Barrows,



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**Aim:** Prevalence of smoking and smoking-related mortality among opioid-dependent individuals is four-fold that of the general population, perhaps due in part to a pharmacological interaction whereby opioids increase nicotine reinforcement. This has implications for recent efforts to evaluate reduced nicotine content cigarettes in this population. We recently examined the acute subjective effects of research cigarettes with varying nicotine levels among opioid-dependent smokers. **Methods:** Participants were 60 opioid-dependent smokers dichotomized into methadone (METH; n=37) or buprenorphine (BUP; n=23) maintained at high (above median; n=33) vs low opioid doses (below median; n=27). Participants completed four laboratory sessions during which they smoked one research cigarette varying in nicotine content (0.4, 2.4, 5.2, 15.8 mg/g) under double-blind and acute abstinence (CO<50% baseline) conditions. After each cigarette, participants completed the modified Cigarette Evaluation Questionnaire (mCEQ), with 12 items evaluating the subjective effects of the cigarettes. We used 2x2x4 ANOVAS to examine the effects of opioid medication, opioid dose and nicotine dose on mCEQ scores. **Results:** After adjusting for age, there were significant interactions between nicotine dose and opioid medication on three scales: Satisfaction ( $F(3,171)=3.26, p=.02$ ), Psychological Reward ( $F(3,171)=4.36, p<.01$ ) and Enjoyment of Respiratory Tract Sensations ( $F(3,171)=4.22, p<.01$ ) such that the positive subjective effects of the 15.8 mg/g cigarettes were higher among those maintained on BUP than those on METH. While mCEQ scores were generally higher among those on a high vs low opioid dose across all mCEQ scales, these differences were not significant ( $ps>.05$ ). **Conclusions:** Buprenorphine-maintained smokers may experience more variability in their response to cigarettes varying in nicotine content, which may impact their response to a reduced-nicotine standard for cigarettes. Further research with larger samples is needed to examine these effects across opioid medication type and dose. **Funding:** NIH/FDA P50DA036114

## **27. Supporting our families through addiction and recovery (SOFAR): A family-based program for opioid-exposed infants and their parents in the BMC pediatric clinic**

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**Background:** While recent interventions have shortened hospitalizations for newborns with neonatal abstinence syndrome (NAS), effective pediatric models for long-term care are needed. The Supporting Our Families through Addiction and Recovery (SOFAR) program was launched at Boston Medical Center in July 2017, in response to the lack of dedicated bi-generational pediatric care models for opioid-impacted parents and their newborns. We aim to determine whether this family-centered model of holistic support for parent-child dyads 1) improves attendance at well-child visits; 2) decreases emergency department use; 3) improves parent-child interaction; and 4) supports parents' recovery. **Methods:** SOFAR includes: (1) co-location and coordination of primary care and other services for infants and parents; (2) a trauma-

sensitive, non-stigmatizing environment; (3) strong continuity and frequent contacts with a multidisciplinary support team; and (4) links to community and parenting resources. SOFAR is developing a comprehensive mixed methods evaluation. Data will include patient interviews, existing retrospective electronic medical record (EMR) data, and a prospective database of SOFAR (and control) families. **Results:** SOFAR has served 96 mother-child dyads over 12 months. 72% of mothers have had Hepatitis C infection; 21% live in residential recovery programs; 78% use addiction treatment medications; and 52% have older children, many of whom are not in their custody. Maternal history of trauma, anxiety, and depression is common. **Conclusions:** SOFAR is a promising model for identifying and addressing risk factors and strengths in families facing opioid use disorder. Our evaluation data promises to guide future interventions to promote healthy outcomes for children and parents.

## **28. Obesity, hypertension, diabetes, and hypercholesterolemia increase across three years in methadone maintenance treatment**

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Methadone maintenance is an effective treatment that reduces morbidity and mortality associated with opioid use disorders. Even so, less desirable side effects of treatment should be evaluated with the aim of improving quality of life and treatment retention. This retrospective chart review describes changes in obesity and cardiovascular risk factors over time among individuals enrolled in methadone maintenance treatment. Seventy-four individuals who were admitted and retained in an academic research outpatient methadone maintenance treatment program for at least three consecutive years were included in the present analysis. We assessed Body Mass Index (BMI) and cardiovascular risk factors of hypertension, diabetes, and hypercholesterolemia at admission and at one, two, and three years post-admission. The percentage of patients categorized as overweight, obese, or morbidly obese BMI increased from 42% ( $n = 31$ ) at admission to 76% ( $n = 56$ ) at one year post-admission, 82% ( $n = 61$ ) at two years, and 88% ( $n = 65$ ) at three years. Hypertension, diabetes, and hypercholesterolemia also tended to increase following admission. BMI increases tended to be greater among females and black/African American individuals. No other demographic or clinical predictors of weight gain were identified within the present sample. These data indicate that methadone maintenance treatment is associated with clinically meaningful weight gain and increases in cardiovascular risk factors. Given the importance of methadone maintenance for treatment of opioid use disorders, future research should examine additional predictors and potential mechanisms of weight gain among methadone patients and develop tailored interventions including nutritional knowledge and lifestyle recommendations.

## ***Session Chair & Speaker Bios (in alphabetical order)***

### ***A. Thomas McLellan, PhD***

Dr. Thomas McLellan has been a career researcher for 35 years at the Treatment Research Institute (which he founded in 1992) and Professor of Psychiatry at the University of Pennsylvania. In his career he has published over 500 research articles and successfully completed over 150 NIH research grants. He has received Lifetime Achievement Awards from the American, Swedish, Italian and British Societies of Addiction Medicine – and jointly by the National Institute on Drug Abuse and the National Institute on Alcohol Abuse and Alcoholism. From 2009 – 2012 Dr. McLellan was unanimously confirmed by the US Senate as Deputy Director of the White House Office of National Drug Control Policy, where he was the principal author of President Obama’s National Drug Control Strategy. In 2016 Dr. McLellan served as Senior Editor for the US Surgeon General report on Facing Addiction. Dr. McLellan holds a BA from Colgate University and a PhD from Bryn Mawr College. He received postgraduate training in psychology at Oxford University in England.

### ***George Bigelow, PhD***

Dr. George Bigelow is Professor of Behavioral Biology at the Johns Hopkins University School of Medicine in Baltimore, Maryland, where he has served as Director of the Behavioral Pharmacology Research Unit (BPRU) from 1975 to 2015, and as director of its postdoctoral research training program on the human behavioral pharmacology of substance abuse from 1981 to the present. His training is as a behavioral psychologist and behavioral pharmacologist. For over 40 years he has conducted clinical research on substance use/abuse both in the human laboratory and in outpatient therapeutic trials, and across a broad range of substances – alcohol, tobacco, cannabis, cocaine, heroin, other opioids, and other drugs. A particular focus has been the clinical pharmacology of opioid agonists, antagonists, and partial agonists. His research has contributed to improvements in methadone maintenance treatment and to development and FDA approval of various formulations of buprenorphine and buprenorphine/naloxone for opioid dependence treatment.

### ***Adam Bisaga, MD***

Dr. Adam Bisaga is a Professor of Psychiatry at Columbia University Medical Center, and a Research Scientist at New York State Psychiatric Institute. He trained in addiction psychiatry at Columbia University and he has been a faculty at the Columbia University Department of Psychiatry since 1999. His NIDA-funded research is focused on development of new medications to treat opioid and other substance use disorders, particularly clinical trials to improve outcomes of treatment with long-acting naltrexone. He has been involved in teaching medical students and healthcare practitioners. He is co-directing the SAMHSA-funded national training and mentoring project “Providers’ Clinical Support System (PCSS)” to implement treatments for opioid use disorders and pain. Dr. Bisaga is a member of UN Expert Panel and the UNODC International Scientific Network. He conducts trainings and program developments internationally, and he co-edited “UN/WHO International Standards for the Treatment of Drug Use Disorders.” Dr. Bisaga is an author of "Overcoming Opioid Addiction: The Authoritative Medical Guide for Patients, Families, Doctors, and Therapists."

***Lauren Brinkley-Rubinstein, PhD***

Dr. Lauren Brinkley-Rubinstein is a community psychologist and an assistant professor in the Department of Social Medicine and the Center for Health Equity Research at the University of North Carolina at Chapel Hill (UNC). Dr. Brinkley-Rubinstein's research explores the impact of incarceration on health outcomes, and she is an expert relevant to the implementation and evaluation of medication assisted treatment (MAT) programs in correctional settings. She is currently evaluating the short and long term impact of the Rhode Island Department of Corrections' comprehensive MAT program—the first ever statewide correctional MAT program to provide all currently available forms of MAT to prisoners in the state.

***Kelly Dunn, PhD***

Dr. Kelly Dunn has an MS in Applied Biopsychology, a PhD in Human Behavioral Pharmacology, is currently completing her MBA at the Johns Hopkins Carey School of Business, and is currently an Associate Professor in the Department of Psychiatry and Behavioral Sciences at Johns Hopkins University School of Medicine. Dr. Dunn has been involved with numerous studies related to substance abuse disorder including clinical and human laboratory trial evaluations of novel medications and behavioral treatments for opioid and alcohol use disorders, as well as cigarette smoking. She has served as the site manager for several industry-sponsored trials of novel opioid products. Dr. Dunn is the principle investigator on four studies funded by the National Institute on Drug Abuse to evaluate different aspects of drug use disorder. She has published more than 50 articles in peer-reviewed journals, has editorial board appointments on the Journal of Substance Abuse Treatment and Experimental and Clinical Psychopharmacology, has received numerous honors in recognition of her research from national organizations, and regularly presents at national meetings. She has served in leadership positions in the American Psychological Association's Division on Psychopharmacology and Substance Abuse's Executive Committee and the College on the Problems of Drug Dependence for the past 10 years. She also regularly serves as an adjunct reviewer for several NIH and CSR grant review committees, is an advisory board member of the Maryland Addiction Director's Council, and regularly provides interviews and talks to local and national press, as well as regional health departments and other organizations, regarding opioid abuse patterns and treatment.

***Laura Fanucchi, MD, MPH***

Dr. Laura Fanucchi is Associate Professor of Medicine and faculty in the Center on Drug and Alcohol Research at the University of Kentucky. Dr. Fanucchi graduated from Emory University School of Medicine and completed a residency in Internal Medicine at New York – Presbyterian Hospital / Weill Cornell. She also received a Masters in Public Health from Emory University. She is board-certified in Addiction Medicine, and her research focus is on improving the care of hospitalized and medically-complex patients with substance use disorders. Dr. Fanucchi is currently providing primary care as well as treatment for opioid use disorder at the University of Kentucky.

***Peter Friedmann, MD, MPH, DFASAM, FACP***

Dr. Peter Friedmann, MD, MPH, DFASAM, FACP, is Associate Dean for Research and Professor of Medicine at University of Massachusetts Medical School (UMMS)-Baystate, Chief Research Officer and Endowed Chair for Clinical Research at Baystate Health, and Professor of Quantitative Health Sciences at

UMMS. He is an internal medicine and addiction medicine physician, and an established addiction health services researcher. His interests include the organization, process and outcomes of addiction treatment; implementation of evidence-based practices across the addiction treatment, medical and criminal justice systems; and the role of physicians in the care of persons with substance use disorders. Dr. Friedmann is currently the lead investigator on NIDA-funded research into epidemiologic risk and service accessibility among persons who use opioids in rural northern New England. Dr. Friedmann is Deputy Editor of the Journal of Substance Abuse Treatment; and president-elect of the Massachusetts Society of Addiction Medicine.

***Jennifer Havens, PhD***

Dr. Jennifer Havens is an Associate Professor in the Department of Behavioral Science at the University of Kentucky College of Medicine. She received her MPH and PhD at the Johns Hopkins Bloomberg School of Public Health, specializing in infectious diseases epidemiology. While in Baltimore, her research focused on mental health and HIV among people who inject drugs; however, there is little HIV in Kentucky, so when she arrived at UK in 2004, Dr. Havens had to shift her research efforts. She and her colleagues began conducting small epidemiologic studies among drug users in Appalachian Kentucky. These data informed some of the earliest studies on the impending opioid epidemic and provided much needed pilot data for the large-scale longitudinal studies she is currently conducting. To date, Dr. Havens has received three R01's and an R03 from NIDA to study the intersection of rural opioid abuse and infectious diseases in rural populations.

***Jack Henningfield, PhD***

Dr. Jack E. Henningfield, PhD, is the Vice President of Research, Health Policy and Abuse Liability, at Pinney Associates, and Professor, Adjunct of Behavioral Biology, in the Department of Psychiatry and Behavioral Sciences, The Johns Hopkins University School of Medicine. Dr. Henningfield was trained in abuse liability assessment and related sciences in the Psychopharmacology Program at the University of Minnesota and the Behavioral Biology Program of The Johns Hopkins University School of Medicine in the 1970s. In the 1980s and 90s, at the National Institute on Drug Abuse (NIDA), he served as Chief of the Clinical Pharmacology Branch, and the Abuse Potential Assessment Section and contributed to NIDA's drug scheduling recommendations. In 1996 he left NIDA to consult on these issues with Pinney Associates to pharmaceutical developers. Dr. Henningfield is proud to be a recipient of the 1996 ASAM Annual Award "for expanding the frontiers of the field of addiction medicine and broadening our understanding of the addictive process, through research and innovation." He has published more than 400 articles and books related to addiction and contributed to NIDA's abuse potential assessment monographs in the 1980s, FDA's first draft guidance in 1990, and expert reviews and special conferences on abuse potential in the 2000s leading to FDA's 2010 draft guidance and the 2017 Final Guidance. His decades of research, product evaluation and contribution to regulation provide his expert perspectives on the science base, the regulatory implications, and the overall value of the Final Guidance. This Guidance, along with FDA's 2015 Guidance on Abuse-Deterrent Opioid is among FDA's many efforts to more effectively address substance abuse and overdose by improving new drug product evaluation and labeling. He has long advocated for comprehensive drug control approaches that move us closer to achieving the goal espoused by former Surgeon General C. Everett Koop, who stated it as follows in a

2003 National Press Club address: “We must greatly expand our efforts to help those with addictions so that getting treatment will be as easy as getting addictive drugs.” (Military Medicine, 2003).

***Andrew Herring, MD***

Dr. Andrew A. Herring is an attending emergency physician and associate director of research at Highland Hospital-Alameda Health System in Oakland, as well as medical director of the hospital’s substance use disorder treatment program and attending physician at its interdisciplinary pain medicine program. He is principle investigator of the California ED-BRIDGE: Emergency Buprenorphine Treatment Project. His current research focuses on emergency department treatment of opioid use disorders and pain management. Dr. Herring is an assistant clinical professor at the University of California, San Francisco, and he conducted health policy research as a Fulbright Scholar in Central America. He is board-certified in emergency medicine and in addiction medicine, and he is a candidate of the American Board of Pain Medicine. He graduated from Harvard Medical School and completed residency in emergency medicine at Highland Hospital.

***Sanchit Maruti, MD***

Dr. Sanchit Maruti, is the Medical Director of the University of Vermont Medical Center (UVMHC), Addiction Treatment Program and an Attending Psychiatrist on the In-patient Psychiatry Service at the UVMHC. He is an Assistant Professor of Psychiatry at The Larner College of Medicine at The University of Vermont. Dr. Maruti graduated from the University Of Vermont College Of Medicine where he was awarded an Albert Schweitzer Fellowship. He completed his residency training in Psychiatry at the UVMHC and served as Chief Resident during his final year. He was recognized as the UVMHC Resident of Year and received the Arnold P. Gold Award for Humanism and Excellence in Clinical Teaching. He completed Fellowship training in Addiction Psychiatry at the Massachusetts General Hospital and Harvard Medical School. Dr. Maruti has research expertise in curriculum development, risk assessment, quality improvement, and outcomes measurement. He serves as a clinical expert on the Provider's Clinical Support System for Medication-Assisted Treatment (PCSS-MAT) Implementation Program and has worked with PCSS Experts to revise the National Buprenorphine Waiver Training course. He is a Co-Investigator on an NIH grant for the development of an Expert System Suicide Risk Assessment Tool. Additionally, he serves on the Board of Directors for the American Academy of Addiction Psychiatry (AAAP).

***Jessica Merlin, MD, PhD***

Dr. Jessica Merlin received her MD from the University of Pennsylvania. She stayed at Penn for her residency in internal medicine and fellowship in infectious diseases, and then completed a palliative care fellowship at the Mt. Sinai School of Medicine. In 2011, Dr. Merlin joined the faculty of the University of Alabama at Birmingham (UAB) Department of Medicine as an Assistant Professor in Infectious Diseases and Gerontology, Geriatrics, and Palliative Care. She stayed at UAB for six years before accepting her current position at the University of Pittsburgh as a Visiting Associate Professor in General Internal Medicine and Infectious Diseases in 2017. Dr. Merlin has directed chronic pain clinics embedded in HIV patient-centered medical homes, first at the 1917 Clinic at UAB and now at the Pittsburgh AIDS Center for Treatment at Pitt. Her research mirrors her clinical work, and focuses on chronic pain in people living with HIV, and more generally, individuals with comorbid mental illness and addiction. She has published

numerous peer-reviewed manuscripts journals in this area and is lead editor of the book, Chronic Pain in HIV: A Practical Approach. She currently holds a K23 career development award from the National Institutes of Health to develop and test a behavioral intervention for chronic pain in patients with HIV, and completed her PhD in Health Behavior as part of this training grant. She has several other ongoing projects investigating the pathophysiology of chronic pain in people living with HIV via mechanisms such as inflammation and pain sensitivity, clinical epidemiology of chronic pain in patients with HIV and management approaches to concerning behaviors that arise among individuals on long-term opioid therapy. She has been recognized nationally for her work, including a Young Investigator award and an Inspirational Leader Under 40 Award from the American Academy of Hospice and Palliative Medicine, the John C. Liebeskind Early Career Scholar Award from the American Pain Society, and the New Investigator award from the Association for Medical Education and Research in Substance Abuse.

***Marjorie Meyer, MD***

Dr. Marjorie Meyer is an Associate Professor in OBGYN and the Division Director for Maternal Fetal Medicine. She started her career in opioid use disorder during pregnancy in 2006 when UVM became a site for the MOTHER study, developing a clinical program as patients presented for treatment. Her focus since then has been to improve access and comprehensive care for pregnant women with OUD throughout the state, with the current status of every hospital in Vermont having a program to provide some form of comprehensive care for this population.

***Richard Rawson, PhD***

Dr. Richard Rawson is a research professor at the University of Vermont and a professor emeritus at the UCLA School of Medicine. Dr. Rawson has a 40+ year career in the field of addiction research, teaching and system development. He has an extensive research portfolio on a broad range of addiction-related topics. He co-founded a community non-profit organization, which has provided treatment for over 15,000 individuals over the past 30 years. He has worked with NIDA, SAMHSA, the US State Department, the World Health Organization and the United Nations Office of Drugs and Crime on international substance abuse research and training projects for over 20 years. He has worked extensively in Africa, the Middle East and SE Asia. Specific projects include leading the UNODC Treatment Program, a Fogarty Training grant with Cairo University, a national drug use survey in Iraq and the Vietnam HIV-Addiction Technology Transfer Center. Dr. Rawson has published 6 books, 40 book chapters and over 240 professional papers and annually conducts numerous workshops, paper presentations and training sessions.

***Jeffrey Samet, MD***

Dr. Jeffrey Samet is the John Noble, MD Professor in General Internal Medicine and Professor of Community Health Sciences at Boston University Schools of Medicine (BUSM) and Public Health and since 2002 he has served as the Chief of General Internal Medicine at BUSM/Boston Medical Center and Vice Chair for Public Health in the Department of Medicine. He has been a primary care physician in Boston since 1983 and was Medical Director of Addiction Services in the Boston Public Health Commission 1995-2012. Past national activities include President of the American Board of Addiction Medicine (ABAM) and the ABAM Foundation in 2012-2013 and a member of the Institute of Medicine Committee, "Addressing the Quality Chasm in Mental Health and Addictive Disorders." His research

focus includes the treatment of substance use disorders in general healthcare settings and the impact of alcohol and drugs on the course of HIV infection and HIV prevention in Russia. He is principal Investigator on multiple NIH grants including the NIAAA Alcohol-HIV Consortium, URBAN ARCH and two NIDA R25 awards to advance physician addiction education and research: The Chief Resident Immersion Training (CRIT) program and the Research in Addiction Medicine Scholars (RAMS) program advancing research careers for addiction subspecialty physicians. He has co-authored over 250 peer-reviewed publications. Dr. Samet is the Editor of *Addiction Science & Clinical Practice*. His mentoring activities have included serving as the primary mentor for 8 faculty K awardees from NIH. He also has a longstanding commitment to educate physicians about addiction medicine.

***Stacey Sigmon, PhD***

Dr. Stacey Sigmon is an Associate Professor with Tenure in the University of Vermont's College of Medicine. She has 25 years of experience conducting behavioral pharmacology and substance abuse treatment research, with two current areas of primary focus. First is the development of more efficacious and accessible treatments for opioid use disorder. Dr. Sigmon's recent opioid research has included NIH-funded randomized clinical trials to develop more effective buprenorphine taper regimens, novel sustained-release formulations of buprenorphine, and currently an interim buprenorphine treatment to reduce illicit opioid use and related risks among opioid-dependent individuals waitlisted for treatment. The second area involves investigating cigarette smoking and nicotine reinforcement among smokers with concurrent substance abuse disorders. This has included the development of a behavioral intervention to promote smoking abstinence among opioid-dependent smokers, as well as ongoing studies examining the effects of reduced-nicotine cigarettes to assess their potential as a less addictive alternative to current commercial cigarettes in opioid-dependent smokers.

***Alexander Walley, MD***

Dr. Alexander Walley is an Associate Professor of Medicine at Boston University School of Medicine and a general internist and addiction medicine specialist at Boston Medical Center. He is the director of the Boston Medical Center Addiction Medicine Fellowship program. His research focus is on the medical complications of substance use, specifically HIV and overdose, and is an active investigator on clinical trials and cohort studies. He provides primary care and office-based addiction treatment for patients with HIV at Boston Medical Center and methadone maintenance treatment at Health Care Resource Centers. He is the medical director for the Massachusetts Department of Public Health's Opioid Overdose Prevention Pilot Program. Since 2007, the MDPH program has trained over 60,000 people in Massachusetts's communities, including people who use opioids, people in recovery, and their social networks.



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