



Interdisciplinary Leaders in  
Substance Use Education,  
Research, Care and Policy

## 42nd Annual National Conference

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# BOOK OF ABSTRACTS



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# Association for Medical Education and Research in Substance Abuse

## BOOK OF ABSTRACTS

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- 49. 15. Web-Assisted Training in Contingency Management: A Customized Yet Scalable Product For Multi-tiered Personnel in Addiction Treatment Settings**  
Bryan Hartzler PhD<sup>1,2</sup>; Denna Vandersloot MED<sup>1,2</sup>; Meg Brunner M.LIS<sup>1,2</sup>; Dennis M. Donovan PhD<sup>1,2</sup> & Beatriz H. Carlini PhD, MPH<sup>1,2</sup> - 1. Alcohol & Drug Abuse Institute, University of Washington; 2. Northwest Addiction Technology Transfer Center (NWATTC)
- 49. 16. Identification of Alcohol Problem Use and Alcohol Use Disorder in Adults Primary Care Patients: TAPS Compared With AUDIT-C and ASSIST**  
Angeline Adam MD, PhD; Robert P. Schwartz MD; Li-Tzy Wu DSc; Geetha Subramaniam MD; Gaurav Sharma PhD; Eugene Laska PhD; & Jennifer McNeely MD, MS - NYU School of Medicine
- 50. 17. Transferring Alcohol and Opioid Use Knowledge and Competencies into Clinical Practice: The Association between Nurses' Stigma Perceptions and Their Readiness and Motivation to Provide Care**  
Khadejah F. Mahmoud PhD(c), MSN; Susan M. Sereika PhD; Deborah Finnell DNS, CARN-AP, FAAN; Karen Schmitt BS, BSN, RN; Janet A. Cipkala-Gaffin DrPH, PMHCNS-BC; Kathryn R. Puskar DrPH, RN, FAAN; & Ann M. Mitchell PhD, RN, AHN-BC, FIAAN, FAAN – University of Pittsburgh School of Nursing

- 50. 18. Improving Nursing Provider Attitudes for Pregnant Women with Opioid Use Disorder**  
Vania Rudolf MD, MPH; Abi Plawman MD; Lynee Brown MA, CDP; Luke Peterson MD; Jackie Wong MD; Paul Gianutsos MD, MPH; & Jim Walsh MD – Addiction Recovery Services
- 51. 19. Pathways Linking Child Maltreatment to Later Substance Use Problems Among Adults in an Inpatient Facility**  
Mahima Karki BA; Julia Felton, PhD; Kathryn Barnhart PhD, MPH; Heather McCauley ScD; Cara Poland MD, M.Ed; Kelly Strutz PhD, MPH; Kayla Vander Stel BS; & Carl Lejuez PhD – Michigan State University College of Human Medicine
- 52. 20. Automated Overdose Prevention: a Quality Improvement Innovation for Naloxone Prescription at Hospital Discharge**  
Leah Harvey MD, MPH; Davis Bradford MD; Gina Chen, MD; Diana Zhang BA; Divya Madhusudhan BA; & Raagini Jawa MD, MPH - Boston Medical Center
- 52. 21. Training Subspecialty Fellows in Addiction Research – The Fellow Immersion Training (FIT) Program**  
Alexander Y. Walley MD, MSc; Marlene C. Lir, BA; Kristina M. King MPH; Sharon M. Coleman MS, MPH; Carly L. Bridden, MA, MPH; Mayowa Sanusi BS; Chinazo Cunningham MD, MS; & Jeffrey H. Samet MD, MA, MPH - Boston University School of Medicine / Boston Medical Center
- 53. 22. Emergency Department Identification and Treatment of a Patient With Opioid Use Disorder**  
Kathy T. Vo MD; Marlene Martin MD - University of California, San Francisco
- 54. 23. Understanding Public Attitudes Toward Cannabis Legalization: Qualitative Findings from a Statewide Survey**  
Brooke Rodriguez LLMSW; Stella M. Resko PhD, MSW; Jennifer Ellis MA; Kathryn Szechy MSW; Theresa J. Early MSW, PhD; Elizabeth Agius BA; & John Kroneck MA, LPC, CPC-R - Wayne State University
- 54. 24. The Brief Negotiation Interview Adherence Scale for Smoking Cessation: A Psychometric Evaluation**  
Michael V. Pantalon PhD; James Dziura PhD; Fang-Yong Li MPH; Gail D'Onofrio RN, MD; & Steven L. Bernstein MD - Yale School of Medicine, Department of Emergency Medicine
- 55. 25. Differences in Substance Use Among Transgender and Non-Transgender Identifying Young Adults**  
Brianna Sabol MSW; Jennifer Ellis MA; & Stella Resko PhD - Wayne State University
- 55. 26. Barriers to Disclosure of Substance Use Behaviors During School SBIRT in a Cohort of Middle and High School Students in Massachusetts**  
Nicholas Chadi MD; Sharon Levy MD, MPH; Lauren E. Wisk PhD; & Elissa R. Weitzman ScD, MSc - Boston Children's Hospital/Harvard Medical School
- 56. 27. Lessons Learned on Recruitment and Retention From the Pilot Study Recovery-Oriented Research Methods for Youth in an Alternative Peer Group (RORMY-APG)**  
Angela Nash PhD, CPNP-PC, PMHS; Keedra Giraldi BSN, RN; Crystal Collier PhD, LPC-S; Joan Engebretson, DrPH, AHN-BC, RN, FAAN; & Stanley Cron MSPH – University of Texas Health Science Center Cizik School of Nursing
- 56. 28. Hepatitis C Testing, Prevalence, and Cascade of Care Among Youth Entering a Substance Use Disorder Treatment Program – Boston, 2012-2013**  
Akash Gupta MD<sup>1</sup>; Arthur Y Kim MD<sup>2</sup>; & Amy Yule MD<sup>3</sup> – 1. Department of Medicine/Pediatrics, Massachusetts General Hospital, Boston, MA; 2. Division of Infectious Diseases, Massachusetts General Hospital; 3. Department of Psychiatry, Center for Addiction Medicine, Massachusetts General Hospital
- 57. 29. Rural/Urban Differences in Methamphetamine Use Among Non-Elderly Adults**  
Benjamin A. Howell MD MPH; Paul Joudrey MD MPH; Gavin Bart MD PhD; William C. Becker MD; & Tyler N.A. Winkelman MD MSc – Yale School of Medicine
- 58. 30. Identifying Inpatient and Out-of-Hospital Naloxone Administrations in Electronic Health Record Data**  
Catherine G. Derington PharmD; Shane R. Mueller MSW; Kris F. Wain MS; Jason M. Glanz PhD; & Ingrid A. Binswanger, MD, MPH, MS – San Francisco VA Medical Center

- 58. 31. Linking Infective Endocarditis Patients with Opioid Use Disorder to Addiction Treatment After Valve Replacement Surgery**  
Jared W. Klein MD, MPH<sup>1</sup>; Joshua L. Hermsen MD<sup>2</sup>; & Judith I. Tsui MD, MPH<sup>1</sup> - 1. Harborview Medical Center, University of Washington School of Medicine; 2. University of Wisconsin School of Medicine and Public Health
- 59. 32. 26-year-old Woman Died After a Fentanyl Overdose in a Bathroom at an Outpatient Addiction Treatment Program**  
Bradley M. Buchheit MD; Alexander Y. Walley MD - Boston Medical Center
- 59. 33. Leveraging Technology to Address Unhealthy Drug Use in Primary Care: Development of a Clinical Decision Support Tool For Primary Care Providers**  
Jennifer McNeely MD, MS; Donna Shelley MD, MPH; Antonia Polyn MPH; Christine Chollak; Angeline Adam MD; & Andre Kushniruk PhD - NYU School of Medicine
- 60. 34. Addiction Service Utilization in Veterans with Liver Disease and Substance Use Disorders - A Nationwide Analysis**  
Lamia Haque MD, MPH; Robert Rosenheck MD – Yale University School of Medicine
- 60. 35. Leveraging Technology to Improve SBIRT Implementation in Pediatric Primary Care**  
Juliet C Yonek PhD, MPH; Zachary Bonzell BS; Amy Whittle MD; & Marina Tolou-Shams PhD – University of California San Francisco, Zuckerberg San Francisco General Hospital and Trauma Center
- 61. 36. Opioid Utilization Patterns Among Older Adults with a New Opioid Prescription after Hospitalization**  
Justina L. Groeger MD, MPH; Marcus Bachhuber MD, MS; Chinazo O. Cunningham MD, MS; & Joanna L. Starrels MD, MS – Montefiore Medical Center
- 61. 37. A Comparison of Breastfeeding Intentions of Pregnant Women With And Without Lifetime History of Marijuana Use**  
Noelle E. Spencer BA, MSc; Kielah A. Turner BS; Ankitha M. Iyer; & Judy C. Chang MD, MPH – Magee-Women Research Institute of Magee-Women’s Hospital of UPMC
- 62. 38. Interdisciplinary Consultation: A Method of Improving Access to Smoking Cessation Services for Veterans in a High-Demand Healthcare System**  
Katelyn Brady RN, MS, PMHNP-BC<sup>1</sup>; Taylor Castagnetta RN<sup>2</sup> - 1. University of California San Francisco; San Francisco VA Healthcare System; 2. San Francisco CA Healthcare System
- 63. 39. Evaluating 6-Month Outcomes After Interdisciplinary Prescription Opioid Safety Team Consultation in Veterans with Chronic Pain Prescribed Opioids**  
Jennifer Corapi PharmD; Tessa Rife PharmD, BCGP, CACP; David Pennington PhD; & Katelyn Brady RN, MS, PMHNP-BC1 - San Francisco VA Medical Center
- 63. 40. Association of Trade-Related Job Loss with Opioid Overdose Death**  
Simeon Kimmel MD, MA; Adam Dean, PhD - Boston Medical Center
- 64. 41. Validation of a Set of “Healthcare Trust” Scales for Women Seeking Substance Abuse Treatment in Community-Based Settings**  
Joshua Cockroft BA<sup>1</sup>; Susie Adams PhD, RN, PMHNP<sup>2</sup>; Deondria Matlock MS<sup>3</sup>; & Mary Dietrich PhD – 1. Vanderbilt University School of Medicine; 2. Vanderbilt University School of Nursing; 3. JourneyPure
- 64. 42. A Simulation-Based Exercise Targeting Adolescent Opioid Use Disorder**  
Gabriela Garcia Vassallo MD; Deepa Camenga MD, MHS; & Ellen Lockard Edens MD, MPE - Yale School of Medicine
- 65. 43. Tailoring Service Design for Homeless Primary Care: What Matters?**  
April Hoge MPH; Aerin deRussy MPH; Ann Elizabeth Montgomery PhD, MSW; Sally Holmes MBA; Adam Gordon MD, MPH; Erika Austin PhD, MPH; David Pollio PhD, MSW; Sonya Gabrielian MD, MPH; & Stefan Kertesz MD, MS - Birmingham Veterans Affairs Medical Center
- 66. 44. Factors Related to Implementation of ED-initiation of Buprenorphine for Opioid Use Disorder**  
Lauren K. Whiteside MD MS; Ly Huynh BA; Rebecca Cunningham MD; Dennis Donovan PhD; Marc McGovern PhD; & Douglas Zatzick MD - University of Washington

**66. 45. Perceptual Barriers to Seeking Residential Substance Use Treatment**

Joseph R. Hudson LMSW; Jennifer I. Manuel PhD, LMSW – New York University

**67. 46. Case-based Needs Assessment for Teaching Residents about Medical Marijuana**

Cynthia S Solomon BSPharm, RPh, CTTS; Glen D Solomon MD - Wright State University Boonshoft School of Medicine

**67. 47. In The Wake of the Opioid Crisis, APRN Students Recognize Lack of Training in Substance Use Disorder Treatment in Their Curricula**

Hung Le BA, RN<sup>1</sup>; Julie A. Edwards MSN, APRN<sup>1</sup>; Jenna Butner MD<sup>2</sup>; & Jeanette Tetrault MD, FACP, FASAM<sup>2</sup> – 1. Yale School of Nursing, 2.Yale School of Medicine

**68. 48. Misuse of Multiple Types of Prescription Medication: A Consideration of Emotion Dysregulation**

Jennifer Ellis MA; Elizabeth Agius BA; Brianna Sabol MSW; Rachel Kollin MA; & Stella Resko PhD – Wayne State University

**69. 49. Opiate Management Clinic: A Proven Partnership Between Primary Care and Addiction Medicine**

Sahithi Gosala MD; Lee Radosh MD, FAAFP – Caron Treatment Centers

**69. 50. Treating Acute Alcohol Withdrawal in Methadone Maintenance Treatment Programs: A Case Study**

Marlene Edelstein RN<sup>1</sup>; Jenna Butner MD<sup>2</sup> – 1. Yale School of Nursing; 2. Yale School of Medicine

**70. 51. Is Life Satisfaction Associated With Cannabis Use Among Young Men?**

Marianthi Louisiana Deligianni MD; Joseph Studer PhD; Jean Bernard Daepen MD; Gerhard Gmel PhD; & Nicolas Bertholet MD, MSc - Alcohol Treatment Center, Lausanne University Hospital

**70. 52. Leveraging Technology to Optimize Emergency Department Nurse's Response to Opioid Overdoses**

Angela Clark PhD, RN; Jeannie Burnie MS, APRN,AGCNS-BC, CEN, FAEN - University of Cincinnati

**71. 53. The Addiction Medicine Consult Service: Structure and Design**

Kelsey Priest MPH; Dennis McCarty PhD - Oregon Health and Science University (OHSU) School of Medicine; OHSU-PSU School of Public Health

**71. 54. The Relationship Between Pregnancy and Drug Use Among the Social Networks of Pregnant Women With Opioid Use Disorder**

Leah Klocke BA; Alexander Davis PhD; Dena Asta PhD; Tamar Krishnamurti PhD; Walitta Abdullah MS, CADC; Chelsea Pallatino PhD, MPH; & Elizabeth E. Krans MD, MSc – Magee-Women’s Hospital of UPMC

**72. 55. Empowering Psychiatric Mental Health Nurse Practitioners to Expand Treatment Opportunities for Veterans with Opioid Use Disorder**

Jennifer Jones MSN, APRN, PMHNP-BC, PHN; Sherri Borden APRN, MS, ANP - San Francisco Veterans Affairs Health Care System

**72. 56. The Application of Expectancy Theory: A Campaign to Reduce College-Age Binge Drinking.**

Carol S. Drolen PhD<sup>1</sup>; Delynne Wilcox PhD, MPH<sup>2</sup> – 1. University of Alabama School of Social Work; 2. University of Alabama Dept. of Health Promotion and Wellness

**73. 57. Usability Pilot Testing of the Hey, Charlie mHealth Application**

Christopher Shanahan MD, MPH; Christopher Baker; Lisa Rullie; Ben Pyser; Vincent Valant; & Emily Lindemer PhD – Boston University School of Medicine

**73. 58. Chronic Pain Management Interdisciplinary Team Initiative for Adults Living with Human Immunodeficiency Virus**

Gina Colleen Dobbs MSN, CRNP<sup>1</sup>; Susanne Astrab Fogger DNP, PMHNP-BC, CARN-AP, FAANP<sup>2</sup> – 1. University of Alabama at Birmingham; 2 University of Alabama at Birmingham School of Nursing

**74. 59. Before and After: Interdisciplinary Perceptions of Barriers to Using SBIRT**

Elizabeth Wacker MA; Shauna Rienks PhD; Deborah Chassler MSW; Stephen Brady PhD; Mena daSilva-Clark MSW, MPH, PhD; Sae-Mi Jeon MA; & Lena Lundgren PhD - University of Denver

- 75. 60. Substance Use Screening, Brief Intervention and Referral to Treatment (SBIRT): A Self-Paced Online Program**  
Yovan Gonzalez RN, MSN, DNP Student<sup>1</sup>; Deborah S. Finnell DNS, CARN-AP, FAAN<sup>1</sup>; & J. Paul Seale MD<sup>2</sup>  
– 1. Johns Hopkins School of Nursing; 2. Navicent Health
- 75. 61. Developing a Protocol for Medication Assisted Treatment of Opioid Use Disorder with Buprenorphine in an Internal Medicine Residency Primary Care Clinic**  
Joseph Boyle MD; Dale Terasaki MD, MPH; Kevin Depner MD; & Elisabeth Ihler MD - University of Colorado School of Medicine
- 76. 62. Prescription Opioid Misusers Are Interested in Obtaining Nalaxone**  
John Cunningham PhD - Centre for Addiction and Mental Health
- 76. 63. Mental Health and Opioid-Related Risk at 4 Weeks Post-Discharge Following Traumatic Injury: A Prospective Study**  
Bailee Stark BS; Christopher Nicholas PhD; Bri Deyo MPH; & Randall Brown MD, PhD - University of Wisconsin School of Medicine and Public Health
- 76. 64. Schedule II Opioid Analgesic (OA-II) Prescription Patterns in a Cohort of New York City Residents Exposed to Chronic Opioid Prescribing, 2013-2016**  
Charles Ko MPH; Michelle L. Nolan MPH; Ellenie Tuazon MPH; Hillary V. Kunins MD, MPH, MS; & Denise Paone EdD - NYC Department of Health and Mental Hygiene
- 77. 65. Role of Physicians in Preventing Opioid Use and Misuse in Women**  
Joshua S. Coren DO, MBA, FACOFP; Joanna Petrides PsyD; Jennifer Ehala MPH, CHES; Ken Stagliano PhD; & Jennifer Marie Keefer MPH, CHES - Rowan University School of Osteopathic Medicine
- 78. 66. Neurocognitive Disorders and Mental Illness: A Review of Current Epidemiology and Evidence Based Treatment**  
Sarah Dobbins RN, MPH, MSNc - UCSF School of Nursing
- 78. 67. Utilizing Enjoyable Activities to Improve Distress Tolerance and Increase Insight in Treating Substance Use: A Case Study**  
Cara Poland MD, MED; Kayla VanderStel BS; Kelly Strutz PhD; Heather McCauley ScD; Mahima Karki BA; Julia Felton PhD; & Kathryn Barnhart PhD - Michigan State University & Spectrum Health
- 79. 68. Unconscious Attitudes in Substance Use: Implicit Bias Towards “Substance Abusers”**  
Robert D. Ashford MSW; Brenda Curtis PhD - University of the Sciences
- 79. 69. Rural Peer-Based Emergency Room Programs: Initial Outcomes for Peer Engagements for Patients with Substance Use Disorder**  
Robert D. Ashford MSW<sup>1</sup>; Matthew Meeks BS; Austin Brown MSW<sup>2</sup> – 1. University of the Sciences; 2. Kennesaw State University
- 80. 70. Transition to Extended-Release Naltrexone From Buprenorphine in Individuals With Opioid Use Disorder in a Hybrid Residential-Outpatient Setting**  
Antoine Douaihy MD; Paolo Mannelli MD; Sarah Akerman MD; Miao Yu PhD; Jandira Ramos MPH; Elizabeth Amoroso BA; Abigail Zavod MD; & Maria Sullivan PhD - Department of Psychiatry, Western Psychiatric Institute & Clinic, University of Pittsburgh School of Medicine
- 80. 71. Patient-centered Language in the Alcohol and Alcohol Problems Perceptions Questionnaire (AAPQ): A Confirmatory Factor Analysis**  
J. Aaron Johnson PhD; Yunmi Chung MPH; Dawn Lindsay PhD; Rachael Vargo BS; Tamar Rodney PhD, RN; Ann M. Mitchell PhD, RN; Jenna Brager PhD(c), RN; Christine L. Savage PhD, RN; Kadejah Mahmoud PhD(c), RN; & Deborah Finnell DNS, RN – Augusta University
- 81. 72. Workwise: Online Learning for the Behavioral Health Workforce**  
Joyce Hartje PhD; Wendy Woods MA; Terra Hamblin MA; & Nancy Roget MS - University of Nevada Reno

- 82. 73. A Descriptive Analysis of a Substance Use Consultation Service in an Acute Psychiatric Care Setting in Vancouver, Canada**  
Kofi Bonnie DNP, MSc, BSc(Hons), BSc(Hons), RPN<sup>1</sup>; Colin McWilliams BSPN, RPN<sup>2</sup>; Samantha Robinson MPH, RN; Cheyenne Johnson MPH, RN, CCRP; & Joseph H. Puyat PhD, MA, MSc – 1. Providence Health Care/Douglas College; 2. British Columbia Centre on Substance Use
- 82. 74. Frequent Users of Substance Use Treatment Services**  
Kakoli Banerjee PhD – Santa Clara County Behavioral Health Services
- 83. 75. Referral to Outpatient Medication Assisted Treatment From Higher Levels of Care Leads to Improved Stabilization**  
Robert C. Sterling PhD; Emily Loscalzo PsyD; Angelo Rannazzisi PsyD; & Meghan Morley M PhilEd - Thomas Jefferson University
- 83. 76. Dimensions of Substance Use Disorder Stigma in a Recovery Cohort in WV**  
Rajan Masih MD, MPH<sup>1</sup>, Michael Landis, MBA, AADC<sup>1</sup>, Barbra Masih, MS, CRC1, & Kabeer Masih, MS<sup>2</sup> – 1. Potomac Highlands Guild, Petersburg, WV; 2. Texas Tech University Paul L. Foster School of Medicine
- 84. 77. Prescription Drug Monitoring Program (PDMP) Utilization, Limitations, and Barriers Perceived by Physicians in West Virginia**  
Rajan Masih MD, MPH<sup>1</sup>, Michael Landis, MBA, AADC<sup>1</sup>, Barbra Masih, MS, CRC<sup>1</sup>, & Kabeer Masih, MS<sup>2</sup> – 1. Potomac Highlands Guild, Petersburg, WV; 2. Texas Tech University Paul L. Foster School of Medicine
- 84. 78. Antibiotics After Missing The Vein? A Discussion of Recognition, Treatment, and Prevention of Skin and Soft Tissue Infections Among Persons Who Inject Drugs**  
Dale Terasaki MD MPH - University of Colorado
- 85. 79. "Who Derives The Greatest Benefits From In-hospital Training in Addiction Medicine? A Mixed Methods Study"**  
Jan Klimas PhD, MSc; Lauren Gorfinkel BSc; Breanne Reel MPH; Huiru Dong PhD (Cand); Keith Ahamed MD; Christopher Fairgrieve MD; Mark McLean MD; Annabel Mead MD; Seonaid Nolan MD; Will Small PhD; Walter Cullen MD; Evan Wood MD, PhD; & Nadia Fairbairn, MD - British Columbia Centre on Substance Use
- 85. 80. Opioid Misuse and Psychiatric Comorbidities: Implications for Pain Care**  
Valerie Hruschak PhD, ABD, MSW; Aimee Hildenbrand PhD; & Gerald Cochran PhD, MSW - University of Pittsburgh, School of Social Work
- 86. 81. A Case Report: Linkage of an Incarcerated Individual With Opioid Use Disorder to Addiction Treatment Post-Release**  
Karen A. Hannon BSN, CARN, LADC; Sarah K. McKeon BSN, RN; Ricardo Cruz MD, MA, MPH; Marc R. Larochelle MD, MPH; Sondra Looby-Gordon MD; Alicia S. Ventura MPH; Donna R. Beers MSN, RN-BC, CARN; & Colleen T. LaBelle MSN, RN-BC, CARN - Clinical Addiction Research and Education Unit, Department of Medicine, Boston Medical Center and Boston University School of Medicine; Grayken Center for Addiction, Boston Medical Center
- 86. 82. Addiction Medicine and Psychiatry Co-visits in an Opioid Treatment Program**  
Kenneth Morford MD; Jessica Zoltani MD; Kathryn F. Eggert LCSW; Jeanette Tetrault MD; Mary Ellen Savage MD; & Lynn Madde, PhD, MPA- Yale University School of Medicine, APT Foundation
- 87. 83. Increasing Pharmacotherapy for Alcohol Use Disorder in a Veteran's Affairs (VA) Interdisciplinary Primary Care Patient Centered Medical Home**  
Julie Edwards MSN, APRN; Elizabeth McLaughlin PhD; Priya Duggal MD; Arjun Gokhale MD; John Huston MD; Richard Smith MD; Jacob Quinton MD; Louis D'Onofrio MSN, APRN; Cara Kurlander MD; Danielle Wojtazjek PharmD; Marcus Harrison BS; Sharen McKay PhD; Shannon Drew MD; & Rebecca Brienza MD - VA Connecticut Center of Excellence in Primary Care Education
- 88. 84. Feasibility On The Frontline: Using a Systematic Approach to Assess Local Conditions in Addictions Treatment Improvement Efforts**  
Dina Chavira PhD; Mary Kaye Johnson PsyD; D. Lee McCluskey PhD; & Erin P. Finley PhD, MPH - South Texas Veterans Health Care System

- 88. 85. Are There Gender, Racial, or Religious Denominational Differences in Religiosity's Effect on Alcohol Use and Binge Drinking Among Youth in the U.S.? A Propensity Score Weighting Approach**  
Audrey Hang Hai MSW – The University of Texas at Austin
- 89. 86. The Effectiveness of Spiritual Interventions For Substance Use- A Systematic Review and Meta-analysis**  
Audrey Hang Hai MSW; Sunyoung Park PhD; Cynthia Franklin PhD; Diana Dinitto PhD; Allan Cole PhD; & Krik von Sternberg PhD – The University of Texas Steve Hicks School of Social Work
- 89. 87. Integrated Behavioral Intervention for Trauma and Substance Misuse (IBITS): A Novel Approach to Treating PTSD and Substance Use Disorder (SUD)**  
D. Lee McCluskey PhD; John D. Roache PhD; Dina Chavira PhD; & Emma L. Mata-Galan PsyD - South Texas Veterans Healthcare/UT Health San Antonio
- 90. 88. Integrated Behavioral Intervention for Trauma and Substance Misuse (IBITS) as an Adjunct to Buprenorphine with Naloxone in the Treatment of Co-occurring Combat-Related PTSD and Opiate Use Disorder-A Case Study.**  
D. Lee McCluskey PhD; John D. Roache PhD; Dina Chavira PhD; Troy A. Moore PharmD; M. Kate Medina MA; LCDC; & Emma L. Mata-Galan; PsyD - South Texas Veterans Healthcare/UT Health San Antonio
- 90. 89. Psilocybin-assisted Group Therapy for Demoralization in Long-term AIDS Survivors**  
Brian Anderson MD, MSc; Alicia Danforth PhD; Robert Daroff MD; Chris Stauffer MD; Jim Dilley MD; Josh Woolley MD, PhD – University California San Francisco



## Oral Presentations

### ~ Best Research Abstract Winner ~

#### **Receipt of Addiction Treatment Following Opioid-Related Overdose Among Medicaid-Enrolled Youth**

Rachel H. Alinsky MD; Bonnie T. Zima MD, MPH; Sarah M. Bagley MD, MSc; Jonathan Rodean MPP; Pamela A. Matson MPH, PhD; Hoover Adger Jr. MD, MPH; & Scott E. Hadland MD, MPH, MS - Division of General Pediatrics and Adolescent Medicine, Johns Hopkins Medicine

**Background:** Evidence-based guidelines recommend adolescents and young adults (“youth”) with opioid use disorder receive treatment with a combination of medication and behavioral health services. Amidst rising overdose rates, the extent to which youth receive timely, evidence-based treatment after opioid-related overdose is understudied. **Objective:** To determine the proportion of youth who receive timely recommended treatment following an opioid-related overdose, and to examine predictors of treatment receipt. **Methods:** Using the Truven MarketScan-IBM Watson Health data, we analyzed all inpatient, emergency department, outpatient, and pharmacy claims of 2,490,114 Medicaid-enrolled youth aged 13-22 years from 11 de-identified states during 2014-2015. We identified youth who had a non-fatal opioid-related overdose based on ICD-9 codes. We determined the percentage who received addiction treatment within 30 days, stratifying by those who received medication (buprenorphine, methadone, or naltrexone), behavioral health services, or both. Using multivariable logistic regression, we identified differences in receipt of treatment according to age, sex, race/ethnicity, and psychiatric comorbidity. **Results:** Among 1,821 youth who experienced an opioid-related overdose, 58.5% were female and 68.2% were non-Hispanic white. Characteristics associated with overdose were older age ( $\geq 18$  vs.  $< 18$  years), female sex, depression, anxiety, attention deficit hyperactivity disorder, alcohol or other non-opioid substance use disorder, or pain condition. Overall, 35.3% of youth received any addiction treatment after an overdose, among whom 92.0% received only behavioral health services, 4.0% received only medication, and 4.0% received both. In multivariable analyses, adolescents were more likely to receive any treatment (age 13-15: adjusted odds ratio [aOR], 1.46; 95% confidence interval [CI], 1.00-2.14; age 16-17: aOR, 1.90; 95% CI, 1.37-2.65) than young adults  $\geq 21$  years. However, adolescents were less likely to receive medication (age 16-17: aOR, 0.2; 95% CI, 0.06-0.7; age 18-20: aOR, 0.5; 95% CI, 0.26-0.97) than young adults  $\geq 21$  years.

**Conclusions:** In this multistate study of youth experiencing opioid-related overdose, only one-third received timely addiction treatment. Only 1 in 35 youth received evidence-based medications, and 1 in 71 received the recommended combination of both medication and behavioral health services. Interventions are urgently needed to link youth to treatment after overdose, with a priority placed on improving access to recommended medication treatment.

### ~ Best Research Abstract Runner-Up ~

#### **Oxytocin-Enhanced Motivational Interviewing Group Therapy for Methamphetamine Use Disorder in Men Who Have Sex With Men: Preliminary Results From a Randomized Controlled Trial**

Christopher S. Stauffer MD<sup>1,2</sup>; Jenna M. Moschetto<sup>4</sup>; Scott M. McKernan<sup>2</sup>; Elaine Hsiang<sup>3</sup>; Steven L. Batki<sup>1,2</sup>; & Joshua D. Woolley<sup>1,2</sup> - 1. Department of Psychiatry, University of California San Francisco; 2. Department of Mental Health, San Francisco VA Medical Center; 3. University of California, San Francisco School of Medicine; 4. Palo Alto University

**Background:** The prevalence of methamphetamine use disorder (MUD) in the United States has risen dramatically in the past four decades and is concentrated regionally and in specific populations (e.g., ~20% of men who have sex with men in San Francisco used illicit stimulants within the past six months). Despite public health consequences of MUD, there are currently no FDA-approved pharmacological treatments. In animal models of MUD, oxytocin administration has produced encouraging results. Oxytocin is a hypothalamic neuropeptide with prominent roles in social attachment and autonomic control in response to stress. Methamphetamine-related social deficits and stress hyper-reactivity may contribute to excessive attrition rates,

which limit the effectiveness of psychosocial treatments. **Objective:** This is the first clinical trial of oxytocin treatment for MUD. We hypothesized that oxytocin treatment, more than placebo, would reduce methamphetamine use, improve retention in psychosocial treatment, and reduce autonomic nervous system activity. **Methods:** In this double-blind study, participants with MUD (n=27) were randomly assigned to cohorts of four to six participants, with all participants in a specific cohort receiving either oxytocin 40-IU or placebo intranasally prior to each of six, weekly, 90-minute motivational interviewing group therapy (MIGT) sessions. Weekly urine drug test results and attendance were recorded. High frequency heart rate variability (HF-HRV), an indicator of parasympathetic control, was derived from continuous electrocardiogram recorded throughout each MIGT session. **Results:** Generalized estimating equation models showed a significant main effect of drug on methamphetamine use such that oxytocin cohorts had fewer meth-positive urines [ $b=2.06$ ,  $SE=0.86$ ,  $p=0.017$ ] and a trend-level main effect of drug on attendance such that oxytocin cohorts had fewer absences [ $b=-4.57$ ,  $SE=2.50$ ,  $p=0.068$ ]. Moreover, our preliminary analysis demonstrated a significantly higher HF-HRV overall among oxytocin cohorts, Mean(SEM): OT: 5.21(0.53), PL: 3.22(0.62),  $t(12.26)=2.28$ ,  $p=0.041$ . **Conclusions:** Preliminary results from our small sample suggest that patients receiving oxytocin-enhanced MIGT had better outcomes than those receiving placebo.

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*~ The John Nelson Chappel Best Curriculum, Quality Improvement, and Program Abstract Winner ~*

**New York City Health Department's Multi-Pronged Approach to Expanding Buprenorphine Treatment Capacity**

Jessica A. Kattan MD, MPH; Marissa Kaplan-Dobbs MPH; Ellenie Tuazon MPH; Denise Paone EdD; Caroline J. Rath PA, MPH; Gail P. Goldstein MPH; Monique S. Wright Med; Holly Catania JD; Kristecia Estem MPH; & Hillary V. Kunins MD, MPH, MS - NYC Dept of Health and Mental Hygiene

**Background:** In New York City (NYC), 82% of 1,426 overdose deaths involved an opioid in 2016. Buprenorphine is an effective treatment for opioid use disorder, however, many New Yorkers do not receive this treatment due to prescribing and access barriers, stigma, and limited awareness of effectiveness. Increasing buprenorphine access is a key NYC Department of Health and Mental Hygiene (DOHMH) strategy to reduce overdose deaths. **Objective:** We describe DOHMH's initial implementation and preliminary evaluation of its multi-pronged approach to expand buprenorphine capacity and use. **Methods:** Starting in 2015, DOHMH implemented a series of new buprenorphine initiatives: 1) clinical training and technical assistance (TA); 2) funding safety net primary care practices to implement a buprenorphine Nurse Care Manager (NCM) model, adapted from a successful Massachusetts program; 3) funding syringe exchange programs (SEPs) to implement buprenorphine prescribing; 4) public awareness campaign; 5) tracking buprenorphine data changes from the Prescription Monitoring Program. **Results:** DOHMH implemented training and TA initiatives for primary care (2015–2016) and emergency departments (EDs) (2017), including trainings that meet federal prescribing requirements, pairing with clinical mentors, and providing TA for practice implementation (e.g., guidance with workflow, staff education). As of April, 2018, 901 prescribers were trained; 21 primary care practices were engaged (including 14 funded for the NCM model), and 10 of these are prescribing buprenorphine; 14 EDs were engaged, and three of these are prescribing buprenorphine; the NCM-funded practices have seen 294 patients. DOHMH funded seven SEPs to implement buprenorphine prescribing (2017), with two prescribing; the remainder are developing their implementation strategies. DOHMH launched a television, social and print media campaign about buprenorphine (and methadone) airing 2017–2018. NYC residents filling buprenorphine prescriptions increased by 7% during 2014–2017 (13,150 to 14,103); NYC prescribers decreased by 11% during 2014–2016 (1,970 to 1,736), then increased 1% to 1,756 in 2017. **Conclusions:** DOHMH increased capacity in NYC to prescribe buprenorphine, with an increased number of patients filling buprenorphine prescriptions, and a modest increase in prescribers following an initial decline. Further increases are expected, as initiatives are fully implemented. DOHMH will continue to monitor impact through prescribing data.

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*~ Best Curriculum, Quality Improvement, and Program Abstract Runner-Up ~*

**Missouri's Implementation of a 'Medication First' Treatment Model for Opioid Use Disorder**

Rachel Winograd PhD; Claire Wood PhD; Ned Presnall MSW, LCSW; Alex Duello MPH; Phil Horn MSW, MPH; Tim Rudder LMSW, MSW; & Rick Grucza PhD, MPE - University of Missouri St. Louis - Missouri Institute of Mental Health

**Background:** In July of 2017, the Missouri Department of Mental Health (MODMH) began implementing a "Medication First" treatment model for opioid use disorder (OUD) in its publicly-funded substance use disorder (SUD) programs. Funding for this pilot was provided by the SAMHSA State Targeted Response to the Opioid Crisis (STR) grant. The "Medication First" model has three key principles: 1) People with OUD receive pharmacotherapy treatment as quickly as possible, prior to lengthy assessments or treatment planning sessions; 2) Maintenance pharmacotherapy is delivered without arbitrary tapering or time limits; 3) Individualized psychosocial services are offered but not required as a condition of pharmacotherapy. **Objectives:** MODMH aims to implement the Medication First model in traditionally abstinence-based, psychosocial-only treatment programs. To execute this model, programs must develop competence in the medical management of OUD by training staff, restructuring clinical protocols, and collaborating with community medical providers. **Methods:** The Medication First model is evaluated quarterly with service data from both the state billing system and a web-based STR reporting system. As of May 14, 2018, 44 treatment programs had been awarded STR funding, which is used to serve uninsured Missouri residents presenting to publicly-funded SUD programs with OUD. As of May 14, 2018, 1,888 individuals had received STR-funded treatment using the Medication First model. **Results:** Preliminary analyses from the first six months of STR (July-December 2017, 833 treatment episodes) indicated successful implementation of the Medication First model. Specifically, compared to clients receiving treatment at these same agencies in the year prior to STR initiation, STR clients were significantly more likely to receive any medication for OUD (38.9% versus 86.8%, respectively), receive medication sooner (20.2 versus 4.6 days into the treatment episode), receive fewer psychosocial services in the first 30 days (1.8 versus .47 hours per day), and remain in treatment at 30 days (56.4% versus 69.9%) and 90 days (33.4% versus 51.9%). **Conclusions:** Initial evaluation demonstrates clients treated with a Medication First protocol have improved access to pharmacotherapy and increased retention in treatment. Optimizing financial incentives will be critical to support the system-wide implementation and sustainability of the Medication First model.

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## 1.1 Geographic Variation in Substance Use

**"They Put All Sorts of Things in the Drugs Today": Qualitative Findings From Four US Heroin and Fentanyl Hotspots**

Sarah Mars PhD; Dan Ciccarone MD, MPH; & Jeff Ondocsin MA - University of California, San Francisco

**Background:** Overdose deaths in the intertwined epidemics of opioid pills, heroin and synthetic opioids (e.g. fentanyl) continue to rise. Overdose risk is geographically uneven with the Northeast, Midwest and Mid-Atlantic regions at higher risk. Little is known about how people who use heroin are affected by and adapting to this dramatically changing risk landscape. **Objective:** Ethnographic research in public health is best used for exploration when many unknowns exist. It can help generate hypotheses for further research as well as foster development of interventions through better understanding of the evolving culture of drug use. The aim of this work is to understand the experiences and beliefs of people who use drugs and directly observe their use of novel opioid combinations. **Methods:** We conducted a "hotspot study" where teams of researchers went to areas of the US with significant changes in the 'heroin' supply or rising overdose rates. Sites visited in 2015-2017 included Baltimore, MD; Lawrence and Lowell, MA; Chicago, IL; Charleston, West Virginia. 98 participants were recruited through syringe exchange programs. Procedures included an in-depth interview, unstructured time with participants and observations/recording of drug consumption. Thematic analyses were performed.

**Results:** A number of themes emerged across the hotspot sites. These include: 1) extensive personal and communal experience of overdose; 2) remarkable variation in ‘heroin’ appearance and potency, compounded by fentanyl; 3) mixed fentanyl desirability; 4) some degree of discernment; 5) behavioral adaptations including use of ‘tastes’ and tester shots. **Conclusions:** The ongoing heroin and fentanyl co-epidemics are unprecedented in scope and are leading to seismic changes in the risks associated with heroin use. A new generation of people who use heroin face daunting risks – structural and behavioral – for overdose, as well as viral and bacterial infections, due to lack of adequate prevention and education programs. Outreach and treatment services must expand to meet these challenges. Interventions include syringe access, peer naloxone programs, supervised injection facilities, drug surveillance, point of use fentanyl checking, increased access to medication-assisted therapies and peer-based education on use of intranasal ‘tasting’ and tester shots.

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### **Preventing Opioid Overdose at the Cutting Edge: Accounts of Drug Sampling Methods for Gauging Potency Among People Who Inject Heroin**

Sarah G Mars PhD, Jeff Ondocsin MA, & Daniel Ciccarone MD, MPH - University of California San Francisco

**Background:** Overdose has long been the primary cause of death among people who inject drugs but the current opioid crisis has seen heroin-related overdose deaths rise seven-fold in the United States (US) from 2002-2016. The addition of illicitly manufactured fentanyls to the heroin supply since 2013 has intensified this loss of life. Fentanyl, 30-40 times more potent than heroin, is generally sold as ‘heroin’, mixed with or replacing the drug, and not easily detected before consumption. There is a dearth of research on how those directly affected are responding and adapting to the overdose crisis and the unpredictable potency of the drug supply. This presentation considers qualitative evidence from cities across five US states. **Objective:** To understand the experiences and beliefs of people who inject drugs sold as heroin and their responses to the changing risks they face. **Methods:** The ‘Heroin in Transition’ study conducts hotspot research across the US in locations where significant overdose or supply changes are reported. 107 people who inject ‘heroin’ (69 men, 38 women) were interviewed in Maryland, Massachusetts, California, Illinois and West Virginia (2015-17). The research team also observed them prepare and use drugs. **Results:** The study found a range of approaches to the risks from resignation to the active adoption of precautionary strategies. Among these precautions were varying methods of drug sampling or observing the strength of the drug dose before deciding how much to inject. These included snorting, smoking or injecting a partial dose; seeking feedback from others using heroin of the same batch or observing injection by users with higher tolerance. **Conclusions:** The use of tester shots and other drug sampling methods to prevent overdose from injection drug use reduces the quantity absorbed at any one time allowing people to monitor for drug strength and titrate their dose accordingly. While these methods do not guarantee safety from overdose, particularly with the more powerful fentanyls, they may be a valuable way to reduce morbidity and mortality, and their efficacy should be empirically tested. Potential pathways and barriers to the adoption of these precautionary methods are discussed.

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### **The Opioid Epidemic in Rural Northern New England: An Epidemiologic, Policy, and Legal Scan**

Thomas J. Stopka PhD, MHS; Randall Hoskinson MPH; Patsy Kelso PhD; Erin Jacque MPS; Amanda Jones MA; Joseph Harding MSW; Anne VanDonsel MPH; Haley Guhn-Knight; Aurora Drew PhD; & Peter Friedmann MD, MPH – UMass Medical School- Baystate

**Background:** In rural New England, access to medication for addiction treatment (MAT) for opioid use disorder (OUD), harm reduction, HIV and hepatitis C (HCV) services vary widely. **Objective:** The DISCERNNE study seeks to characterize the epidemiology, policy and resource environment for OUD, injection drug use, and its infectious consequences. **Methods:** State epidemiologists, academic researchers, and community partners convened to perform epidemiologic, policy and legal scans in 11 rural counties in Massachusetts (MA), New Hampshire (NH) and Vermont (VT). They assessed rates of overdose and infectious complications; examined access to MAT, harm reduction, pharmacy, healthcare, and disease prevention and treatment resources; and generated geographic information system (GIS) maps, causal diagrams, and policy

summaries. **Results:** In 2015, opioid fatality rates were 23.3 (MA), 31.3 (NH), and 13.4 (VT) per 100,000, which could indicate that VT's Hub and Spoke model, and access to SSPs, have effectively reached those in need. VT counties without SSPs had close to double the median rate of fatalities as counties with an SSP. NH, which had no SSPs until 2017, saw a 2.5-fold increase in opioid deaths between 2010 and 2015. NH was among 19 states with statistically significant increases from 2013 to 2014. Other counties without SSPs before 2017 also saw a steady increase in opioid fatalities: Franklin County, MA had an opioid fatality rate per 100,000 of 14.1 in 2014, 19.7 in 2015, and 21.3 in 2016; Orange County, VT saw a 3-fold increase in opioid fatalities over 3-years. Infectious complications increased along similar trajectories, especially among young PWIDs. In Vermont, while HIV prevalence is low, 21% of cases diagnosed in 2013 were associated with IDU, and rates of acute HCV increased 150% between 2009 and 2013. Caledonia County, VT, which has had an SSP, saw a reduction in HCV rates per 100,000 from 164.5 in 2014, to 148.3 in 2016. **Conclusion:** The DISCERNNE study provides an initial understanding of resources to address the opioid epidemic in rural New England. Study results also provide information to guide next steps in a larger project: locations for recruitment of people actively using opioids and locales for future interventions.

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### **Trajectories of Injection Drug Use Among People Who Use Drugs in Vancouver, Canada, 1996-2017: Growth Mixture Modeling Based on Prospective Cohort Studies**

Huiru Dong MSc; Kanna Hayashi PhD; Joel Singer PhD; M. J. Milloy PhD; Kora DeBeck PhD; Evan Wood MD, PhD; & Thomas Kerr PhD - British Columbia Centre on Substance Use

**Background:** Substance use behaviours of people who use injection drugs are known to change and evolve over time, however, these patterns have not been well described. **Objectives:** We aimed to characterize longitudinal trajectories of injection drug use over 21 years and explore factors associated with distinct drug use trajectories. **Methods:** Data were derived from the Vancouver Injection Drug Users Study and AIDS Care Cohort to evaluate Exposure to Survival Services study, two prospective cohorts involving people who inject drugs in Vancouver, Canada. Participants were followed between May 1996 and November 2017. Growth mixture modeling was applied to identify injection drug use trajectories. We further used multinomial logistic regression to identify factors associated with each trajectory. **Results:** During the study period, 2057 participants were followed for a median of 113.4 months (quartile1 – quartile 3: 63.4 – 161.7). Five injection drug use trajectories were identified: persistent high frequency injection ( $n=507$ , 24.6%), high frequency injection with late decrease ( $n=374$ , 18.2%), gradual cessation ( $n=662$ , 32.2%), early cessation with late relapse ( $n=227$ , 11.0%), and early cessation (287, 14.0%). In multivariable multinomial logistic regression analyses, baseline factors found to be associated with being in the persistent high frequency injection group included: daily heroin injection (Adjusted Odds Ratio [AOR] = 1.41, 95% Confidence Interval [CI]: 1.03 – 1.93); binge injection drug use (AOR = 1.63, 95% CI: 1.19 – 2.22); younger age (AOR = 1.02, 95% CI: 1.00 – 1.03); and not being in a stable relationship (AOR = 1.64, 95% CI: 1.18 – 2.27). **Conclusions:** We identified the existence of five distinct injection drug use trajectories, with a significant portion of participants remaining high frequency injectors over the study period. Findings from this study highlight the importance of identifying appropriately targeted interventions to reduce long-term injection drug use.

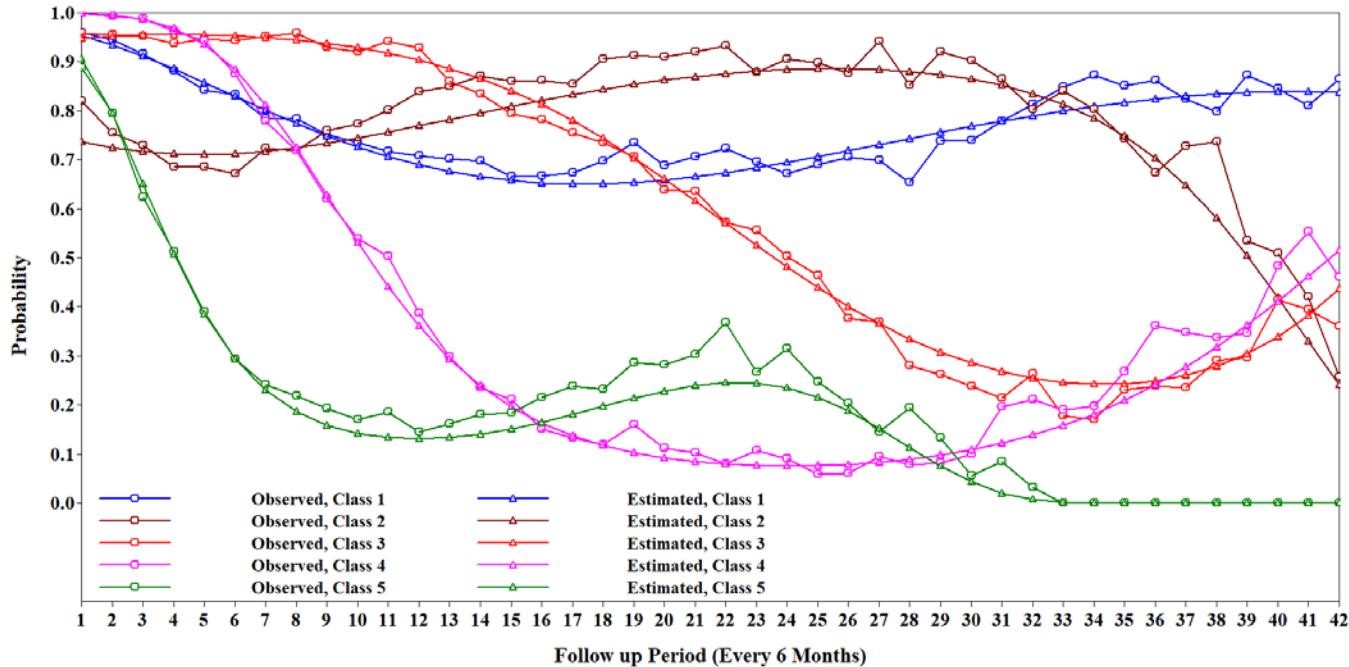


Figure: Injection drug use trajectory classes using growth mixture modeling among 2057 people who use injection drugs in Vancouver, British Columbia, Canada, 1996 – 2017. Proportions for the latent classes were based on the estimated model.

### Opioid Discontinuation Patterns in a Large Colorado Health System: 2012-2017

Jason M. Glanz PhD; Stan Xu PhD; Susan Shetterly MPH; Komal J. Narwaney PhD; & Ingrid A. Binswanger MD, MPH, MS - Kaiser Permanente Colorado Institute for Health Research

**Background:** National opioid management guidelines recommend tapering opioids for chronic pain if the benefits outweigh the risks. There is little consensus on how to discontinue opioids to reduce overdose risk. Large electronic health record databases represent a potentially powerful resource to study the safety and effectiveness of different tapering practices. **Objective:** Characterize patterns of opioid discontinuation in routine clinical care. **Methods:** We conducted a retrospective cohort study of Kaiser Permanente Colorado Denver/Boulder patients ages  $\geq 18$  years with  $\geq 3$  opioid dispensings in a 90-day period, with follow-up between 2012-2017. The third dispensing date represented the index date. Discontinuation was defined as having at least one 30-day period in which there was no opioid dispensed. Among individuals who had at least one discontinuation, we described the mean number of re-initiations and repeat discontinuations. We also described the mean milligram morphine equivalent (MME) dose at the index and re-initiation (first dose after discontinuation). **Results:** Among 12,028 eligible patients, the mean MME on the index date was 51.8 (SD 81.8) and 5,590 (46.5%) had at least one period of discontinuation over the follow-up. Approximately 70% of those who had a discontinuation were prescribed less than 50 MME, and individuals on lower doses were more likely to have been discontinued ( $p < 0.001$ ). Participants discontinued and re-initiated opioids an average of 2.2 times, with a range of 1-16 times across the follow-up. The mean re-initiation dose was 40% lower than the dose on index date. Among those who discontinued ( $n = 5,590$ ), 3,064 remained discontinued and never reinitiated again. Among those who stayed discontinued, it took an average of two attempts to discontinue their opioid prescriptions. **Conclusions:** Multiple discontinuation periods are common among people on chronic opioid therapy, particularly among individuals on lower doses. After periods of discontinuation, patients tend to be re-initiated at a reduced dose. These findings suggest multiple attempts may be required to successfully discontinue opioids. Future research will explore predictors of longer periods of discontinuation and whether specific discontinuation practices are associated with heroin use, overdose, pain, and quality of life.

## **Demographic and Healthcare Utilization Characteristics of Heroin and Pharmaceutical Overdose in a Large Colorado Health System**

Ingrid A. Binswanger MD, MPH, MS; Komal J. Narwaney PhD; Kris F. Wain BS; Andrew T. Sterrett PhD; Shane R. Mueller MSW; LeeAnn M. Quintana MSW; & Jason M. Glanz PhD - Kaiser Permanente Colorado Institute for Health Research

**Background:** Overdose rates from heroin and pharmaceutical opioids have increased significantly over the last 10 years. To inform interventions to address the opioid overdose epidemic, data on the demographic and clinical differences between heroin and pharmaceutical overdose victims are needed. **Objective:** We sought to compare demographic characteristics and health care utilization patterns between individuals who suffered heroin and pharmaceutical opioid overdoses using health system data from Kaiser Permanente Colorado (KPCO) over a five-year period. **Methods:** We conducted a population-based study within KPCO from 2012-17. Electronic health record and claims data were used to identify non-fatal overdoses in emergency department and inpatient settings. Fatal overdoses were identified using cause-of-death codes generated through linkage with state vital statistics. Demographics and healthcare utilization factors were compared between heroin overdose and pharmaceutical overdose victims with t-tests and chi-square statistics. **Results:** A total of 1,013 overdoses were identified; 197 (19.4%) and 816 (80.6%) were HODs and PODs with a case-fatality rate 22.8% and 9.8%, respectively ( $p<0.001$ ). The median age at HOD was 24.0 whereas the median age of POD was 50.0 years ( $p<0.001$ ). Heroin overdoses were more likely to occur in men (66.7%) than women, while 39.3% of POD were male ( $p<0.001$ ). Less than a third of patients with a HOD and less than 10% (6.3%) of patients with a POD had a visit in addiction treatment services in the last year (27.9%); no patients with HOD were dispensed naloxone in an outpatient setting and only 4% of patients who had a POD were dispensed naloxone in the prior year ( $p<0.001$ ). **Conclusion:** Using large integrated health systems data, we examined the epidemiology of HOD and POD. Our findings suggest important gaps in addiction treatment and naloxone prescribing. Different interventions may be needed to reduce the risk of HOD in this population, based on the different age characteristics and utilization patterns.

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## **1.2 Using Technology & Data to Facilitate Treatment**

### **A Pilot Randomized Controlled Trial of a Universal Computer-Facilitated Substance Use Screening and Brief Intervention System For Adolescent Primary Care Patients**

Sion K. Harris PhD; Lon Sherritt MPH; Laura Grubb MD MPH; Ronald Samuels MD; Thomas Silva MD; Louis Vernacchio MD MSc; Wendy Wornham MD; & John R. Knight Jr., MD - Harvard Medical School/Boston Children's Hospital

**Background:** Professional guidelines recommend primary care substance use (SU) screening and counseling for all adolescents, but studies show suboptimal adherence. To reduce barriers, we developed a computer-facilitated Screening and Brief Intervention (cSBI) system consisting of computer-facilitated screening and psychoeducation for patients, and point-of-care decision support for clinicians to guide 2-3 minutes of counseling and recommended follow-up. **Objective:** We conducted a pilot randomized controlled trial of cSBI vs. treatment-as-usual (TAU) in primary care assessing effects on adolescent receipt of clinician counseling, and on delay of SU during 12-months follow-up as indicated by time to first SU post-visit. **Methods:** Well-visit patients ages 12-18 years (grades 6-12) were consecutively recruited at 5 Boston pediatric practices in 2015-2016. Upon arrival, participants provided informed assent/consent and completed the CRAFFT screen and baseline assessments on a tablet computer. We had an IRB-approved waiver of parent consent. Participants were then randomized within-site to TAU or cSBI (1:2). We assessed patient-reported counseling receipt with a post-visit questionnaire, and substance use days from baseline through 12-months follow-up using a Timeline Follow-Back calendar completed at 3-month intervals. We used Cox proportional hazards modeling to examine days-to-first-use post-visit, stratified by baseline use-status and adjusted for cluster-sampling. **Results:** Participation was 88% (963/1098); group N's were TAU=337 and cSBI=626; 12-months follow-up was 80%,

with similar retention between groups. We found no baseline group differences other than age (TAU vs. cSBI M = 15.1 vs. 14.7 years, p=.008); age was a control variable in all further analyses. The sample had 51% girls, 45% were White non-Hispanic, and 78% had >3 prior visits with their clinician. Baseline past-12-month alcohol, cannabis, and other drug use rates were 22%, 12%, and 1%, respectively. cSBI had higher counseling rates than TAU (91% vs. 72%, p<.001). Among those with baseline use, the cSBI group had longer time to first post-visit use compared to TAU for alcohol (adjusted hazard ratio [AHR, 95%CI] 0.64, 0.43-0.95), and cannabis (AHR 0.51, 0.31-0.83); there was no effect among baseline non-users. **Conclusions:** Compared to TAU, computer-facilitated screening and brief intervention significantly delayed first substance use following adolescent well-visits among those reporting prior use at baseline.

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### **Thematic Analysis to Identify Challenges Reported By Primary Care Teams in Two Tele-Education Clinics Focused on Medication For Opioid Use Disorder (MOUD)**

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**Background:** Medications for opioid use disorder (MOUD) can reduce the risk of drug overdose death by >50%. Boston Medical Center (BMC) operates 2 MOUD-focused Extension for Community Healthcare Outcomes (ECHO) hubs for primary care teams treating substance use disorders (SUDs). Prior studies have detailed barriers to *implementation* of MOUD programs in outpatient settings; few have described challenges faced by teams *actively providing* MOUD. BMC's MOUD-focused ECHO clinics present a unique opportunity to study topical issues and challenges identified by primary care teams practicing in community-based settings.

**Objective:** To identify challenges faced by primary care teams providing MOUD via qualitative analysis of tele-ECHO patient case presentations. **Methods:** We reviewed 68 patient case forms from 35 MOUD-focused tele-ECHO sessions at BMC between January 2017 and March 2018. Cases were submitted and presented by ECHO participants (i.e., community-based primary care teams) using a standardized presentation template. Presenters identified clinical questions and solicited recommendations. Inductive thematic analysis was used to identify and collate significant codes from the content of clinical questions; codes were categorized into themes and subthemes. A second independent review was performed using themes and subthemes identified by the initial reviewer. **Results:** Over 50% of cases were presented by buprenorphine waivered providers. Five main themes emerged from 158 codes. Themes and subthemes identified included: 1. engaging and retaining complex patients in care (n=43), comprised of subthemes (i) addressing patient ambivalence, (ii) improving adherence, and (iii) relapse prevention/management; 2. managing comorbidities (n=34) comprised of subthemes on how to treat (i) pain, (ii) mental illness, and (iii) multiple SUDs; 3. determining risk vs. benefit of maintaining patients on MOUD (n=33) comprised of subthemes (i) patient adherence with MOUD while using non-opioid substances, and (ii) inconsistent adherence with MOUD; 4. MOUD prescribing (n=28) comprised of subthemes (i) initiation of MOUD, (ii) determining appropriate dose, and (iii) discontinuation of MOUD; and 5. addressing social determinants of health (n=20). **Conclusions:** Primary care teams report complex medical and psychosocial challenges to providing MOUD in outpatient settings. Findings may guide future technical assistance and training efforts. Future research should confirm the generalizability of these findings to other practices.

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## **Feasibility of a Mobile Health App For Video Directly Observed Therapy of Buprenorphine Among Patients Treated For Opioid Use Disorders in an Office-based Setting**

Judith I. Tsui MD, MPH; Margo E. Godersky MPH; Andrew J. Saxon MD; Joseph O. Merrill MD, MPH; & Jeffrey H. Samet MD, MA, MPH - University of Washington

**Background:** Mobile health (mHealth) applications are an increasingly common tool to support patients. The use of such applications to support patients in the treatment of opioid use disorders, however, is limited.

**Objective:** The study aim was to pilot test the feasibility and acceptability of an mHealth platform that allows video-directly observed therapy (VDOT) among patients receiving buprenorphine in an office-based setting.

**Methods:** An mHealth application was modified specifically for buprenorphine treatment based on patient and provider feedback through interviews. Aside from VDOT, the application included medication reminders, calendar, daily assessment of cravings and side effects, and links to community support resources. A pilot feasibility study was conducted among patients receiving buprenorphine in an office-based setting over a 4 week period. Participants were instructed to upload daily videos of their buprenorphine ingestion. Data were collected from in-person weekly visits, including medication adherence, substance use, satisfaction with treatment and urine drug testing (UDT). Open-ended questions were asked to solicit feedback on their experience at the final visit. **Results:** The sample consisted of 14 patients; the majority were male (86%) and White (79%). Nearly all (13/14; 93%) were able to use the application successfully to upload videos. Among those who used the application, the percentage of daily videos submitted per participant ranged from 18 to 96%; on average, daily videos were submitted by participants 72% of the time. All participants were UDT positive for buprenorphine at all visits excluding one participant who discontinued treatment. Opioid UDT positive results occurred among 7/14 (50.0%) at baseline and 5/14 (35.7%) at the final visit. Most participants (10/14 or 71%) reported being “very satisfied” with the mHealth application; no participants reported being “dissatisfied”. Positive benefits reported included greater accountability and structure of treatment. Negative feedback included discomfort at viewing video recording of one’s self and the burden of time commitment. **Conclusion:** Based on these pilot study results, use of a mHealth application for VDOT of buprenorphine appears feasible and acceptable for patients who are treated in an office-based setting. Further research is needed to test whether use of such an application can improve buprenorphine treatment outcomes.

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## **Randomized Pilot Trial of Online Cognitive Behavioral Therapy Adapted for Use in Office Based Buprenorphine Maintenance**

Julia Shi MD; Susan Henry RN; Stephanie L. Dwy MA; Skye A. Oraziotti BA; & Kathleen M. Carroll PhD - APT Foundation

**Background:** Despite the clear success of office-based buprenorphine maintenance in increasing availability of effective treatment for opioid use disorder, constraints on its effectiveness include high attrition and limited high quality behavioral care in many areas. Web based interventions may be a novel strategy for providing evidence-based behavioral care to individuals receiving office-based buprenorphine maintenance. **Objective:** This report describes modification and initial evaluation of computer-based training in cognitive behavioral therapy (CBT4CBT) specifically for use with individuals in office based buprenorphine. **Methods:** Twelve-week randomized pilot trial evaluating effects of CBT4CBT-Buprenophine in retaining participants and reducing drug use with respect to standard office-based buprenorphine maintenance alone. Twenty individuals meeting DSM-5 criteria for current opioid use disorder were randomized to standard buprenorphine maintenance or buprenorphine maintenance plus access to CBT4CBTBuprenophine. **Results:** Results indicated better retention in CBT4CBT-Buprenophine relative to standard buprenorphine maintenance (83 versus 69 days of 84 possible, NS) as well as statistically significant differences in rates of urine toxicology screens negative for opioids (91% versus 64%, p=.05) and all drugs (82% versus 30%, p<0.001). **Conclusions:** While preliminary and limited by the small sample size, this trial suggests the promise of validated, web-based interventions, tailored for this specific patient population, for improving outcomes in office-based buprenorphine.

## Using Technology to Improve Clinical Supervision in Behavioral Health Treatment Settings

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University of California Los Angeles, Integrated Substance Abuse Programs

**Background:** Project Extension for Community Healthcare Outcomes (ECHO) is a hub and spoke knowledge-sharing network, led by expert teams who use multi-point videoconferencing to conduct virtual clinics with community providers in order to improve the quality of care. For this project, members of the Addiction Technology Transfer Center network applied this model to enhance workforce capacity to deliver clinical supervision for the treatment of substance use disorders. **Objectives:** Clinical supervision is a formal and disciplined working alliance that is generally between a more experienced and a less experienced worker, in which the supervisee's clinical work is reviewed and reflected upon, with the aims of: improving the supervisee's work with clients; ensuring client welfare; and supporting the supervisee's professional development. However, many supervisors attempt to perform this complex role without the benefit of formal training. This initiative was designed to provide clinical supervisors the expert support necessary to enhance their supervision skills. **Methods:** Clinical supervisors (n=66) employed in substance use disorders treatment programs were recruited to participate in this pilot study. The virtual ECHO clinic consisted of 12 total sessions, each lasting 1 hour and comprised of a 15-minute mini-lecture on a clinical supervision topic and a 45-minute case presentation and review. A survey was completed prior to and immediately following the 12 ECHO sessions, gathering information on participation satisfaction and clinical supervision self-efficacy.

**Results:** 48 staff attended at least one ECHO session (mean=6.38) and results are presented for 20 staff who completed the follow-up survey. Participants were highly satisfied with the intervention, facilitation of hub experts, organization of the clinic, relevance of the technical assistance to their work, and with the impact of the intervention on their effectiveness as a supervisor. Results also show that there were significant self-reported improvements in clinical supervision self-efficacy following participation. **Conclusions:** Results from this pilot study suggest that ECHO virtual clinics: are feasible to implement for workforce development, are well liked by participants, and can enhance clinical supervision self-efficacy. Further research should explore the impact of self-efficacy on clinical supervision

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## Moving Beyond MEDD and Opioids to Address the Opioid Crisis

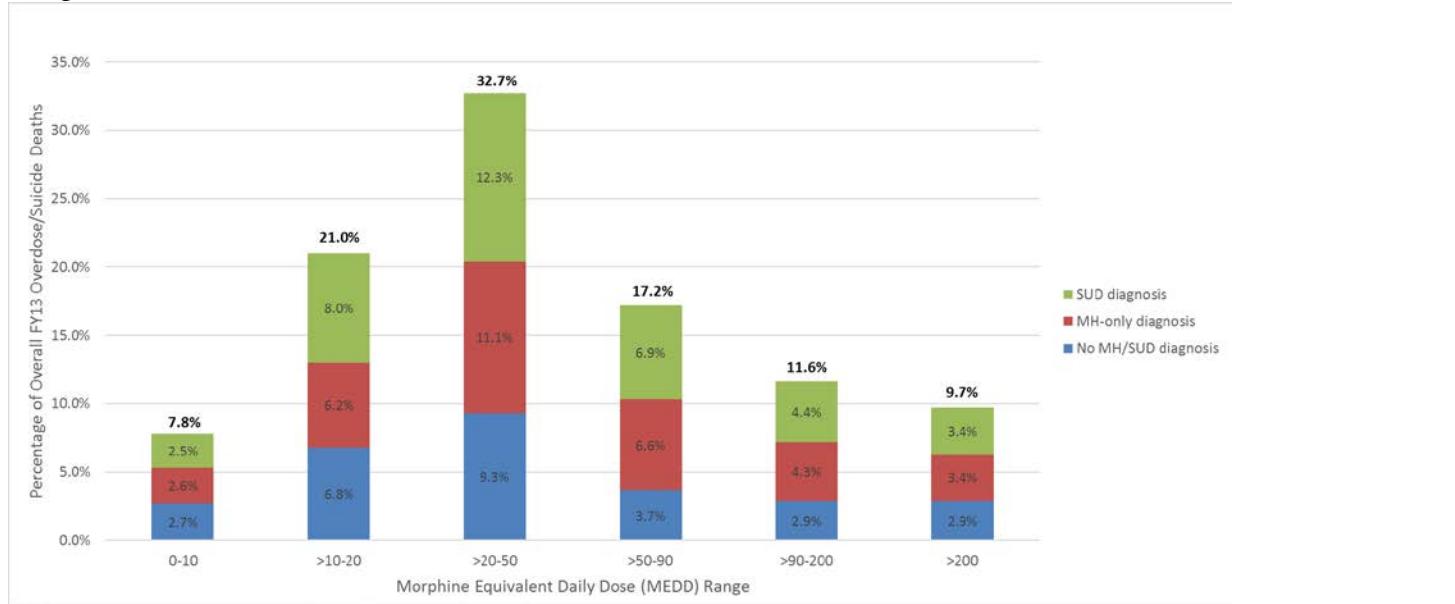
Elizabeth M. Oliva PhD<sup>1</sup>; Stefan Kertesz MD, MSc<sup>2</sup>; & Ajay Manhapra MD<sup>3</sup>- 1. VA National Opioid Overdose Education and Nalaxone Distribution (OEND), VA Program Evaluation and Resource Center, VA Office of Mental Health and Suicide Prevention; 2. University of Alabama at Birmingham; 3. Hampton VA Medical Center, New England Mental Illness Research, Education and Clinical Center, Yale School of Medicine

**Background:** Various states, organizations, and health care systems are pursuing morphine equivalent daily dose (MEDD) limits as a population-based risk mitigation strategy for persons prescribed opioids. However, a review of the evidence suggests that most patients who die of overdose are not prescribed high doses of opioids. Moreover, the importance of taking into consideration comorbidities will be highlighted in the context of burgeoning research across different patient populations that converges to find that in predictive models of overdose, comorbidities play just as important a role as opioids—including MEDD—in predicting mortality.

**Objectives:** To examine the roles of MEDD and mental health (MH) and substance use disorder (SUD) comorbidities in overdose- and suicide-related deaths among Veterans Health Administration (VHA) patients prescribed opioids. **Methods:** Using fiscal year 2013 (FY2013) VHA Corporate Data Warehouse data, we identified all patients receiving at least one outpatient opioid prescription for pain and categorized them within six MEDD ranges: 0-10, >10-20, >20-50, >50-90, >90-200, and >200. Mortality due to overdose or suicide in FY2013 was identified using National Death Index (NDI) data drawn from the Veterans Affairs/Department of Defense Suicide Data Repository. We examined the proportion of patients with mental health (MH) and/or substance use disorder (SUD) diagnoses in each dose stratum, both in the overall sample and among those who died due to overdose or suicide. **Results:** Results for overdose and suicide were combined since the pattern of results were similar. Among the 1,394,907 VHA patients prescribed opioids in FY2013, 1,305 died of overdose/suicide. Most patients were below 90 MEDD (92.6%) and nearly half (48.9%) had MH or SUD

diagnoses. Patients below 90 MEDD accounted for most overdose and suicide deaths (61.5% <50 MEDD; 78.7% <90 MEDD). The prevalence of MH/SUD was high (71.6%) among those who died. **Conclusions:** Overdose and suicide deaths among patients prescribed opioids for pain were most frequent among patients prescribed low to moderate opioid doses and patients with comorbid MH/SUD. Our data highlight the limitations of using dose limits as a solitary marker of risk in population-based risk mitigation strategies and the importance of taking into consideration MH and SUD comorbidities.

Figure: Percentage of Deaths Due to Overdose or Suicide Across Morphine Equivalent Daily Dose (MEDD) Ranges in Fiscal Year 2013 (FY13)



## 1.3 Opioid Prescribing For Chronic Pain: Safety & Tapering

### Just Sign Here? A National Survey of Opioid Treatment Agreements for Chronic Pain Management

Jordana Laks MD, MPH; Krupa Patel MD; Daniel P. Alford MD, MPH; Margaret Jones BA; Emily Armstrong BA; Katherine Waite BA; Lori Henault MPH; & Michael K. Paasche-Orlow MD, MA, MPH - Boston University School of Medicine and Boston Medical Center

**Background:** National guidelines recommend using opioid treatment agreements (OTAs) for patients prescribed opioids for chronic pain. OTAs are intended to educate patients about medication risks and benefits and establish shared treatment expectations and goals. There is no national standardized OTA content or format, and evidence supporting their efficacy in improving care is lacking. **Objectives:** To assess the processes, regulations, and provider views of OTAs in a national sample, and to describe OTAs' readability and thematic content. **Methods:** Electronic surveys and requests for OTAs were sent to clinicians who had registered for Boston University's Safe and Competent Opioid Prescribing Education program between 3/2013-6/2017. Clinicians were asked about practice characteristics and use of OTAs, including their regulations and utility. Submitted OTAs were analyzed for reading level using the Flesch-Kincaid Grade Level formula and for thematic content. Frequency distributions were calculated for survey, readability, and thematic content data.

**Results:** The 443 survey respondents were from 44 states, with primary care (51%) and pain medicine (15%) as the two most common specialties. 122 submitted OTAs. OTAs were more commonly required by respondents' clinics (73%) than by state law (23%); however, 38% were uncertain of state OTA mandates. Although 66% reported that OTAs are "often or always" worth the effort, only 30% affirmed they are "often or always" effective in reducing opioid misuse. Submitted OTAs had a mean 10th-grade reading level (range: grades 4-18); only 24% were at or below 8th-grade level. Content analysis revealed universal emphasis on patient compliance with rules regarding medication and substance use, prescription procedures, and monitoring. Half of OTAs warned that non-adherence with the treatment plan or behaviors suggestive of opioid misuse would result in discontinuation of care. **Conclusions:** This national survey demonstrated lack of standardization in opioid

treatment agreements (OTAs) and discordant provider opinions regarding their utility. Current OTAs are written above the recommended 8th-grade or below reading level and serve primarily as disciplinary tools to penalize patients for non-adherence or behaviors suggesting misuse. There is a need to create a standardized, comprehensible, and more collaborative OTA that can be evaluated for efficacy in improving care.

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### National Trends in Opioid Risk Mitigation Practices: Implications for Prescriber Education

Daniel P. Alford MD, MPH<sup>1,2</sup>; Patrice Lazure MSc<sup>3</sup>; Ilana Hardesty<sup>1</sup>; Suzanne Murray<sup>3</sup>; Joanna R. Krause MPH<sup>1</sup>; Sophie Peloquin MMedSc<sup>3</sup>; & Julie L. White MS<sup>1</sup> – 1. The Barry M. Manuel Office of Continuing Medical Education, Boston University School of Medicine, Boston, MA, USA; 2. Clinical Addiction Research and Education Unit, Section of General Internal Medicine, Boston University School of Medicine, Boston Medical Center, Boston, MA, USA; 3. AXDEV Group, Brossard, Quebec, Canada

**Background:** In the United States, increases in opioid prescribing for chronic pain have been associated with opioid-related harms. Opioid prescribing guidelines that have been developed support the concept of “universal precautions”, which recommends applying risk mitigation strategies to all patients prescribed opioids. It is unknown to what extent these practices are known and applied. The baseline survey for Boston University School of Medicine’s Safe and Competent Opioid Prescribing Education (SCOPE of Pain) provides a unique opportunity to better understand the landscape of applying opioid risk mitigation practices. **Objective:** To assess national trends in five selected prescription opioid risk mitigation practices and associations with prescriber type, state-specific opioid overdose severity, and required pain management education to better inform future prescriber training needs. **Methods:** Analysis of national SCOPE of Pain registrants’ baseline use of five safe opioid prescribing practices over three years (March 2013–February 2016). The analysis was restricted to physicians, advanced practice nurses and physician assistants who prescribe opioids and are from specialties managing chronic pain. **Results:** Pre-training data from 6,889 SCOPE of Pain registrants from all 50 U.S. states and DC included 70% physicians, 20% advanced practice nurses and 10% physician assistants with 71% of registrants practicing in family medicine or internal medicine. Fifty-eight percent of registrants reported having more than 10 years’ experience with 39% in urban, 38% in suburban and 22% in rural settings. Although 70–94% reported performing each of five opioid risk mitigation practices for “most or all” patients, only 28% performed all five practices for “all” patients prescribed opioids. There were few differences among three yearly cohorts. Advanced practice nurses reported performing practices for “all” patients more often than physicians or physician assistants. Clinicians from states with high opioid overdose rates reported significantly higher implementation of most practices, compared to clinicians from states with low rates. **Conclusions:** Registrants for a safer opioid prescriber training appear to be knowledgeable of opioid risk mitigation practices but report low levels of employing them for all patients prescribed opioids. Safer opioid prescribing education should transition from knowledge-acquisition towards rationale and strategies for universal implementation of opioid risk mitigation practices.

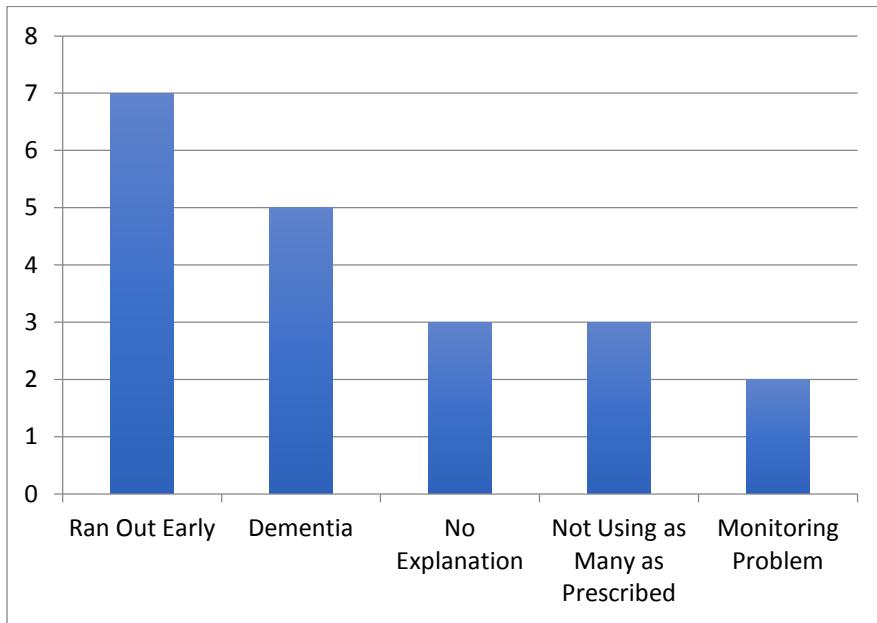
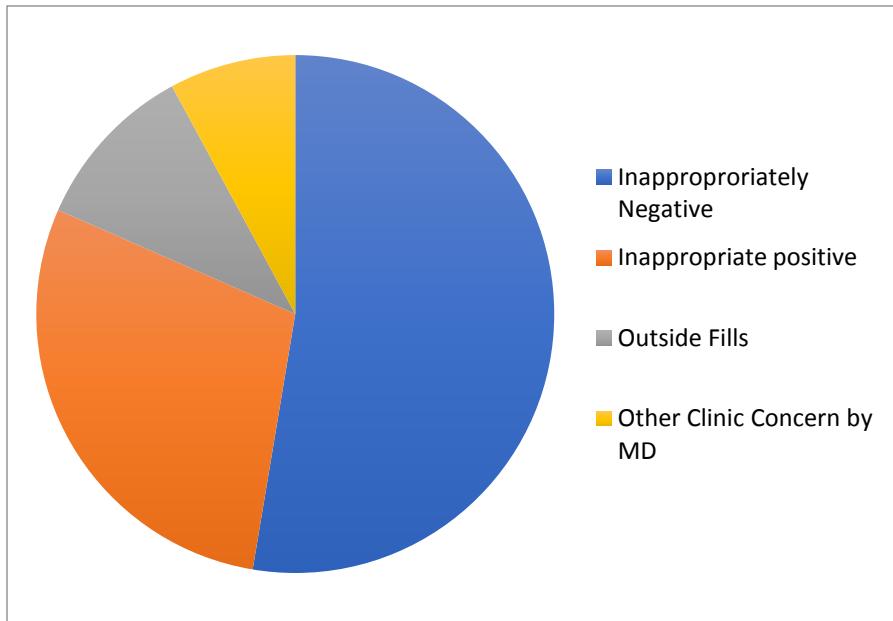
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### Development of an Opioid Safety Clinic Within Resident Primary Care Clinic

Leah Jean Leisch MD; Teresa Bryan MD – University of Alabama at Birmingham

**Background:** Studies have shown that patients in resident clinics on long term opioid therapy (LTOT) are less likely to receive guideline concordant care and more likely to have aberrant behaviors as compared to patients seen in attending clinics. This is discouraging for residents and unsafe for patients. **Objective:** In order to improve the quality of care received by patients on LTOT in resident clinic we designed an “Opiate Safety Clinic” within our resident clinic. These appointments focused on providing more consistent care for patients on LTOT with aberrant behaviors. **Methods:** Patients in a VA based Internal Medicine Resident primary care clinic were referred into the safety clinic via an addendum on the regular clinic note. Once scheduled, one of the two attending physicians would co-manage the patient with the residents, nursing and pharmacy staff until resolution of the aberrant behavior or taper off the opioids occurred. **Results:** During the first six months of operation, the safety clinic saw thirty-seven unique patients. Eighteen of the 37 referrals resulted in discontinuation or dose reduction of opioids. Of the patients referred, fifty-two percent were referred due to

inappropriately negative urine drug screens. Twenty nine percent were referred due to inappropriately positive urine drug screens. Eleven percent were referred due to repeated fills from outside providers. The remaining eight percent were referred for evaluation of a variety of clinical scenarios such as a family member reporting diversion. Of the fifty-two percent with inappropriately negative urine drug screens, twenty-five percent had undiagnosed dementia and fifteen percent reported not taking as many pills as prescribed. **Conclusions:** Opiate Safety Clinic can be a useful tool to decrease opioid prescribing in resident clinic. The most common reason for referral to the Opiate Safety clinic was unexpected results on Drug Screen monitoring. Our results highlight the importance of a thorough history regarding how patients take their medications. These findings also point to a need to be more intentional about screening for dementia in our patients on long term opioid therapy.



### Prescribing Safety with Opioid Refills: A Pharmacy Pilot in Primary Care

Kimberly Kwok PharmD; Amy Gragnolati PharmD; Murtuza Ghadiali MD; Kevin B Miller PharmD; Ivan Ho PharmD - Kaiser Permanente San Francisco

**Background:** Opioids account for 40% of all drug overdoses. A systematic review performed in 2015 found that 21%-29% of chronic pain patients misuse their opioids. The use of pharmacists in the medication refill process has demonstrated improved medication monitoring compared to the refill process managed by a primary care physician alone. **Objective:** Describe a pharmacist-run opioid management service focused on the safe prescribing of opioids and its impact on opioid use. **Methods:** In this single center, retrospective study, data was collected from a pharmacist-run opioid management service at Kaiser Permanente San Francisco from September 12, 2016 to February 13, 2017. Patients receiving the same opioid drug and dose for 60 days or greater were included. Palliative care, hospice, oncology and addiction medicine patients were excluded. A tracking tool was utilized to document pilot interventions. Electronic medical records, prescription refill reports and monthly morphine mg equivalents (MME) usage reports was used for data analysis. The primary outcome was the percent change in total number of chronic opioid users. Secondary outcomes included the incidence of opioid tapers, change in MME and number /type of interventions made by pharmacists. The percent change in the number of chronic opioid patients and other outcomes were analyzed using descriptive statistics, the McNemar test and the paired T-test. **Results:** 100 patients were included in the study. There was a 3% decrease in the number of patients on chronic opioids with 34 patients at the start and 33 patients at the end of the study ( $p=1.00$ ). There was a 4% incidence of opioid tapers ( $n=4$ ). The average MME per prescription was 1771.3 MME at study start and 1682.1 MME at study end ( $p=0.14$ ). The average MME per day was 59.0 MME at study start and 52.5 MME at study end ( $p=0.01$ ). A total of 612 interventions were performed during the study. The top three interventions were prescription refills ( $n= 199, 33\%$ ), CURES (Controlled substance Utilization, Review and Evaluation System) checks ( $n=105, 17\%$ ), and patient education ( $n= 75, 12\%$ ). **Conclusions:** A pharmacist-run opioid management clinic can provide patient education, appropriate opioid monitoring and refilling, and decrease opioid utilization.

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### Opioid Dose Reduction Outcomes in a Resident Teaching Practice for Patients with Chronic Pain

Serena Roth MD; Aaron Burkenroad MD, MSc; Laila Khalid MD, MPH; & Joanna Starrels MD, MS - Montefiore Medical Center/Albert Einstein College of Medicine

**Background:** The Power Over Pain (POP) Clinic was developed to train internal medicine residents in opioid management and provide guideline-adherent care for patients on chronic opioid therapy (COT). **Objective:** To determine whether POP Clinic patients had an opioid dose reduction and whether number of POP Clinic visits would be associated with greater reduction in dose. **Methods:** Retrospective study conducted in an urban internal medicine teaching clinic. Eligible patients were seen in POP clinic at least once between 9/1/16 and 9/1/17 and were on COT ( $\geq 3$  opioid prescriptions in past 6 months). Using manual chart review of electronic medical records, we determined patients' total prescribed daily opioid dose at their initial visit (baseline) and at 3 and 6 months, in morphine milligram equivalents (MME). We calculated percent change in MME at 3 and 6 months for each patient. We conducted two-sided paired t-tests to examine whether MME was different at 3 and 6 months compared to baseline among the full cohort, and unpaired t-tests to compare dose reductions in patients with one POP clinic visit vs. multiple visits. **Results:** Of 56 eligible patients, 75% were female, median age was 59.5, 55% had back pain, and mean PEG score was 7.44/10 (moderately severe). At baseline, median daily MME was 53mg (range 7-500mg). Patients had a mean of 2.1 visits to POP clinic (range 1-10) and 25 (45%) had multiple visits. Overall, 40% had a dose reduction between baseline and 6 months; mean reductions in MME were 10.1% at 3 months ( $p=0.04$ ) and 15.0% at 6 months ( $p=0.03$ ). Mean dose reduction at 3 months for patients seen once vs. multiple times was 4.8% and 16.7%, respectively ( $p = 0.02$ ). At 6 months, mean dose reductions for these two groups were 14% and 16.9%, respectively ( $p = 0.66$ ). **Conclusions:** Even modest attendance at an opioid management clinic was associated with opioid dose reduction. Further research is needed to examine how dose reduction is associated with pain, function, and substance use outcomes.

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### Content Analysis of Provider Documentation About Opioid Tapering

Michele Buonora MD; Hector R. Perez MD, MS; Jessica Merlin MD, PhD, MBA; Jordan Stumph MD; Robert Allen MD; & Joanna L. Starrels MD, MS - Montefiore Medical Center

**Background:** Guidelines recommend opioid tapering when a prescriber determines that the benefits do not outweigh the risks. However, prescriber documentation about opioid tapering decisions in the medical record has not been described. **Objective:** Describe provider documentation about opioid tapering decisions and determine the extent to which a risk/benefit framework is evident. **Methods:** Using electronic health record (EHR) data and manual chart review, we conducted a retrospective cohort study in an urban academic healthcare system in Bronx, New York. Patients 18 or older without cancer were eligible if they: (1) were prescribed a stable dose of chronic opioid therapy between 10/2015 and 10/2016 (no more than 20% fluctuation in morphine milligram equivalents [MMEs] per day); and (2) initiated an opioid taper (dose reduction of  $\geq 30\%$  or discontinuation, confirmed by chart review) between 10/2016 and 10/2017. To avoid oversampling of providers, no more than 10 patients per provider were included. Text from progress notes on the date of taper initiation was extracted for manifest content analysis. Two coders identified whether the note contained mention of: (1) a distinct plan to taper, (2) opioid risks or harms, (3) opioid benefits, (4) patient agreement with taper, and (5) a policy or guideline as basis for taper. **Results:** Of 48 eligible patients, mean age was 50.7, 56.3% were female, and race/ethnicity distribution was 39.6% black, 39.6% Hispanic, and 12.5% white. The median opioid dose was 120 morphine milligram equivalents (MME) per day (IQR 45-270) at taper initiation and 55 MMEs (IQR 18.8-135.0) at 6 months. On the date of taper initiation, 64.6% of progress notes mentioned a distinct plan to taper, 14.6% contained a mention of opioid risks or harms, none contained a mention of opioid benefits, 35.4% mentioned patient agreement with taper, and 2.1% mentioned a policy or guideline as basis for taper. **Conclusions:** In this cohort, provider documentation about opioid tapering lacked a risk/benefit framework. Research is needed to understand tapering decisions and future initiatives about opioid tapering should emphasize a risk/benefit framework.

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## 1.4 Innovations in the Care of Hospitalized Patients with Substance Use Disorders

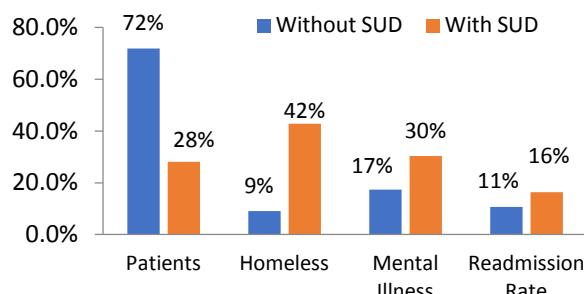
### Demonstrating the Need For an Addiction Medicine Consult Service in a Safety Net Hospital

Marlene Martin MD; Jamie Carter MD, MPH; Hannah Snyder MD; Diana Coffa MD; Joseph Clement MS, RN; Scott Steiger MD; & Paula Lum MD, MPH – University of California, San Francisco

**Background:** Many patients at San Francisco's public hospital, Zuckerberg San Francisco General (ZSFG), have substance use disorders (SUD), but rates of SUD have not been formally evaluated. A team of nurses provides a brief intervention to patients with nicotine and risky alcohol use, but there is not a standardized approach to screening, treating, or referring patients who use other substances. **Objective:** Describe current conditions and root causes associated with SUD at ZSFG and propose interventions. Align objectives with the hospital's True North goals of equity, quality, and care experience. Create A3 demonstrating need for an addiction medicine consult service. **Methods:** In September 2017, a multidisciplinary group of providers including nurses, social workers, pharmacists, and physicians began meeting to describe the current state of addiction care in the San Francisco Health Network (SFHN). We analyzed demographic, readmission, and ICD 10 data among hospitalized patients with and without SUD in 2016. We used this information via an A3 to propose recommendations to improve the quality of addiction care for the SFHN. **Results:** 28% of hospitalized patients at ZSFG have a SUD (figure 1). Patients with SUD have high rates of homelessness (42%) and mental illness (30%). Almost half are unconnected to primary care. Three of the top diagnoses among patients with SUD are in the five diagnoses with the highest readmission rates at ZSFG. Almost 70% of patients with SUD have Medicaid, with 40% insured by SFHN's largest Medicaid managed care plan. **Conclusions:** There are high rates of SUD at ZSFG, particularly among vulnerable patients who are homeless, have mental illness, and are unconnected to primary care. Hospitalization may be their only interaction with the healthcare system. SUD likely contributes to hospital readmissions. The lack of standardized, hospital-based addiction treatment represents a gap in care and an opportunity to identify and treat patients with SUD. We presented these findings

to SFHN leadership who helped us advocate for improved care of patients with SUD at the county level through a hospital-based, addiction medicine consult service.

**Figure 1: Psychosocial comorbidities and 30-day readmission rates among hospitalized patients, 2016**



### **Effectiveness of an Interprofessional Inpatient Addiction Medicine Consult Service on Substance Use Disorder Treatment Engagement After Hospital Discharge: A Propensity Matched Analysis**

Honora Englander MD; Konrad Dobbertin MPH; Bonnie K. Lind PhD; Claire Dorfman; & P. Todd Korthuis MD, MPH - Oregon Health & Science University

**Background:** Hospitals are increasingly filled with people suffering from complications of substance use disorders (SUD), yet most hospitals do not engage people with SUD in treatment. In 2015, we implemented a hospital-based addiction medicine consultation service with rapid-access linkage to SUD care post-discharge called the Improving Addiction Care Team (IMPACT). **Objective:** To determine the effect of IMPACT on SUD treatment engagement within 30 days post-discharge compared with propensity-matched controls.

**Methods:** We assessed post-hospital SUD treatment claims among IMPACT Oregon Medicaid participants hospitalized at a large urban academic medical center between June 2015 and December 2016 and 2:1 propensity-matched controls. IMPACT provides interdisciplinary consultation to manage withdrawal, initiate SUD pharmacotherapy, and provide counseling, harm reduction, peer support and linkage to community-based SUD care. We used data from the Oregon Medicaid claims database, a comprehensive administrative record of medical and pharmacy claims. We identified controls using a propensity score match based on SUD diagnosis, age, gender, race, comorbidities, index hospitalization DRG, rural/urban residence and region. The primary outcome was linkage to SUD care defined as any Current Procedural Terminology (CPT) code for SUD services, Place of Service code at a substance use treatment facility, or National Drug Code (NDC) for alcohol or opioid use disorder pharmacotherapy. We tested the association between IMPACT participation and linkage to SUD care using multivariable logistic regression adjusted for patient demographics, substance use diagnosis, and comorbid diagnoses. **Results:** We enrolled 212 IMPACT participants with Oregon Medicaid and selected 424 matched controls. Most IMPACT persons were male (61%), white (77%), and had opioid (71%), alcohol (32%) and/or stimulant use disorder (42%). The most common reasons for hospitalization among IMPACT and comparisons were alcohol and drug related (12% and 14%), sepsis (9% and 14%), and other infectious diseases (9% and 7%). IMPACT participants were more likely than matched comparisons to engage in SUD treatment within 30-days post-hospital discharge (unadjusted 40% vs. 20%; adjusted OR=3.84, 95% CI 2.24-6.60).

**Conclusions:** A hospital-based SUD intervention doubled post-hospital SUD treatment engagement among hospitalized Medicaid recipients with SUD. Initiating treatment during hospitalization has the potential to engage patients in SUD care following hospitalization.

### **The Impact of an Addiction Consult Service For Hospitalized Patients With Substance Use Disorders on Repeat 30-day Acute Care Utilization**

Zoe M. Weinstein MD, MS; Maria D'Amico BA; Debbie M. Cheng ScD; Leah Forman MPH;

Danny Regan NP; Alexandra Yurkovic MD; Jeffrey H. Samet MD, MA, MPH; & Alexander Y. Walley MD, MSc - Boston University/Boston Medical Center

**Background:** Patients with substance use are more likely to be high utilizers of costly inpatient services. Addiction Consult Services (ACSs) are emerging to improve the care for hospitalized patients with SUDs.

**Objective:** The primary aim was to evaluate whether consultation with a newly-implemented ACS was associated with less 30-day acute care utilization among inpatients with an SUD. We also explored this association among a subgroup of patients with any opioid use disorder (OUD) and whether this association differed with use of medications for addiction treatment (MAT). **Methods:** This was a retrospective cohort study of adult inpatients with a discharge diagnosis of any SUD from July 2015 to July 2016. The outcome, 30-day acute care utilization, was defined as any emergency room visit or re-hospitalization within 30 days of discharge. The main independent variable was receipt of consultation from the ACS. Generalized estimating equation (GEE) logistic regression analyses were used to analyze the data. Propensity scores using inverse probability of treatment (receiving a consult) weighting, were used to reduce confounding. **Results:** There were 5979 total admissions among 3905 unique patients with 694 consults (11.6%). The repeat 30-day acute care utilization rate was 31.9% among those who received a consult and 27.8% among those who did not receive a consult (Unadjusted Odds Ratio 1.16; 95% CI 0.98- 1.38). In adjusted analyses, an addiction consult was not significantly associated with 30-day acute care utilization among all patients with SUD (Adjusted Odds Ratio 0.90; 0.68-1.19). In the subgroup of patients with any OUD there was also no significant association between ACS and 30-day utilization (AOR 0.80; 0.54-1.18). The results were similar for patients with OUD and MAT (AOR 0.81; 0.50- 1.31) and for patients with OUD without MAT (AOR 0.79; 0.44-1.43). **Conclusions:** Repeat acute care utilization is common among hospitalized patients with SUDs, particularly those who were referred to the ACS. In adjusted analyses patients with an addiction consult appeared to have decreased odds 30-day acute care utilization, but these associations were not statistically significant. Future research should include evaluation of larger, more well-established ACSs and prospective studies that control more completely for confounding.

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### Project SHOUT: Moving Hospital Opioid Care from Stigma to Science

Hannah Snyder MD; Sarah Windels BS; & Diana Coffa MD - University of California, San Francisco

**Background:** Patients with opioid use disorder (OUD) infrequently access evidence-based opioid agonist therapies (OAT) [1]. Furthermore, approximately 15% of hospitalized patients have a substance use disorder [2]. Inpatient buprenorphine has been shown to increase linkage to treatment [3], but is frequently unavailable. Project Support for Hospital Opioid Use Treatment (SHOUT) seeks to empower California providers to start OAT in hospitalized patients. **Objective:** 1. Increase comfort with OAT among hospital providers 2. Decrease logistical barriers to inpatient OAT 3. Increase the number of California hospitals that offer new OAT starts **Methods:** A needs assessment was distributed electronically and used to determine content for a series of 7 webinars. Webinars, sample induction guidelines, order sets, and staff training templates were freely available for any interested participants. For California hospitals, coaching calls and site visits were offered. Satisfaction surveys were distributed, and California hospitals were polled to see their process towards implementation.

**Results:** Of inpatient respondents who completed the needs assessment (n=40), 30% practiced in rural areas and 57% practiced outside of California. Only 22% worked at sites that offer new methadone starts to inpatients. At least 300 organizations engaged with SHOUT, while individual webinars had up to 295 views. 77% of webinar views were recordings rather than live participation. Viewers were multidisciplinary including medical providers, nurses, pharmacists, behavioral health providers, hospital administrators, and insurers. Of those who evaluated the webinars (n=23), 70% stated that the webinars had changed their practice, and 52% said webinars had led to increased access to OAT in their community. 10 participating hospitals within California are working towards implementing inpatient OAT. **Conclusions:** SHOUT demonstrates the feasibility of a remote capacity building program to increase access to OUD treatment regionally. The project was designed for California hospital-based audiences, but quickly expanded to multidisciplinary, national audiences. Further work should build upon this model to support implementation of inpatient OAT across the country.

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  3. Liebschutz et al. Buprenorphine Treatment for Hospitalized, Opioid-Dependent Patients. *JAMA Intern Med.* 2014 Aug; 174(8): 1369–1376.
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### **“Somebody Who Can Walk Among Several Cultures”: A Qualitative Study of Peer Mentors’ Role in Addressing Substance Use Disorder in Hospital Settings**

Honora Englander MD; Devin Collins MA; Juliet Alla BA; Jessica Gregg MD, PhD; Janie Gullickson MPA, HA, PSS, PRC; & Christina Nicolaïdis MD, MPH - Oregon Health & Science University

**Background:** Hospitalizations related to substance use disorder (SUD) are increasing. Hospitals are hierarchical systems where patients with SUD often feel stigmatized, controlled, and mistrustful of staff. This can lead to negative patient and provider experiences, patients leaving against medical advice, and poor patient outcomes. Peer support has a long history in mutual-aid and recovery groups, and has been shown to improve relationships with SUD treatment providers, patient satisfaction, and SUD treatment outcomes. Little is known about how integrating peer mentors in hospitals may affect care for patients with SUD. In 2015, we implemented a hospital-based addiction medicine consultation service that includes peer mentors called the Improving Addiction Care Team (IMPACT). **Objective:** To understand patients’, IMPACT providers’, and peer mentors’ perspectives on how peer mentors affect hospital care for patients with SUD. **Methods:** We analyzed open-ended survey responses collected from 37 IMPACT patients who worked with peer mentors during hospitalization. We conducted in-depth, semi-structured interviews with nine IMPACT providers, two IMPACT peer mentors, and one peer supervisor. We conducted a thematic analysis using an inductive approach at the semantic level. **Results:** Patients reported durable, meaningful relationships with peer mentors based on relatability; trust; support for patient autonomy; and small, humanizing acts. These relationships helped mitigate discord between patients with SUD and hospital providers. Patients described that peer mentorship promoted their willingness to accept medical treatment and tolerate hospitalization. Providers reported that peer mentors served as “cultural brokers,” and helped them to understand patient priorities and experiences. Providers felt peer mentors offered valuable insights on how to best approach the care of patients with SUD. Peer mentors face significant challenges integrating into hospital settings, including misunderstanding of their role by hospital staff, navigating conflicting needs of patients and providers, and maintaining professional boundaries. To address these challenges, respondents stressed the importance of peer supervision and support, and suggested greater efforts to educate hospital staff about peer mentorship. **Conclusions:** By acting as an intermediary between patients with SUD and hospital providers, peer mentors may both improve patients’ hospital experiences and facilitate increased patient-centered care.

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### **A Resident-Led, Multidisciplinary Team Approach to Increasing Naloxone Prescribing at Hospital Discharge for Patients At Risk of Overdose**

Chloe Ciccarello MD; Jessica Wang MD; Michael Incze MD; Nadine Pardee MD; Shirin Hemmat MD; Erica Bass MD; Julie Ma PharmD; & Marlene Martin MD - University of California, San Francisco

**Background:** Though naloxone decreases the morbidity and mortality associated with opioid overdose, the leading cause of unintentional death nationwide, most patients prescribed opioids do not receive a prescription for naloxone at discharge. **Objectives:** Our objective was to increase the rates of naloxone prescription at discharge in an urban, safety net hospital among patients at risk of opioid overdose including patients with new opioid prescriptions, existing opioid prescriptions, history of opioid use disorder, and history of any overdose.

**Methods:** A team of six internal medicine residents, a faculty hospitalist, and a clinical pharmacist collaborated with nursing, pharmacy and inpatient teams to increase safety around opioid use at discharge. We aligned with hospital leadership to secure funding for naloxone for the minority of patients who did not have insurance coverage for this prescription. We developed an educational campaign for housestaff, nursing, hospitalists, and pharmacists about identifying patients at risk of opioid overdose and indications for prescribing naloxone. Interventions included monthly addiction medicine didactics, widely-disseminated educational material, development of decision support tools in our electronic health record, and one-on-one coaching with nursing and clinical pharmacists. We also provided biweekly updates to housestaff, pharmacists, and hospitalists on rates of opioid-naloxone co-prescribing stratified by medical team to foster a sense of competition. Residents will receive a small financial incentive if a pre-specified target of 25% of patients discharged with an opioid prescription are co-prescribed naloxone. **Results:** In the six months since the start of the initiative, rates of naloxone co-prescription have increased from a baseline of 8.3% to rates consistently greater than 70%. Rates of prescription to other at-risk groups have also increased. **Conclusion:** A resident-led multidisciplinary project can effectively increase naloxone prescribing to at-risk groups in a safety-net urban hospital. Key interventions included an educational campaign, aligning with hospital leadership to obtain financial coverage for naloxone, working with pharmacists and nursing to ensure proper patient education about naloxone use and incentivizing resident physicians to prescribe naloxone at discharge for patients at risk of opioid overdose.

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## 1.5 Substance Use Continuum of Care

### Cascade of Care for Opioid Use Disorder Treatment: Gaps And Opportunities In A National Sample

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Hampton Medical Center

**Background:** Despite decades of progress in treatment options for opioid use disorder (OUD), there are several gaps and opportunities in treatment availability and utilization in most large healthcare systems. **Objectives:** The “cascade of care” framework, which helps illuminate such system-wide gaps and opportunities in OUD treatment can be used to define few key steps in the continuum of care for OUD, namely; (1) Population with OUD, (2) Percentage diagnosed with OUD, (3) Percentage received any type of substance abuse treatment, (4) Percentage received Opioid agonist treatment (OAT- buprenorphine and methadone) (5) Percentage retained in treatment. There is a lack of cascade of care based reports on OUD treatment utilization from nationally representative patient samples from the United States. **Methods:** We first selected patients with OUD from the Veterans Health Administration (VHA) national records in fiscal year (FY) 2012. From this sample, we report the rates of utilization of mental health services, any substance abuse treatment, opioid agonist treatment (OAT- buprenorphine and methadone) rates, OAT initiation rates, and OAT retention rates. **Results:** Of the 5.4 million veterans who accessed care at VHA in FY 2012, 99,934 patients (1.9%) had an OUD diagnosis. While the majority of the patients with OUD (80.4%) had a mental health visit, only 46.6% had any substance abuse outpatient visit. Despite such high mental health and substance abuse treatment visits, only 11.5% of patients with OUD (N= 11,524) received any OAT, of whom 5,789 (6.1% of patients with OUD) were considered newly initiated on OAT in FY 2012. The utilization of any naltrexone (3.3%, N= 3264), especially intramuscular naltrexone was low (N= 248, 0.25%) in FY 2012. Treatment retention rates were available for buprenorphine and it was 61.6% at one year and 31.8% at 3 years among those newly initiated on buprenorphine in FY 2012. **Conclusion:** This analysis of VHA data based on the cascade of care model provides a detailed insight into gaps and opportunities regarding OUD care in a national sample. The authors will discuss various factors associated with gaps in treatment initiation and retention among those with OUD.

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### Willingness to Initiate Opioid Agonist Therapy in the Fentanyl Era Among People Who Use Illicit Drugs

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**Introduction:** The unprecedented rise in overdose deaths in North America in recent years is largely attributable to the emergence of illicit fentanyl. While opioid agonist therapy (OAT) (i.e., methadone and buprenorphine/naloxone) has been found to reduce all-cause mortality and overdose death due to reductions in illicit opioid use, there has been little investigation into whether exposure to illicit fentanyl has impacted willingness to initiate OAT. **Methods:** Data utilized for this study were from three open and ongoing prospective cohorts of people who use illicit drugs in Vancouver, Canada. Multivariable logistic regression was used to examine the relationship between fentanyl exposure and self-reported willingness to initiate OAT among participants who used opioids on a weekly basis. Fentanyl exposure was defined as self-reported fentanyl use or a positive urine drug screen (UDS) for fentanyl. Sub-group analyses of known fentanyl exposure (self-reported use) and unknown fentanyl exposure (no self-reported use but positive UDS) were also conducted. **Results:** From December 2016 to November 2017, 332 participants who used opioids weekly and were not on OAT were included in the study. Of these, 271 (81.6%) had fentanyl exposure, of which 210 (63.3%) had known fentanyl exposure and 61 (18.4%) had unknown fentanyl exposure on UDS. In multivariable logistic regression analyses, only recent illicit (?) benzodiazepine use was independently associated with willingness to initiate OAT (Adjusted Odds Ratio [AOR] = 4.64, 95% Confidence Interval [CI]: 1.32 – 14.89) and there was no association with fentanyl exposure and willingness to initiate OAT. In sub-group analyses, compared to all opioid users, unknown fentanyl exposure on UDS was independently and negatively associated with willingness to initiate OAT (AOR = 0.22, 95% CI: 0.05-0.67). **Conclusion:** Among our sample, recent benzodiazepine use was positively associated with willingness to initiate OAT, suggesting an awareness of overdose risk related to opioid and benzodiazepine co-ingestion. In sub-group analyses, individuals who had been unwittingly exposed to fentanyl had a reduced willingness to initiate OAT. Expanding treatment willingness and harm reduction services targeted towards those not on OAT, including expanding drug checking services, may play a role in overdose risk reduction for individuals unwilling to access OAT.

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## Medication For Opioid Use Disorder and Mortality After Inpatient Opioid Detoxification Treatment

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**Background:** Inpatient opioid detoxification treatment typically reduces opioid tolerance, but can be an opportunity to initiate medication for opioid use disorder (MOUD) treatment. **Objective:** We hypothesized MOUD after opioid detoxification treatment would be associated with reduced risk of opioid-related and all-cause mortality. **Methods:** We conducted a retrospective cohort study of 29,487 Massachusetts residents ages 11 and older who received opioid detoxification treatment between 2012-2014. We used seven individually linked public health datasets representing 98% of Massachusetts residents. We examined three MOUD: methadone maintenance treatment (MMT), buprenorphine, and naltrexone. We identified exposure to MOUD in monthly intervals, considering individuals exposed to MOUD through the month following last receipt. We used a multivariable Cox proportional hazards model to examine MOUD as the monthly time-varying exposure variable to predict time to death, adjusted for age, gender, anxiety or depression diagnoses, opioid or benzodiazepine prescriptions, and subsequent inpatient addiction treatment exposure. **Results:** In twelve months after detoxification, 14,287 (48%) received any MOUD: 6,883 (23%) received MMT for a median of 6 months (interquartile range [IQR, 3-10]), 7,420 (25%) received buprenorphine for a median of 4 months (IQR, 2-8), and 2,559 (9%) received naltrexone for a median of 1 month (IQR, 1-2). At one year, all-cause mortality was 1.5% and opioid-related overdose mortality was 1.0%. MMT was associated with decreased all-cause (adjusted hazard ratio (AHR):0.38 [95% confidence interval (CI):0.26-0.55] and opioid-related mortality (AHR:0.35 [95% CI:0.22-0.56]). Buprenorphine was associated with decreased all-cause (AHR:0.57 [95% CI:0.41-0.79]) and opioid-related mortality (AHR: 0.57 [95% CI:0.38-0.84]). Naltrexone was not associated with all-cause (AHR:1.34 [95% CI:0.75-2.39]) or opioid-related mortality (AHR:1.67 [95% CI:0.90-3.06]). **Conclusion:** Mortality was high in the year after inpatient opioid detoxification and only half of individuals were treated with MOUD. MMT and buprenorphine were associated with substantially reduced mortality. MMT and buprenorphine should be standard of care following inpatient opioid detoxification.

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## Touchpoints Prior to Opioid Overdose Death

Marc Larochelle MD, MPH, Dana Benson MPH, Thomas Land PhD, Thomas Stopka PhD, MHS, Adam Rose MD, MSc, Jane Liebschutz MD, MPH, & Alexander Walley MD, MSc - Boston Medical Center and Boston University School of Medicine

**Background:** Touchpoints associated with high risk of opioid overdose death may present an opportunity to intervene. Touchpoints associated with high-risk opioid prescribing and non-prescribing encounters have been identified, but the relative frequency and age distribution of both kinds of touchpoints prior to fatal opioid overdose are unknown. **Objective:** Identify the relative frequency and age distribution of high-risk opioid prescribing and non-prescribing touchpoints prior to fatal opioid overdose. **Methods:** We analyzed a retrospective cohort of Massachusetts residents aged 11 years and older, who died of an opioid overdose between January 1, 2014 and December 31, 2014. We studied a one year lookback period using data from seven public health datasets linked at the individual level. We examined four high-risk opioid prescribing touchpoints: ≥3 months with > 100 mg morphine-equivalent daily dosage, ≥3 months with overlapping opioid and benzodiazepine prescriptions, ≥3 opioid prescribers in a quarter, or ≥3 opioid pharmacies in a quarter; and, four non-prescribing touchpoints: opioid detoxification encounter, nonfatal opioid overdose, hospital encounter for injection drug use associated infection, and release from incarceration. We compared prevalence of high-risk opioid prescribing and non-prescribing touchpoints among those over and under 50 years of age using chi-squared tests. **Results:** We identified 1,316 opioid overdose decedents; 984 (75%), were under 50 years of age. In the 12 months prior to death, 695 (53%) had encounters for one or more touchpoint. High-risk opioid prescribing touchpoints were identified in 269 (20%) of individuals and non-prescribing touchpoints were identified in 511 (39%). Among decedents 50 years or older, 35% had experienced a high-risk prescribing touchpoint compared with 16% for those under 50 years ( $p<0.0001$ ). Meanwhile, non-prescribing touchpoints were more prevalent among decedents under 50 years (43%) compared with those 50 or older (28%;  $p<0.0001$ ). **Conclusion:** More than half of opioid overdose decedents experienced a high-risk touchpoint identifiable in public health data in twelve months prior to death. Non-prescribing touchpoints were more prevalent than high-risk opioid prescribing touchpoints; however, high-risk opioid prescribing touchpoints were more prevalent among older adults. These touchpoints are a logical target of opioid overdose prevention programs.

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## Overdose Events in Homeless-Experienced Veterans: A Common Event in New Survey Data

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**Background:** Illicit drug overdose accounted for 64,000 deaths in 2016, and mortality studies indicate that homeless persons are especially likely to die from drug overdose. Prevention of such events in primary care (PC) could depend on identifying people who have survived/witnessed overdose. While some health-system analyses have reported overdose prevalence, there have been few surveys of PC populations to assess personal experience of overdose or witness of such an event. **Objective:** Reporting interim analyses from a national survey of over 1,300 homeless and formerly-homeless ("homeless-experienced") Veterans, the largest such survey ever conducted, regarding the prevalence of both events. **Methods:** Homeless-experienced users of Veterans Administration (VA) PC were defined and approached for survey through a combination of mailings and telephone outreach. Interim analysis of 1,386 respondents from 27 VA Medical Centers considered responses to an item querying overdose "where you needed to go to the ER or get medical care right away" in the preceding three years, or witnessing such an event. Other items assessed included demographics, pain, and ongoing homelessness. **Results:** To date, our survey has an overall response rate of 40% with 1,386 responses received. Among this sample, 92.1% were male and 13.9% reported current homelessness. Among these respondents, 94 (6.9%) reported personal experience of overdose, with respondents endorsing alcohol (n=54),

“heroin/fentanyl not from a doctor” (n=14), opioid painkillers (n=9), cocaine (n=17), benzodiazepines (n=6) and gabapentinoids (n=4). Multiple substances were endorsed by 13 respondents. There were 230 respondents who reported having witnessed another person overdosing in the same period. **Conclusions:** Compared to samples suggesting that 0.01-0.1% of adults have experienced overdose, homeless-experienced persons in PC have an extremely high rate of personal experience of overdose. Prescription-type opioids present in fewer than ¼ of these events and alcohol present in over ½. This population also has a high frequency of witnessing others overdose. These data suggest that PC providers for homeless-experienced persons may have a powerful opportunity to address overdose risk in their patients by addressing polydrug, alcohol and prescription exposure, and perhaps to explore protection of others at risk in the patient’s environment.

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## 2.1 Novel Substance Use Treatment Models

### Reducing Outpatient Wait-times for Medication for Addiction Treatment (ROW-MAT)

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**Background:** Medication for addiction treatment (MAT) has traditionally been accompanied by significant barriers that add to the addiction treatment gap. Same-day or next-day access to outpatient MAT may facilitate linkage and retention to sustained, evidence-based treatment for substance use disorders (SUD). **Objective:** Evaluate the association between appointment wait-times and odds of arrival to appointment for patients seeking outpatient addiction care. **Methods:** The setting was a rapid access outpatient MAT clinic at Boston Medical Center. The population were patients who scheduled an appointment with the clinic between 8/1/16 and 7/31/17. The primary independent variable (difference in days) was the number of overnights between the date a patient scheduled a clinic appointment and the date of service, categorized as 0 days, 1 day, and 2+ days. The outcome was the status of the appointment, as a dichotomous variable: arrive or no-show/cancel. We conducted multivariate logistic regression to calculate odds ratios for arrival, adjusting for the following confounders: age, gender and distance of residence from the hospital. As a secondary analysis, we used the difference in days as a continuous independent variable. The Kaplan-Meier curve model was estimated.

**Results:** Among 575 patients studied with scheduled appointments, 399 patients arrived (69.4%). Among all patients, 278 (48.3%) waited 0 days for their appointment (same-day), 137 (23.8%) waited 1 day (next-day), and 160 (27.8%) waited 2+ days. Compared to patients who had a 2+ day waiting period, those who waited 0 days had 7.64 (95% CI 4.75- 12.29) times the odds of arriving and those who waited 1 day had 1.45 (0.90- 2.26) times the odds of arrival in adjusted analyses. The secondary analysis showed that the probability of arrival with the same-day appointment was 57.6% and the next-day appointment was 42.5%. After a week, the probability of arrival decreased to 14.5%. **Conclusion:** Patients seeking MAT through a clinic that offers same-day and next-day access to treatment are more likely to attend same-day addiction care compared to patients who wait longer. Clinics should strive to reduce wait-times for patients seeking MAT.

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### Low Barrier Buprenorphine Treatment for Homeless Patients with Opioid Use Disorder

Jamie Carter MD, MPH; Barry Zevin MD - University of California, San Francisco

**Background:** In 2016, the San Francisco Department of Public Health Street Medicine Team began a low barrier buprenorphine program for homeless people with opioid use disorder, many of whom are not able to access methadone clinics or buprenorphine treatment through primary care. Patients are engaged by peer outreach workers and offered same-day assessment and prescription for buprenorphine at a harm reduction syringe access program, a small medical clinic, or in streets and parks. The primary goal is retention in care, with secondary goals of improved health, reduction in opioid use and abstinence. **Objective:** To characterize the population participating in low barrier buprenorphine treatment, to assess retention in treatment and reduction in opioid use, and to describe adverse events. **Methods:** We abstracted demographics, medical and

psychiatric comorbidities, substance use history, frequency of provider visits, patterns of buprenorphine use, urine toxicology results, ED visits and hospital admissions from the medical record. **Results:** From 11/1/16 to 10/31/17, 95 patients were evaluated and received at least one prescription for buprenorphine. Patients were medically and psychiatrically complex and had high rates of other substance use. 62% of patients were retained in care at 1 month, 41% at 6 months, and 22% at 12 months. 37% of patients were taking buprenorphine at 1 month, 26% at 6 months, and 22% at 12 months. Almost half of patients had a treatment interruption of at least one month. Urine toxicology tests showed high rates of ongoing heroin (64%) and methamphetamine use (72%). 34% of patients who returned after induction had at least one toxicology test negative for opioids, and 14% had abstinence from opioids on all tests. Two patients died from likely overdose after release from jail, and five patients presented to medical care after an opioid overdose requiring naloxone. **Conclusions:** A low barrier buprenorphine treatment program engaged and retained a subset of highly vulnerable homeless patients in care and in treatment with buprenorphine. While continuous treatment with buprenorphine and opioid abstinence are goals, intermittent treatment with buprenorphine and decreased opioid use were more common in this pilot and likely confer significant reductions in opioid and injection-related harms.

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### Patient Experience in a Low Barrier Buprenorphine Treatment Program: A Qualitative Analysis

Jamie Carter MD, MPH; Hannah Snyder MD; & Barry Zevin MD - University of California, San Francisco

**Background:** In 2016, the San Francisco Department of Public Health Street Medicine Team launched a low barrier buprenorphine treatment program for homeless patients with opioid use disorder. The program includes peer outreach and engagement, drop-in visits for comprehensive assessment at an open access medical clinic and a harm reduction syringe access program, and same-day prescription for buprenorphine. Preliminary analysis shows the pilot has been successful in retaining a subset of highly vulnerable patients in care.

**Objective:** To characterize the experience of being treated through a low barrier buprenorphine program, including exploration of barriers to accessing treatment, patterns of drug use, diversion, and changes in health and wellbeing. **Methods:** We conducted 12 semi-structured interviews with participants of the low barrier buprenorphine pilot. Interviews were audio-recorded, transcribed, and analyzed using a grounded theory approach. **Results:** Participants reported several factors that facilitated their entry into care through the low barrier program, including on-demand, same-day access to evaluation and buprenorphine prescription, engagement by peer outreach workers, and non-judgmental and supportive attitudes of program staff. Participants expressed a common goal to stop using drugs. Many reported markedly decreased use of heroin, but with some ongoing use related to their environment, habit, and interruptions in buprenorphine prescription. Participants valued keeping their buprenorphine for their personal use, though some would consider diverting to another person for treatment of opioid withdrawal. Buprenorphine treatment led to improvements in health and wellbeing and was seen as a step towards achieving future goals. **Conclusions:** Participants in a low barrier buprenorphine program for homeless patients reported substantial benefits of treatment including decreased heroin use and improved health and wellbeing, even though most were not abstinent from opioids or continuously engaged in treatment. To improve access and retention in care for vulnerable populations with opioid use disorder, programs should focus on providing treatment on demand, strengthening patient engagement efforts, and broadening the view of what constitutes success in treatment.

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### Low-Barrier Initiation of Opiate Use Disorder Treatment at Homeless Encampments: Meeting Patients Where They Are At

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**Background:** Though access to medication assisted treatment for opioid use disorder is widely available in San Francisco, barriers such as transportation, stigma and lack of social supports prevent a significant number of high risk individuals from receiving treatment. **Objectives:** Our intervention was to offer low-barrier, same-day

initiation of medication assisted treatment with buprenorphine-naloxone with follow-up scheduled within two days at monthly pop-up health fairs located at a rotating group of homeless encampments in San Francisco. **Methods:** A multidisciplinary group of physicians, nurses, residents, public health workers and community non-profits engage in monthly on-site health fairs at a rotating group of homeless encampments around San Francisco. At the events, patients are screened by medical providers for opiate use disorder and assessed for readiness to start medication assisted treatment. Those who are candidates for treatment with buprenorphine-naloxone are counseled on home inductions using literacy-adjusted materials, and one week of medication is prescribed. Follow up is arranged at one of three local walk-in treatment centers based on proximity and patient preference. The state PDMP and the SFDPH electronic health record were used to monitor follow-up. Our primary measure was the percentage of patients who filled a prescription and attended at least one follow up visit. Our secondary measure was the percentage of patients started on medication assisted therapy who remain in treatment. **Results:** One year after the start of our project, 23 people were prescribed buprenorphine-naloxone on-site at our encampment health fairs, of which 37% attended at least one follow-up visit and at least 14% were still in treatment at the present time. 45% of patients prescribed buprenorphine-naloxone at the encampment fairs never picked up a prescription or had a documented follow-up visit in the electronic health record. **Conclusions:** Low-barrier, on-site initiation of medication assisted treatment for opiate use disorder was effective in connecting a substantial number of people from a marginalized and hard-to-reach population with a high prevalence of opiate use disorder to treatment. Next steps include improving attendance at follow up visits and retention in treatment by developing more intensive patient navigation resources at future events.

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### **Public Libraries as Partners in Addressing Substance Use: A Qualitative Exploration**

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**Background:** One important consequence of the opioid epidemic and substance use more broadly is the impact on communities. Prior work has demonstrated that public libraries are important community assets, providing health information, serving vulnerable populations and responding to patron health and social needs. Libraries are also impacted by substance use, but little is known about the attitudes of librarians or their capacity to mobilize to address this issue. **Objectives:** This study aims to 1) understand public library staff perspectives on substance use in their communities and libraries and 2) explore ways libraries can be leveraged as partners in public health responses to substance use. **Methods:** We conducted semi-structured interviews with public library staff attending a national professional society meeting. Interviews domains included experiences, attitudes, current strategies and future needs related to substance use. Interview transcripts were analyzed in NVivo 10 using modified grounded theory to identify emergent themes. **Results:** We completed 46 interviews with library staff from 26 states and a range of urban and rural locations. Participants were primarily female (89%), white (93%), and between 51-60 (41%). Participants identified substance use, and specifically opioids, as an increasing problem in their communities and libraries. Experiences varied; some were merely aware of the problem while others reported substance use or overdoses on-site. Many participants viewed the library as a safety net, responsive to the community needs and taking on a variety of non-traditional roles, including providing shelter, treatment resources, and informal care for children of parents impacted by addiction. Librarians also expressed a desire for more library-based interventions targeting substance use. Some librarians were eager to train staff, stock naloxone, and provide treatment referrals, while others viewed their role as more limited to information provision. The majority of participants also desired partnerships with other community health and social service agencies. **Conclusions:** Public libraries are facing many consequences of substance use, including overdose. Most library staff felt they had a role to play in addressing substance use in their library but expressed varying levels of comfort and preparedness. Libraries may represent a valuable asset for future public health interventions related to substance use.

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## **Implementing Patient-Centered Substance Use Education in the Emergency Department**

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**Background:** Although screening, brief intervention and referral to treatment (SBIRT) rarely occurs in the ED, simple interventions to address unhealthy alcohol/tobacco use and opioid overdose risk, including overdose education and naloxone distribution (OEND), can be delivered in EDs with beneficial effects. Utilizing trained non-medical personnel to implement these programs can alleviate the burden of ED staff with minimal workflow interruption. **Objectives:** To implement a pragmatic ED-based screening and intervention program for tobacco, alcohol, and drug use and opioid overdose prevention delivered by non-medically trained Health Coaches (HCs) and volunteers. **Methods:** The screening/intervention protocol was developed using elements of implementation facilitation and a participatory action research approach of repeating cycles of information gathering to iteratively refine procedures. This continuous quality improvement process was accomplished through performance monitoring and sharing feedback during regularly scheduled team and stakeholder meetings, along with receiving feedback from patients. Validated instruments, common data elements, and risk factors for overdose were piloted for feasibility/acceptability among a purposive sample of English/Spanish-speaking patients, aged 18-80 in the Bellevue Hospital ED. Based on substance use severity, patients received tailored and patient-centered interventions incorporating health risk education, harm reduction, overdose prevention, additional resources and treatment referral. HCs received formal training in SBIRT-OEND through the NYC Department of Health, supplemented by supervised patient interactions. Experienced HCs then developed a training for students participating in volunteer internship. **Results:** Various iterations of protocols, staffing and supervision models were piloted before the current protocol was implemented in November 2016. Since the revised implementation, over 14,000 ED patients were approached. Of the 9,202 patients screened, 2,230 (24%) were positive for tobacco, 2,079 (23%) for unhealthy alcohol use, and 1,316 (14%) for drug use. Approximately 86% of patients screening positive for substance use received brief advice/intervention. To date, 436 patients have received Naloxone kits. Qualitative feedback of volunteers were overwhelmingly positive after establishing a training curriculum with HCs as mentors for supervision. **Conclusions:** We developed and implemented a patient-centered, pragmatic program that both provides an important public health intervention to vulnerable ED patients and educates and spurs interest among student

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## **2.2 Opioid Use Disorder in Special Populations**

### **Non-Fatal Opioid-Related Overdoses Among Adolescents in Massachusetts 2012-2014**

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**Background:** Overdoses and deaths due to opioid use among adolescents in the United States continue to increase. Non-fatal overdose (NFOD) may provide an important opportunity to engage adolescents in treatment, but little is known about adolescents experiencing NFOD. **Objective:** To describe adolescents aged 11-17 compared with adults regarding the following: characteristics of those who experienced NFOD; and (2) receipt of medications for opioid use disorder (MOUD) in the 12 months following NFOD. **Methods:** This is a retrospective cohort study of individuals aged 11 years and older who experienced NFOD. Chapter 55 of the Acts of 2015 allowed for linkage of datasets from several Massachusetts government agencies to better understand opioid-related overdoses in Massachusetts. This combined dataset included 98% of Massachusetts residents. Individuals were included in this analysis if they had an emergency room, observation, or hospital visit due to opioid poisoning between January 1, 2012 and December 31, 2014, or if they had an ambulance encounter for opioid-related overdose between January 1, 2013 and December 31, 2014. Overdose events that were fatal within 30 days of the event were excluded. The primary outcome was receipt of MOUD in the 12

months after NFOD, defined as any buprenorphine or naltrexone prescription, or enrollment in methadone treatment. We compared adolescents aged 11-17 to adults aged 18 and older. **Results:** Among 22,525 individuals who experienced NFOD during the study period, 214 (0.95%) were aged 11-17. A majority (53%, n=112/214) of adolescents were female, whereas only 38% of adults were female ( $P<0.001$ ). In the 12 months prior to NFOD, 10% (21/214) of adolescents received a prescription for an opioid, compared to 43% of adults ( $P<0.001$ ), and <5% (10/214) were on any MOUD compared to 23% of adults ( $P<0.001$ ). In the 12 months after NFOD, 7% (15/214) of adolescents received MOUD, compared to 28% of adults. **Conclusion:** Among individuals who experienced NFOD, adolescents were more likely to be female and less likely to have been prescribed opioids. Fewer than one in 10 adolescents received medication treatment in the year following an NFOD. Future efforts should capitalize on NFOD to engage adolescents in effective, evidence-based care.

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### **Prescription Opioid Misuse among Middle-Aged and Older Adults in the United States, 2015-2016**

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**Background:** There was a fivefold increase in prescription opioid overdose deaths from 1996 to 2016 in the US. While studies have estimated the prevalence and characteristics of younger adults who misuse prescription opioids, little research has focused on middle-aged and older adults. This is imperative because middle-aged and older adults ( $\geq 50$  years of age) use prescription opioids at the higher rate compared to younger adults and are particularly vulnerable to overdose, especially when co-using other prescribed medications. **Objective:** To estimate the prevalence and correlates of prescription opioid misuse among middle-aged and older adults in the US utilizing updated questions on prescription misuse in the National Survey of Drug Use and Health (NSDUH). **Methods:** Data from adults aged  $\geq 50$  years from the two most recent cohorts (2015 and 2016) of NSDUH were examined (N=17,608). Characteristics of past-year and past-month prescription opioid misusers, including demographics, substance use, chronic disease, and emergency department (ED) use, were compared to non-misusers. We used multivariable logistic regression to determine correlates of prescription opioid misuse. **Results:** 2.5% reported past-year prescription opioid misuse and 0.8% reported past-month misuse. Past-year and past-month misuse was higher among males, adults aged 50-64, misusers of prescription sedatives and tranquilizers, users of other substances (i.e., tobacco, marijuana, cocaine), those with alcohol use disorder (AUD), and those reporting ED use. In multivariable regression models, AUD (past-year: AOR 2.0 [95% CI 1.3-2.2], past-month: AOR 2.2 [95% CI 1.2-3.9]), sedative misuse (past-year: AOR 4.8 [95% CI 2.5-9.1], past-month: AOR 9.9 [95% CI 2.2, 44.9]) and tranquilizer misuse (past-year: AOR 12.5 [95% CI 8.1-19.3], past-month: AOR 35.7 [95% CI 17.7-71.9]) were associated opioid misuse. **Conclusion:** This study indicates there is a population of high-risk older adults who engage in potentially dangerous polysubstance use. Focus needs to be placed on screening at-risk older adults for prescription drug misuse, and inform patients of the risks of overdose from concurrent use of these drugs and with alcohol. While unhealthy substance use by older adults is often overlooked, substance use including misuse of other prescribed medications by older adults needs to be recognized as a serious public health issue.

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### **Postpartum Anxiety and Stress Among Postpartum Women With Opioid Disorder**

Mary Turocy BS; Leah Klocke BA; Hollis Laird MPH; Beatrice Chen MD, MPH; Debra Bogen MD; Elizabeth Krans MD, MSc - University of California San Francisco School of Medicine

**Background:** Women with opioid use disorder (OUD) are at increased risk for postpartum mood disorders. Anxiety is a prevalent and under-recognized condition in the perinatal period. New mothers with OUD often experience increased postpartum stress due to prolonged infant hospitalizations, lack of social support and limited resource availability, which may contribute to or exacerbate anxiety symptoms. **Objective:** To evaluate the prevalence of postpartum anxiety and stress among postpartum women with OUD. **Methods:** From May 2016 to March 2018, 200 postpartum women with OUD completed a series of assessments via phone or Internet as part of a larger clinical trial at the University of Pittsburgh. The Edinburgh Postnatal Depression Scale

anxiety subscale (EPDS-3A) was administered at 2, 4 and 6 weeks postpartum, and the Brief Symptom Inventory (BSI) was administered at 3, 6 and 9 months postpartum. Scores of 6 or greater on the EPDS-3A or scores of 10 or greater on the BSI represented anxiety. The Perceived Stress Scale (PSS) and additional questions about stressors were administered to a subset of participants. **Results:** Response rates ranged from 89.0% (178/200) at 4 weeks postpartum to 69.5% (139/200) at 9 months postpartum. The median EPDS-3A score was 4 with an interquartile range (IQR) of 2-5. Among respondents, 31.0% (55/177), 22.5% (40/178) and 19.1% (34/178) had EPDS-3A scores of 6 or greater at 2, 4 and 6 weeks postpartum, respectively. Median BSI scores increased from 4 (IQR 2-8) at 3 months postpartum to 6 (IQR 2-10) at 9 months postpartum. BSI scores of 10 or greater occurred among 17.4% (31/178), 21.9% (34/155), and 27.3% (38/139) of respondents at 3, 6 and 9 months postpartum, respectively. Greater than half of participants had PSS scores indicating medium or high stress at all time points. At 9 months postpartum, 22.3% (31/139) of participants indicated that stress caused increased cravings or desire to use drugs or alcohol. **Conclusions:** The prevalence of postpartum anxiety is high among women with OUD and increases over the first postpartum year. Anxiety is complicated by many concurrent psychosocial stressors. Resources to provide behavioral health support to new mothers with OUD are necessary.

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### Differences in Alcohol and Other Drug Use Among Sexual and Gender Minority Participants in The Population Research in Identity and Disparities for Equality (PRIDE) Study.

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**Background:** Substance use has been examined in lesbian, gay, and bisexual populations, however, differences among other sexual and gender minority (SGM) people (e.g. queer, transgender, gender non-binary) remain unknown. **Objective(s):** To identify substance use differences among underrepresented SGM groups and assess associations between sexual orientation or gender identity and risk for elevated substance use or perceived problems with use. **Methods:** Between 2015-2017, SGM adults (N=1791) responded to cross-sectional questionnaires on prior substance use problems, and current use of alcohol, opiates, stimulants, hallucinogens, and other substances (illicit or used not-as-prescribed). Logistic regression models assessed the relationships between sexual orientation or gender identity and reported problems with or past year use of alcohol or other drugs. **Results:** Over half (55.1%) of the sample reported substance use within the last year (binge alcohol use: 49.8%; other drug use: 19.3%) and 31.0% indicated substance use had been a problem. Compared to gay participants, individuals identifying as pansexual or another sexual orientation (e.g., demisexual) had higher odds of reporting lifetime alcohol use problems (adjusted odds ratio (aOR): 2.10 [95% confidence interval (CI): 1.09-4.07; aOR: 1.61 [95% CI: 1.08-2.40], respectively). Asexual participants had lower odds of reporting binge alcohol use (aOR: 0.28 [95% CI: 0.12-0.64]). Compared to cisgender men (i.e., participants assigned male sex at birth and identify as men), transfeminine and gender non-binary participants had lower odds of reporting binge alcohol use (aOR: 0.47 [95% CI: 0.23-0.96]; aOR: 0.56 [95% CI: 0.32-0.998], respectively). Gender non-binary participants also had lower odds of reporting other drug use (aOR: 0.40 [95% CI: 0.17-0.91]). Overall, there were no differences in lifetime substance use problems or past year use of other drugs by sexual orientation or gender identity. However, there were differences in past year binge alcohol use by both sexual orientation ( $p=0.04$ ) and gender identity ( $p<0.01$ ). **Conclusions:** Substantial substance use heterogeneity exists between SGM groups. Adapting programs, trainings, and future research to include a wider spectrum of identities may improve the understanding of substance use and its health impacts as well as access to successful support/treatment services for SGM populations.

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## **Longitudinal Neurocognitive Effects of Buprenorphine in Adults with Opioid Use Disorder**

Monica Rivera Mindt PhD, ABPP; Kelly Coulehan PhD; Franchesca Arias PhD; Chinazo Cunningham MD, MS; Julia Arnsten MD, MPH- Albert Einstein College of Medicine/Montefiore Medical Center

**Background:** Opioid use disorder (OUD) is a major public health issue in the U.S. and globally, with current gold standard treatment consisting of long-term opiate agonist treatment (OAT). The most commonly used OAT medications are methadone and buprenorphine. Prior evidence suggests potential short- and long-term deleterious neurocognitive (NC) effects of methadone, occurring against a background of NC dysfunction associated with chronic opioid exposure. Buprenorphine has significantly different neural mechanisms than methadone, and may, in contrast, be associated with NC improvement over time. **Objective:** To understand the longitudinal NC effects of buprenorphine among adults with OUD. **Methods:** This prospective longitudinal study included a sample of 30 adults with OUD (M age=44.5+9.3yrs; M education=11.6+2.5yrs; 67% male; 60% Latinx) who completed comprehensive NC and substance use evaluations at baseline (pre-treatment) and at 3 and 6 months after initiating buprenorphine (post-treatment). Seven NC domains were assessed (executive, learning, memory, attention/working memory, processing speed, verbal, and motor). Demographically-corrected average t-scores were computed for global NC functioning and for each domain, and compared over time using paired t-tests. **Results:** From baseline to 3-months, there was significant improvement in the learning t-score, with a moderate effect size ( $t(1)=2.24$ ,  $p=.04$ ;  $d=0.43$ ). From baseline to 6-months, there was significant improvement in the executive function t-score, with a moderate effect size ( $t(1)=2.65$ ,  $p=.02$ ;  $d=0.46$ ). There were no changes in any other domains (all  $p$ 's>.10). **Conclusions:** Buprenorphine is related to significant NC improvements over time, particularly in executive function which is an important factor in predicting risky behaviors. This study was limited by a small sample size and absence of a comparison group. Future clinical studies should focus on rigorous comparisons of buprenorphine and methadone, to better inform treatment recommendations.

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## **Incidence of Future Arrests in Adults Involved in the Criminal Justice System With a History of Opioid Use Disorder Receiving Extended-Release Naltrexone Compared to Treatment as Usual.**

William Edward Soares III MD MS; Donna Wilson MS; Michael Gordon DPA; Joshua D. Lee MD; Edward V. Nunes MD; Charles P. O'Brien MD, PhD; Peter D. Friedmann MD, MPH – Department of Emergency Medicine, Baystate Medical Center

**Background:** Recurrent opioid use in criminal justice system (CJS) populations with a history of opioid use disorder (OUD) leads to future arrests, re-incarceration and death. While medication for addiction treatment (MAT) including methadone or buprenorphine reduces opioid relapse, concerns regarding diversion, stigma and lack of prescribers all limit availability. Extended-release naltrexone (XR-NTX) has been shown to reduce opioid relapse and may be more acceptable to CJS administrators. However, the impact of XR-NTX on criminal recidivism remains unknown. **Objective:** Evaluate future arrests of adults involved in the criminal justice system with a history of opioid use disorder randomized to XR-NTX therapy compared with treatment as usual (TAU). **Methods:** This exploratory analysis uses data collected in a published randomized trial. Arrest data was captured through a combination of self-report and law enforcement records. Authors independently coded all arrests in accordance with National Incident Based Reporting System guidelines. Comparisons of the incidence of future arrests, time to first arrest and the total number of arrests were performed using chi-squared testing and multivariate logistic regression. Secondary outcomes explored differences in arrests by type and severity of the crime, use of opioid and non-opioid drugs and study phase. **Results:** Of the 308 participants randomized, 300 had arrest data. The overall incidence of arrests did not differ between XR-NTX (47.6%) and TAU (42.5%) participants. (ChiSq  $p=0.37$ ). Time to first arrest was not significantly different between XR-NTX and TAU groups (XR-NTX mean time to first arrest 206 days (SD 144.2), TAU time to first arrest 253 days (SD 154.3) adjusted HR 1.35, CI 0.96-1.89). The number of arrests per participant was not significantly different between XR-NTX and TAU groups (adjusted IR 1.33, CI 0.78-2.27). Controlling for gender, age, previous criminal activity and use of non-opioid illicit drugs, multivariable logistic regression demonstrated no significant difference in the incidence of arrests between XR-NTX and TAU groups (adjusted OR 1.38, 95%CI 0.85-2.22)

**Conclusions:** Consistent with prior randomized trials of methadone and buprenorphine, we found no significant difference in future arrests between CJS participants with OUD randomized to XR-NTX or TAU treatment groups.

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## 2.3 Public Health Approaches to the Overdose Epidemic

### HealingNYC: New York City's Comprehensive Public Health Approach to the Opioid Overdose Epidemic

Hillary V. Kunins MD, MPH; Gail Goldstein MPH; Frithjof Bergmann DSW; Holly Catania JD; Jenny Fernandez MBA; Jonathan Giftos MD; Alexandra Harocopos PhD; Angela Jeffers MA; Jessica A. Kattan MD, MPH; Fabienne Laraque MD, MPH; Lara Maldjian MPH; Mindy Nass MSW; Henry Rosen MPA; Alice Welch PhD; Emily Winkelstein MPH, MSW; & Denise Paone EdD - New York City Department of Health and Mental Hygiene

**Background:** New York City (NYC) overdose death rates increased by 50% from 2015 - 2016; more than three-quarters involved an opioid. In response, NYC launched HealingNYC in 2017, a \$60-million mayoral initiative. **Objective:** To describe HealingNYC strategies, implementation progress, and early impact.

**Methods:** Under HealingNYC, NYC implemented eight public health strategies across multiple agencies and populations: 1) public awareness campaigns about overdose prevention and medications (methadone and buprenorphine) for addiction treatment (MAT); 2) targeted rapid assessments and responses; 3) Relay, a 24/7 peer-led emergency-department nonfatal overdose service; 4) prescriber education; 5) MAT access expansion; 6) opioid care transformation in NYC's municipal healthcare system; 7) substance use disorder treatment expansion in NYC jails; and 8) naloxone kits distribution expansion to 100,000 annually. **Results:** NYC ran two public awareness campaigns about overdose prevention and one about treatment; conducted seven rapid assessment and responses in areas with high overdose rates or increases; launched Relay in six NYC private emergency departments; and conducted three public health detailing campaigns to health care providers about judicious opioid prescribing and naloxone co-prescribing. We expanded access to MAT by funding 14 primary care and seven syringe exchange programs to implement buprenorphine treatment; provided buprenorphine waiver training to 972 prescribers; and assisted 21 primary care practices and three emergency departments with MAT implementation. From 2014 - 2017, 7% more NYC residents filled buprenorphine prescriptions. Our municipal healthcare system established formal clinical standards in 17 primary care clinics, addiction medicine consult teams in four hospitals, and peer support in its 11 emergency departments. The proportion of incarcerated people with opioid use disorder receiving methadone or buprenorphine increased from 25% to 68% in NYC jails. Naloxone distribution quadrupled from 15,360 kits in 2016 to 61,700 kits in 2017. Provisional 2017 overdose data indicate 1441 overdose deaths, a 5% increase over 2016 deaths, and a flattening over the 50% increase from 2015 - 2016. **Conclusions:** NYC's comprehensive response to the opioid epidemic involved multiple strategies implemented by several city agencies with population-specific approaches. Early results show modest increases in buprenorphine treatment, steeply increased naloxone distribution, and a flattening of overdose mortality.

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### Regulation of Methadone Prescribing and Spatial Access to Methadone Therapy For Opioid Use Disorder Across Urban and Rural Counties

Paul J. Joudrey MD, MPH; Quentin Johnson JD; Brian Mund JD; & Emily A. Wang MD, MAS - Yale School of Medicine

**Background:** Methadone can only be prescribed by certified opioid treatment programs (OTP) limiting its geographic distribution and potentially disadvantaging rural communities. Australia and Canada allow prescribing at certified primary care clinics. It is unclear how a similar methadone policy could impact geographic availability in the United States (US). **Objectives:** We examined 1) the urban-rural variation in drive

time to the nearest OTP and 2) how allowing prescribing at Federally Qualified Health Centers (FQHC) could impact drive time to the nearest methadone prescribing facility. **Methods:** We completed a cross-sectional geospatial analysis of counties in Indiana, Kentucky, Ohio, Virginia, and West Virginia. For our main exposure, we classified counties according to the 2013 National Center for Health Statistics (NCHS) scheme (non-core, micropolitan, small metro, medium metro, large fringe metro, and large central metro). Our outcome was drive time from 2010 US census county population center to the nearest methadone prescribing facility. We simulated drive times using Esri ArcGIS Rural Drive-Time tool. We included all OTPs and FQHCs nationally, excluding school based FQHCs, as potential destinations. To examine the impact of reduced methadone regulation, we compared drive times to OTPs to drive times to FQHCs. We used one-way ANOVA to compare changes in OTP versus FQHC drive times across NCHS classifications. **Results:** We included 489 counties (270 non-core or micropolitan [55.3%]) and 1539 OTPs and 7635 FQHC destinations were successfully matched to geocoordinates. Mean drive time to nearest OTP increased from urban to increasingly rural counties. For all counties, mean drive time to OTP was greater than drive time to FQHC (37.2 minutes versus 15.8 minutes;  $p < 0.001$ ). Relative to large central metro counties, we observed greater reductions in mean drive time in non-core (-31.7 minutes, 95%CI -35.1, -28.4;  $p < 0.001$ ), micropolitan (-25.4 minutes, 95%CI -29.6, -21.1;  $p = 0.001$ ), and small metro counties (-20.3 minutes 95%CI -26.6, -14.1;  $p = 0.008$ ) with FQHC methadone prescribing. **Conclusions:** Long drive times to the nearest OTP disproportionately impacts rural counties, making the availability of methadone poorly matched to treatment need. This geographic disparity could be mitigated if regulatory changes encouraged FQHC prescribing of methadone.

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## Pharmacists Can Provide MAT: A Long-Acting Injectable Naltrexone Clinic in Rural KY

Gail Groves Scott MPH; Emily Blaiklock PharmD - University of the Sciences

**Background:** Although considered standard of care, medications for addiction treatment (MAT) remain underutilized., despite the opioid overdose crisis. Pharmacists are described as "on the front lines" and "essential" (CDC, 2016) yet have a limited role delivering MAT. Jefferson County was #1 in overdose fatalities in Kentucky (2015-6), and Louisville has a high prevalence of opioid use disorders. Insufficient access to MAT is a public health problem. **Objective:** Identify the benefits and limitations of a pilot pharmacist-run MAT clinic focusing on the use of injectable long-acting naltrexone in Louisville, KY. **Methods:** At St. Matthews Community Pharmacy, specialty pharmacist, Emily Blaiklock implemented two innovative models of care: A. completely managing one patient cohort under a collaborative care agreement with the prescriber, covering all protocols, plus authorizations for lab tests.B. providing a subset of services for another group, who received their injection from their physician. Protocols include a urine drug screen and an oral naltrexone challenge before the injection. The model's funding included dispensing fees and patient fees. **Results:** Benefits: 1) Greater community treatment capacity; 2) Patient satisfaction; with experience gained from over >1200 injections in 3 years, Blaiklock created a split-dose administrative technique that minimized patient discomfort; 3) Lower costs to patients with increased insurance utilization; 4) Average fills/patient: 6.7 (transferred cohort, combined management), 3.5 (pharmacy cohort), 2.1 (outside clinic cohort); 5) Innovation transfer: Blaiklock presented to the Ohio Board of Pharmacy Limitations: 1) Dispensing fees alone are not adequate funding; 2) Treatment Initiation was delayed by mandatory mail-order, specialty pharmacy carve-outs, and prior authorizations; 3) Break-through cravings for roughly 1 in 5 patients, drove use of oral naltrexone 5-7 day dosing, or early fills if allowed by plan; 4) Naltrexone long-acting injectable is only covered by medical not prescription benefit, a barrier to filling & administering in the community pharmacy. **Conclusions:** A community pharmacist operating an injectable naltrexone clinic in a collaborative care model can provide quality care, drive greater adherence, and reduce cost and access hurdles. However, policymakers must address pharmacist scope of practice, reimbursement, regulations, and managed care barriers for the model to be sustainable.

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## **Public Health Detailing — Promoting Judicious Opioid Prescribing in New York City**

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**Background:** In New York City (NYC) during 2010–2016, the rate of opioid analgesic-involved overdose deaths increased 40% from 2.5/100,000 residents to 3.5/100,000 residents. Public health detailing (PHD) about judicious opioid prescribing is one of the NYC Department of Health and Mental Hygiene (DOHMH)'s key strategies to address the opioid crisis. Modeled after the pharmaceutical sales approach, PHD consists of brief one-to-one educational visits with health care providers (HCPs), and is effective in changing HCP behavior.

**Objective:** To conduct and evaluate three PHD campaigns on judicious opioid prescribing. **Methods:** During 2013–2017, DOHMH conducted three judicious opioid prescribing PHD campaigns in three NYC boroughs (counties): Staten Island (SI) (2013), the Bronx (2015), and in Brooklyn (2017). Geographic areas were selected based on rates of opioid analgesic-involved overdose mortality and opioid prescription filling. Different saturation strategies were used for each campaign: in SI, due to relatively smaller population, the majority (~75%) of providers borough-wide were targeted; in the Bronx, ~20% of providers borough-wide were targeted, mostly generalists; in Brooklyn, the majority (~65%) of providers in 2 (of 11) neighborhoods were targeted. Campaigns were 8 weeks, and included initial and follow-up visits. During visits, trained detailing representatives provided key clinical recommendations, resources, and tools. A knowledge survey was administered to HCPs at initial and follow-up visits. Aggregate borough-level opioid prescribing trends were assessed with Prescription Monitoring Program (PMP) data using a difference-in-differences method.

**Results:** During each campaign, approximately 1,000 HCPs were visited. Knowledge increased for all four key recommendations ( $P<0.05$ ). For the 3–6 month post-campaign period, decreases in high-dose prescribing were observed in SI and Brooklyn at the borough-level ( $P<0.05$ ); but increases were observed among Bronx prescribers ( $P<0.05$ ). **Conclusions:** The three PHD campaigns reached >3,000 HCPs, improved knowledge, and, for two campaigns, were associated with improved prescribing practices. Absence of aggregate or individual prescribing behavior data at the sub-borough level limit our ability to attribute prescribing changes to detailing. Furthermore, too-large a target area, such as in the Bronx, might diffuse the message and reduce impact. Access to identifiable, neighborhood-level PMP data would enhance opioid prescribing surveillance and intervention impact.

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## **A Novel Training and Distribution Program Increases Use of Prehospital Naloxone**

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**Background:** The opioid epidemic is an ongoing crisis with education of first responders on the administration of naloxone vital to reducing opioid-related mortality. **Objective:** To describe the results of a novel educational program targeting EMS, fire, and law enforcement agencies across a region of nearly 800,000 persons.

**Methods:** This was a voluntary, regional initiative to provide naloxone training and rescue kits at no cost to surrounding EMS, fire, and law enforcement first response agencies. The training consisted of recognizing an opioid overdose, understanding the role of naloxone to reverse the effects of opiate overdose, hands-on demonstrations of intranasal naloxone administration, and distribution of rescue kits. Data were collected on the number of training sessions, individuals trained, and rescue kits distributed. To assess the impact of the education and distribution program, a regional naloxone registry was created and data were collected on every opioid overdose during the same time-period. Key data points collected included the number of administrations, number of unique patients, total naloxone dose administered, and responding agency type (EMS, fire or law). **Results:** Between October 2014 and June 2017, twenty-four naloxone training and distribution sessions were conducted involving 485 individuals across 17 agencies. Law enforcement comprised the largest number of trainees followed by EMS and fire (50.1%, 28.0% and 21.2%, respectively). 3,058 naloxone doses were distributed. The number of naloxone administrations increased each year with 416 naloxone doses given on 318

unique encounters (3 Law, 125 Fire, 189 EMS) in 2014 to 1,405 doses given on 959 unique encounters (23 Law, 174 Fire, 762 EMS) in 2016. The average number of doses per encounter increased from 1.3 in 2014 to 1.5 in 2016. **Conclusion:** The opioid epidemic is an ongoing public health concern frequently encountered by first responders. In our region, naloxone training sessions were well attended across all public safety disciplines. Training and distribution of naloxone rescue kits was well received and resulted in increased availability and subsequent first responder administrations of naloxone. The increasing number of doses required per encounter requires further study and may indicate training opportunities and changes in opiate potency in our community.

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### **Complexity of Caring for a Long-term Care Patient with Opioid Use Disorder and History of Opioid Overdose**

Justina Groeger MD, MPH; Shikta Gupta MD; Roy J. Goldberg MD; & Joanna Starrels MD, MS - Montefiore Medical Center

**Background:** Aging-associated conditions such as chronic pain, multi-morbidity, and cognitive impairment increase risk of opioid misuse and overdose. Geriatric patients with opioid use disorder (OUD) and history of opioid overdose increasingly require skilled nursing facility care and experience multiple care transitions, yet there is a paucity of research guiding such care.

**Learning Objectives:** (1) Recognize why the aging population is at risk of opioid misuse and overdose. (2) Identify challenges in managing patients with opioid use disorder (OUD) across care transitions.

**Case Presentation:** An 82-year-old former smoker with remote alcohol use disorder, chronic back pain, COPD, anxiety, depression, and dementia had been prescribed oxycodone since the 1980s. Following his caregiver's death, he experienced progressive cognitive impairment and difficulty managing his medications, resulting in eight hospital encounters within six months for poorly controlled pain, altered mentation, polypharmacy, and three opioid overdoses. Subsequently, he entered post-acute care and was discharged home, where he experienced six more opioid overdoses within six weeks. This prompted admission to long-term care where he received lidocaine patch, duloxetine, tramadol, and acetaminophen. His pain was poorly controlled, leading to frequent early medication requests, multiple elopement attempts, and intensive staff attention. He was started on fentanyl patch with as-needed oxycodone with no further overdoses.

**Discussion:** This case exemplifies the risks of opioid use and untreated OUD in geriatric patients, particularly those with dementia, and raises questions about how to best manage such patients. While this patient ultimately became safe in long-term care, opportunities were missed for diagnosing and treating OUD in and between multiple settings of care. Barriers to care for patients with OUD who require skilled nursing facilities include: 1) complexities of diagnosing OUD in patients with dementia; 2) regulations that restrict medication assisted treatment or prioritize patient satisfaction with pain management, and 3) lack of training in identifying and treating OUD among staff. This case highlights the need to address these barriers as we prepare to care for an aging population with high prevalence of opioid use and OUD.

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## **2.4 Alcohol, Tobacco, and Other Drugs**

### **Critical Steps in the Path to Using Cessation Pharmacotherapy Following Hospital-Initiated Tobacco Treatment**

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**Background:** Hospital-initiated smoking cessation interventions utilizing pharmacotherapy increase post-discharge quit rates. Use of smoking cessation medications post-discharge may further increase quit rates. However, rates of pharmacotherapy provision are low among hospitalized smokers and little is known about the barriers and facilitators to engagement in the pharmacotherapy utilization process while smokers are hospitalized and post-hospitalization. **Objectives:** This study aims to identify individual and hospital-level

predictors of engagement in three different steps in the smoking cessation pharmacotherapy utilization process: receiving medications as inpatient, being discharged with a prescription and using medications at 1-month post-hospitalization, while accounting for associations between these steps. **Methods:** Study data come from a clinical trial of hospitalized smokers who were randomized to quitline referral via warm handoff or fax. Variables were from the electronic health record, the state tobacco quitline, and participant self-report. Relationships among the predictors and the three steps in cessation medication utilization were assessed using bivariate analyses and multivariable path analysis and multiple imputation to account for missing data. **Results:** Receipt of smoking cessation medications while inpatient and discharge with a script were independently associated with medication use at 1-month post-hospitalization. The path analysis revealed the likelihood of being discharged with a script was strongly influenced by receipt of medication as an inpatient ( odds ratio (OR) = 6.6,  $p < .001$ ) and was robustly associated with medication use at follow-up (OR = 4.9,  $p < .001$ ). A number of other treatment and individual-level factors, including admission through the emergency department and presence of a psychiatric diagnosis, were associated with medication use in the hospital, receipt of a script, and use post-discharge. **Conclusions:** To encourage post-discharge smoking cessation medication use, concerted effort should be made to engage smokers in tobacco treatment while in hospital. The individual and hospital-level factors associated with each step in the medication utilization process provide good potential targets for future implementation research to optimize treatment delivery and outcomes.

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### **Time Interval Between First Alcohol-Related Problems and Desire to Reduce Consumption**

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**Background:** A lack of knowledge surrounds the course of alcohol-related problems among persons with an alcohol use disorder (AUD). A better understanding of the time course surrounding alcohol-related problems could help screening and prevention efforts. **Objectives:** To assess the age of onset and prevalence of various alcohol-related problems among participants with lifetime mild, moderate or severe AUD.

**Methods:** We used data from CoLaus|PsyCoLaus, a cohort study conducted among residents of Lausanne, Switzerland. Among the 5059 randomly sampled residents of the city of Lausanne who underwent a semi-structured Diagnostic Interview for Genetic Studies (DIGS) during the course of the study, 491 participants presented an AUD according to the DSM-5 criteria and were selected for the current project (36 to 81 year-old, 24% of women). We compared the prevalence and the age of onset of the DIGS ten alcohol-related symptoms between participants with mild, moderate or severe AUD. **Results:** Regular consumption (alcohol at least once a week) started at a mean age of 22.2, 21.5 and 22.3 years among participants with mild, moderate or severe AUD, respectively. Shortly after, alcohol-related problems occurred. Among the earliest reported symptoms, drinking too much in physically hazardous situations appeared at ages 26.7, 28.4, 27.1 in each group, respectively, and was also among the most frequently reported alcohol-related problems (63.4, 63.9 and 82.1%, respectively). Participants experienced blackouts at ages 25.5, 27.8, 29.3 years, respectively, but this problem was less frequent (22.8, 36.1 and 58.3% respectively). Although almost all participants reported a desire to cut-down alcohol consumption (84.5%, 93.5% and 98.7%, respectively), they only reported this at ages 39.5, 39.2, 36.5 years. **Conclusions:** There is an important time lapse (about 10 years) between the first alcohol-related problems and the desire to cut down consumption, independently of the severity of AUD. This window of time might be a propitious period for intervention. These results reinforce the importance of early screening of unhealthy alcohol use, AUD and related problems.

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### **Gabapentin Misuse, Dependence, and Withdrawal—A Case Report**

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**Background:** Gabapentin was historically assumed to have limited abuse potential. However, mounting evidence shows misuse of gabapentin and suggests the rate has increased considerably in recent years. Clinicians may fail to recognize gabapentin misuse and the symptoms of withdrawal.

**Learning objectives:** Describe patterns of gabapentin abuse in a patient with opioid use disorder.

Recognize the presentation and management of gabapentin withdrawal.

**Case Presentation:** A 42-year old white male with opioid, alcohol, benzodiazepine, and cannabis use disorders in remission; unspecified personality disorder; and unspecified bipolar disorder presented to the emergency department (ED) with altered mental status. He was accompanied by supervised housing staff who described two days of acute disorientation and bizarre behavior. In his confused state, he missed his scheduled buprenorphine/naloxone appointment. In recent months, he lost employment and housing, totaled his car, was attacked with resultant face laceration and fracture, and hospitalized after generalized seizure. Throughout this time, he denied substance use, gave negative urine drug screens (UDS), and reported taking medications as prescribed. In the ED, his symptoms were initially attributed to complicated opioid withdrawal. However, he did not improve with administration of opioids and benzodiazepines. Imaging and labs were normal. The patient was admitted for monitoring of suspected buprenorphine withdrawal versus intoxication with unknown substance. Pharmacy refill history investigation showed early gabapentin refills from multiple prescribers over the past six months. Results of gabapentin blood level drawn on admission returned as undetectable. Home gabapentin was restarted for suspected gabapentin withdrawal and his symptoms resolved within 24 hours. In outpatient follow-up, he admitted to misuse of gabapentin, taking 2700mg per dose for euphoria and anxiety relief.

**Discussion:** This case depicts a patient with gabapentin abuse, dependence, and withdrawal. Epidemiologic data suggest that gabapentin abuse rates are highest in patients with opioid use disorder. Challenges to detection and management of gabapentin abuse include lack of provider awareness, inability to detect on routine UDS, delay in blood and urine test results, and lack of prescription monitoring. Gabapentin withdrawal may have variable presentations and can be challenging to recognize. Provider education can increase awareness of gabapentin, dependence, and withdrawal.

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### **"It Could Potentially Be Dangerous... But Nothing Else Has Seemed to Help Me." Patient Experiences Using Benzodiazepines in Opioid Agonist Treatment**

Tae Woo Park MD, MSc; Richard Saitz MD, MPH; Alexander Y. Walley MD, MSc; Jennifer Sikov BA; & Mari-Lynn Drainoni PhD - Boston University School of Medicine and Boston Medical Center

**Background:** Benzodiazepine use among patients receiving opioid agonist treatment (OAT) presents a conundrum: benzodiazepines can increase overdose risk, yet patients commonly have anxiety or insomnia that can be relieved by benzodiazepines. The optimal therapeutic role for benzodiazepines among patients receiving OAT is unclear. **Objective:** The purpose of this study is to explore in OAT patients: 1) motivations for benzodiazepine use, 2) understanding of the benefit and harms of benzodiazepine use, and 3) facilitators and barriers to discontinuing benzodiazepine use. **Methods:** We conducted semi-structured, qualitative interviews with 26 individuals who currently receive OAT and use benzodiazepines regularly presently or in the past. Participants were recruited from an office-based buprenorphine clinic at an academic health center and from a methadone maintenance clinic using purposive sampling. Interviews lasted between 45 and 90 minutes and were audio-taped and transcribed. The study team then reviewed transcripts and double-coded 50% of the interviews. Data analysis was guided by elements of grounded theory and thematic analysis. **Results:** Of the 26 participants, 58% were female, 65% were currently receiving methadone, 54% were using prescribed benzodiazepines, 31% were using unprescribed benzodiazepines, and 15% were not using benzodiazepines currently. Major themes that emerged from the analysis included: 1) therapeutic benzodiazepine use, 2) benzodiazepine misuse, 3) learning to use benzodiazepines appropriately, 4) relationship with prescribers, 5) stigma, and 6) desires about future benzodiazepine use. We developed a conceptual framework that focused on the phenomenon of participants learning to use benzodiazepines in a safe manner. The capacity to take benzodiazepines without negative consequences (worse functioning) depended on the participant's recovery status. As participants progressed from illicit opioid use to stable opioid treatment, motivations for benzodiazepine use progressed from misuse to therapeutic use and consequences progressed from negative (e.g., oversedation) to positive (e.g., able to ride bus). **Conclusions:** Patients receiving OAT who use benzodiazepines report negative and positive consequences. The risk-benefit calculus of benzodiazepine

prescribing may depend on whether the patient is stable in opioid treatment. Further work among patients and providers is warranted to determine whether and how patients can learn to take benzodiazepines such that the benefits clearly outweigh the risks.

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### **Impact of Attending a Mutual Support Group Meeting on Resident Trainee Attitudes Toward Patients with Substance Use Disorder**

Amy Kennedy MD; Andrea Carter MD; & Melissa McNeil MD, MPH - University of Pittsburgh Medical Center

**Background:** Substance use disorders (SUDs) are a significant cause of morbidity and mortality. Mutual Support Groups (MSGs) such as Alcoholics Anonymous (AA) and Narcotics Anonymous (NA) are mainstays of recovery, yet physicians receive little formal training in their use. **Objectives:** We implemented and evaluated a curriculum to expose internal medicine resident trainees to MSGs with the aim to evaluate trainees' attitudes toward patients with a history of SUD and toward MSGs after observing and reflecting on a MSG meeting. **Methods:** All residents on ambulatory rotations October–December 2017 attended a MSG meeting (AA or NA). After the meeting, residents wrote a short reflection and attended a 1-hour audiotaped group debrief session. Residents were also asked to complete a written survey pre- and post- curriculum. The survey contained 7-point Likert scale questions from 1=strongly disagree to 7=strongly agree. Composite attitude scores for each resident were calculated using the mean Likert-scale responses and were compared pre- versus post-curriculum using paired Students t-tests with 2-sided p-value<0.05 considered statistically significant.

**Results:** Of 31 eligible residents, 22 (71%) completed both the pre- and post- survey, 27 (87%) completed the written reflective piece and 28 (90%) attended the focus group session. We have completed preliminary qualitative analysis to identify overall themes of the written pieces and audio-taped group sessions which has identified three major themes: perspective taking, a sense of community, and religious overtones. For our survey analysis, compared to pre-curriculum, residents post-curriculum had more positive attitudes toward patients with SUD (mean Likert 4.9 vs 4.6, p=0.01) and toward MSGs (mean Likert 5.4 vs 5.0, p=0.01). Post-curriculum residents were also more aware of the basic principles of MSGs and more comfortable counseling patients on the utility of MSGs (p<0.05 for each). **Conclusions:** Residents had more positive attitudes toward patients with SUD after attending and reflecting on a MSG meeting. They also were more comfortable counseling patients on the utility of MSGs. Implementing a curriculum on MSGs gives residents an experience to empathize with patients with SUD and a chance to better educate themselves on how to discuss these services with their patients.

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## **2.5 Medical Sequelae of Substance Use**

### **Hospitalizations Due to Infectious Disease Complications of Injection Drug Use, Oregon, 2008–2015**

Jeffrey D Capizzi BA; Judith Leahy MPH; Haven Wheelock BS; Ann Thomas MD, MPH; Jonathan Garcia PhD; Sean Schafer MD, MPH; & P. Todd Korthuis MD, MPH - Oregon Health Authority

**Background:** People who inject drugs are often hospitalized for serious infections, but few population-based estimates of injection drug use (IDU)-related hospitalizations inform hospitalization trends and costs for people who inject drugs (PWIDs) who require hospitalization. **Objectives:** The purposes of the study were to describe statewide trends in IDU- and drug use-related hospitalizations, diagnoses, and costs in the state of Oregon over time. **Methods:** We used Oregon Hospital Discharge Data, which captures administrative claims data for most hospitalizations in Oregon, to identify IDU-related hospitalizations from January 2008 through September 2016. IDU-associated hospitalizations were those with at least one diagnostic code associated with use of opioids, amphetamines, cocaine, sedatives, or other drugs and at least one diagnosis code for bacteremia/sepsis, endocarditis, osteomyelitis, or skin/soft tissue infection. Cost was determined by adjusting the charged amount with Cost-to-Charge ratios by hospital. **Results:** IDU-related hospitalizations in Oregon increased from 975 to

5,256 (0.26% to 1.44% of all hospitalizations) from 2008 to 2015, a 5.5-fold increase. The number of unduplicated persons with at least one IDU-related hospitalization each year increased from 834 to 4,243. Opioid-related hospitalizations increased from 0.18% to 0.92% of all hospitalizations and from 1.02% to 3.00% of IDU-related hospitalizations. Amphetamine-related hospitalizations increased from 0.42% to 1.88% among all hospitalizations (4.5-fold increase), and from 0.04% to 0.52% among IDU-related hospitalizations (a 13-fold increase). Bacteremia\sepsis IDU-related hospitalizations increased from 0.06% to 0.83% of all visits (14-fold increase). Mean costs per person per year increased among PWID from \$16,451 to \$26,382 (2008–2015). Mean length of stay (LOS) in 2015 was 8.8 days among PWID and 5.3 days among non-PWIDs. IDU-related hospitalizations among people with HIV increased from 18 in 2008 to 108 in 2015. IDU-related hospitalizations among people with chronic HCV increased from 105 in 2008 to 748 in 2015. **Conclusions:** PWID comprised an increasing proportion of hospitalizations in Oregon and had longer LOS and higher mean costs than non-IDU. Hospital settings offer an increasingly important opportunity for engaging and initiating substance use treatment for PWID.

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### **Receipt of Medications for Opioid Use Disorder After Discharge for Injection Drug Associated Endocarditis**

Simeon Kimmel MD, MA; Alexander Walley MD, MSc; Dana Bernson MPH; Thomas Land PhD; Ryan Bernstein MPH; Benjamin Linas MD, MPH; & Marc Larochelle MD, MPH - Boston Medical Center

**Background:** People who inject drugs are at risk for serious bacterial infections including endocarditis. Endocarditis requires prolonged intravenous antibiotics, which is an opportunity to engage individuals in treatment with medications for opioid use disorder (MOUD). However, the proportion receiving and factors associated with MOUD receipt following discharge for injection drug associated endocarditis (IDU-IE) are unknown. **Objective:** To determine engagement with and factors associated with MOUD receipt following a hospital discharge for IDU-IE. **Methods:** Retrospective cohort study of Massachusetts residents ages 11 or older with a first hospital encounter for IDU-IE from July 2011 to September 2015. We employed a state-maintained population registry that includes person-level medical claims, prescription monitoring program, and state substance use treatment data. We defined IDU using ICD-9 codes for opioid use disorder, injection drug use, or Hepatitis C in six months prior to discharge. We examined the proportion of individuals who received MOUD a) at least one time in the 6 months prior to infection and b) in the 3 months following discharge, defined as enrollment in a methadone maintenance program or receipt of buprenorphine or naltrexone. We used chi square tests to determine association between baseline characteristics and MOUD receipt after discharge.

**Results:** We identified 857 individuals with a first IDU-IE discharge. 227 (27%) of individuals received MOUD in the 6 months before infection, whereas 326 (38%) received any MOUD in the 3 months after discharge. Of those receiving MOUD after infection, 51% (166/326) previously received MOUD. In comparison, 25% (160/630) of those with no prior MOUD received MOUD ( $p < 0.00001$ ). Of those treated after infection, 116 (14%) received methadone, 164 (19%) buprenorphine, 12 (1.4%) naltrexone and 34 (4.0%) more than one MOUD. 50% of individuals age 11-29, 44% age 30-49, 25% age 49-64, and 14% 65 or older received any MOUD in the 3 months following discharge ( $p < 0.0001$ ). Gender and race were not associated with MOUD receipt. **Conclusion:** A minority of individuals received MOUD following IDU-IE. Prior receipt of MOUD and younger age are associated with MOUD receipt following discharge for IDU-IE. Efforts to understand barriers and improve receipt of MOUD following IDU-IE are needed.

**Financial Support:** Support from ASAM 2017 Fellowship Award, Fellow Immersion Training Program in Addiction Medicine (R25DA013582) and Research in Addiction Medicine Scholars Program (R25DA033211).

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### **Establishing Access to Hepatitis C Treatment in a Nurse Practitioner-Led Community-Based Syringe Access Center in San Francisco**

Pierre-Cedric Crouch PhD, ANP-BC; Pauli Gray; Ally Few; Christopher Hall MD; Jen Hecht MPH; & Joshua O'Neal MS - San Francisco AIDS Foundation

**Background:** In San Francisco, 12,000 people are living with Hepatitis C (HCV). While treatment has greatly improved over the years, access has not. Substantial barriers remain, including lack of treatment awareness, availability of culturally competent providers, and care settings appropriate for clients with impacted lives. The highest risk activity for HCV is a chaotic drug use situation. **Objective:** San Francisco AIDS Foundation (SFAF) launched a HCV Treatment Program in 2017 located in a syringe access center to address these barriers, increase access to direct-acting antivirals, and thus impact HCV disease in hard-to-reach communities with little access to primary care. **Methods:** SFAF's Harm Reduction Center provides clean syringes/injection equipment, naloxone, HIV/HCV testing, and mental health/substance use counseling. HCV navigators perform street outreach and refer clients to a Nurse Practitioner (NP) at the center for a medical evaluation. Clients return within 7-14 days to initiate treatment and participate in a case management program with access to free communal breakfast, lockers for medication storage, and individual and group counseling. Laboratory and medication costs are paid by insurance. NP and HCV case management effort is funded through grants and donations. **Results:** Between August 2017 and April 2018, 20 clients initiated treatment. Mean client age was 45.0 years (range 29-69); 16 were men, 3 women, and 1 transfeminine. Thirteen were white, 6 black, and 1 multiracial. 19 had health insurance. Four were on opioid substitution and 17 were actively injecting substances. Thirteen have completed treatment and 6 obtained a Sustained Viral Response 12 weeks after treatment. None have discontinued therapy. **Conclusion:** The program's successes were in part due to local regulations requiring public health insurance to pay for treatment, expanded nursing scopes of practice in the state of California to prescribe treatment, and newer 8-week HCV therapy courses. Led by trained NPs and HCV Navigators, a community-based organization providing syringe access was positioned to bridge barriers to HCV treatment, determine clinical eligibility, and monitor successful therapy to achieve virologic cure, and decrease community HCV prevalence. Replication of these innovations in additional communities is needed.

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### Hepatitis C Treatment as Prevention: Results and Insights from a Pilot Trial

Phillip O. Coffin MD,MIA; Emily Behar PhDc; Glenn-Milo Santos PhD; Tim Matheson PhD; John Walker NP; Eric Vittinghoff PhD; Rena Fox MD; & Kimberly Page PhD - San Francisco Department of Public Health

**Background:** Hepatitis C (HCV) is prevalent and expanding among people who inject drugs (PWID). Preventing forward transmission of HCV through treatment ("Treatment as Prevention") may be effective, yet there are few data on treatment success and reinfection risk among those at highest risk for secondary transmission in the era of direct-acting antivirals. **Objective:** To compare and evaluate modified directly observed (mDOT) for 5 days weekly versus weekly dispensed (WDT) HCV treatment among people with chronic HCV who currently inject drugs. **Methods:** We conducted a randomized trial mDOT versus WDT with ledipasvir-sofosbuvir among PWID eligible for an 8-week course who had injected in the past month with others present. We evaluated recruitment, treatment, undetectable HCV viral load (i.e., <1.2 log IU/mL), and relapse or reinfection, as well as qualitative assessments of treatment acceptability and utility. **Results:** Of 116 individuals referred as potential participants, 72 (62%) attended screening and provided consent, and 33 were eligible. Thirty-one participants enrolled in the study and 89.4% of daily and 97.2% of weekly visits were attended during the treatment phase; all but one participant (in the DOT arm) completed treatment. For treatment completers, HCV viral load was undetectable for 96.7% (29/30) at 2 weeks, 100% (30/30) at end of treatment, 93.1% (27/29) 12 weeks after treatment (1 relapse, 1 reinfection), and 87% (20/23) 36 weeks after treatment (2 additional reinfections) for those who completed respective visits. We observed a reinfection rate of 8.69 per 100 person-years. Themes from qualitative interviews conducted at treatment completion will be discussed. **Conclusion:** PWID at risk of transmitting HCV to others can be successfully treated with both directly-observed and weekly-dispensed protocols, as shown by the high retention and sustained viral response rates. We observed three reinfections, suggesting we successfully reached a high-risk population and the referral-to-screening ratio suggests that other priorities may supersede HCV treatment for some PWID. A successful HCV treatment as prevention initiative would likely need to inspire PWID to seek HCV treatment, provide treatment in a convenient location with flexible protocols, and be sufficient in scope to significantly lower prevalence in the community.

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## **Abstinence-Reinforcing Financial Incentives Improve HIV Viral Load Among People With HIV Who Use Drugs**

Marcus Bachhuber MD,MS; Nancy Sohler PhD,MPH; Julia Arnsten MD,MPH; Moonseong Heo PhD; John Jost PhD; Jeronimo Maradiaga BA; Matthew Glenn MPH; Melissa Stein MD; Robert Grossberg MD; & Chinazo Cunningham MD,MS - Albert Einstein College of Medicine & Montefiore Medical Center

**Background:** Despite advances in HIV treatment, people who use drugs continue to have poorer HIV outcomes than other risk groups. Because abstinence-reinforcing financial incentives (FI) reduce drug use and reduction in drug use is associated with improved HIV outcomes, it is possible that abstinence-reinforcing FI may extend to improving HIV outcomes. **Objective:** To test whether an abstinence-reinforcing FI intervention improved HIV viral load (VL) in people actively using opioids or cocaine. **Methods:** We conducted a randomized controlled trial in the Bronx, NY to test the efficacy of a 16-week abstinence-reinforcing FI intervention compared with a control condition on VL. We enrolled HIV-infected English- or Spanish-speaking adults from 2012 to 2017 with opioid or cocaine use disorder, active opioid or cocaine use, antiretroviral (ARV) treatment, <100% ARV adherence, and detectable VL. FI intervention participants received vouchers for each drug-free urine, which were worth \$2.50 initially and had increasing values for subsequent drug-free urines. Urines were collected twice weekly for 16 weeks, and the total maximum incentive was \$1320. We used intention-to-treat mixed-effects linear regression analyses to examine differences between groups in VL (primary outcome) and CD4 count (secondary outcome). **Results:** Of 1437 individuals screened, 236 were enrolled, and 74 were fully eligible and randomized to the FI (n=38) or control (n=36) groups. Most participants were male (65%), black (45%) or Hispanic (30%), and the median age was 49 years. Compared with the control group, the FI group had a significantly greater mean reduction in log<sub>10</sub> VL (-0.15 log<sub>10</sub> copies/mL, 95% CI: -0.28 to -0.02, p<0.05) and no significant change in CD4 count (-15.49 cells/mm<sup>3</sup>, 95% CI: -39.56 to 8.58, p=0.20). **Conclusion:** Among people with HIV infection actively using opioids or cocaine, a 16-week abstinence-reinforcing FI intervention improved VL but not CD4 count. This study is among the first to demonstrate that FI that reinforce one behavior (achieving abstinence) lead to improved outcomes in another related behavior (HIV VL). To end the HIV epidemic, use of FI could be an important strategy to improve HIV outcomes among individuals with active opioid or cocaine use disorder.

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## **Proportion of Sexually Transmitted and Blood-Borne Infections Among Patients Presenting to a Low-Barrier Substance Use Disorder Medication Clinic**

Leah Harvey MD, MPH; Jessica Taylor MD; Sabrina Assoumou MD, MPH; Ryan Perera; Jessica Kehoe RN; Elissa Perkins MD, MPH; Edward Bernstein MD, MSc - Boston Medical Center

**Background:** In the midst of escalating overdose deaths, new low-barrier to access programs (LBAP) have emerged to rapidly link people with substance use disorders (SUD) to addiction treatment, including medication. However, the role of LBAP in addressing infectious complications of SUD, including sexually transmitted and chronic blood-borne infections, remains uncertain. **Objective:** To determine the proportion of syphilis, chlamydia, gonorrhea, HIV, and both acute and chronic hepatitis C (HCV) and hepatitis B (HBV) among patients with SUD establishing care at a LBAP. This study also evaluates the proportion of individuals successfully linked to care, defined as attendance of a referral appointment. **Methods:** A retrospective chart review was performed of patients who completed an intake at an LBAP in Boston, MA between 1/1/2017-9/1/2017. **Results:** Of 421 patients who completed intake, 225 (53.4%) reported injection drug use. Participants reported high rates of known chronic viral infection including HIV (n = 8, 1.9%), chronic HCV (n = 112, 26.6%), and chronic HBV (n=2, 0.5%). One quarter (n=99, 23.5%) were HBV non-immune. Among those screened, 56 new infections were identified, including 1 HIV (0.3%), 3 syphilis (1.1%), 2 gonorrhea (0.8%), 3 chlamydia (1.2%), 1 chronic and 1 acute HBV (0.7%), and 45 active HCV (14.8%). Among the 8 bacterial infections, 7 (87.5%) were treated. Among 48 new viral infections, 0 HIV (0.0%), 2 HBV (100.0%), and 13 HCV (28.9%) were linked to care. **Conclusions:** The observed proportions of both bacterial and chronic viral infections support the inclusion of comprehensive infection screening and linkage-to-care algorithms in the

LBAP setting. LBAP offer new opportunities to expand HBV vaccination, HIV pre-exposure prophylaxis (PrEP), and HCV treatment among people who inject drugs.

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## **High Mortality Rates Among People Living With HIV and Opioid Use Disorder Transitioning From Prison to the Community: Evidence From a Prospective, Open-Label Trial of Pre-release Methadone in Malaysia.**

Alexander R. Bazazi MD, PhD; Martin Wegman MD, PhD; Gabriel Culbert PhD; Adeeba Kamarulzaman MBBS, FRACP, FASc; & Frederick L. Altice MD - UCSF Department of Psychiatry

**Background:** The risk of death is elevated immediately after prison release, particularly for people living with HIV (PLWH) and opioid use disorder (OUD). Opioid agonist therapy (OAT) reduces mortality among people with OUD, and pre-release OAT initiation can improve post-release health and social outcomes. The impact of pre-release OAT on post-release survival has not been evaluated prospectively among PLWH and OUD.

**Methods:** National death registry records were linked with data from a controlled trial of methadone initiation one to six months before prison release and linkage to fully subsidized post-release methadone among men living with HIV and OUD in Malaysia. Analysis included 61 participants randomized to and 230 participants given the choice of pre-release methadone or no pre-release methadone; overall, 214 participants were allocated to methadone and 77 were not. Cox proportional hazards models were used to estimate the effect of the intervention on post-release survival. This trial is registered on clinicaltrials.gov (NCT02396979).

**Findings:** We observed 62 deaths over 873 person-years (PY), a crude mortality rate of 71.1 per 1,000 PY (95% CI 54.5—89.3) and standardized mortality ratio of 20.1 (95% CI 15.4—25.8). Most deaths (52/62, 84%) were of infectious etiology. In intention-to-treat analyses, the hazard ratio (HR) for the effect of pre-release methadone on post-release mortality was 1.4 (95% CI 0.6–3.1) in an unadjusted model and 1.2 (95% CI 0.5–2.8) in a covariate-adjusted model; as-treated analyses similarly were compatible with a null effect. Predictors of mortality in a multivariate model were CD4 lymphocyte count (HR 0.8 for each 100-cell/

95% increase,

CI 0.73–0.96), pre-incarceration alcohol use (HR 2.01, 95% CI 1.04–3.87), and educational level (HR 1.35,

95% CI 1.04–1.75). **Interpretation:** This sample of PLWH and OUD faced an extremely high of death after

prison release, likely due primarily to inadequately treated HIV infection. Pre-release methadone initiation did

not impact post-release mortality. Although OAT may reduce mortality in released prisoners in higher-resource

settings, our findings suggest that treating OUD alone is insufficient for addressing post-release mortality when

inadequately treated HIV infection is the main cause of death.

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## Poster Abstracts

### 1. Does a Booster Webinar Following an Immersion Training Increase Generalist Chief Residents' Addiction Medicine Teaching?

Daniel P. Alford MD, MPH<sup>1,2</sup>; Marlene C. Lira BA<sup>1</sup>; Kristina M. King MPH<sup>1</sup>; Danna E. Gobel MSW<sup>1</sup>; Angela Jackson MD<sup>2</sup>; Sharon M. Coleman MS, MPH<sup>3</sup>; & Jeffrey H. Samet MD, MA, MPH<sup>1,2,4</sup> -

1. Clinical Addiction Research and Education (CARE) Unit, Section of General Internal Medicine, Grayken Center for Addiction, Boston Medical Center; 2. Department of Medicine, Boston University School of Medicine; 3. Biostatistics and Epidemiology Data Analytics Center, Boston University School of Public Health; 4. Department of Community Health Sciences, Boston University School of Public Health<sup>4</sup>

**Background:** The national Chief Resident Immersion Training (CRIT) Program in Addiction Medicine has been shown to increase addiction medicine teaching among incoming generalist chief residents (CRs). During CRIT all CRs develop a substance use teaching project (SUTP) to be implemented during their chief residency.

**Objective:** To evaluate whether a booster webinar 4-5 months after CRIT can further increase CRs' addiction medicine teaching and completion of their SUTP. **Methods:** In this five-year (2012-2016) randomized controlled educational study, intervention CRs received a 60-minute booster webinar 4-5 months after CRIT on strategies to increase addiction medicine teaching and SUTP completion, whereas the control CRs did not. The intervention CRs evaluated the usefulness of the booster and whether it impacted their addiction medicine teaching and SUTP completion. The frequency of addiction medicine teaching was compared between the two groups of CRs using post-CRIT teaching logs pre- and post-booster. The SUTP completion was compared between groups using an 11-month post-CRIT survey. **Results:** Among 89 CRs from 58 residency programs who attended CRIT from 2012-2016; 45 were randomized to the booster intervention with 89% (40/45) completing the booster and 44 were controls. The intervention and control CRs were similar demographically. Immediately post-booster, all intervention CRs recommended offering the booster to future participants with 97% rating it as useful and almost all stating that the booster would further increase their likelihood of teaching addiction medicine (97%) and completing their SUTP (88%). At 11-month follow-up, 40% of participants reported that the booster led to an increase in their addiction medicine teaching and led to more work on their SUTP. However, using an intention-to-treat analysis, the pre- and post-booster teaching logs, and 11-month post-CRIT surveys found no significant differences between intervention and control groups in changes to addiction medicine teaching frequency or SUTP completion (intervention 26.7%, control 38.6%, p=0.23).

**Conclusions:** While chief residents (CRs) who participated in a booster webinar 4-5 months after CRIT rated it useful and likely to improve their addiction medicine teaching outcomes, we found no significant differences between intervention and control CRs with regards to addiction medicine teaching frequency and substance use teaching project completion.

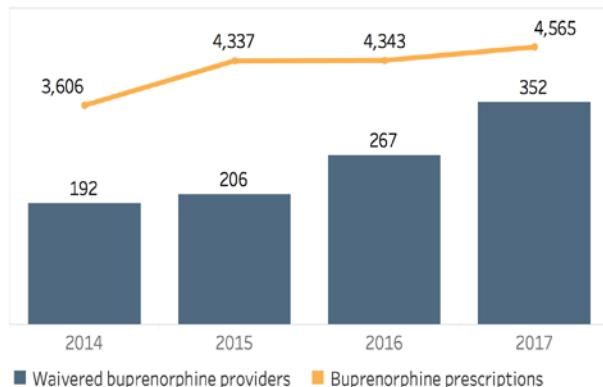
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### 2. Relationship between Buprenorphine Prescribing Capacity and Patient Access, Rhode Island, 2014-2017

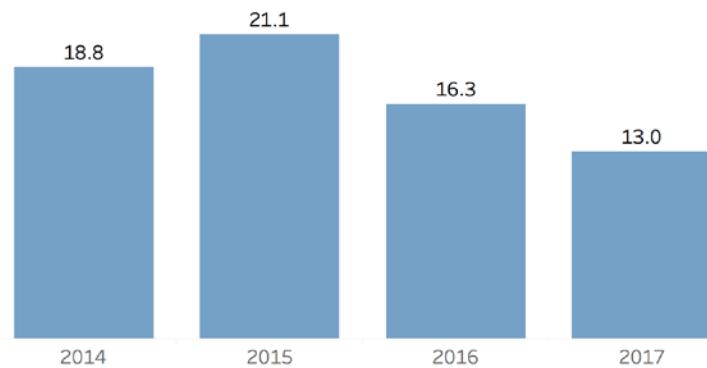
Seth Clark MD, MPH; William C. Goedel BA; Maxwell S. Krieger BS; Josiah Rich, MD, MPH; & Brandon DL Marshall, PhD - Brown University

**Background:** In response to the opioid epidemic, there have been calls for increased access to treatment for opioid use disorder (OUD). Many efforts focus on increasing the number of providers certified to prescribe buprenorphine under the Drug Addiction Treatment Act of 2000 (DATA 2000). **Objective:** Currently, there is a lack of data assessing the impact of increasing provider capacity on the number of patients receiving treatment. We aimed to investigate trends in DATA-waivered providers in Rhode Island and the correlation with patients receiving buprenorphine. **Methods:** Using data available from the Substance Abuse and Mental Health Services Administration (SAMHSA) and the RI Prescription Drug Monitoring Program (PDMP), we compared the annual number of DATA-waivered providers to the annual average number of patients receiving buprenorphine per month from 2014-2017. We assessed the correlation between the number of patients receiving buprenorphine and the number of waivered providers. **Results:**

**Figure 1: Total data-waived practitioners and buprenorphine prescriptions (Rhode Island, 2014 to 2017)**



**Figure 2: Average number of buprenorphine prescriptions per data-waived practitioner (Rhode Island, 2014 to 2017)**



Both the number of waivered providers and the number of patients being treated with buprenorphine increased during the period of investigation, resulting in a Pearson's correlation of 0.74 (Figure 1). However, while the number of providers eligible to prescribe buprenorphine increased over 80% from 2014 ( $n = 192$ ) to 2017 ( $n = 352$ ), the annual monthly average number of patients receiving buprenorphine increased only 26% from 2014 ( $n = 3606$ ) to 2017 ( $n = 4565$ ). In 2017, RI had a total buprenorphine treatment capacity of 24,735 patients, compared to only 4,564 prescriptions filled per month. The ratio of patients receiving buprenorphine per waivered provider peaked in 2015 at 21.1 but fell to 13.0 in 2017 (Figure 2). Additionally, in 2017, only 57% of data-waived practitioners were prescribing buprenorphine. **Discussion:** Our data indicate that buprenorphine provider capacity has increased substantially in Rhode Island since 2014, but the number of patients receiving buprenorphine has not increased proportionally. Future research should assess current buprenorphine need, barriers to prescribing, and further increasing limits for those practicing at capacity.

### 3. Substance Use Disorder Training at Brown University Associated Programs

Seth Clark MD, MPH; Radha Sadacharan MD, MPH; Sarita Warrier MD; Alice-Lee Vestner MD; & Laura Levine MD - Brown University

**Background:** In response to the national opioid epidemic, many institutions are implementing or augmenting their substance use disorder (SUD) education. At the Warren Alpert Medical School (AMS) of Brown University, Brown School of Public Health, and the Brown associated residency programs, several curricula have been developed in an attempt to meet this training need. **Objective:** We aim to describe the various training opportunities at Brown to provide guidance for institutions looking to implement similar training. These efforts will also serve to identify current deficiencies, improve curriculum evaluation, ensure sustainability, and identify opportunities to enhance interdisciplinary collaboration. **Methods:** A literature review was performed to assess current published SUD curricula as well as curriculum assessment tools. Based on this information, learners at AMS, the School of Public Health, Internal Medicine (IM), Family Medicine (FM), Psychiatry, and Emergency Medicine (EM) residencies were surveyed regarding formal SUD training framework and evaluation. **Results:** Current published SUD curricula and tools for assessment varied greatly. It was therefore not surprising that learners at Brown University reported similar variability in their educational experiences. Approximately 50% of training is provided via lecture. Additional formats include small group discussions, DATA waiver training, clinical patient encounters, standardized patient encounters, workshops, and elective opportunities. Surveys and evaluations from medical students and residents indicate that the trainings are generally well-received and effective. 100% of surveyed IM and FM residents agreed that the curriculum impacted the care they provided to their patients. 91% of interprofessional students agreed that they expected to use the information gained through a recent opioid workshop, and the same percentage believed that the training would benefit their patients. **Conclusions:** Many educational endeavors are underway at Brown in

an effort to prepare physicians to address the ongoing opioid crisis. This examination of existing SUD training highlights current strengths and deficiencies. This work can serve as a framework example for other institutions looking to initiate similar curricula as well as stimulate interdisciplinary collaboration at Brown. Future efforts will be made to enhance curriculum evaluation to refine content and format, as well as improve collaboration to exploit expertise and avoid duplicating efforts.

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#### **4. “What is it About My Controlled Drug Prescribing?” Survey Analysis From Medical Board Identified Problem Prescribers.”**

Ted Parran MD<sup>1</sup>; Amy Friedman BS<sup>1</sup>; & Gaurav Narayan Mathur MD<sup>2</sup> – 1. Case Western Reserve University; 2. St. Vincent Charity Medical Center

**Background:** The CWRU School of Medicine has offered a remedial course in controlled drug prescribing since 1994, to date serving the educational needs of over 3400 participants. We previously reported clinical deficits present in clinicians identified as problematic prescribers by their licensure boards. These involve lack of knowledge, attitudes and skills in patterns that are quite applicable to all clinicians.

**Objectives and Methods:** We report an update to our previous study on the results of a controlled drug prescribing survey questionnaire for physicians identified with controlled drug prescribing problems. These survey questions provide a unique insight into the physician participants’ perspective on which aspects of their prescribing practices attracted regulatory attention.

Since 2015 course participants have submitted a pre-course survey questionnaire as part of the remedial controlled substance prescribing course at CRWU. The results of these surveys have been categorized based on responses to these queries to develop preventative educational interventions for students and residents.

**Results:** 154 out of 170 participants successfully completed survey questionnaire. 27.9% participants stated they had prescribed controlled medications to members of staff or colleagues. 27.2% state they have at some time predicated prescriptions in advance of the date they are issued. 48% state they don’t regularly itemize plans at the end of the progress note. 40.2 % don’t ask patients to sign agreements for continuing controlled substances. 49.3% do not document concerns results concerning positive urine drug tests. 57.8% did not routinely obtain UDT on patients. 49.3% didn’t stop prescribing opioids if patient violates opioid agreement. 51.2% didn’t decline to continue to discuss with family member if patient had not signed release of information. 68.8% had failed to decline prescribing opioid for patients with addiction history. 35% failed to regularly check prescription monitoring programs.

**Conclusions:** Results of the survey indicate large percentage of participants have inadequate understanding of proper guidelines for controlled substance prescribing. It is recommended that education as a standard of medical school curricula, clinical addiction rotations for resident training in all areas of specialization, continuing medical education for practicing providers, would seem reasonable avenues to improve understanding of proper guidelines and to promote safe prescribing practices

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#### **5. What Happens When the Bup/Nx Funding Runs Out ?: A Comparison of Patients Maintained on OBOT vs. Those Tapered Off When Public Funding Was Discontinued**

Theodore Parran MD; Jana Jaffe MSIII; Erin Lebold MSIII; Chris Adelman MD; Joseph Muller MD; & Mykola Kolganov MD - St. Vincent Charity Medical Center

**Background:** Office-based opioid agonist treatment for opioid addiction has been well-established since 2003. Access to treatment has primarily been available to those with insurance. The Alcohol and Drug Abuse Services Board of Cuyahoga County (ADASBCC) developed a grant in 2005 to provide buprenorphine/naloxone (bup/nx) at doses between 8-16 mg/d to uninsured patients that covered 24-months of treatment, based on the assumption that this was long enough to achieve sustained full remission or health insurance through employment to support further treatment. **Objective:** To determine the relationship between rate of relapse and 3 groups of patients: (1) those able to remain on office-based opioid treatment (OBOT) via insurance, (2) those able to remain on OBOT via self-pay, and (3) those without insurance or ability to self-pay who tapered off

**OBOT. Methods:** After 18-months, each ADASBCC-funded patient was counseled regarding the approaching termination of funding. At 21-months, patients chose 1 of 3 options. Insured patients were continued with no change, self-pay patients were tapered to their affordable dose, and discontinue patients were tapered off over 3-months. Admissions to the 3 publicly-funded treatment facilities in the county were monitored for 24-months for evidence of opioid relapse. **Results:** Of the 3 groups, there were no differences in demographic characteristics. 56% (40/72) of patients remained on bup/nx OBOT, 38% (15/40) insured and 62% (25/40) self-pay. Of the OBOT patients, 23% (9/40) relapsed, with the self-pay relapse rate 20% (4/25) and insured relapse rate 33% (5/15). 44% (32/72) of patients tapered off bup/nx, with 72% (23/32) relapse rate. **Conclusions:** Relapse rates in patients with full treatment adherence and 2-years of sobriety are extremely high when OBOT is stopped. This data is critical when developing grant support or insurance policies regarding OBOT. The observed high relapse rate in this group may have been exaggerated by speed of the taper. In patients who remained on bup/nx OBOT, self-pay individuals substantially tapered their daily bup/nx dose to ranges typically well below 8 mg/day. Despite tapering, their relapse rate remained the lowest of any group.

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## **6. Rumbo a Casa: Outcomes of an Integrated Behavioral Health Treatment Program for Latinx Re-Entering Citizens Post Incarceration.**

Melinda D’Ippolito MPH, LICSW; Laricia Longworth Reed MA, Nicole Burrell, MA; Angela Wangari Walter PhD, MPH, MSW; Meredith Silverstein PhD; Cesar Morocho BIE; Emily Stewart BA; Diliana De Jesús MA; & Lena Lundgren PhD - Butler Institute for Families, University of Denver

**Background:** Longstanding behavioral health problems coupled with gaps and barriers to treatment pose formidable challenges to Latinx reentering citizens. Rumbo a Casa, an integrated behavioral health treatment program of Casa Esperanza, aims to fill this need by providing culturally responsive integrated behavioral health treatment for Latinx adults re-entering from correctional facilities in the greater Boston area. The treatment approach is grounded in Integrated Dual Disorder Treatment (IDDT), Intensive Case Management (ICM) and peer support. **Objective:** This study examined changes in substance use, depression, anxiety and health care utilization among Latinx reentering adults with co-occurring behavioral health disorders before and after their participation in the Rumbo a Casa program. **Methods:** Data analysis was performed in Latinx adults (n=39) with co-occurring substance use and mental disorders who completed baseline and 6-month follow up assessment. Paired t-tests assessed changes in self-reported health and treatment readiness outcomes.

McNemar’s test examined changes in self-reported depression (Likert scale) and anxiety (Likert scale) and past 90-day substance use, employment and housing. **Results:** The majority of participants were male (87.2%) and identified as Hispanic or Latino (82.1%). The mean age was 41.5 (SD 9.11) and 51.3% had graduated from high school. The pre-post comparison demonstrated significant improvements from baseline to 6-month follow up in participants who report having a primary care physician ( $p <0.01$ ); past 30 day depression ( $p <0.001$ ); past 30 days anxiety ( $p<0.001$ ); past 90-day alcohol use ( $p<0.001$ ); past 90-day illegal drug use ( $p <0.001$ ); past 90-day cocaine use ( $p<0.001$ ); past 90-day marijuana use ( $p<0.01$ ); past 90-day heroin use ( $p<0.001$ ); past 30-day employment ( $p<.001$ ) and housing ( $p <0.01$ ). **Conclusions:** Providing culturally responsive integrated behavioral health care services tailored to the needs of Latinx re-entering adult citizens may have positive outcomes with respect to decreasing substance use, depression and anxiety, social supports and increased access to primary health care.

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## **7. Primary Care Based Management of Chronic Hepatitis C by Internal Medicine Trainees**

Jocelyn R. James MD; Sara L Jackson MD, MPH; Greta Sweeney Pharm D; Helen Chan; & Judith I Tsui MD, MPH - University of Washington

**Background:** An estimated 2.7 million people in the US, most with past/current substance use disorders (SUD), are chronically infected with hepatitis C. Until recently, patients with chronic hepatitis C (HCV) had few treatment options, but direct-acting antiviral medications have improved outcomes dramatically, for patients treated by specialists and primary care providers alike. Training more physicians to treat HCV is essential to

expand access, particularly for people with active substance use. **Objective:** We aimed to demonstrate that training and supervising internal medicine residents in primary care based management of HCV is feasible and effective. **Methods:** The Harborview Adult Medicine Clinic (AMC) is a large primary care clinic at an urban teaching hospital in Seattle, Washington. Its internal medicine trainees care for many people with SUDs, psychiatric disorders, and medical complexity. We developed a program to train residents to treat patients within a supervised, multidisciplinary framework. This included regular clinical and educational conferences run by a supervising HCV trained physician in collaboration with clinic pharmacists, the clinic medical director, and a dedicated medical assistant. Patients were internally referred by AMC providers. A registry of referred patients was developed for care coordination. Pharmacists assisted with prior authorization, medication interaction checks, and new start counseling. Specialist hepatitis C providers consulted on complex cases. We provide descriptive data on initial outcomes of our curriculum. **Results:** The program was capped at 8 residents; a greater number expressed interest. All residents completed the online training. During the initial 8 months of the program, 8 multidisciplinary conferences were held on a range of HCV and SUD topics. Five residents conducted at least one HCV visit. Twenty patients were referred, of whom 11 attended initial visits and 8 began treatment: 3 completed treatment, and 5 are currently on treatment. Only 1 patient completed treatment more than 12 weeks ago; that patient was cured. **Conclusions:** Incorporation of internal medicine residents into primary care based HCV treatment was feasible and well-received in the setting of robust multidisciplinary and leadership support.

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## **8. Use of Non-Opioid Substances Among Persons Receiving Buprenorphine for Treatment of Opioid Use Disorders: Data from 3-Sites in WA State**

Judith I. Tsui MD MPH; Jim Mayfield MA; Lyz Speaker MS; Sawir Yakup MS; Harvey M. Funai MSW; Molly Carney PhD MBA; Brian Leroux PhD; & Joseph O. Merrill MD MPH – University of Washington

**Background:** Persons with opioid use disorders often use other substances, which may complicate clinical management. Methamphetamine use is reportedly increasing on the west coast, and WA State has legalized marijuana. The frequency and trajectories of use of these and other non-opioid substances among patients with treated OUD has not been well described. **Objective:** This study describes the frequency of non-opioid substance use among patients who initiated opioid use disorder (OUD) treatment with buprenorphine in three WA State sites, both at baseline and 6-month follow-up. **Methods:** We utilized data from the Washington State Medication Assisted Treatment-Prescription Drug and Opioid Addiction Project (WA-MAT-PDOA), a Substance Abuse and Mental Health Services Administration funded collaboration between WA State, Harborview Medical Center, and Evergreen Treatment Services to expand access to OUD treatment by implementing a collaborative care model for office based buprenorphine treatment. Descriptive statistics for all patient characteristics, including demographics, healthcare utilization, and mental health co-morbidities were obtained. We describe at baseline and 6-month follow-up self-reported past 30 day use of the following substances: methamphetamines, cocaine, marijuana, benzodiazepines, and alcohol. **Results:** The study sample was comprised of 602 patients who enrolled in treatment for OUD between 11/1/15 and 9/16/2017. The median age was 34 (IQR: 28-46; range: 18-70), 55% were male and the majority (76%) were Caucasian. At baseline, the frequency of reported past-30 day non-opioid substance use was as follows: methamphetamines 172/583 (30%), cocaine 44/583 (8%), marijuana 247/583 (42%), benzodiazepines 46/583 (8%), and alcohol 158/582 (27%). Seventy-seven percent of the sample completed a 6-month follow-up survey, at which time the frequency of use was: methamphetamines 52/465 (11%), cocaine 17/465 (4%), marijuana 155/465 (33%), benzodiazepines 16/465 (3%), and alcohol 85/466 (18%). At baseline, 34% of the sample reported injecting drugs, which reduced to 10% at follow-up. **Conclusions:** Among this sample of patients who enrolled in office-based OUD treatment with buprenorphine in WA State, use of non-opioid substances was frequently observed at baseline, with marijuana being the most common. The proportion using these non-opioid drugs decreased at 6 months.

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## **9. Qualitative Examination of a Mobile Application for Veteran Smokers with Posttraumatic Stress Disorder**

Shahrzad Hassanbeigi Daryani BA<sup>1,2</sup>; Ellen Herbst MD<sup>1,2</sup>; Lindsey B. Hopkins PhD<sup>1,2</sup>; Shannon E. McCaslin PhD<sup>3,4</sup>; Kelsey T. Laird PhD<sup>2,5</sup>; David Pennington PhD<sup>1,2</sup>; & Eric Kuhn PhD<sup>3,4</sup> - 1. Mental Health Service, San Francisco Veterans Affairs (VA) Health Care System (SFVAHCS), San Francisco, CA; 2. Department of Psychiatry, University of California, San Francisco (UCSF), San Francisco, CA; 3. National Center for PTSD, Dissemination & Training Division, VA Palo Alto Health Care System, Menlo Park, CA; 4. Department of Psychiatry and Behavioral Sciences, Stanford University School of Medicine; 5. Department of Psychiatry, University of California, Los Angeles (UCLA), Los Angeles, CA

**Background:** Smoking is a devastating public health problem that disproportionately affects veterans, particularly those with posttraumatic stress disorder (PTSD). Mobile applications (apps) designed to promote smoking cessation are a scalable, low-cost, and evidence-based approach that may promote treatment engagement and improve quit rates. However, it is critical that mobile interventions are designed to be usable and acceptable to the target population. **Objective:** The study objective was to examine the feasibility and acceptability of a mobile application (app), Stay Quit Coach (SQC), when incorporated into smoking cessation treatment for veteran smokers with PTSD. **Methods:** We conducted an uncontrolled pilot study with veterans with PTSD who smoked ≥5 cigarettes daily for 15 of the past 30 days and stated an interest in cessation. Participants received an 8-session, PTSD-informed smoking cessation treatment (cognitive behavioral therapy plus pharmacotherapy). At baseline and post-treatment, participants completed a measure evaluating perceptions of mobile apps (Perceptions of Mobile Phone Interventions Questionnaire-Patient version; PMPIQ-P) and completed individual semi-structured qualitative interviews to examine the acceptability and perceived helpfulness of SQC. **Results:** Twenty veterans with PTSD were enrolled, and 17 (85%) completed the study and qualitative interviews. Mean baseline scores for the PMPIQ-P subscales ranged from 5.0-5.2 (SDs=0.73–1.04), reflecting moderately high comfort with mobile technology among participants. Themes derived from qualitative analyses demonstrated that the majority of participants: 1) endorsed mobile technology as an appealing format due to convenience and instantaneous access; and 2) expressed highest perceived helpfulness for the following features: personalized reasons to quit, motivational messages, medication reminders, and cost savings calculator. Participants provided detailed recommendations to improve SQC, which clustered into four thematic areas: 1) increased personalization; 2) self-tracking features; 3) increased use of visual cues; and 4) the option of sharing progress with peers. **Conclusion:** Integration of SQC into an office-based smoking cessation treatment is feasible and acceptable to veteran smokers with PTSD. Most participants endorsed the cost savings calculator, personalized reasons, and motivational messages, and medication reminders as most helpful. Desired changes to improve acceptability were explored. Qualitative data provided valuable insights which will inform the development of effective, engaging mobile applications for smoking cessation.

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## **10. College Student and Non-Student Motivations For Alcohol and Marijuana Use**

Rachel Kollin MA; Jennifer Ellis MA; Stella Resko PhD; & Elizabeth Agius BA – Wayne State University

**Background:** Research has shown that motivations for young adult (ages 18-24) substance use is linked to use behaviors and may be a predictor for future substance misuse. Understanding of these motivators can help inform prevention and intervention programming. However, most studies rely on convenience samples of college students, but that is not adequately representative of individuals in the 18-25 age range. **Objective:** To identify differences in endorsed reasons for use of alcohol and marijuana by college students and their non-college attending peers. **Methods:** The survey was distributed through Facebook advertising to Michigan residents aged 18-25. Participants were asked if they had consumed at least one alcoholic beverage in the past 30 days and how many days in the past month they used marijuana. Participants were then presented with a list of reasons that people sometimes drink alcohol or smoke marijuana and were asked to identify the reasons that they had used alcohol or marijuana. The reasons were grouped into four categories: social/recreational, coping with negative affect, compulsive use, and drug effect reasons (Patrick, Schulenberg, O’Malley, Johnston, 2011). Chi-square tests were run to look for significant differences in the endorsed reasons for using alcohol and

marijuana between college students and non-college attending peers. **Results:** Our sample ( $N = 1,290$ ) was 67% college or vocational school student and 33% non-student. Non-college students were more likely to have consumed alcohol in the past 30 days (78% v. 72%) and have used marijuana in the last 30 days (34% v. 28%). Non-students were more likely than students to endorse drug effect reasons for using marijuana ( $p = .013$ ). College students were more likely than non-students to endorse social/recreational reasons for alcohol use ( $p = .047$ ). Non-students were more likely than students to endorse compulsive reasons for alcohol use ( $p = .032$ ). **Conclusions:** The data indicate there are significant differences between students and nonstudents in the compulsive use and social/recreation reasons for consuming alcohol and in drug effect reasons for using marijuana. These differences show that prevention programming and intervention efforts need to be targeted at non-students more particularly and with different messages.

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## **11. Outpatient Naloxone Prescriptions in Adults at Risk for Overdose in Cumberland County, Maine**

David Kispert MD; Jenny Carwile ScD, MPH; & Kinna Thakarar DO, MPH – Maine Medical Center

**Background:** Between 2011 and 2014, the number of drug-related overdose deaths in Maine increased 34%. Pharmaceutical drugs accounted for 89% of these deaths in 2014. In March 2016, the Centers for Disease Control and Prevention (CDC) released a category A recommendation that providers should consider offering naloxone, a reversal agent for opioid intoxication, to adults at risk of opioid overdose. Risk factors include history of overdose, history of substance use disorder, high opioid dosage ( $\geq 50$  MME/day), or concurrent benzodiazepine use. Adherence of primary care providers to these guidelines has not been investigated.

**Objective:** Our objectives were to: a) calculate the percentage of adult internal medicine (IM) clinic patients meeting CDC criteria who received a naloxone prescription, and b) compare demographic and clinical characteristics between patients who did and did not receive a naloxone prescription. **Methods:** This study was a retrospective chart review of patients who received care at any of five outpatient IM clinics in Cumberland County, ME between April 1, 2016 and August 1, 2017. Patients  $\geq 18$  years who met at least one of the CDC criteria for being high-risk for opioid overdose were considered eligible. We calculated means (SD) and percentages for demographic and clinical variables of interest. The electronic outpatient medication lists of all eligible patients were screened for naloxone prescriptions. **Results:** A total of 2,190 patients were considered high risk for opioid overdose. Seventeen of these patients (<1% of study population) were prescribed outpatient naloxone. Four percent of the study population had a high dose opioid prescription and none were prescribed naloxone. Patients prescribed naloxone were younger (mean age 44.4 vs. 54.1 years) and more likely to be female (52.9% vs. 42.5%) and Hispanic (11.8 vs. 1.2%) than patients who did not receive a naloxone prescription. **Conclusion:** The low rate of naloxone prescribing in this study underscores a gap in the treatment of individuals at high risk for overdose. Education of primary care providers and patients on CDC guidelines may increase naloxone prescribing in high-risk patients.

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## **12. Residential Moves and its Association with Problematic Substance Use, Unmet Health Care Needs, and Acute Care Utilization among a Cohort of Homeless and Vulnerably Housed Persons in Canada**

Miriam Harris MD, BA; Anne Gadermann PhD; Monica Norena MSc; Matthew J. To, BSc; Anita M. Hubley PhD; Tim Aubry PhD; Stephen W. Hwang MD, MPH; & Anita Palepu MD, MPH - Boston Medical Center-Boston University Addiction Medicine Fellowship

**Background:** There is evidence that demonstrates homelessness is associated with poor health. However, less is known about individuals who are vulnerably housed and the impact of housing transitions on health.

**Objectives:** To determine the relationship between housing instability, as measured by the number of residential moves, and problematic substance use, unmet health care needs, and acute care utilization.

**Methods:** A cohort of homeless or vulnerably housed persons from Vancouver ( $n=387$ ), Toronto ( $n=390$ ), and Ottawa ( $n = 396$ ) completed interviewer-administered surveys at baseline and annually for 4 years from 2009 to 2013. Generalized mixed effects logistic regression models were used to examine the association between the number of residential moves and each of the three outcome variables, adjusting for potential confounders.

**Results:** The number of residential moves was significantly associated with higher acute care utilization (adjusted odds ratio (AOR) 1.25; 95% confidence interval (CI) CI: 1.17-1.33), unmet health care needs (AOR 1.14; 95% CI: 1.07-1.22), and problematic substance use (AOR 1.26; 95% CI: 1.16-1.36). Having chronic physical or mental conditions, and recent incarceration were also found to be associated with the outcomes. **Conclusions:** Housing instability increased the odds of all three poor health metrics, highlighting the importance of stable housing as a critical social determinant of health.

Table 1: Baseline Participant Characteristics by Number of Residential Moves: Vancouver, Toronto, and Ottawa 2009-2013

Characteristics	All participants n=1173	Number of Residential Moves			p-value
		1 or 2 (n=503)*	3 or more (n=669)		
Age (mean, SD)	42.2 (10.5)	43.6 (10.1)	41.3 (10.8)	0.0003	
Female n (%)	385 (32.0)	166 (33.0)	219 (32.7)	0.95	
Ethnicity n (%)				0.1	
White	717 (63.0)	291 (59.8)	426 (65.4)		
Black/African Canadian	105 (9.2)	55 (11.3)	49 (7.5)		
Indigenous	197 (17.3)	89 (18.3)	108 (16.6)		
Other	120 (10.5)	52 (10.7)	68 (10.5)		
3 or more chronic health conditions n (%)	584 (49.8)	250 (49.7)	333 (49.8)	0.99	
Ever had a mental health problem n (%)	593 (51.3)	242 (48.6)	351 (53.4)	0.10	
Employed in past 12 months n (%)	467 (39.9)	172 (34.2)	295 (44.2)	0.0005	
Incarceration in the past 12 months n (%)	333 (28.6)	117 (23.4)	215 (32.5)	0.0007	
Has a primary health provider n (%)	704 (60.1)	323 (64.3)	381 (57.0)	0.01	

\* 1 participant had no moves

### 13. Increasing Access to Primary and Specialty Care for Homeless and Transient Latinx Adults: Results from Patient-Centered Medical Home (PCMH) Program

Angela Wangari Walter PhD, MPH, MSW; Lena Lundgren PhD; Emily Stewart BA; Diliana De Jesús MA; Micaurys Guzman BA; Jocelyn Sostre RN, BSN; Andrew Linsenmeyer MD; Laricia Longworth-Reed MA; & Cesar Morocho BIE - University of Massachusetts Lowell

**Background:** Access and engagement in care represent important challenges for individuals with co-occurring substance use and mental disorders, particularly for racial and ethnic minorities as a result of disparities in social determinants of health. Service integration and culturally responsive services comprise promising initiatives to increase engagement in care for minority groups. The Patient-Centered Medical Home (PCMH)

program, provided in partnership with Casa Esperanza and Boston Healthcare for the Homeless Program, aims to provide culturally responsive integrated primary/behavioral health care services for hard-to-reach Latinxs that have co-occurring serious mental illness, substance use disorders and chronic diseases. **Objective:** This study examined changes in substance use and mental health outcomes before and after the participation in the PCMH program. **Methods:** Data analysis was performed in Latinx adults (n=267) with co-occurring substance use and mental disorders who completed baseline and 12-month follow up assessment. Paired t-tests assessed changes in depression (PHQ-9 scale) and anxiety (GAD-7 scale). McNemar test examined changes of having emergency room visits in the past 30 days, being involved in unprotected sexual risk behavior, employment and homelessness status. Conditional logistic regression explored the influence of the intervention on significant changes in depression and anxiety, adjusting for age, gender, and level of education. **Results:** Majority of the participants were male (67%), and Hispanic (92%). The mean age was 40 (SD 9.6) and 47% had graduated from high school. The pre-post comparison demonstrated significant improvements from baseline to 12-month follow up in depression scale PHQ-9 (3.6, 95%CI: 2.05 - 5.15), anxiety scale GAD-7 (2.9, 95%CI: 1.49- 4.31), emergency room visits in the past 30 days ( $p\text{-value}<0.001$ ), homelessness status ( $p\text{-value}<0.001$ ) and unprotected sexual risk behavior ( $p\text{-value}<0.001$ ). Conditional logistic regression showed that this program significantly reduces the likelihood of being depressed (OR: 0.542, 95%CI: 0.336 - 0.873). **Conclusions:** Integrating culturally responsive primary and behavioral health care services for is critical for addressing the needs of Latinx adults with co-occurring mental illness, substance use disorders, and other chronic diseases. PCMH programs have the potential to reduce disparities in the access and engagement in care for racial and ethnic minorities.

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#### **14. Workforce Development Priorities and Learning Preferences for Evidence-based Practices and Care Processes**

Bryan Hartzler PhD<sup>1,2</sup>; Denna Vandersloot MEd<sup>1,2</sup> – 1. Alcohol & Drug Abuse Institute, University of Washington; 2. Northwest Addiction Technology Transfer Center (NWATTC)

**Background:** Research-to-practice gaps continue to plague the addiction field. To complement continuing scientific efforts to empirically-validate innovative treatment practices for those with substance use disorders, workforce perspectives may identify care practices and process of most interest and corresponding learning preferences to promote their adoption and implementation. **Objective:** This presentation will describe results of an online needs assessment survey tapping perspectives of the addiction workforce in Health and Human Services Region 10. The survey elicits workforce priorities among ten evidence-based care practices and six care processes as well as preferences among seven types of learning activity to aid adoption and implementation. **Methods:** Survey content was iteratively developed by multidisciplinary NWATTC staff, with additional input from a regional advisory board. Survey items utilize five-point Likert scales (1=Not At All, 5=Extremely) to rate either the importance of specific evidence-based care practices and care processes, or benefit of particular learning activities. A lone inclusion criteria for survey respondents (N=273), recruited since February 2018, is their current employment as a health professional in an HHS Region 10 state (i.e., AK, ID, OR, WA). **Results:** Among ten evidence-based care practices, Motivational Interviewing evidenced the strongest perceived importance ( $M=4.27$ ,  $SD=.82$ ) followed by Mindfulness-based Relapse Prevention ( $M=4.14$ ,  $SD=.94$ ), and Cognitive-Behavioral Therapy ( $M=4.02$ ,  $SD=.92$ ). Among six care processes, integration of addiction and mental health services evidenced the strongest perceived importance ( $M=4.51$ ,  $SD=.76$ ) followed by trauma-informed care ( $M= 4.45$ ,  $SD=.78$ ), and culturally-responsive services ( $M=4.33$ ,  $SD=.86$ ). In terms of seven learning activities to facilitate adoption and implementation of such care practices/processes by workforce members, clinical demonstration evidenced the strongest perceived benefit ( $M=4.38$ ,  $SD=.69$ ) followed by case-based consultation ( $M= 4.11$ ,  $SD=.84$ ), and didactic presentation ( $M= 4.04$ ,  $SD=.74$ ). With few exceptions, subgroup analyses revealed consistency in priorities/preferences across health disciplines in which workforce members were trained (i.e., medicine/nursing, psychology/mental health, social work/public health, chemical dependency). **Conclusion:** Findings offer salient feedback regarding care practices/processes deemed most important by the addiction workforce, and learning activities they perceive

most beneficial to facilitate care adoption and implementation. This will inform ongoing efforts by the NWATTC and others similarly seeking to bridge research-to-practice gaps in the addiction field.

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## **15. Web-Assisted Training in Contingency Management: A Customized Yet Scalable Product For Multi-tiered Personnel in Addiction Treatment Settings**

Bryan Hartzler PhD<sup>1,2</sup>; Denna Vandersloot MEd<sup>1,2</sup>; Meg Brunner M.LIS<sup>1,2</sup>; Dennis M. Donovan PhD<sup>1,2</sup> & Beatriz H. Carlini PhD, MPH<sup>1,2</sup> - 1. Alcohol & Drug Abuse Institute, University of Washington; 2. Northwest Addiction Technology Transfer Center (NWATTC)

**Background:** Contingency management (CM) is an efficacious clinical method that utilizes behavioral reinforcement principles to shape focal treatment adherence targets among patients. Nevertheless, CM has yet to be widely embraced among the addiction treatment community. **Objective:** This presentation will describe iterative development of a web-assisted CM training product. This scalable product is customized for multi-tiered personnel of addiction settings including executives, clinical supervisors, and direct-care staff.

**Methods:** An initial prototype included as empirically-supported implementation strategies the: 1) collaborative, user-centered design of CM programming by setting executives, 2) designation of local champions to supervise corresponding clinical and administrative CM procedures, and 3) active learning strategies to cull CM delivery skills and programming adoption among a setting's direct-care staff. Instructional design principles informed translation of these strategies into respective modules for a setting's decision-maker(s), clinical supervisor(s), and direct-care staff. 'Proof-of-concept' was assessed via five-point Likert-style ratings (1=poor, 5=wonderful) by independent field experts, supplemented by qualitative feedback to guide product finalization. Once finalized, the product was reviewed for scalability considerations by members of a multidisciplinary addiction technology transfer team to forge a dissemination plan. **Results:** Field experts' mean global product rating ( $M=4.67$ ;  $S.D.=.58$ ) and aggregated mean of feature-specific product ratings ( $M=4.61$ ;  $S.D.=.19$ ) both exceeded a priori proof-of-concept thresholds. Qualitative field experts praised its modular structure for multi-tiered addiction treatment staff, promotion of customizable CM programming for addiction treatment settings, thoroughness of conceptual presentations, and the utility of supervisory resources and clinical skill demonstrations. Product finalization integrated field expert suggestions to add testimonials of community-based addiction treatment personnel and update select terminology. An addiction technology transfer team then created a scalable marketing/dissemination plan for the product. **Conclusion:** Owing to successes of a prior CM implementation trial (Hartzler et.al, 2014), and a comprehensive product development process, this web-assisted CM training represents an empirically-informed dissemination vehicle that balances customization and scalability. It is soon to be available via the Northwest Addiction Technology Transfer Center ([www.nwattc.org](http://www.nwattc.org)).

1 Hartzler B, Jackson R, Jones BE, Beadnell B, Calsyn DA. Disseminating contingency management: Impacts of staff training and implementation at an opiate treatment program. J Subst Abuse Treat 2014; 46:429–438.

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## **16. Identification of Alcohol Problem Use and Alcohol Use Disorder in Adults Primary Care Patients: TAPS Compared With AUDIT-C and ASSIST**

Angeline Adam MD, PhD; Robert P. Schwartz MD; Li-Tzy Wu DSc; Geetha Subramaniam MD; Gaurav Sharma PhD; Eugene Laska PhD; & Jennifer McNeely MD, MS - NYU School of Medicine

**Background:** The TAPS is a brief screening instrument to identify tobacco, alcohol, and drug use in primary care patients. **Objective:** This secondary analysis compares the TAPS to the Alcohol Use Disorders Identification Test (AUDIT-C) and Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) for identifying alcohol problem use and alcohol use disorder (AUD). **Methods:** 2000 patients in diverse U.S. primary care sites completed interviewer-administered and computer self-administered versions of the TAPS, followed by additional measures: 1-ASSIST, 2-AUDIT-C, and 3-modified CIDI substance abuse module (CIDI). The sensitivity, specificity, and area under the curve (AUC) of the three instruments were evaluated in

men and women using the CIDI as the reference standard for problem use (CIDI cutoff  $\geq 1$ ) and AUD (CIDI cutoff  $\geq 2$ ) according to the DSM-5. **Results:** The performance of the self-administered and interviewer-administered TAPS was similar, and results for the self-administered TAPS are presented.

Problem use: Among women (n=1124), the TAPS (cutoff  $\geq 1$ ) had sensitivity 0.76, specificity 0.78, and AUC 0.77. ASSIST (cutoff  $\geq 6$ ) had sensitivity 0.80, specificity 0.81, AUC 0.81. AUDIT-C (cut-off  $\geq 2$ ) had higher sensitivity (0.89), and specificity 0.78, AUC 0.83. Results were similar for men (n=874): TAPS (cut-off  $\geq 1$ ) had sensitivity 0.76, specificity 0.76, AUC 0.76. ASSIST (cut-off  $\geq 5$ ) had sensitivity 0.83, specificity 0.71, AUC 0.77. AUDIT-C (cut-off  $\geq 3$ ) had sensitivity 0.84, specificity 0.82, AUC 0.83.

AUD: Among women, TAPS (cutoff  $\geq 2$ ) had sensitivity 0.73, specificity 0.85, AUC 0.79. ASSIST (cutoff  $\geq 7$ ) had sensitivity 0.79, specificity 0.87, AUC 0.83. AUDIT-C (cut-off  $\geq 3$ ) had higher sensitivity (0.83), with specificity 0.83, AUC 0.83. Similarly among men, TAPS (cutoff  $\geq 2$ ) had sensitivity 0.75, specificity 0.84, AUC 0.79 and performed similarly to the ASSIST (cut off  $\geq 10$ ), which had sensitivity 0.73, specificity 0.91, AUC 0.82. AUDIT-C (cut-off  $\geq 4$ ) performed best, with sensitivity 0.81, specificity 0.84, AUC 0.83. **Conclusions:** At the recommended cutoffs, all instruments demonstrated adequate performance for alcohol screening in primary care patients, and AUDIT-C had the highest sensitivity and specificity. Among the instruments that integrate alcohol with other substances screening, the self-administered TAPS Tool performed similarly to the longer ASSIST, and may be considered as an alternative.

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## **17. Transferring Alcohol and Opioid Use Knowledge and Competencies into Clinical Practice: The Association between Nurses' Stigma Perceptions and Their Readiness and Motivation to Provide Care**

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**Background:** Alcohol and opioid (AO) use increases the risk for premature death and contributes to the global burden of disease. The current opioid epidemic has brought needed attention to the issue of substance use. However, healthcare professionals, including nurses, often do not screen patients for AO use problems. Nurses' low readiness and motivation to care for this patient population is considered a main barrier to screening for AO-related problems in clinical practice. Examining how nurses' stigma perceptions are associated with nurses' readiness and motivation to provide care to patients with at-risk AO use is critical to move forward efforts to improve patient outcomes. **Objective:** The purpose on this project was to assess nurses' stigma perceptions that may be associated with their readiness and motivation to work with patients who use AO. **Methods:** A descriptive correlational design was used to assess the relationship between nurses' stigma perceptions and their readiness and motivation to work with patients who use AO. A sample of 28 hospital-based nurses working in various specialty areas participated in the study. Stigma perceptions and motivation regarding alcohol and opioid use were measured using Familiarity, Perceived Dangerousness, Fear, Social Distance, Personal Responsibility Beliefs, Disease Model, Psychosocial Model and Motivation Subscales. **Results:** Nurses' readiness and motivation was negatively correlated with fear ( $r=-.487$ ,  $p<.001$ ), social distance ( $r=-.495$ ,  $p<.001$ ), and personal responsibility beliefs ( $r=-.442$ ,  $p<.005$ ) for alcohol use. Nurses' readiness and motivation was negatively correlated with fear ( $r=-.532$ ,  $p<.001$ ), social distance ( $r=-.442$ ,  $p<.005$ ), personal responsibility beliefs ( $r=-.443$ ,  $p<.005$ ), and disease model ( $r=-.449$ ,  $p<.005$ ) for opioid use. **Conclusions:** Findings from this study will form the foundation for the development of specific interventions designed to target nurses' readiness and motivation to work with patients who use alcohol or other drugs in order to transfer their knowledge and skills into clinical practice, and to foster the implementation of screening, brief intervention, and referral to treatment (SBIRT).

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## **18. Improving Nursing Provider Attitudes for Pregnant Women with Opioid Use Disorder**

Vania Rudolf, MD, MPH; Abi Plawman, MD; Lynee Brown, MA, CDP; Luke Peterson, MD; Jackie Wong, MD; Paul Gianutsos, MD, MPH; & Jim Walsh, MD – Addiction Recovery Services

**Background:** Untreated opioid use disorder in pregnancy is a major public health problem. Lack of provider skill and empathy can result in decreased access to care, social marginalization and premature treatment termination. Developing educational tools to enhance nursing providers' knowledge while diminishing stigmatization has potential to improve engagement in medication assisted therapy, maternal and neonatal outcomes. **Objective:** The study measured the educational impact of and evaluated change in nursing providers' attitudes, stigmatization, compassion, knowledge and comfort level in providing care for pregnant women with opioid use disorder. **Methods:** A cohort pre-post intervention study employed comparison of anonymous voluntary survey responses of obstetric and neonatal nursing providers at the Washington Section of the Association of Women's Health, Obstetrics and Neonatal Nursing (AWHONN) Spring Conference titled, "Caring for the Pregnant Woman with Chemical Dependency and Her Newborn" held on May 23rd, 2017. The event included 120 minutes education on substance use in pregnancy, stigma, medication assisted therapy and strategies for compassionate care. Primary outcomes included attitude, stigma scores, measured by a modified version of The Opening Mind Scale for healthcare workers and compassion scores, assessed by a modified version of The Compassion Satisfaction Test. Secondary outcomes examined providers' knowledge, comfort level for caring and referring to treatment via Likert scale. T-tests were used to analyze total score changes at the two time points. **Results:** A total of 97 of 105 attendees participated in the study (92%), and 91 pre-conference and post- conference surveys met analytic inclusion criteria. Participant involvement demonstrated improved 13% stigma ( $p < .001$ ) and 14% compassion scores ( $p < .001$ ). Providers demonstrated increased 31% knowledge ( $p < .001$ ), improved 24% comfort level of care ( $p < .001$ ), and 17% attitude scores ( $p < .001$ ). Qualitative evaluation confirmed that the conference addressed best practices and provided information that would impact patient care and management. **Conclusion:** The conference was successful in improving nursing providers' education, stigmatization, perceptions and attitudes toward pregnant patients with opioid use disorder. This project may offer a practical approach to reducing stigma and improving compassionate care in the area of substance use in pregnancy.

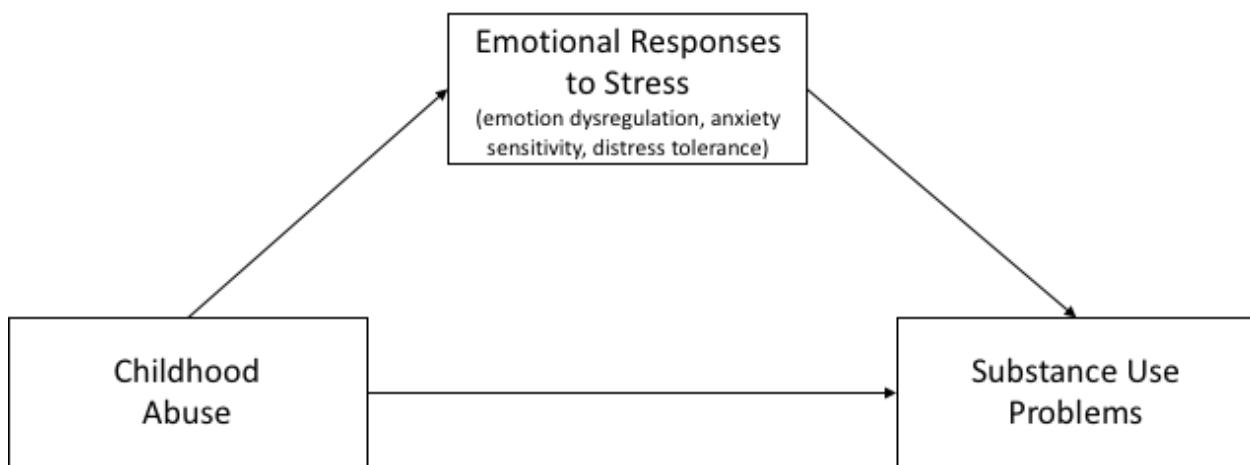
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## 19. Pathways Linking Child Maltreatment to Later Substance Use Problems Among Adults in an Inpatient Facility

Mahima Karki BA; Julia Felton, PhD; Kathryn Barnhart PhD, MPH; Heather McCauley ScD; Cara Poland MD, M.Ed; Kelly Strutz PhD, MPH; Kayla Vander Stel BS; & Carl Lejuez PhD – Michigan State University College of Human Medicine

**Background:** Early maltreatment has been shown to be associated with mental health disorders in adulthood and, specifically, problematic substance use (SU; Edwards, Holden, Felitti & Anda, 2003). Identifying links between child maltreatment and problematic SU in adulthood is critical for effectively targeting intervention and prevention efforts. Research points broadly to the role of maltreatment in shaping individuals' response to stress which, in turn, predicts greater problematic SU; however, specific facets of emotional response associated with SU are not well understood. **Objective:** The current study sought to examine three facets of emotional response to stress, including emotion dysregulation, distress tolerance, and anxiety sensitivity, as mediators of the relation between early maltreatment and SU problems. **Methods:** Data from 329 adults residing in an inpatient substance use facility for low-income/homeless individuals was used. Participants completed the Childhood Trauma Questionnaire (Bernstein & Fink, 1997), the Anxiety Sensitivity Index (Deacon et al., 2003), the Difficulties in Emotion Regulation Scale (Gratz & Roemer, 2004), the Distress Tolerance Scale (Simons & Gaher, 2005), and the Short Inventory of Problems (Kiluk et al., 2014). We examined the indirect relation between childhood maltreatment and subsequent SU problems via emotion response controlling for age and sex (see Figure 1) by creating three separate path analysis models. **Results:** Path estimates suggest that childhood maltreatment significantly, and positively, predicted emotion dysregulation (std. est. = .20,  $p = .032$ ) and anxiety sensitivity (std. est. = .14,  $p = .024$ ), but not distress tolerance. Tests of the mediation pathways indicate that childhood trauma exposure exerted a significant indirect effect on substance use problems through emotion regulation (std. ind. effect = .08 SE = .04 [95% CI = .003 to .15]) and anxiety sensitivity (std. ind. effect = .13 SE = .06 [95% CI = .03 to .24]); however, there was not a significant indirect effect through distress tolerance. **Conclusions:** Results point to emotion dysregulation and anxiety sensitivity as two important pathways linking

early abuse exposure to later substance use problems in a vulnerable adult population. Implications for targeting clinical interventions and enhancing current substance use treatments are discussed.



## 20. Automated Overdose Prevention: a Quality Improvement Innovation for Naloxone Prescription at Hospital Discharge

Leah Harvey MD, MPH; Davis Bradford MD; Gina Chen, MD; Diana Zhang BA; Divya Madhusudhan BA; & Raagini Jawa MD, MPH - Boston Medical Center

**Background:** The opioid epidemic has had a devastating impact across the country and Massachusetts has been particularly hard hit. In 2017 alone, an estimated 1,977 opioid-related deaths occurred across the state, which averages to more than 5 deaths a day. This is more than double the national average. Community naloxone access is one of the 3 priority areas recognized by the US Department of Health & Human Services (HHS) for confronting this crisis. As medical residents at a safety-net institution, we are in a unique position to directly expand access to life-saving therapy by prescribing naloxone kits to at-risk patients upon discharge. Our quality improvement initiative will directly target the highest-risk patients while minimizing workflow interruption.

**Objective:** Maximize the prescription of naloxone kits for patients with opioid use-related diagnoses at the time of hospital discharge. **Methods:** As a proof-of-concept pilot study, a retrospective chart review was conducted from December 2017 – January 2018 examining naloxone prescription rates for high-risk patients before and after hospital discharge. Opioid use-related diagnoses were defined by corresponding ICD-10 codes.

**Results:** Of 160 at-risk patients, 23 (14%) were discharged with a new naloxone prescription and 33 (20%) reported naloxone on admission. Of these admissions, 66 (41%) were evaluated by the Addiction Consult Service (ACS). Relative rates of new naloxone prescriptions were higher after ACS consults (40% versus 24%).

**Conclusions:** The high number of at-risk patients discharged without naloxone prescriptions represent missed opportunities. We are collaborating with our IT department to design an electronic medical record feature that automates the prescription of naloxone kits within the discharge medication reconciliation. After implementation, we will measure the rate of new prescriptions and optimize based on feedback from inpatient teams, our pharmacy department, and the addiction consult service.

## 21. Training Subspecialty Fellows in Addiction Research – The Fellow Immersion Training (FIT) Program

Alexander Y. Walley MD, MSc; Marlene C. Lir, BA; Kristina M. King MPH; Sharon M. Coleman MS, MPH; Carly L. Bridden, MA, MPH; Mayowa Sanusi BS; Chinazo Cunningham MD, MS; & Jeffrey H. Samet MD, MA, MPH - Boston University School of Medicine / Boston Medical Center

**Background:** To address the addiction crisis, more clinician investigators with addiction research and clinical skills are needed. The Fellow Immersion Training (FIT) Program is a four-day intensive training for subspecialty research fellows who seek to incorporate addiction science into their subspecialty research.

**Objective:** This study describes FIT participants and their changes in confidence and preparation to conduct addiction-related research after attending FIT. **Methods:** The FIT Program curriculum provides advances in addiction medicine as well as research methodology to facilitate the integration of addiction science into research. Content is delivered through presentations, case-based discussions, small group workshops, and individual meetings with expert addiction research faculty. Fellows who completed the FIT Program from 2012-2017 were assessed with online questionnaires at baseline (prior to FIT), at 6- and 11-month follow up. Baseline and 6-month questionnaires assessed confidence and preparedness to conduct addiction medicine research, which were compared using paired t-tests. The 11-month questionnaires assessed extent of completion of their research project developed at FIT. **Results:** FIT participants (n=31) were mostly infectious disease fellows (80%), entering their first or second fellowship year (79%), and 42% held degrees in research methods. On a 5 point scale (1="not at all confident/prepared", 5="very confident/prepared") fellows reported significant increases in confidence in developing a research question with available data (3.4 vs. 4.0, p=0.003) and new data (3.1 vs. 3.6, p=0.01), in clearly stating the research problem (3.2 vs. 3.9, p<0.001), and in choosing appropriate analytic procedures (2.3 vs. 3.0, p=0.002). Fellows also reported significant increases in preparedness to write a research proposal (3.0 vs. 3.8, p<0.001), to design and conduct a research study (2.9 vs. 3.5, p=0.005), and to address addiction issues in research (2.9 vs. 3.9, p<0.001). At 11-months, 71% had completed a research design and analysis plan, 45% had obtained IRB approval, and 29% had an abstract accepted for presentation. **Conclusions:** Subspecialty fellows focused on HIV, hepatitis C, or pain research who completed an immersion training in addiction science improved their confidence and preparedness to conduct addiction research. The FIT Program is a promising model for advancing addiction science research skills to subspecialty fellows.

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## 22. Emergency Department Identification and Treatment of a Patient With Opioid Use Disorder

Kathy T. Vo MD; Marlene Martin MD - University of California, San Francisco

**Background:** Patients with repeated emergency department (ED) visits often have unmet needs. These patients have complaints prone to misdiagnoses or are given diagnoses that are not reassessed on future visits.

Symptoms of opioid withdrawal (OW) can be mistaken for other diagnoses. When OW is missed, so is the opportunity to assess for opioid use disorder (OUD). In a busy ED safety net hospital where OUD is often associated with illicit opioid use, diagnosing OUD in a patient with non-specific symptoms and prescription opioid use is difficult.

**Learning objectives:** 1) Recognize and treat OW in the ED using the Clinical Opiate Withdrawal Scale (COWS) 2) Identify patients with OUD using the Rapid Opioid Dependence Screen (RODS) 3) Initiate low barrier access to buprenorphine and linking to care from the ED

**Case presentation:** A 35-year old woman with hypertension, chronic chest pain and myalgias was hospitalized twice for acute on chronic pain and intractable nausea and vomiting.

Hospitalization and ED visit course:

- During both admissions, her symptoms quickly improved and she was discharged home.
- Subsequently presented to ED on 7 occasions in 1 month with similar complaints. Each time, she received basic lab tests and opioids for pain control. On her 7th visit, PDMP revealed multiple outpatient opioid prescriptions.
- Screened for OW and OUD and started on buprenorphine. COWS = 11, RODS = 4.
- Counseling and linkage to treatment provided.
- Followed up with outpatient providers but was not continued on buprenorphine.
- Had 7 additional ED visits but received buprenorphine only one additional time.
- No further hospital presentations to date.

**Discussion:** The ED is an avenue to diagnose, treat, and link patients with OUD to treatment. Reviewing the PDMP can be helpful in recognizing patients who may be at risk of OW or OUD. Screening patients for OW

and OUD using the COWS and RODS assessments may help reduce misdiagnoses and healthcare utilization. More research is needed to inform providers of best practices regarding evidenced based OUD treatment in the ED.

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### **23. Understanding Public Attitudes Toward Cannabis Legalization: Qualitative Findings from a Statewide Survey**

Brooke Rodriguez LLMSW; Stella M. Resko PhD, MSW; Jennifer Ellis MA; Kathryn Szechy MSW; Theresa J. Early MSW, PhD; Elizabeth Agius BA; & John Kroneck MA, LPC, CPC-R - Wayne State University

**Background:** Cannabis policy is rapidly evolving in the United States as more states legalize non-medical marijuana. Public opinion has shifted dramatically in favor of marijuana legalization. **Objectives:** This examines the reasons that people support, oppose, or are undecided about marijuana legalization. We focus on the participants' own words which provides additional depth to our understanding. **Methods:** Using a statewide sample (N=2608), participants completed an online survey about marijuana legalization between August and September 2016. Participants indicated whether they supported, opposed, or were undecided about marijuana legalization, and were then prompted to complete an open-ended response explaining the main reasons for their view. Thematic analysis was then used to code the open-ended responses (n=2,054) and analytic induction was used to evaluate the coding. **Results:** 48.1% of the sample supported cannabis legalization, 41.9% were opposed to legalization, and 10% were undecided. Harms associated with marijuana use were the most commonly given reasons for opposing legalization. Those who supported legalization were most likely to state that marijuana is less dangerous than other substances and has medical benefits. They also cited criminal justice reform and the potential for tax revenue as potential benefits of legalization. **Conclusions/Importance:** The results help inform current views surrounding marijuana as several groups push towards legalization. Findings highlight nuances in public attitudes toward cannabis legalization. Many who support cannabis legalization recognize some potential negative consequences of these policy changes. Understanding views of cannabis is important as policies for marijuana use and marijuana sales become less restrictive.

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### **24. The Brief Negotiation Interview Adherence Scale for Smoking Cessation: A Psychometric Evaluation**

Michael V. Pantalon PhD; James Dziura PhD; Fang-Yong Li MPH; Gail D'Onofrio RN, MD; & Steven L. Bernstein MD - Yale School of Medicine, Department of Emergency Medicine

**Background:** Practitioner adherence to the Brief Negotiation Interview (BNI) can be measured using the BNI Adherence Scale (BAS). However, no psychometrically-validated BAS for smoking cessation has been reported in the literature. **Objective:** Our objective was to develop and examine the psychometric properties of a BAS for smoking cessation (BAS-S). **Methods:** In the context of a clinical trial of the BNI – which incorporates motivational interviewing (MI), feedback and behavioral contracting – plus nicotine replacement treatment (NRT) and a quitline brochure, compared with brochure-only, we developed and examined the psychometric properties of the BAS-S, a 48-item scale that requires raters to answer whether or not each critical action of the BNI was implemented. Items pertained to the four steps of the BNI: 1) Establish Rapport, 2) Provide Feedback, 3) Enhance Motivation, and 4) Negotiate a Plan. Three hundred and fifty-six audio-recorded BNI encounters were rated by three independent raters. Psychometric tests of internal consistency, reliability and validity were used to evaluate the ratings, including exploratory and confirmatory factor analysis. **Results:** The results indicated the BAS-S has good to excellent internal consistency, discriminant validity, inter-rater reliability and construct validity. A 3-factor (10-item) solution accounted for 43% of the variance, where Factor 1 addressed “Feedback” (4 items), Factor 2 addressed “Motivation for NRT” (3 items), and Factor 3 addressed “Negotiation” (3 items). Predictive validity was found for the Feedback factor overall and for one of its items, which suggested that patients who were provided feedback on the harms of their smoking and informed about how their smoking quantities negatively compared with normative data, were significantly less likely to achieve 7-day tobacco abstinence than those who were not ( $p<.05$ ). It may be that these participants were not motivated by the negative consequences of their smoking or by social comparison (i.e., extrinsic motivation), which, in

MI, are emphasized less than gain-framed and personal (i.e., intrinsic) reasons for change. **Conclusions:** The BAS-S is a psychometrically valid measure of adherence to the BNI for smoking cessation, which should perhaps focus more on personal versus normative reasons for quitting or cutting down on smoking.

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## 25. Differences in Substance Use Among Transgender and Non-Transgender Identifying Young Adults

Brianna Sabol MSW; Jennifer Ellis MA; & Stella Resko PhD - Wayne State University

**Background:** Research on gender identity and substance use is growing and demonstrates that many transgender adolescents and adults have heightened rates of substance use and disorders (SU/DS) (De Pedro et al., 2017; Reisner et al., 2015). A better understanding of substance use among transgender young adults is needed. Individuals who identify as transgender often face social stigma, discrimination, and other challenges not encountered by non-transgender people (NIDA, 2017). Emerging adulthood is a developmental period where many individuals have higher rates of substance use. **Objectives:** To compare rates and correlates of substance use among young adults identifying as transgender and non-transgender. **Methods:** Young adults ages 18-25 (N=2150) in Michigan were recruited through online advertisements and 3.1% of the sample (n=67) identified as transgender. Surveys assessed substance use, including use of marijuana, alcohol, misuse of pain-relievers, sedatives, stimulants, and sleeping medications (e.g. taking without a prescription or in larger quantities/more often than prescribed). **Results:** Although transgender participants reported significantly higher rates of recent marijuana use (55.8% transgender vs. 25.1% non-transgender;  $\chi^2 = 9.86$ ,  $p < 0.01$ ), no differences for alcohol use were found. Greater rates of opioid pain reliever misuse (past year) (24.1% transgender vs. 11.2% non-transgender;  $\chi^2 = 6.15$ ,  $p < 0.05$ ), sedative misuse (28.8% transgender vs. 10.4% non-transgender;  $\chi^2 = 12.35$ ,  $p < 0.001$ ) and sleeping medications misuse (11.7% transgender vs. 4.4% non-transgender;  $\chi^2 = 6.11$ ,  $p < 0.05$ ) were found for young adults who identify as transgender. Transgender participants demonstrated stronger correlations between sleeping prescription and opioid pain reliever past year misuse (transgender:  $r = 0.57$ ,  $p < 0.01$  vs. non-transgender:  $r = 0.23$ ,  $p < 0.01$ ), as well as stimulant and sedative past year misuse (transgender:  $r = 0.42$ ,  $p < 0.01$  vs. non-transgender:  $r = 0.25$ ,  $p < 0.01$ ). Transgender and non-transgender participants showed similar moderate to strong correlations between past 30-day alcohol use and using alcohol alone (transgender:  $r = 0.49$ ,  $p < 0.01$ ; non-transgender:  $r = 0.41$ ,  $p < 0.01$ ), as well as past 30-day marijuana use and using marijuana alone (transgender:  $r = 0.74$ ,  $p < 0.01$ ; non-transgender:  $r = 0.70$ ,  $p < 0.01$ ). **Conclusions:** Findings highlight the importance of preventing and treating SUD's among transgender young adults.

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## 26. Barriers to Disclosure of Substance Use Behaviors During School SBIRT in a Cohort of Middle and High School Students in Massachusetts

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**Background:** Screening, Brief Intervention and Referral to Treatment (SBIRT) is a practice aiming to delay substance use initiation and reduce substance use in youth by eliciting information about substance use behaviors to guide personalized interventions and referral to treatment. Massachusetts has recently adopted a law requiring all middle and high schools (MS and HS) to implement systematic SBIRT for all students, but little is known about students' experience of school-based SBIRT. **Objectives:** To describe and compare students' perceptions of factors impacting disclosure of substance use behaviors during school implementation of SBIRT programming in students that had and had not used substances. **Methods:** This was a cohort study conducted during the 2016-17 academic year in three MS and two HS that were "early adopters" of the Massachusetts policy on school SBIRT. Students were screened for substance use with the CRAFFT tool and received brief counselling by a school professional. Participants completed an electronic questionnaire that asked them about past-year substance use and SBIRT experience. Students were eligible to participate if they were in grades that received SBIRT and present in class on the day surveys were administered. Descriptive statistics, chi square analyses and logistic regressions were performed. **Results:** Seven hundred and seventy-four participants were included in the study (61.4% MS and 38.6% HS students). Past-year substance use was

14.6% (MS) and 44.6% (HS). Most participants (90.9%) reported answering all screening questions honestly. Common barriers reported by participants, included (past year substance use; no past year substance use): fear of getting in trouble at school (36.0%; 14.7%) or at home (30.2%; 18.5%), being excluded from extra-curricular activities (27.9%; 18.8%) and fear of being forced to receive counseling for substance use (24.4%; 15.8%). Students who endorsed knowing someone who had gotten in trouble at school for using substances were less likely to report answering all screening questions honestly than their peers ( $p<0.001$ ). **Conclusions:** Barriers to disclosure of substance use information are somewhat common among MS and HS students participating in school SBIRT. More research is needed to understand how to address these barriers, especially in students who have used substances in the past.

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## **27. Lessons Learned on Recruitment and Retention From the Pilot Study Recovery-Oriented Research Methods for Youth in an Alternative Peer Group (RORMY-APG)**

Angela Nash PhD, CPNP-PC, PMHS; Keedra Giraldi BSN, RN; Crystal Collier PhD, LPC-S; Joan Engebretson, DrPH, AHN-BC, RN, FAAN; & Stanley Cron MSPH – University of Texas Health Science Center Cizik School of Nursing

**Background:** The Alternative Peer Group (APG) is a recovery support model that works to attract and engage youth with substance use disorder (SUD) in recovery by integrating pro-recovery peers and social activities into clinical practice. APGs build recovery capital, which leads to progress in the processes of recovery and improved SUD and mental health symptoms. Though regionally well established, APGs have never been formally evaluated. RORMY-APG was a feasibility study with two aims. 1) Pilot test and refine research protocols for measuring change over time in recovery constructs; and 2) Explore factors that promote or hinder recovery for youth in an APG. Recruitment and retention of youth with SUD in longitudinal studies is a common challenge that must be addressed to acquire meaningful evidence. **Objective:** Our purpose is to report lessons learned and resulting strategies for improving recruitment and retention protocols in future studies.

**Methods:** We employed a mixed methods design with participants of one APG program. Participants received a series of web-based surveys for up to 16 months. Surveys captured APG participation, recovery processes, recovery capital, and outcomes. Repeated measures analysis with linear mixed models tested the hypothesis that spending time in the APG builds recovery capital, resulting in progress in the processes of recovery, and improved symptoms. The same models adjusted for clinical factors (symptom severity and parent involvement) as predictors of change. We used framework analysis to explore data from semi-structured interviews. This served to interpret results and inform multiple protocol revisions for future studies. **Results:** Of the expected 60, we recruited 36 but only 28 youth took the baseline survey. Only 51% of those completed all surveys, and we saw a steep decline in survey completion over time. Analysis revealed no significant changes in any of the measured constructs or covariates. Most participants had already progressed from resistance to moderate motivation and high readiness upon enrolling in the study. **Conclusions:** Selection and attrition bias due to recruitment and retention challenges preclude forming conclusions about the effect of APG participation on adolescent recovery. However, RORMY-APG's mixed methods design informed multiple revisions to strengthen future study protocols.

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## **28. Hepatitis C Testing, Prevalence, and Cascade of Care Among Youth Entering a Substance Use Disorder Treatment Program – Boston, 2012-2013**

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**Background:** Opioid use disorder among adolescents and young adults is a growing epidemic, associated with increases in hepatitis C virus (HCV) infections. However, access to this population is challenging, and epidemiologic data about HCV among young people who inject drugs (PWID) remains limited. Most studies recruited PWID through community outreach sites and syringe exchange programs, while others have

investigated hospitalized pediatric patients. **Objective:** We examined HCV testing, prevalence, and cascade of care among adolescents and young adults entering a youth-focused outpatient substance use disorder treatment program. **Methods:** We conducted a systematic, retrospective chart review of consecutive intake assessments between January 2012 and June 2013 at a youth-focused outpatient substance use disorder treatment program in a major northeast metropolitan medical center. Inclusion criteria included age 16 to 26 years and a diagnosis of substance use disorder. **Results:** Of the 200 total participants who presented for evaluation and met inclusion criteria, the mean age was 20.2 years. The sample was predominantly male (79%) and white (89%). Seventy-six (38%) reported opiate use at intake, and 34 (17%) reported injection drug use (IDU). Fifty-three of 200 (27%) were ever tested for HCV by a provider within the healthcare system, of which 20 (38%) had a history of IDU. Fourteen (42%) of 34 individuals reporting IDU were never tested. Of those 53 total tested, 17 (32%) were tested prior to intake, 39 (78%) were tested after intake, and 24 (48%) were tested multiple times. Fourteen (26%) were tested at least once by the treatment program. Of 53 tested, 9 were positive for HCV (15%), 4 of whom were diagnosed prior to intake. All cases reported opiate use, and 8 of 9 (89%) reported IDU. Five individuals were referred to a specialist, and 3 were treated. Two individuals received direct-acting antivirals, both of whom attained sustained virologic remission. One individual spontaneously cleared HCV.

**Conclusions:** Substance use disorder treatment programs are a valuable entry point for HCV care for young PWID. While curative treatments are now available, robust screening and referral services for HCV at such venues would improve the cascade of care and maximize their impact.

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## 29. Rural/Urban Differences in Methamphetamine Use Among Non-Elderly Adults

Benjamin A. Howell MD MPH; Paul Joudrey MD MPH; Gavin Bart MD PhD; William C. Becker MD; & Tyler N.A. Winkelman MD MSc – Yale School of Medicine

**Background:** Deaths from methamphetamine use have risen dramatically in recent years. Early reports suggest these trends may disproportionately impact rural areas. Geographic variation in methamphetamine use and associated behaviors have important implications for drug use policy. **Objective:** This study examines the prevalence of methamphetamine use in rural and urban counties. We also describe characteristics of individuals who use methamphetamine by rural/urban status. **Methods:** We utilized the 2015 and 2016 National Survey on Drug Use and Health, a nationally representative, cross-sectional survey of US households that oversamples individuals in rural areas. We limited our sample to non-elderly adults aged 18 to 64. We estimated the prevalence of self-reported lifetime and past-year methamphetamine use by rural/urban status. In addition, we described characteristics among people who reported past-year methamphetamine use by rural/urban status. Differences in proportions were tested via chi-squared test. Rural and urban regions were defined in NSDUH using urban-rural continuum codes. **Results:** Our sample consisted of 78,976 respondents age 18 to 64 years old, 17.4% of which resided in a rural county. A higher proportion of rural adults reported lifetime (9.2% vs. 6.6%, P<.001) or past-year methamphetamine use (1.2% vs 0.7%, P<.001) compared with adults in urban areas. Compared to urban adults, rural adults who used methamphetamines were more likely to be White or American Indian/Alaskan Native (P<.001) and have lower educational attainment (P=0.01). Among rural adults who used methamphetamines in the past year, 48.6% reported having ever used a needle to inject illicit drugs compared to 37.9% of urban adults (P=.07). Any history of criminal justice involvement (80.7% vs 70.9%: P=.05) and criminal justice involvement in the past year (43.6% vs 32.1%, P=.04) were higher among rural adults who reported methamphetamine use in the past year compared to urban adults. **Conclusions:** We found that past-year methamphetamine use is more common among non-elderly adults in rural counties compared with urban counties. Lifetime needle use and criminal justice involvement, risk factors for infectious disease transmission and overdose, were common among rural adults who use methamphetamine. Policy makers should consider these geographic differences in their efforts to combat drug-use related morbidity.

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### **30. Identifying Inpatient and Out-of-Hospital Naloxone Administrations in Electronic Health Record Data**

Catherine G. Derington PharmD; Shane R. Mueller MSW; Kris F. Wain MS; Jason M. Glanz PhD; & Ingrid A. Binswanger, MD, MPH, MS – San Francisco VA Medical Center

**Background:** Naloxone is administered by bystanders or healthcare personnel to reverse opioid overdose. Effective methods are needed to identify naloxone administrations within electronic health record (EHR) data to conduct real-world, pragmatic surveillance and health services research of naloxone outcomes. **Objective:** Develop an automated search strategy to identify inpatient and out-of-hospital naloxone administrations in the EHR. **Methods:** We developed the automated search strategy in four steps using EHR data between January 2017 and March 2018 of over 600,000 members within the Kaiser Permanente Colorado (KPCO) health-system. Data was pulled from Clarity and the Virtual Data Warehouse using Teradata SQL. Step 1: Exploratory search of all encounter types using the terms “NLX,” “Narcan,” and “naloxone.” Step 2: Exploratory manual review of 100 medical records with an overdose diagnosis (ICD-10 code “T40.x”) to develop a list of commonly-used phrases used to document naloxone administrations (e.g., “Narcan IV,” “received Narcan”). These phrases were used to refine the text string search list. Step 3: First query of emergency and inpatient encounters using the phrase list generated from Step 2. Step 4: Second query of emergency and inpatient encounters with additional phrases added to the query, which were found during Step 3 chart reviews. The primary outcome was the positive predictive value (PPV) of Steps 3 and 4. Dividing the number of true positive (TP) encounters by the total number of encounters in each query yielded the PPV. Naloxone administrations validated by medical record review were considered TPs. Descriptive statistics were conducted. **Results:** Step 1 yielded over 3,400 unique encounters, which greatly exceeded the expected number of overdoses or naloxone administrations due to the broad search terms. The query performed in Step 3 yielded 204 unique encounters and a PPV of 84.3% (172 TPs). Finally, Step 4 yielded a PPV of 83.8% (202 TPs) and identified an additional 30 naloxone administrations through the addition of more phrases to the query. **Conclusions:** The developed text string search identified true naloxone administrations in inpatient and out-of-hospital settings with a PPV of 84.3%. Validation and application of the string search in other health-systems and research settings is needed.

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### **31. Linking Infective Endocarditis Patients with Opioid Use Disorder to Addiction Treatment After Valve Replacement Surgery**

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**Background:** Infective endocarditis (IE), with prolonged hospitalizations, extended courses of IV antibiotics and high-risk surgical interventions, is one of the most fatal and costly complications of opioid use disorder and injection drug use. Historically many clinicians and health care systems have treated the medical complications of IE without adequately addressing the underlying addiction. Initiating medications for opioid use disorder (OUD) and providing linkage to outpatient treatment programs is critical for achieving optimal outcomes among patients with IE, particularly for patient who undergo expensive valve replacement surgery.

**Objective:** Pilot a pathway to initiate buprenorphine treatment for patients with opioid use disorders who undergo valve replacement surgery for IE. **Methods:** A cardiovascular surgeon with interest in treating high-risk valve replacement surgery patients identified candidates for buprenorphine treatment during the peri-operative period. He contacted an addiction medicine specialist, who evaluated patients to confirm the diagnosis and generate a treatment plan in coordination with the cardiothoracic surgery service, including initiation of buprenorphine treatment and seamless linkage to outpatient care following hospital discharge. We describe the clinical pathway and outcomes of five consecutive treated patients. **Results:** Five patients undergoing valve replacement surgery for IE were initiated on buprenorphine during the pilot period from October 2016 to May 2017. Patients were aged 26-40 years at time of evaluation and 3 of 5 were women. Etiologies of IE included *Staphylococcus aureus* (1 methicillin-sensitive, 3 methicillin-resistant) and *Candida* species (1). Involved valves were aortic (2), mitral (2) and tricuspid (3). The addiction medicine specialist evaluated 2 patients pre-

operatively and 3 post-operatively. All patients were initiated on buprenorphine during hospitalization for valve replacement surgery on the cardiothoracic surgery service and successfully linked with outpatient, primary care-based treatment following discharge. At 12 months, 4 of 5 patients remained engaged in addiction treatment. Three patients were on buprenorphine and one patient had switched to extended-release naltrexone prior to stopping medications. Following a treatment relapse, one patient died from complications during repeat valve replacement surgery. **Conclusions:** Initiating buprenorphine treatment for patients with IE undergoing valve replacement surgery is feasible. This pathway deserves further development to confirm efficacy and optimize scaling.

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## **32. 26-year-old Woman Died After a Fentanyl Overdose in a Bathroom at an Outpatient Addiction Treatment Program**

Bradley M. Buchheit MD; Alexander Y. Walley MD - Boston Medical Center

**Background:** As the opioid epidemic rages on, more people are using opioids and overdosing in public bathrooms. Public bathrooms provide a clean, convenient, and private place to use drugs. In a 2017 survey of NYC business managers, 58% report drug use in their bathrooms, yet only 10% of those reporting drug use in their bathrooms have been trained to identify a drug overdose or trained in administering naloxone. Single occupancy bathrooms pose an increased risk of fatal overdose given their isolated nature.

**Learning Objectives:** 1) To recognize the overdose risk environment of bathrooms. 2) To promote safety interventions in public bathrooms that can help prevent fatal overdoses. 3) To understand the limits of toxicology testing.

**Case Presentation:** 26-year-old pregnant female with history of hepatitis C, asthma, anxiety and depression who presented to the hospital via ambulance from an outpatient addiction treatment program after being found unresponsive in a single occupancy bathroom after a suspected heroin overdose. Urine toxicology and serum “designer opioid panel” were negative. After a short intensive care unit stay, the patient was declared brain dead and died shortly thereafter. The cause of death was determined to be acute fentanyl intoxication.

**Discussion:** Because bathrooms are clean, convenient and private venues for drug use, fatal overdoses in bathrooms will continue to occur in the midst of fast-acting fentanyl. Innovations to improve bathroom safety and prevent fatal overdose include: installation of a motion detecting device, installation of an intercom system, removal of the bottom six inches of a bathroom door and/or assigning a bathroom monitor. Safer injection equipment and naloxone rescue kits can be accessible for people using the bathroom. The potential benefits of bathroom safety interventions warrant investigation. This case also highlights the limitations of urine and serum toxicology and the importance of understanding fentanyl metabolism and excretion and how it impacts toxicology results.

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## **33. Leveraging Technology to Address Unhealthy Drug Use in Primary Care: Development of a Clinical Decision Support Tool For Primary Care Providers**

Jennifer McNeely MD, MS; Donna Shelley MD, MPH; Antonia Polyn MPH; Christine Chollak; Angeline Adam MD; & Andre Kushniruk PhD - NYU School of Medicine

**Background:** Lack of knowledge about substance use among primary care providers (PCPs) can potentially be addressed by clinical decision support (CDS) that offers patient-specific, actionable information at the point of care. **Objectives:** We sought to develop a tablet-based CDS tool to support PCPs in delivering a brief intervention for unhealthy drug use. **Methods:** Our CDS development process was based on principles of the Technology Acceptance Model (TAM-2), which specifies that perceived usefulness and ease of use impact adoption. Input from an Expert Panel (PCPs, medical informaticists, and medical director) and interviews with 5 PCPs informed development of a prototype that was then evaluated and adapted through 3 rounds of usability testing. The last round of testing used simulated patient scenarios. Notes, audio recordings, and screen recordings were analyzed to identify usability issues and optimize content and interface design. **Results:** PCPs participating in the Expert Panel and focus groups felt that CDS guidance for drug use brief intervention would

fill a knowledge gap and could improve the frequency and quality of interventions. Their primary concerns were the time required and integration with workflow and the electronic health record. Usability testing participants were 18 PCPs practicing in public hospital clinics; 15 MDs and 3NPs. Mean age was 40 (SD=8.6, range 29-57), 77% were female, average years in practice was 9 (SD=8.0, range 0.5-26). Detailed analysis of data on human-computer interaction, content, and design findings will be presented, and overall results are summarized here. In usability testing Round 1 (n=4), major revisions were recommended to simplify the content of the CDS and allow for more flexibility in its navigation. In Round 2 (n=8), feedback focused on design and interface issues, and no major content or format changes were recommended. In Round 3 (n=6), PCPs were satisfied with the content and appearance; those with motivational counseling experience were sometimes out of sync with the flow of the CDS. **Conclusions:** An iterative approach to CDS development increases its acceptability to PCP end-users. The next study phase examines the impact of our CDS on PCP delivery of drug use interventions in primary care medical visits.

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#### **34. Addiction Service Utilization in Veterans with Liver Disease and Substance Use Disorders - A Nationwide Analysis**

Lamia Haque MD, MPH; Robert Rosenheck MD – Yale University School of Medicine

**Background:** Liver diseases (LD) lead to significant morbidity and are often caused by substance use disorders (SUD). Both are important concerns in the veteran population, in which rates of certain LDs and SUDs exceed that of civilians. Despite the interplay of LDs and SUDs, little is known about the characteristics, comorbidities, and service use patterns of veterans with both illnesses. **Objective:** To describe characteristics, comorbidities, and substance use service use patterns of veterans with LDs and SUDs. **Methods:** National Veterans Health Administration (VHA) administrative data from fiscal year 2012 were used to compare veterans with co-occurring LDs and SUDs who received substance use treatment to those who did not. Both LDs and SUDs were identified using codes from International Classification of Disease, Ninth Revision. Bivariate analyses compared sociodemographic variables, comorbidities, and service utilization among the two groups. Substance use treatment was defined broadly as use of any mental health services. Effect sizes were measured using Cohen's d for continuous variables and risk ratios for categorical variables. **Results:** Of the 43,246 veterans diagnosed with both LDs and SUDs across all VHA medical centers during fiscal year 2012, 30,456 (70.4%) ever received substance use treatment and 12,790 (29.6%) did not. Veterans who received treatment were more likely to be younger (mean age 56.7 versus 59.8, Cohen's d -0.41), receive greater service connection benefits (RR 1.61), serve during Operation Iraqi Freedom or Operation Enduring Freedom (RR 2.82), and report homelessness (RR 14.89). Although veterans who received treatment were more likely to have drug dependence (RR 2.25) or other mental illnesses (RR 2.14), there was no significant difference in the prevalence of alcohol dependence between groups (RR 0.92). **Conclusions:** Despite the need for treating SUDs in veterans with LDs, 29.6% of patients did not receive any substance use treatment over the course of a year. Alcohol use disorder was not correlated with an increased likelihood of treatment despite the importance of alcohol abstinence in patients with LDs. Homelessness was strongly correlated with substance use treatment. Interventions are needed to address the addiction treatment gap in for patients with LDs and SUDs.

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#### **35. Leveraging Technology to Improve SBIRT Implementation in Pediatric Primary Care**

Juliet C Yonek PhD, MPH; Zachary Bonzell BS; Amy Whittle MD; & Marina Tolou-Shams PhD – University of California San Francisco, Zuckerberg San Francisco General Hospital and Trauma Center

**Background:** Substance use problems can negatively affect adolescents' physical and mental health, and can seriously disrupt developmental trajectories. Screening, brief intervention and referral to treatment (SBIRT) is a public health approach to early identification and intervention for substance use problems in general medical settings, including pediatric primary care. Although this approach is widely endorsed by pediatric medical organizations such as the American Academy of Pediatrics, it has not been widely implemented in pediatric primary care. **Objective:** Objectives for this mixed methods study were to: 1) estimate substance use prevalence

among adolescents within an pediatric primary care safety net clinic in Northern California, 2) understand current practices related to substance use screening and intervention, and 3) identify potential barriers to SBIRT implementation and solutions, including the use of computerized screening tools. **Methods:** Substance use and demographic data were obtained from the electronic medical record for adolescents aged 12-17 years from January 2014 – January 2017. Substance use was assessed using The Staying Healthy Assessment (SHA), a behavioral health questionnaire that Medicaid requires providers to administer to adolescents annually. It includes one question on illicit drug use (i.e., use of marijuana, cocaine, crack, methamphetamine, or ecstasy) and two questions on alcohol use. Data were analyzed using descriptive statistics. Individual interviews were conducted with a convenience sample of providers (e.g., faculty and resident pediatricians, nurse practitioners). Themes were identified using an inductive approach. **Results:** Substance use prevalence was determined for 598 adolescents. Nearly 8% reported any substance use. Of the 12 providers interviewed, there was universal agreement that identifying and addressing adolescent substance use in pediatric primary care is a high priority. However, most providers consider the SHA a crude assessment of questionable accuracy and limited utility. Providers agreed that a pre-visit, computerized, validated screening tool may potentially increase truthful disclosure, allow more time to discuss risky substance use, and improve uptake of routine substance use screening. Access to on-site behavioral health clinicians was perceived as a critical resource for providing brief counseling and/or initiating treatment referrals during the visit. **Conclusions:** Computerized screening and embedded behavioral health clinicians may facilitate SBIRT implementation in pediatric primary care.

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### **36. Opioid Utilization Patterns Among Older Adults with a New Opioid Prescription after Hospitalization**

Justina L. Groeger MD, MPH; Marcus Bachhuber MD, MS; Chinazo O. Cunningham MD, MS; & Joanna L. Starrels MD, MS – Montefiore Medical Center

**Background:** Opioid prescribing to older adults has increased despite risks such as overdose and falls. Opioid therapy is commonly initiated during a hospitalization, but it is unknown how age is associated with incident long-term opioid use following hospitalization. **Objectives:** Among older adults with a new opioid prescription following hospitalization, we explored subsequent opioid utilization patterns. **Methods:** We conducted a retrospective cohort study from 1/2016 to 7/2017 among patients aged 50 or older who were hospitalized at a large academic medical center in the Bronx between 4/2016 and 9/2016 and who received a new opioid prescription immediately following hospitalization. Outcomes were: (1) receipt of at least one opioid prescription in the 3-9 month period following hospital discharge, and (2) long-term opioid therapy, defined as 3 or more opioid prescriptions at least 21 days apart, within the 3-9 month period following hospital discharge. We used the chi square test to compare both outcomes by age group. Using multivariate regression, we adjusted for sex and race and ethnicity to identify independent associations between age group and receipt of  $\geq 1$  opioid prescription 3-9 months after hospital discharge. **Results:** Of 959 patients who met inclusion criteria, 197 (21%) received at least one opioid prescription in the period spanning 3-9 months after hospital discharge. Age group was significantly associated with receipt of at least one opioid prescription during this time ( $p<0.05$ ). After adjusting for sex and race and ethnicity, odds of receipt of at least one opioid prescription 3-9 months after hospital discharge remained independently associated with age group. Only 44 (5%) of patients met criteria for incident long-term opioid use; incident long-term opioid use did not differ significantly by age group ( $p=0.70$ ). **Conclusions:** Among hospitalized adults with a new opioid script, the oldest adults are at greatest risk of future opioid use. Standardized approaches in policy and education are necessary to minimize potential harms of opioid use in these patients.

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### **37. A Comparison of Breastfeeding Intentions of Pregnant Women With And Without Lifetime History of Marijuana Use**

Noelle E. Spencer, BA, MSc; Kielah A. Turner, BS; Ankitha M. Iyer; & Judy C. Chang, MD, MPH – Magee-Women Research Institute of Magee-Women’s Hospital of UPMC

**Background:** During the prenatal period, pregnant women's decisions concerning breastfeeding can be impacted by a number of factors. There is significant research that investigates sociodemographic and relationship characteristics that influence a woman's decision to breastfeed, yet there is little research that addresses past or current marijuana use on the intention to breastfeed. **Objective:** To compare the breastfeeding intentions of pregnant women with and without a current or past history of marijuana use. **Methods:** Data was collected from a larger patient-provider communication study examining the prenatal visits of 480 patient-participants. We performed medical record abstraction of the final obstetric visit for 242 patients, noting breastfeeding and reported marijuana use. We performed descriptive and bivariate statistics to evaluate trends in breastfeeding intent and marijuana use within groups categorized by race. **Results:** We obtained medical record abstraction data from 242 participants, 41% identified as Caucasian, 55% African-American, and 4% other races. Most participants were single (47%), 41% completed high-school/GED, and 45% had an annual income of less than \$5000. The majority (66%) of participants did not use marijuana and 33% reported using marijuana either prior to pregnancy or during pregnancy. Seventy-seven (32%) of participants indicated intent to breastfeed; 104 (43%) of participants did not discuss breastfeeding at any point during the prenatal period. Among those who intended to breastfeed, 45 (58%) did not use marijuana, and 32 (42%) had a history of marijuana use. A higher percentage (40%) of African American participants reported a history of marijuana use than Caucasian participants (24%). Regardless of marijuana use history, African American participants were as likely to report intention to breastfeed as Caucasian participants. **Conclusion:** Participants with no history of marijuana use had higher rates of positive intention to breastfeed; racial differences in intention were not observed. Further research is needed to determine the impacts of marijuana use on breastfeeding decisions. Providers should prioritize conversations about breastfeeding intentions and marijuana use during the prenatal period.

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### **38. Interdisciplinary Consultation: A Method of Improving Access to Smoking Cessation Services for Veterans in a High-Demand Healthcare System**

Katelyn Brady RN, MS, PMHNP-BC<sup>1</sup>; Taylor Castagnetta RN<sup>2</sup> - University of California San Francisco; San Francisco VA Healthcare System<sup>1</sup>; San Francisco CA Healthcare System<sup>2</sup>

**Background:** Cigarette smoking and tobacco use continue to negatively affect the health outcomes of veterans. 3 in 10 military veterans uses some form of tobacco product, and in 2010 the Veterans Health Administration spent an estimated \$2.7 billion on smoking-related ambulatory care, prescription drugs, hospitalizations and home health care. Cigarette smoking causes about 1 of every 5 deaths in the United States each year, an estimated >480,000 deaths annually. The Smoking Cessation consult is an automated referral that is triggered in the electronic health record (EHR) when a patient screens positive for tobacco use at the San Francisco VA Healthcare System. Previously these consults were managed by a smoking cessation prescriber clinic, however, due to unexpected staffing shortages in Addiction Recovery Treatment Services (ARTS) the consults have been ineffectively managed since 2015, resulting in a backlog of 119 outstanding consults as of December 2017.

**Objective:** Develop an organized and functional method of responding to smoking cessation consult requests, as evidenced by, 1) Patient contacted by provider within one week of receipt of consult request, 2) Consult completed within 2-4 weeks, dependent upon patient availability and response, 3) Treatment strategies are evidence-based, patient-centered, and multimodal. **Methods:** The decision was made for all smoking cessation consults to be managed by the general Addiction Consult Team. All outstanding consult requests were distributed to interdisciplinary members of the Addiction Consult Team for outreach and treatment engagement. A nurse-led smoking cessation clinic and weekly education group were created for patients requiring ongoing care after consultation. **Results:** All 119 outstanding consult requests were processed and completed between December 31, 2017 and February 28, 2018. All new consults are contacted within 1 week of receipt of consult request, and on average patients are seen within 2 weeks by a provider. **Conclusions:** Consultation is an effective method of providing quality care to veterans currently using tobacco products. Utilizing an interdisciplinary team of providers allows for comprehensive and multimodal care. Development of a nurse-led smoking cessation clinic and weekly education group is an effective method of treating a high-volume of complex patients.

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### **39. Evaluating 6-Month Outcomes After Interdisciplinary Prescription Opioid Safety Team Consultation in Veterans with Chronic Pain Prescribed Opioids**

Jennifer Corapi PharmD; Tessa Rife PharmD, BCGP, CACP; David Pennington PhD; & Katelyn Brady RN, MS, PMHNP-BC<sup>1</sup> - San Francisco VA Medical Center

**Background:** The paralleled increase in opioid prescribing for pain and opioid use disorders (OUD) represents a national public health problem. The San Francisco Veterans Affairs Health Care System Prescription Opioid Safety Team (POST), an interdisciplinary team of pain and addiction specialists, evaluates for OUD, engages patients with OUD in treatment, and offers recommendations to enhance safety. **Objectives:** We evaluated POST consultations to determine 6-month outcomes of team recommendations, including OUD treatment with medication assisted therapy (MAT), safety recommendations, and treatment engagement. **Methods:** A retrospective chart review was conducted in patients prescribed opioids for chronic pain referred to POST August 2015 through June 2017. Palliative care and patients prescribed MAT (buprenorphine or methadone) at baseline were excluded. We used both linear and binomial loglinear mixed models to examine change between baseline and 6-month follow-up in: engagement in pain management, mental health treatment, complementary and alternative pain therapies, substance use treatment; overdose education and naloxone distribution (OEND), urine drug screening (UDS), prescription drug monitoring program (PDMP) review, mean morphine equivalent daily dose (MEDD), and MAT (among those with OUD). **Results:** Of 140 referrals, 109 met inclusion criteria. Patients were predominantly male (n=106, 97.2%), age  $61.1 \pm 10.1$ , white (n=68, 62.4%), and non-Hispanic/Latino (n=97, 89.0%). Among 61 patients diagnosed with OUD (56.0%), the number prescribed MAT (methadone or buprenorphine) significantly increased from 0 to 11 at follow-up ( $p<0.01$ ). Among all patients, there were significant increases in treatment engagement from baseline to 6-month follow-up in pain management (18 to 47,  $p<0.01$ ), mental health treatment (36 to 51,  $p<0.01$ ), pain complementary and alternative therapy (19 to 32,  $p<0.01$ ), and substance use treatment (3 to 13,  $p=0.01$ ). Similarly, mean MEDD decreased from 102.1mg to 89.7 (p<0.01). There were also significant decreases in OEND (24 to 58,  $p<0.01$ ), UDS (50 to 76,  $p<0.01$ ), and PDMP review (29 to 63,  $p<0.001$ ). **Conclusions:** Patients with chronic pain prescribed opioids evaluated by POST demonstrated significant improvements in OUD treatment, specialty treatment engagement, and several areas of opioid safety. Future research should examine if similar patients not involved in POST have similar or differing outcomes.

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### **40. Association of Trade-Related Job Loss with Opioid Overdose Death**

Simeon Kimmel MD, MA; Adam Dean, PhD - Boston Medical Center

**Background:** Opioid overdose deaths in the United States (U.S.) rose dramatically after 1999, but also exhibited substantial geographic variation. This has largely been explained by differential patterns of opioid prescribing and fentanyl in the illicit opioid supply. Some have referred to the rise in fatal overdoses as “deaths of despair,” highlighting that distress from limited socioeconomic opportunity may mediate fatal overdose risk. The relationship between international trade policies, an important factor in county-level opportunity, and overdose mortality needs further investigation. **Objectives:** To determine whether job losses due to international trade are positively associated with opioid-related overdose deaths. Secondarily, to analyze whether this association became stronger after the introduction of fentanyl into the heroin supply in New England and Appalachia after 2012. **Methods:** We performed a Poisson regression using time-series cross-sectional county level data to test the association between trade related job loss and opioid overdose death between 1999 and 2015, controlling for multiple factors including income, race, unemployment rate, mass layoffs unrelated to trade, opioid prescription rates, and state and year fixed effects. We used age-adjusted opioid-related overdose deaths from the CDC’s National Vital Statistics System for all U.S. counties and petitions certified by the Department of Labor for the U.S. federal government’s Trade Adjustment Assistance program aggregated to the county level. **Results:** The loss of 1,000 trade-related jobs was associated with a 5.4 percent increase (95% CI

2.8% to 8.0%, P=.001) in opioid-related deaths. Shocks of 1000 or more trade-related job losses hit individual counties 381 times during the study period. When fentanyl was present in the heroin supply, the same number of job losses was associated with a 43.7 percent increase (95% CI 35.5% to 52.6%, P=.05) in opioid-related deaths. **Conclusion:** There is a positive association between county-level job loss due to international trade policy and overdose mortality, which is strengthened in areas with fentanyl in the heroin supply. Job loss due to trade may play a role in the geographic variability of opioid overdose mortality. Further studies are needed to elucidate the mechanism of this relationship and determine if socioeconomic interventions could reduce risk for fatal overdose.

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#### **41. Validation of a Set of "Healthcare Trust" Scales for Women Seeking Substance Abuse Treatment in Community-Based Settings**

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**Background:** Women who seek substance abuse treatment are at a theoretically higher risk of impaired interpersonal trust, particularly in a setting where residents have historically high rates of prior trauma. Psychometric scales of trust related to healthcare have been previously validated in general population samples, but have not been routinely validated in populations at a higher risk of impaired trust. In order to measure whether trust in healthcare has an impact on outcomes for women who seek substance abuse treatment, confirmation of reliability and validity of existing scales is required. **Objective:** To validate previously published scales capturing interpersonal or healthcare-related trust in a target population of women seeking substance abuse treatment in a community-based setting. **Methods:** 301 participants were enrolled between August 2017 - March 2018 at an urban, community-based substance abuse treatment program in the mid-South. Inclusion criteria included adult women with a self-identified history of substance use disorder seeking substance abuse treatment within seven days of initiation of residential treatment. Participants completed a one-time online survey comprised of a demographics questionnaire, Rotter Interpersonal Trust Scale, Wake Forest Trust in Physician Scale, Revised Health Care System Distrust Scale, 5-item RAND Social Desirability Scale, and Adverse Childhood Events Survey. Participants then individually participated in a modified protocol of the "Trust Game." Information on age, race/ethnicity, gender identification, number of days in current treatment, number of prior substance abuse treatment programs, and number of adverse childhood events was also collected. **Results:** Preliminary results confirm statistically significant ( $p<0.0001$ ) differences in global trust and trust of healthcare providers compared to general population samples. Internal consistency of scales is comparable to reliability testing in general population samples ( $\alpha>0.70$  for all scales). Correlation between individual scales is suggestive of convergent validity, with the strongest relationship between trust in healthcare providers and distrust of the healthcare system ( $r=-0.740$ ). Further testing for construct validity, content validity, and multivariate multiple regression is still pending. **Discussion:** Early findings suggest that previously published scales are reliable and valid in their use for women in this vulnerable population. Findings also demonstrate confirmation that there is decreased trust overall in this population.

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#### **42. A Simulation-Based Exercise Targeting Adolescent Opioid Use Disorder**

Gabriela Garcia Vassallo MD; Deepa Camenga MD, MHS; & Ellen Lockard Edens MD, MPE - Yale School of Medicine

**Background:** Medical education has begun to address prevention, identification, and treatment of opioid use disorder (OUD) through various curricula, however to our knowledge, there is very little education targeting the care of adolescents with OUD. Simulation-based training is increasingly used to teach and assess clinical skills, including high acuity or uncommon conditions that are rarely encountered in the clinical practice. **Objective:** This study aims to determine whether simulation-based training in the management of adolescents with OUD has an impact on learner confidence, knowledge, and satisfaction. **Methods:** Following completion of a pretest knowledge and confidence questionnaire, Addiction Psychiatry and Addiction Medicine Fellows viewed an

online educational video addressing confidentiality as it pertains to the care of a minor with severe OUD. One week later, fellows participated in a 20-minute simulated case encounter with an adolescent standardized patient in which they assessed the 11 signs/symptoms of opioid withdrawal and explained treatment options and confidentiality. After the simulation, Fellows completed an in-person debriefing session where they reviewed their performance with a faculty member of the School of Medicine. Satisfaction and perceived effectiveness was also assessed through a post simulation interview. One month after the simulation, Fellows completed an online post-test assessing knowledge via a 10 item multiple choice test. **Results:** Fourteen Addiction Psychiatry and two Addiction Medicine Fellows (11M, 5F) completed the simulation exercise. As measured by self-assessment questionnaires, there was a significant change in mean scores of self-perceived confidence as it pertains to the management of adolescents with OUD (pre-intervention=6 vs. post-intervention=8; p=0.01). Posttest in person interviews revealed high levels of satisfaction; 94% (n=15) of participants described the exercise as effective and 100% (n=16) would recommend to peers while 13% (n=2) of learners experienced discomfort during the simulation. Analysis of data is ongoing. Efficacy of the intervention as a teaching tool will be assessed by measuring within person change in confidence scores and percent of correct knowledge questions. **Conclusions:** Simulation-based training may be an effective teaching method for the management of adolescents with OUD. Preliminary findings suggest that simulation-based training is viable, well-tolerated, and increases confidence in the learner.

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### **43. Tailoring Service Design for Homeless Primary Care: What Matters?**

April Hoge MPH; Aerin deRussy MPH; Ann Elizabeth Montgomery PhD, MSW; Sally Holmes MBA; Adam Gordon MD, MPH; Erika Austin PhD, MPH; David Pollio PhD, MSW; Sonya Gabrielian MD, MPH; & Stefan Kertesz MD, MS - Birmingham Veterans Affairs Medical Center

**Background:** Homeless persons often experience sub-optimum access to and quality of primary care (PC). The high prevalence of substance use disorder in this population further complicates care. Some federally-funded PC programs tailor service design to better serve this population. However, research to guide decisions in service design and delivery requires a credible method to profile actionable variations. We developed and tested an organizational survey capable of detecting plausibly important variations. **Objective:** Reporting on our survey's performance with special focus on features relevant to addiction and mental health issues. **Methods:** A multidisciplinary team conducted 57 semi-structured interviews across three Veterans Administration (VA) Homeless Patient Aligned Care Teams (HPACTs) and two non-VA Health Care for the Homeless Programs. Interviews queried broad domains relevant to PC service design such as Access, Coordination/Continuity, and Team Functioning. Quotes were used to revise and devise survey items with a two-day retreat to finalize survey questions. These were member-checked with four homeless healthcare providers. The resultant survey, 139 items querying 12 topics, has been administered to the lead nurse and/or prescribing provider at 19 HPACTs. **Results:** Among 19 clinics, this survey found considerable variation. Addiction treatment was provided within 16% of HPACTs, and 74% provided such services within brief walking distance. Conversely, within the HPACT, 68% provided mental health services and 84% offered social work. There are striking contrasts regarding accessibility for a homeless population; 42% reported it was not likely a non-emergent walk-in patient near the end of the day would receive care. Responsiveness to tangible needs associated with homelessness was variable; 37% offering laundry, 68% clothes, and 89% food assistance. Opportunities to coordinate/integrate services were problematic: 26% had no pharmacy in or near the clinic, and 26% had no specialty medical services in or near the clinic. **Conclusions:** HPACTs represent a health-system wide effort to tailor PC for a homeless population. Despite being part of a common initiative where standardized tailoring would be expected, HPACTs vary greatly in organizational features that could best serve this population. A carefully developed survey can capture impactful differences in care design and should be correlated with patient-level outcomes.

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#### **44. Factors Related to Implementation of ED-initiation of Buprenorphine for Opioid Use Disorder**

Lauren K. Whiteside MD MS; Ly Huynh BA; Rebecca Cunningham MD; Dennis Donovan PhD; Marc McGovern PhD; & Douglas Zatzick MD - University of Washington

**Background:** Initiation of buprenorphine from the ED for patients with opioid use disorder (OUD) is efficacious. However, uptake of this evidence-based practice is currently low. **Objective:** The objective of this study was to describe factors and understand barriers to implementation of ED-initiation of buprenorphine among practicing emergency physicians. **Methods:** Snowball and targeted sampling were used to recruit practicing emergency physicians within Washington. Participants completed a survey on demographics and their clinical practice and then completed a semi-structured interview. Data collection and qualitative data analysis was informed by the Consolidated Framework for Implementation Research (CFIR) with a focus on the following CFIR domains 1) inner setting, 2) outer setting 3) intervention characteristics and 4) characteristics of individuals. Interviews were audio-taped, transcribed and coded by two team members using content analysis and progressed until thematic saturation. **Results:** 20 emergency physicians were interviewed (75% male, 80% of participants had 10+ years of post-residency experience) that practice in a variety of settings (70% community) and 35% identified as medical director of their group. Major themes associated with CFIR domains included; 1) the evolving culture of care for patients with OUD in the ED and acknowledgement that existing care is inadequate along with questions on the appropriateness of this practice within the scope of the ED, 2) strong desire for an established and robust follow-up network, 3) knowledge and varying beliefs of addiction care and addiction as a chronic disease, 4) familiarity (or lack of) with the current body of evidence on ED-initiation of buprenorphine. **Conclusion:** Implementation of ED-initiation of buprenorphine will be influenced by all domains within the CFIR framework. Factors related to the inner setting including implementation climate as well as a strong desire for established outpatient pathways (e.g. outer setting) coupled with knowledge of existing evidence related to buprenorphine and addiction care are important. Future directions should consider these constructs when implementing this evidence based treatment.

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#### **45. Perceptual Barriers to Seeking Residential Substance Use Treatment**

Joseph R. Hudson, LMSW; Jennifer I. Manuel, PhD, LMSW – New York University

**Background:** Although residential substance use treatment has been shown to improve substance use and other outcomes, most with substance use disorders (SUD's) never seek professional treatment. Much research has been done on the barriers to seeking treatment. However, greater understanding is needed of the similarities and differences in the perceptual barriers to treatment held by clients and staff. **Objective:** The purpose of this paper is to (1) describe the design and sample statistics for a NIDA-funded study, (2) identify and compare adult client vs. staff perceptions of barriers to seeking substance use treatment, and (3) compare perceptions between an urban vs. rural treatment setting. Data generated through this research will lead to a greater understanding of the perceived barriers within and between these populations, which can (1) enhance the strength of the therapeutic relationship and (2) contribute to decision-making processes that will improve access to professional treatment. **Methods:** Secondary analysis of transcripts of semi-structured interviews with clients (n=61) and staff (n=37) from a residential substance use treatment program in New York (urban) and in Virginia (rural), between 2013-2015. The research team developed an initial coding scheme a priori based on models of barriers identified in previous research. Transcriptions of interviews were formally analyzed by two analysts using framework analysis. **Results:** Overall, personal barriers (83%) were cited more frequently than interpersonal (15%) and structural barriers (24%). Staff were more likely to cite interpersonal barriers (19% vs. 11%) and structural barriers (29% vs. 20%) than were clients. The majority of client participants were male (64%), had a history of incarceration (92%), were mandated to treatment (57%), with a mean age of 38. Staff participants consisted primarily of Black (68%) females (70%), with a mean age of 50. **Conclusions:** These findings further demonstrate that personal culpability and self-blame are often felt by those with SUDs and this sentiment is often reinforced by treatment providers. Interventions are needed that can reduce the stigma of SUD's, resulting in a shift away from the perception that barriers to treatment exist primarily at the personal level.

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## **46. Case-based Needs Assessment for Teaching Residents about Medical Marijuana**

Cynthia S Solomon BSPharm, RPh, CTTS; Glen D Solomon MD - Wright State University Boonshoft School of Medicine

**Background:** The “legalization” of medical marijuana (MM) will impact the way medical professionals practice and create challenges for medical professionalism. We are unaware of any educational curricula for Internal Medicine residents focusing on MM. **Objective:** Because evidence-based education on MM is lacking, we created an educational program to train residents on the use of MM. **Method:** The program was designed by a pharmacist and medical education faculty. An extensive literature review was performed, evaluating legal concerns, professionalism issues, and clinical evidence of benefits and harms. To design a curriculum that was relevant to Internal Medicine residents, we created a needs assessment program. Since treatment with medical marijuana is a novel concept for trainees, we felt that using standard needs assessment approaches such as questionnaires or focus groups would not be helpful in determining unperceived needs. Instead, we structured our needs assessment around clinical vignettes. Cases were presented and discussed as a group exercise. The key questions that were asked of the participants were what information do you need from the patient and what information do you need to make an informed therapeutic decision?

**Results:** We collected the questions/comments for each clinical vignette. We classified the learning needs into three categories: patient-specific information, clinical/therapeutic information, and legal/regulatory information. We consolidated the resident- directed learning needs into learning objectives, and devised a curriculum for evidence-based medical marijuana. Key topics include:

Patient-specific:

Expectations of therapy

Prior treatments /experience with marijuana/history of substance abuse

Legal concerns:

Regulations on recommending medical marijuana

Litigation against providers for recommending medical marijuana

Restrictions based on occupation / driving

Therapy:

Conditions treated with MM

Formulations and MM products

Drug-drug/drug-disease interactions

Evidence for efficacy in specific conditions

Long-term effects

Effects in specific populations – adolescents, pregnancy, fetus

Acute vs chronic pain and non-pain outcomes

Differences between medical and recreational marijuana

Drug screen testing

Childhood safety measures

What are the effects of the different compounds in marijuana?

**Conclusion:** A novel case-based needs assessment was used to design a curriculum for MM education focusing on patient-specific information, clinical/therapeutic information, and legal/regulatory information.

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## **47. In The Wake of the Opioid Crisis, APRN Students Recognize Lack of Training in Substance Use Disorder Treatment in Their Curricula**

Hung Le BA, RN<sup>1</sup>; Julie A. Edwards MSN, APRN<sup>1</sup>; Jenna Butner MD<sup>2</sup>; & Jeanette Tetrault MD, FACP, FASAM<sup>2</sup> – 1. Yale School of Nursing, 2.Yale School of Medicine

**Background:** In 2016, the Comprehensive Addiction and Recovery Act (CARA) expanded eligibility for qualified advanced practice nurses (APRNs) and physician assistants to prescribe buprenorphine for the

treatment of opioid use disorder. This law pioneers new territory for APRN practice and targets the addiction treatment gap. Despite the need, few APRN programs have integrated curricula focused on treating patients with SUDs. **Objectives:** To identify APRN students' attitudes and preparedness to treat patients with SUDs. To evaluate APRN students' attitudes and preparedness to provide pharmacotherapy. **Methods:** A survey instrument was designed to ask students about their current attitudes towards providing pharmacotherapy. Survey results were based on a five-point Likert scale and distributed via email to APRN students at Yale University. Descriptive statistics were used to analyze data. Survey results prompted development of optional training opportunities for students. Funding was provided by Sigma Theta Tau Honor Society. **Results:** (N=120, response rate 67%) 83% of students "strongly agreed" that it is important to know how to treat patients with SUDs. 82% reported that they have not received adequate training to care for patients with SUDs, and only 14% felt prepared to manage patients with chronic pain. Only 5% of students felt there was enough time devoted to SUDs in their curricula. 87% reported interest in becoming trained in opioid agonist therapy (OAT), specifically buprenorphine, while only 9% of students were familiar with the licensure requirements to provide OAT. Seven months following the initial survey, an optional pharmacotherapy waiver course was delivered to 35 APRN students at the nursing school. Of the students who attended the course, (n=32, response rate 91%), 84% of students felt prepared to counsel patients about pharmacological treatments for opioid use disorder. 88% of students were familiar with the licensure requirements to provide OAT. **Conclusions:** APRN students are interested in caring for patients with SUDs, yet desire more opportunities to learn about treatment of SUDs. Because the CARA provision has a 5-year sunset, it is imperative to address the treatment gap and improve APRN curriculum in SUD treatment, specifically, in opioid use disorders. Integration of buprenorphine waiver training within APRN curricula is feasible and could be replicated at other institutions.

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#### **48. Misuse of Multiple Types of Prescription Medication: A Consideration of Emotion Dysregulation**

Jennifer Ellis MA; Elizabeth Agius BA; Brianna Sabol MSW; Rachel Kollin MA; & Stella Resko PhD – Wayne State University

**Background:** Misuse of multiple types of prescription medication (MMPM) has been associated with negative outcomes, including overdose and traffic accidents (Jones & McAnich, 2015; Kelly et al, 2004). Research suggests emotion dysregulation is an important antecedent (Guo et al., 2018) and consequence (Fischer et al., 2016) of prescription medication misuse, but few studies have examined its relation to MMPM. **Objective:** Using a community sample of young adults recruited through Facebook advertisements, we examined factors associated with MMPM, with particular attention on emotion dysregulation. Investigating this phenomenon in a young adult sample is important, as young adults exhibit more emotional volatility than middle-aged/older adults (Noftle & Fleeson, 2010), and report the highest rates of prescription medication misuse of any age group (NSDUH, 2016). **Methods:** Young adults ages 18-25 (N=1,989) completed a web-based survey that included demographics and substance use measures including binge drinking, marijuana use, and misuse of pain-relievers, sedatives, stimulants, and sleeping medications (e.g. taking without a prescription or in larger quantities/more often than prescribed). Participants also completed the Emotion Dysregulation Scale (Powers et al., 2015), a measure of trait-level difficulties in modulating emotions. Correlates of MMPM were examined in bivariate (Chi-square and one-way ANOVAs) and multivariate models (multinomial logistic regression).

**Results:** 15.5% of the sample reported misusing one prescription medication and 6.4% of the sample reported misusing two or more medications. More frequent alcohol ( $OR=0.92$ ,  $p < .001$ ) and marijuana use ( $OR=0.97$ ,  $p < .001$ ), unemployment ( $OR=1.61$ ,  $p = .032$ ), having a college degree ( $OR=0.63$ ,  $p = .037$ ) and emotion dysregulation ( $OR=0.97$ ,  $p < .001$ ) were associated with greater odds of misusing two or more medications relative to not misusing prescription medications in the past year. Emotion dysregulation ( $OR=0.98$ ,  $p = .004$ ) was the only significant variable that distinguished those misusing two or more prescription medications from those who misused one. **Conclusions:** MPMM was relatively common among young adults. Higher levels of emotion dysregulation were observed in young adults who engaged in MMPM. Emotion dysregulation may be an important treatment target among those who engage in MMPM.

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#### **49. Opiate Management Clinic: A Proven Partnership Between Primary Care and Addiction Medicine**

Sahithi Gosala MD; Lee Radosh MD, FAAPP – Caron Treatment Centers

**Background:** In the primary care setting, competing patient interests, time constraints, and many system issues limit the attention doctors can give to safe and effective use of chronic opioids. In partnership with addiction medicine consultants, a weekly, novel “Opioid Management Clinic” (OMC) within a family medicine residency program was developed to address this problem. **Objectives:** In this pilot program, patients on chronic opioids attend at least annually; other medical issues are not addressed. An electronic medical record template was created to ensure appropriate screening, monitoring, and counseling. The objective was to determine if patients attending the OMC have better outcomes than control patients not attending, as determined by six metrics evaluating standards of care for patients on chronic opioids. **Methods:** 43 patients who attended the OMC were compared with 39 demographically and medically matched controls (on chronic opiates but have not yet been to the OMC). Patients ( $\geq 18$  years old) were chosen and data analyzed in a systematic fashion with specific inclusion and exclusion criteria. **Results:** Both groups were similar regarding risk of hospitalization (using standardized scales), BMI, and age (independent t-tests), race, Hispanic/not Hispanic, gender, and whether the patient was on concurrent benzodiazepines (chi-square analysis). The mean morphine medication (MME) equivalent of OMC patients (48.54 mg) was higher than the dose (28.87 mg) of controls ( $p=0.042$ ). Patients seen in the OMC were much more likely to have a documented MME (95.3% vs. 0,  $p<0.001$ ), PDMP checked the last 2 refills (27.9% vs. 7.7%,  $p=0.018$ ), have a naloxone prescription (25.6% vs. 0,  $p=0.001$ ), up to date depression screening (88.4% vs. 51.3%,  $p<0.001$ ), drug testing (79.1% vs. 33.3%,  $p<0.001$ ), and a controlled substance agreement (79.1% vs. 15.4%,  $p<0.001$ ). **Conclusions:** This pilot study demonstrated statistically significant improvement in all six metrics assessed. More research needs to be done in larger populations and other settings; other critical outcomes such as reduction in overdoses and emergency department visits should be investigated. Implementation of an Opiate Management Clinic may be a feasible approach in a busy primary care practice to better manage patients on chronic opioids.

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#### **50. Treating Acute Alcohol Withdrawal in Methadone Maintenance Treatment Programs: A Case Study**

Marlene Edelstein RN<sup>1</sup>; Jenna Butner MD<sup>2</sup> – 1. Yale School of Nursing; 2. Yale School of Medicine

**Background:** 20-40% of patients enrolled in methadone maintenance treatment programs (MMTP) consume alcohol. This is particularly concerning since alcohol use disorder (AUD) is associated with an increased risk of opioid-related mortality among those with opioid use disorder (OUD).

**Learning Objectives:** 1) Understand how to evaluate and treat acute alcohol withdrawal in a patient with comorbid OUD in the setting of an outpatient opioid treatment program (OTP). 2) Highlight the need for an interdisciplinary, team-based approach to the treatment of patients with comorbid AUD and OUD.

**Case Presentation:** A 39 year old female with OUD, abstinent from opioids on MMTP for several years, was referred to an addiction medicine primary care clinic by her OTP addiction counselor for depression and anxiety. There, she disclosed that she had been drinking one bottle of wine nightly for the past six months. Her OTP, counselors were unaware of the extent of alcohol consumption. There was no mention of AUD, or at-risk alcohol use in her chart, and she wasn't routinely breathalyzed. The patient presented with symptoms of severe alcohol withdrawal, with a CIWA score of over 25. She was accompanied by her 6-year-old daughter, and insisted on outpatient treatment due to personal circumstances. She denied history of seizure, hallucination, or other complications of AUD withdrawal. The patient was offered outpatient detoxification, and subsequent AUD maintenance therapy in conjunction with the MMTP. An interdisciplinary team including physicians, advanced nurse practitioners (APRNs), an APRN student, and MMTP counselors devised an intensive plan that enabled her to complete alcohol detox at home while caring for her daughter. Key elements of the plan include serial blood and breathalyzer monitoring, weekly CIWA assessment, and medication management with chlordiazepoxide, valproic acid, escitalopram, and other adjunctive palliative medications. She was offered psychosocial services and counseling, frequent clinic visits, and extensive care coordination.

**Discussion:** This case reinforces the importance of periodic screening for at risk alcohol use in patients in OTP. It demonstrates the need for an interdisciplinary approach to continued assessment of comorbid substance use disorders in those with OUD.

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## 51. Is Life Satisfaction Associated With Cannabis Use Among Young Men?

Marianthi Louisiana Deligianni, MD; Joseph Studer PhD; Jean Bernard Daepen MD; Gerhard Gmel PhD; & Nicolas Bertholet MD, MSc - Alcohol Treatment Center, Lausanne University Hospital

**Background:** Motivations for cannabis use are complex and may include coping with negative well-being. Among young adults, life satisfaction as a hallmark of subjective well-being could play a role in the course of cannabis use. **Objective:** To assess whether life satisfaction at age 21 is associated with 1.)cannabis initiation between the age of 21 and 25, 2.)cannabis cessation between the age of 21 and 25, and 3.)cannabis use severity (CUDIT score) at 25. **Methods:** We used data from C-SURF, an ongoing cohort study of Swiss young males, with assessments at the age of 21 and 25. Life satisfaction was measured with the satisfaction with life scale (SWLS). Associations with life satisfaction were assessed using logistic regression models (for cannabis initiation and cessation) and zero-truncated negative binomial regression (for CUDIT score). Age, family income, education, alcohol and tobacco use measured at 21 served as adjustment variables. **Results:** The study sample consisted of 4778 males; 3301 (69.1%) did not use cannabis at 21. Mean (SD) SWLS was 27.2 (5.4) among those who did not use cannabis and 26.3 (5.8) among those who did. 456 (9.5%) initiated use between 21 and 25, and 515 (10.8%) ceased. Among those using cannabis at 21 and 25, Mean (SD) CUDIT score was 6.6 (6.3) at 21 and 7.0 (6.9) at 25. Life satisfaction at age 21 was significantly and negatively associated with cannabis initiation ( $OR=0.98, p=0.03$ ). The association was no longer significant in adjusted analyses ( $OR=0.98, p=0.06$ ). Life satisfaction at age 21 was not associated with cannabis cessation ( $OR=0.99, p=0.3$ ). The association between life satisfaction at age 21 and CUDIT score at age 25 was negative and significant ( $IRR=0.97, p<.001$ ), but no longer significant in adjusted analyses ( $IRR = 0.99, p =0.09$ ). **Conclusion:** In our sample, life satisfaction at age 21 was negatively associated with cannabis use initiation and severity at age 25, but the association dropped below significance in adjusted analyses. This suggests that the association may be accounted for by differences in socio-demographics and alcohol and tobacco use. Thus, the predictive value of life satisfaction per se is questionable.

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## 52. Leveraging Technology to Optimize Emergency Department Nurse's Response to Opioid Overdoses

Angela Clark PhD, RN; Jeannie Burnie MS, APRN, AGCNS-BC, CEN, FAEN - University of Cincinnati

**Background:** Opioid overdose victims are arriving to the emergency department (ED) via private vehicles necessitating emergency nurses to assume the role of first responder; a role they are not trained to fulfill. While tools are available for nurses responding to overdoses in the hospital, there are no manualized trainings that provide emergency nurses with guidelines for safely responding to overdoses outside the traditional ED setting. Thus a program is needed to address this clinical problem. The overall purpose of this phase Ia/Ib feasibility study was to determine the implementation fidelity and intervention effect size of an original group-based educational intervention, entitled Be-SAFE, for emergency nurses responding to overdose clients outside the ED. **Objective:** Utilize an interprofessional team to develop the Be-SAFE Response educational intervention for use in the group setting. Determine whether nurses, who have received training, can deliver the intervention with implementation fidelity in the group setting and determine the intervention effect. **Methods:** An interprofessional team developed a novel manualized iBook, entitled Be-SAFE, that includes videos, animations, text and audio including an original case study on how to: S- set the scene; A- ask about needles and other drugs/meds; F-follow lift protocol; E-equip yourself with the appropriate tools. Three nurse leaders will deliver the intervention, three times each. Two research assistants will observe and rate each nurse leader conducting the group-based educational intervention yielding a total of 9 group observations to determine inter-rater reliability. Eighty emergency nurses will attend the trainings and complete the Knowledge Survey pretest/posttest. **Results:** Implementation fidelity will be determined by measuring adherence to the manual,

clinicians' competency in skills supporting the intervention; and the participants' responsiveness during the intervention. Inter-rater reliability, correlation coefficients will be calculated and Cohen's d will be used to determine the intervention effect. **Conclusions:** The end product of this study is an evidence based educational iBook, and implementation guidelines for administrators. This study is an important step in the development of practice guidelines for nurses responding to an increased number of overdoses outside the traditional ED setting.

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### **53. The Addiction Medicine Consult Service: Structure and Design**

Kelsey Priest MPH; Dennis McCarty PhD - Oregon Health and Science University (OHSU) School of Medicine; OHSU-PSU School of Public Health

**Background:** Opioid use disorder (OUD)-related hospital admissions are overwhelming acute care delivery systems, and disproportionately burdening public payers. Hospitals under-utilize evidence-based treatment and linkage to care opportunities. Interventions to improve hospital-based care for persons with OUD, such as addiction medicine consult (AMC) services, are being trialed. **Objective:** Describe AMC service structure and design at hospitals with addiction medicine fellowship programs. **Methods:** Qualitative semi-structured telephone interviews (45 to 60 minutes) were completed with physicians associated with the Addiction Medicine Foundation Addiction Medicine Fellowship Program. Interviews were transcribed, coded, and analyzed using a directed content analysis. A thematic code book created prior to data collection was iteratively reviewed and updated by the research team. Qualitative data analysis was managed using Dedoose software.

**Results:** Thirteen key informant interviews were completed from 12 U.S. hospitals. Key informants were board-certified ( $n = 12$ ) or board-eligible ( $n=1$ ) addiction medicine physicians affiliated with 12 hospitals: west ( $N = 3$ ), mid-west ( $N = 4$ ), northeast ( $N = 4$ ), and south ( $N = 1$ ). Seven of the 12 hospitals had established AMC services, of these two had onsite opioid treatment programs (OTPs). The composition and services provided by the seven AMC services overlapped and differed. Team composition included a variety of health professionals (e.g., addiction medicine physician, drug and alcohol counselor, nurse practitioner, peer, physician assistant, psychologist, social worker, and trainee). AMC services served several functions including education, hospital policy development (e.g., the creation of order sets, guidelines, protocols), treatment initiation (e.g., motivational interviewing, pharmacotherapy initiation and continuation), linkage to care (e.g., OTP admission, bridge scripts), and culture change. The AMC services' role and relationship with other hospital consultation services (e.g., psychiatric) were perceived to be either collaborative or contentious. **Conclusions:** As OUD-related hospitalizations continue to increase, providers, administrators, and policymakers are looking for innovative care delivery mechanisms, such as the AMC service, to improve care and outcomes for persons with OUD. Understanding different approaches to AMC service structure and design is an important first step for programs interested in implementing or expanding these services.

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### **54. The Relationship Between Pregnancy and Drug Use Among the Social Networks of Pregnant Women With Opioid Use Disorder**

Leah Klocke BA; Alexander Davis PhD; Dena Asta PhD; Tamar Krishnamurti PhD; Walitta Abdullah MS, CADC; Chelsea Pallatino PhD, MPH; & Elizabeth E. Krans MD, MSc – Magee-Women’s Hospital of UPMC

**Background:** Social relationships directly impact an individual's substance use and recovery. However, little is known about the social networks of pregnant women with OUD and the influence that these relationships have on behavior. **Objective:** To determine how social networks influence substance use behaviors and treatment engagement during pregnancy among women with OUD. **Methods:** Thirty-four pregnant women with OUD participated in a cross-sectional, observational study exploring self-reported changes in the structure and composition of their social networks prior to and after their pregnancy was diagnosed. All participants completed a baseline survey assessing demographics, pregnancy history, and drug use and treatment history. Social network mapping was conducted by having each participant complete a semi-structured interview where they described all individuals in their social network who they used drugs with (drug network) and all

individuals who were aware of their pregnancy (pregnancy network). Assessments evaluated the context of each relationship, including levels of social, emotional and material support, closeness, conflict and influence on a 4-point scale. **Results:** Most participants were aged 26-31 (59.6%), white (84.6%), non-Hispanic (95.8%), partnered (78.8%), unemployed (63.5%), on medical assistance (88.5%) and had an average gestational age at enrollment of 172 days. Participants had a median of 10.5 individuals in their network (range 4 to 24). On average, 30% of individuals were in both the pregnancy and drug networks. Individuals most commonly in both networks were friends (35.6%), siblings (21.1%) and partners (12.2%). Participants reported that 51.6% of individuals in both networks were positive influences in terms of their substance use and recovery, 28.0% were negative influences, 17.2% were both and 3.2% were neither. After becoming pregnant, women reported an increase in emotional and material support from non-drug using members of their network demonstrating that pregnancy had a positive influence on their relationships. Further, women who had a high fraction of drug users in their network and who reported greater emotional closeness to drug using members were less likely to decrease drug use in pregnancy. **Conclusions:** Study findings indicate that relationship type and relational support among pregnant women with OUD's social networks may impact their recovery process.

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## **55. Empowering Psychiatric Mental Health Nurse Practitioners to Expand Treatment Opportunities for Veterans with Opioid Use Disorder**

Jennifer Jones MSN, APRN, PMHNP-BC, PHN; Sherri Borden APRN, MS, ANP - San Francisco Veterans Affairs Health Care System

**Background:** In the US, over 2 million adults have an opioid use disorder (OUD) and overdoses cause one death every 20 minutes. Veterans Affairs (VA) patients have twice the rate of fatal overdose compared with the general population. Treatment with buprenorphine decreases mortality by 50%; however, only 10% of those needing treatment have access to it. The Comprehensive Addiction and Recovery Act empowers nurse practitioners with waiver training to expand access to treatment by prescribing buprenorphine. Often marginalized from primary care services, the emergency setting (ED) is an important point of care for patients with OUD. ED initiated buprenorphine with coordinated follow-up is more effective in engaging patients in treatment than referral and brief intervention alone. **Objectives:** Determine feasibility and acceptability of psychiatric mental health nurse practitioners (PMHNP) initiating buprenorphine in the San Francisco VA psychiatric emergency services department (PES) to treat Veterans with OUD. Identify PMHNP attitudes, current clinical practice, willingness, and identified barriers to providing buprenorphine treatment. Educate PMHNPs about medication-assisted treatment training and process to obtain waiver. **Methods:** Survey eleven PMHNPs in PES then provide education about the effectiveness of initiating buprenorphine in emergency settings. Perform a needs assessment to identify barriers to implementing buprenorphine treatment. Distribute a flyer describing how to obtain the waiver and frequently asked questions about the process. **Results:** Last year 40% visits to PES were for a substance use disorder. PMHNPs believe offering buprenorphine in PES is important, but currently do not do so and identified lack of training as a barrier. Three of the eleven surveyed have the waiver and eight did not know about the free waiver training. After receiving education, two are in the process of obtaining the waiver and three plan to do so within a year. **Conclusions:** PMHNPs can act as agents of change to eliminate disparity between patients with OUD and access to treatment. PMHNPs in the PES believe it is important to provide buprenorphine treatment, but want more education. After learning about the process to obtain a waiver, PMHNPs are enthusiastic to complete the training. Next steps include engaging administrative stakeholders and developing a plan to implement this practice change.

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## **56. The Application of Expectancy Theory: A Campaign to Reduce College-Age Binge Drinking.**

Carol S. Drolen PhD<sup>1</sup>; Delynne Wilcox PhD, MPH<sup>2</sup> – 1. University of Alabama School of Social Work; 2. University of Alabama Dept. of Health Promotion and Wellness

**Background:** Binge drinking on college campuses is a problem. Grounded on social expectancy theory, this research attempted to alter positive expectations when using alcohol to excess. **Objectives:** Student designed

and student run activities gave opportunities to inform participants of the definition of binge drinking and its potential consequences. Drinking cessation was not the ultimate goal, rather the LTUT campaign focused on measuring student awareness for undesired results of alcohol consumption, perilous or embarrassing consequences from over consumption of alcohol, and knowledge of harmful effects of binge drinking.

**Methods:** A campus wide six week campaign consisted of several events, such as sober dodgeball, spring break parties, blasts on social media which included education re: calorie intake, cognitive changes with increased alcohol consumption. Students completed a 36 item objective questionnaire before and after the events.

**Results:** Data from 688 students were analyzed through SPSS cross-tabs and chi-square. The predominant participant was a first year undergraduate white female, non-Greek, age 19. After the campaign, 36% of items from the AEQ-A social behavior scale showed a significant change ( $p < .039$ ) in negative expectancies across several items: alcohol makes party fun, alcohol tastes good, alcohol gets people in good moods, and people are friendlier when they drink alcohol. Also, 13% more participants were able to define binge drinking.

**Conclusions:** These results suggest that when messages (including the use of humor) about drinking created by peers, shared via social media and events attended by the target population, we find a modification in desired beliefs about binge drinking. The findings also suggest that while change in beliefs/attitudes cannot occur at a 100%, perhaps more simple frequent interventions might have similar outcomes. The campaign may be replicated and hopefully produce similar or better results.

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## **57. Usability Pilot Testing of the Hey, Charlie mHealth Application**

Christopher Shanahan MD, MPH; Christopher Baker; Lisa Rullie; Ben Pyser; Vincent Valant; & Emily Lindemer PhD – Boston University School of Medicine

**Background:** Hey, Charlie is a mobile application that helps individuals with substance use disorder (SUD) avoid environmental triggers using notifications. Mobile applications have been shown to aid recovery, and it is well-known that environmental triggers are a major challenge for the SUD population. Understanding how the end-user interacts and experiences an app interface over a period of time is critical to adoption in a real-world setting. **Objective:** This on-going study is a usability and user experience evaluation of the Hey, Charlie mobile application. **Methods:** Participants were recruited from a Boston Medical Center affiliated addiction medicine clinic and were required to have their own Android smartphone. Onboarding was performed by a researcher taking standardized notes on interface usability. Participants received onboarding, mid-term and final interviews about their experience with the app. Participants received a \$10 gift card at enrollment after completing the 30-minute onboarding and a second one at completion of the study for participation in the midterm and exit interviews, and continued answering of at least 4 of 7 real-time notifications. **Results:** To date, nine individuals have been onboarded with the Hey, Charlie mobile app, five completed the mid-term interview, and three completed the final interview. All participants (100%) stated that they felt positive about having an app to help with their recovery, and seven (78%) stated that they would have no concerns with discussing their phone contacts with their clinician. All participants (100%) found the user interface of the Hey, Charlie app to be easy to use during the onboarding process. Some technical issues were reported, but all participants stated that they would recommend the app to others in recovery. All participants (100%) reported willingness to recommend app to others in recovery and reported that the app helped them “keep their sobriety at the front of their mind.”

**Conclusions:** These results suggest that individuals in recovery for SUD would use a mobile application to help with recovery. Feedback given by this study’s participants will be made to improve usability/user experience, allowing participants to onboard themselves in the future. Future work will assess the relationship between Hey, Charlie use and clinical endpoints relevant to recovery.

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## **58. Chronic Pain Management Interdisciplinary Team Initiative for Adults Living with Human Immunodeficiency Virus**

Gina Colleen Dobbs MSN, CRNP<sup>1</sup>; Susanne Astrab Fogger DNP, PMHNP-BC, CARN-AP, FAANP<sup>2</sup> – 1. University of Alabama at Birmingham; 2 University of Alabama at Birmingham School of Nursing

**Background:** People living with Human Immunodeficiency Virus (PLHIV[HIV]) and chronic pain (CP) embody problems emblematic of poor quality of life: depression, serious mental illness, history of childhood trauma, active or inactive substance use disorder (SUD). CP treated with opiates necessitates close monitoring to prevent and manage opiate harms: dependence, misuse, diversion, overdose, and opioid use disorder. Clinical guidelines for CP management advocate interdisciplinary teams to coordinate and manage care. A University based HIV Clinic provides on-site, specialty care, which includes Pain-Palliative. Objective: An improvement project establishes CP care with an interdisciplinary team experienced in Pain-Palliative care: nurse practitioner, medical social worker, clinical nurse specialist, and pharmacist. The objective of CP management is to improve the quality of life for PLHIV and CP. **Methods:** Using Shewhart's and Deming's (1986) Model for Improvement, the team executes iterative plan-do-study-act cycles to enhance care delivery using evidence-based practice guidelines. The "Pain average," and pain interference with "Enjoyment of life" and with "General activity" (PEG) assessment multifaceted tool is collected at each encounter visit to evaluate pain over time and measure quality of life. **Results:** Of 27 patients followed, the mean age is 48 years ( $\pm 10$ ) with 11 female, 14 male, and 2 transgender. Most patients are disabled (N=13) and have a high school degree (N=11). Significant problems associated with opiates are prevalent: SUD (N=12); depression (N=19); anxiety (N=14); serious mental health disorder (N=9); illicit on urine drug screening (N=13); and multiple prescribers of controlled drugs (N=8). Mean initial PEG score for those seen by at least two visits is 7.5; the mean subsequence PEG score is 6. **Conclusions:** PLHIV with CP exhibit factors contributing to poor quality of life: SUD, depression, anxiety, serious mental illness, and aberrant behaviors associated with problems with opiates. A 20% improvement in mean PEG scores occurred during the interdisciplinary team initiative for this improvement project. Managing CP with the present opioid crisis and scarcity of provides requires creativity and innovation.

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## 59. Before and After: Interdisciplinary Perceptions of Barriers to Using SBIRT

Elizabeth Wacker MA; Shauna Rienks PhD; Deborah Chassler MSW; Stephen Brady PhD; Mena daSilva-Clark MSW, MPH, PhD; Sae-Mi Jeon MA; & Lena Lundgren PhD - University of Denver

**Background:** Screening, brief intervention, and referral to treatment (SBIRT) is an evidence-based approach for assessing substance misuse. Although professionals such as social workers, therapists, and psychiatrists are in ideal positions to conduct SBIRT, few receive adequate training. **Objectives:** To increase the number of professionals trained in SBIRT, a large university was funded by SAMHSA to deliver SBIRT training to master's in social work (MSW) students, mental health counseling students, and psychiatry residents. **Methods:** A four-hour SBIRT training was delivered via an online course for MSW students, including videos, lectures, and exercises; and in-person seminars for mental health counseling students and psychiatry residents, which included skills practice. Participants (n = 283) completed pre-post evaluation surveys. This presentation explores students' pre-post perceptions of barriers to SBIRT use. Nonparametric statistical analyses assessed change over time and between groups. **Results:** At baseline, the most prevalent barrier to SBIRT use was lack of places to refer patients (33% of respondents agreed or strongly agreed this was a barrier). Compared to other groups, psychiatry residents initially expressed greater concern that SBIRT takes too long,  $\chi^2(2) = 6.43$ ,  $p = .04$ . MSW students perceived the lack of role models using SBIRT to be a greater barrier than did the other groups,  $\chi^2(2) = 13.54$ ,  $p < .01$ . Psychiatry residents' views of barriers remained consistent over time, while MSW students experienced pre-post decreases regarding beliefs that screening takes too long,  $Z = -2.09$ ,  $p = .04$ , that there are too many legal/documentation issues,  $Z = -3.38$ ,  $p < .01$ , and that clients would be angry with them for screening,  $Z = -3.39$ ,  $p < .01$ . Counseling students showed decreased concern about places for referral,  $Z = -2.44$ ,  $p = .02$ , legal issues/documentation,  $Z = -3.04$ ,  $p < .01$ , and clients being angry,  $Z = -2.37$ ,  $p = .02$ .

**Conclusions:** MSW and counseling students' perceptions of barriers to SBIRT use decreased after training, while psychiatry residents perceived different and/or greater challenges, which did not change after training. Discussion will focus on how these results can be used to help students across disciplines overcome barriers and integrate SBIRT into practice.

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## **60. Substance Use Screening, Brief Intervention and Referral to Treatment (SBIRT): A Self-Paced Online Program**

Yovan Gonzalez, RN, MSN, DNP Student<sup>1</sup>; Deborah S. Finnell, DNS, CARN-AP, FAAN<sup>1</sup>; & J. Paul Seale, MD<sup>2</sup> – 1. Johns Hopkins School of Nursing; 2. Navicent Health

**Background:** Future health care providers are being educated on how to detect substance use among the general population, how to identify the risk level and how to intervene accordingly. However, many current healthcare providers lack the knowledge and skills to deliver SBIRT in practice. Continuing education needs to be feasible for healthcare providers to obtain during their day-to-day practice. An online program was developed to address this gap. The program provides information about each component of SBIRT and motivational interviewing strategies used to promote health behavior change. **Objective:** To pilot test a 7-module, self-paced, on-line SBIRT program that is feasible for practicing healthcare providers.

**Method:** A systematic instructional design model was used to guide the development of this program, consisting of five phases: (1) Analysis, (2) Design, (3) Development, (4) Implementation, and (5) Evaluation (ADDIE). The program was developed for healthcare providers who have little knowledge of SBIRT and for those who seek to reinforce their knowledge. Prior to full dissemination at learn.nursing.jhu.edu/SBIRT, a pilot test was conducted for the evaluation phase with n=6 nurses, half of whom had little or no expertise in SBIRT. Each learner completed a pre- and post-test as part of the program and recorded the amount of time to complete each module. **Results:** There was no significant difference between the pre- and post-test scores. The time to complete modules had one outlier who reported more time for each module compared with the other evaluators. The mean time in minutes to complete each of the six modules was used to inform the continuing education application: 5 minutes for the first module, 10 minutes for the second module, and 20 minutes for the remaining five modules. **Conclusions:** This multi-module program is feasible for nurses to complete in brief installments and there is an incentive given the 1.9 continuing education credits provided. The goal for this self-paced online program is to increase the numbers of registered nurses and other healthcare providers who deliver SBIRT, support SBIRT implementation, and sustain SBIRT delivery as standard care within their respective settings.

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## **61. Developing a Protocol for Medication Assisted Treatment of Opioid Use Disorder with Buprenorphine in an Internal Medicine Residency Primary Care Clinic**

Joseph Boyle, MD; Dale Terasaki, MD, MPH; Kevin Depner, MD; & Elisabeth Ihler, MD - University of Colorado School of Medicine

**Background:** Combatting the nation-wide opioid addiction and overdose epidemic will require medication assisted treatment (MAT), especially in primary care settings. We began developing a protocol for buprenorphine initiation for low risk patients with opioid use disorder at a residency based primary care clinic in Denver to both contribute to the public health response and assist residents in prescribing MAT for opioid use disorder. **Objective:** We sought to develop a protocol for office-based MAT at a resident clinic in order to promote and assist primary care internal medicine residents to diagnose and treat opioid use disorder.

**Methods:** A four member quality improvement team met approximately monthly to develop and implement a MAT protocol. An online survey was developed to assess baseline resident attitudes and comfort with buprenorphine prescription for MAT. The same survey was administered after residents reviewed the protocol. Questions assessed understanding and attitudes about MAT in clinic on a 5 point Likert scale. Additional multiple choice questions measured resident knowledge of treatment protocols. Pre and post-survey results were compared using paired t-test. **Results:** The pre and post-surveys were completed by 40% of eligible residents. After reviewing the protocol, residents were more likely to recognize that patients on their panel suffer from opioid use disorder ( $p=0.04$ ) and more likely to feel comfortable prescribing buprenorphine ( $p=0.03$ ). There was no significant change on the knowledge assessment. **Conclusions:** Developing a clinic protocol for MAT increases the likelihood of diagnosis of opioid use disorder and resident comfort with MAT in an internal medicine resident primary care clinic.

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## **62. Prescription Opioid Misusers Are Interested in Obtaining Nalaxone**

John Cunningham PhD - Centre for Addiction and Mental Health

**Background:** In the last two decades, there has been a significant increase in the use of prescription opioids and a concomitant rise in opioid overdoses. Such overdoses are not restricted to high risk opioid misusers in large population centers but are instead distributed across both rural and urban regions, and all demographic strata. Recognizing the need to provide tools to combat the high rates of opioid overdose, there have been substantial efforts to increase the availability of naloxone through public health distributions and through pharmacies. One key unanswered question, though, is whether prescription opioid misusers are interested in obtaining naloxone.

**Objective:** To assess level of interest in obtaining naloxone among current prescription opioid misusers.

**Methods:** An online survey was conducted, advertising for participants 18 or older, to answer questions about

'their experience with using pain medications and other opioids' (\$10 payment). **Results:** About half of participants (53%) said that they would be interested in obtaining naloxone if it were available free of charge (42% interested in intramuscular, 53% interested in nasal spray). Participants experiencing current opioid overdose symptoms were more likely to be interested in naloxone than those who had not experienced symptoms in the last year (69% vs 45%, p = .03). **Conclusions:** There are large numbers of current prescription misusers who are interested in accessing naloxone. Increasing the accessibility of naloxone is an important means of reducing prescription opioid overdose.

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## **63. Mental Health and Opioid-Related Risk at 4 Weeks Post-Discharge Following Traumatic Injury: A Prospective Study**

Bailee Stark BS; Christopher Nicholas PhD; Bri Deyo MPH; & Randall Brown MD, PhD - University of Wisconsin School of Medicine and Public Health

**Background:** The opioid epidemic is a growing problem in the United States. Victims of traumatic injuries and persons with mental health issues are at particular risk for opioid-related complications, yet the relationship between mental health and opioid-related risk following traumatic injury has not been investigated. **Objective:**

The current study aims to examine the relationship between mental health measures, specifically anxiety and depression measures, and opioid-related aberrant behaviors in victims of traumatic injuries. **Methods:** 57 participants were recruited from the University of Wisconsin Hospital, a Level 1 Trauma Center, following traumatic injury. Mental health was assessed via depression and anxiety surveys (PHQ-9 and GAD-7, respectively) at baseline. Opioid-related risk was assessed via survey [Current Opioid Misuse Measure (COMM)] 4 weeks post-discharge from the hospital. Multiple regression analysis was used to assess the

relationship between these factors. **Results:** Multiple regression analysis, while controlling for age, revealed that both PHQ-9 and GAD-7 were independent predictors of COMM score 4 weeks post-discharge (p = 0.002 and p = 0.001, respectively). When both PHQ-9 and GAD-7 were included in the same model, GAD-7 was a stronger predictor of COMM scores (p = 0.028). **Conclusions:** The results suggest that persons with mental health issues, especially anxiety, are significantly more likely to exhibit opioid-related risk at 4 weeks following discharge after a traumatic injury compared to persons without mental health issues. This should give rise to future preventative clinical measures, including screening, diagnosis, and intervention, in this at-risk population.

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## **64. Schedule II Opioid Analgesic (OA-II) Prescription Patterns in a Cohort of New York City Residents Exposed to Chronic Opioid Prescribing, 2013-2016**

Charles Ko MPH; Michelle L. Nolan MPH; Ellenie Tuazon MPH; Hillary V. Kunins MD, MPH, MS; & Denise Paone EdD - NYC Department of Health and Mental Hygiene

**Background:** Exposure to chronic opioid prescribing may lead to development of a substance use disorder and difficulty terminating chronic opioid therapy. Little is known about the patterns of prescription filling and time to discontinuation of opioid use among individuals exposed to long term opioid therapy in New York City (NYC). **Objective:** To describe patterns of OA-II prescription filling and time to discontinuation of opioid use

among individuals exposed to chronic opioid prescriptions in NYC. **Methods:** Using the New York State Prescription and Drug Monitoring Program (PDMP), we identified individuals who filled at least one OA-II prescription in 2013. Next, we created a cohort of individuals exposed to chronic opioid prescribing in 2013, which we defined as filling an OA-II prescription in at least three out of four consecutive months. We followed individual's OA-II prescription history and censored all individuals at 32-months. We flagged each month as either being part of a four month consecutive OA-II prescription or not, creating a unique sequence for each individual that represented their OA-II prescription history. We created a matrix that quantified each unique sequence's dissimilarity to every other sequence. Dissimilarity was quantified using the Hamming method, which assessed the number of positions between two sequences that differ. Using the dissimilarity matrix, we assigned individuals into one of 3, 4, 5, and 6 groups, with similar sequences assigned to the same group. We determined the optimal number of groups based on best fit and clinical meaningfulness. **Results:** In 2013, 691,328 NYC residents filled at least one OA-II prescription, with a cohort of 136,823 (19.8%) exposed to chronic opioid prescriptions. Sequence analysis identified five groups of prescription patterns: immediately discontinuing OA-II prescriptions (46.3%), discontinuing around 12-months (10.7%), discontinuing around 24-months (7.8%), 32-months of continuous OA-II prescriptions (31.4%), and reoccurring consecutive episodes (3.9%). **Conclusion:** Of the individuals exposed to chronic opioid prescriptions in 2013, many filled OA-II prescriptions consecutively for 32-months (31.4%). Sequence analysis also identified a small percentage of individuals (3.9%) who discontinued chronic opioid prescriptions, but subsequently reinitiated. Given the risks associated with long-term OA-II use, clinicians should avoid initiating chronic opioid prescriptions.

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## 65. Role of Physicians in Preventing Opioid Use and Misuse in Women

Joshua S. Coren DO, MBA, FACOFP; Joanna Petrides PsyD; Jennifer Ehala MPH, CHES; Ken Staglianno PhD; & Jennifer Marie Keefer MPH, CHES - Rowan University School of Osteopathic Medicine

**Background:** The U.S. is currently facing an opioid crisis attributed to poor opioid prescribing practices and pharmaceutical marketing campaigns advertising long-term chronic pain relief (1-3). Researchers have found that female overdose deaths have increased dramatically in recent years with more than 400% increase among women between 1999 and 2010 (4). Strategies to reduce opioid addiction and overdose deaths includes opioid education to medical school students and practicing physicians on opioid prescribing in both upstream and downstream interventions(5). However, many medical programs fail to recognize gender as an important determinant of risk of overdose within the opioid epidemic. Women disproportionately experience stigma, physical and sexual trauma, differential treatment, and bear a larger behavioral burden compared to men (6). Moreover, women of reproductive age are more likely to report pain and receive opioid prescriptions (6). This places females at an increased risk for opioid abuse and overdose deaths. In light of these factors, it is important for opioid education to focus on the increasing gendered dynamic of the opioid crisis. Therefore, our study will explore the impact of a comprehensive didactic intervention with gender-responsive trauma-informed care in prescribing opioids for women. **Objective:** Objectives include (1) improving opiate prescribing practices for woman by training medical students and resident physicians on CDC guidelines for prescribing opiates, (2) increase use of naloxone in women through naloxone training to medical students, resident physicians, and high-risk women in the community, and (3) expanding the use of medication-assisted treatments for women by utilizing a Screening, Brief Intervention, and Referral to Treatment (SBIRT) approach. **Methods:** Perform a systemic analysis of opioid education curriculum. Results of a pre-/post knowledge, skills, attitude and intention (KSAI) survey will be collected in Qualtrics and will use t-test analyses to compare two groups, test and control, on statistical significance. **Results:** The systemic analysis yielded zero peer-reviewed opioid education focused on gender. We will compare the efficiency of program intervention in the Fall of 2018. **Conclusion:** There is an unmet need for gender-responsive trauma-informed care in opiate prescribing an prevention.

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## **66. Neurocognitive Disorders and Mental Illness: A Review of Current Epidemiology and Evidence Based Treatment**

Sarah Dobbins RN, MPH, MSNc - UCSF School of Nursing

**Background:** Older adults with serious mental illness and substance use disorders are at higher risk for developing neurocognitive disorders (NDs) (formerly called dementias). PTSD, substance use, and past psychotropic medication use put individuals at even higher risk for ND. Due to significant symptom overlap, the diagnosis and treatment of those living with mental illness is difficult and, as a result, cognitive impairment is under-addressed.

**Learning Objectives:** Current epidemiology about NDs and mental illness will be presented and discussed. Three cases of older adults with serious mental illness and substance use disorders will be used to illustrate and discuss the clinical challenges in addressing NDs in vulnerable populations.

**Case Presentations:** 1) Mr. Blue: 56 y/o male, formerly homeless, hx cocaine, hx depression/anxiety (treated with several different SSRIs); Hypertension, hyperlipidemia, BMI >40; displaying personality changes, calls 911 several times a week because he states his face is melting and his eyes are bleeding.

2) Ms. Packer: 49 y/o female, unstably housed in an SRO, significant hx of polysubstance use and seizure disorder, experiencing memory issues and executive functioning deficits; experiences voices and visual hallucinations, and has delusional thought content about sexual assault, people coming in and out of her room, perseverates about sex/intimacy/relationships. She's had many falls and head injuries due to seizures, but is adherent to daily medications and engages with support staff.

3) Mr. Leslie: 62 y/o male living with HIV, late-life onset of depression, PTSD, generalized anxiety and panic disorder, currently uses meth primarily, hx of opiates use. Engaged in care but cannot make appointments, polypharmacy.

**Discussion:** People who actively use substances and who are unstably housed are some of the most vulnerable aging people, and also the most difficult to obtain resources for. Strong evidence suggests that anxiety and depression are independent risk factors for NDs, however the underlying causes and etiology are still debated. Other serious mental illness, HIV, PTSD, and substance use contributes to the occurrence of NDs. There is contradictory information about the risks/benefits of antidepressants in older adults. It is important to have an updated understanding of the current scientific evidence and clinical challenges in caring for our aging communities.

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## **67. Utilizing Enjoyable Activities to Improving Distress Tolerance and Increase Insight in Treating Substance Use: A Case Study**

Cara Poland MD, MEd; Kayla VanderStel BS; Kelly Strutz PhD; Heather McCauley ScD; Mahima Karki BA; Julia Felton PhD; & Kathryn Barnhart PhD - Michigan State University & Spectrum Health

**Background:** Patients with suboptimal response to stress, including emotional dysregulation and anxiety sensitivity are less successful in substance use recovery. These individuals will use substances to improve their

affect. Likewise, emotional distress can also increase substance use. This case explores how using preferred activities can increase emotional tolerance and improve outcomes in the treatment of substance use.

**Learning Objectives:** 1. To review current literature on negative reinforcement models in substance use disorders focusing on stress response. 2. To explore the potential role of emotion regulation and distress tolerance as a means to improve treatment of substance use disorders.

**Case Presentation:** A 60 year old female with mild depression and opioid use disorder on agonist treatment endorsed not finding enjoyment without opioids. She struggled with racing thoughts and feelings of disconnectedness. She began isolating herself because she did not think she was fun without opioids and becomes upset, nervous and distressed in social situations.

Historically, the patient crocheted blankets and she decided to re-start this hobby. Initially, she struggled with focusing and completing a blanket. When she broke the project down into smaller pieces, she was more successful. This hobby ended up being a metaphor the patient developed to help her understand her substance use. She noted that the crocheting helped calm her racing thoughts and it helped her feel that she was doing something productive for her family. She began connecting the colors she was crocheting with to her emotions. As the colors changed, she recognized that her behavioral health was improving.

Without realizing it, the patient was expressing insight into her disease process while also utilizing healthy coping skills to increase her tolerance to distress by focusing on the rhythmicity of her crocheting.

**Discussion:** Distress is debilitating for individuals with a substance use disorder and working on coping skills can be of benefit. This case shows that focusing on seemingly unrelated distress tolerance skills, like crocheting for this patient, helped her manage her emotions and decrease her substance use.

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## **68. Unconscious Attitudes in Substance Use: Implicit Bias Towards “Substance Abusers”**

Robert D. Ashford MSW; Brenda Curtis PhD - University of the Sciences

**Background:** Previous research has found initial evidence that word choice impacts the perception and treatment of those with behavioral health disorders. These previous studies have relied on vignette-based methodologies, however, and a more quantifiable index of the stigma words can produce is needed. **Objectives:** To identify implicit associations of previously identified words/phrases in the substance use disorder field that elicit explicit bias (e.g. substance abuse). **Method:** The current study uses the Go/No-Go Association Task to calculate a d-prime (sensitivity) indexed score of automatic attitudes to two terms, “substance abuser” and “person with substance use disorder”. **Results:** Participants have significantly more negative automatic attitudes towards the term substance abuser, as compared to “person with a substance use disorder”. **Conclusion:** Consistent with previous research, implicit bias does exist for terms commonly used in the behavioral health field. “Substance Abuser” and its derivatives should not be used in professional or lay settings.

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## **69. Rural Peer-Based Emergency Room Programs: Initial Outcomes for Peer Engagements for Patients with Substance Use Disorder**

Robert D. Ashford MSW<sup>1</sup>; Matthew Meeks BS; Austin Brown MSW<sup>2</sup> – 1. University of the Sciences; 2. Kennesaw State University

**Background:** The current opioid crisis has necessitated innovative, grassroots social entrepreneurship from stakeholders involved in the substance use disorder and recovery fields. One such innovation involves the use of peer recovery support services in acute settings where points of contact are made with high-risk substance using populations. These programs have emerged organically across the country and the Georgia Council on Substance Abuse Certified Addiction Recovery Empowerment Specialist (CARES) program is a rural adaptation in a non-Medicaid expansion state. **Objectives:** This study reviews initial data from the CARES program in three rural emergency departments in Georgia. **Methods:** De-identified data from patients was analyzed to identify descriptives and patient outcome variance across demographic variables. Pearson chi-square and Monte Carlo chi-square tests were used for analysis. **Results:** Participants (N = 236) had a mean age of 40.59 years (SD = 13.62), with the majority being male (64.8%), white/caucasian (93.5%), single (61.8%),

and with a household income level of \$0 - 24,999 (78.4%). Most participants were also uninsured (57.7%). Over the previous 12-months, participants had visited an emergency room an average of 1.66 times (SD = 2.345). Patients engaging in the CARES program used a variety of substances regularly, with the most common being alcohol (57.8%), methamphetamine (28.9%), and prescription opioids (18.2%); the least common substance regularly used was cocaine (9.3%). Patient insurance status, substance regularly used, and previous ER visits were significantly related. **Conclusions:** This study demonstrates that peer interventions can be beneficial for all types of drug use, not just for individuals who experience accidental opioid drug poisoning (i.e. overdose). Additionally, results suggest that both clinical and community-based supports can be utilized for referrals to appropriate levels of care. These findings also highlight the need for, and potential engagement efficacy of, innovative and adaptive peer recovery support programs in rural emergency department settings across the United States.

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## **70. Transition to Extended-Release Naltrexone From Buprenorphine in Individuals With Opioid Use Disorder in a Hybrid Residential-Outpatient Setting**

Antoine Douaihy MD; Paolo Mannelli MD; Sarah Akerman MD; Miao Yu PhD; Jandira Ramos MPH; Elizabeth Amoroso BA; Abigail Zavod MD; & Maria Sullivan PhD - Department of Psychiatry, Western Psychiatric Institute & Clinic, University of Pittsburgh School of Medicine

**Background:** High rates of relapse have been reported following taper from buprenorphine (BUP). Extended-release naltrexone (XR-NTX), an opioid antagonist, can be a tool to prevent relapse following BUP discontinuation. Currently, clinical guidance is lacking for individuals with opioid use disorder (OUD) seeking to transition from agonist to antagonist therapies. **Objective:** To evaluate two regimens for transitioning individuals with OUD maintained on BUP ( $\geq 3$  months) to XR-NTX and to present supportive strategies for induction. **Methods:** In this multicenter phase 3 study (N=101), participants were randomized (1:1) to receive oral NTX+BUP (NTX/BUP) or placebo+BUP (PBO-N/BUP). Participants stabilized on BUP  $\leq 8$  mg in an outpatient setting received 7-day residential treatment with low, ascending doses of oral NTX or PBO-N in conjunction with a 3-day BUP taper. Ancillary medications and daily psychoeducational counseling were provided to alleviate withdrawal symptoms. Following a negative naloxone challenge, participants received XR-NTX (Day 8) and were discharged from the residential setting. The primary endpoint was the proportion of participants who received and tolerated XR-NTX (COWS  $\leq 12$  or SOWS  $\leq 10$ ). Prior to the study, didactic and interactive training was administered to study sites on clinical assessments and physician/patient interactions. Learning assessments were conducted to ensure that the training objectives were met. During the study, monthly medical calls and supportive in-person site visits were held to address site questions. **Results:** Rates of induction onto XR-NTX were similar for both regimens: 69% (NTX/BUP) vs 76% (PBO-N/BUP) ( $P=0.407$ ). Although the primary endpoint was not met, the overall induction rate was 72%. At sites enrolling  $>5$  participants, the range of successful induction was 60–83%. Clinical strategies beyond the protocol varied by site. **Conclusions:** Treatment with a brief BUP taper plus ancillary medications and psychoeducational counseling is a well-tolerated approach. The addition of low, ascending doses of oral NTX to the regimen did not increase the rate of transition from BUP maintenance to XR-NTX. The successful implementation of this induction regimen may have been in part due to training across the healthcare provider team and use of behavioral interventions and other strategies beyond medications to assist participants in the induction process.

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## **71. Patient-centered Language in the Alcohol and Alcohol Problems Perceptions Questionnaire (AAPQ): A Confirmatory Factor Analysis**

J. Aaron Johnson PhD; Yunmi Chung MPH; Dawn Lindsay PhD; Rachael Vargo BS; Tamar Rodney PhD, RN; Ann M. Mitchell PhD, RN; Jenna Brager PhD(c), RN; Christine L. Savage PhD, RN; Kadejah Mahmoud PhD(c), RN; & Deborah Finnell DNS, RN – Augusta University

**Background:** The Alcohol and Alcohol Problems Perception Questionnaire (AAPQ) was initially validated in 1980 using language that reflected the time period.<sup>1</sup> Over the past decade there has been an increasing emphasis

on moving away from pejorative or stigmatizing language, particularly as it relates to alcohol use. As part of data collection efforts associated with several SAMHSA-funded screening and brief intervention training grants, researchers changed the initial wording of the APPQ to reflect more up-to-date, patient-centered language. **Objective:** The objective of this research was to examine the factor structure of the APPQ after revisions to reflect this patient-centered wording. **Methods:** Data were derived from baseline surveys collected from seven cohorts of baccalaureate nursing students across three programs prior to completing modules on alcohol screening and brief intervention. Like the original APPQ, the revised APPQ included 30 items asking students to indicate their level of agreement with statements about working with patients who use alcohol. The sample was randomly divided into two data sets for exploratory factor analysis (EFA, n=286) and confirmatory factor analysis (CFA, n=337). The EFA solution (S1) was compared to the original solution (S2) in a CFA. Analyses were conducted using SPSS Statistics 25 and SPSS Amos 25 Graphics. **Results:** Findings from exploratory factor analysis provided evidence for a six-factor solution, based on principal axis factoring (PAF) with oblique (Promax) rotation. The forced six-factor PAF replicated some of the original factor structure of the APPQ. In the CFA results for S1 and S2, the model fit indices were acceptable ( $\text{RMSEAS1} = .072$ ,  $\text{RMSEAS2} = .078$ ) and had near good fit values ( $\text{CFIS1} = .832$ ,  $\text{CFIS2} = .806$ ). **Conclusions:** The goodness of fit indices suggest the six-factor structure of the original APPQ fit the data from the revised APPQ reasonably well. Though the EFA suggested a slightly different factor structure, the CFA of this structure yielded fit indices that were similar to the original.

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## 72. Workwise: Online Learning for the Behavioral Health Workforce

Joyce Hartje PhD; Wendy Woods MA; Terra Hamblin MA; & Nancy Roget MS - University of Nevada Reno

**Background:** Delivering behavioral health treatment and recovery support using technology can expand services and improve patient outcomes, especially in rural/frontier areas. Research on adult learning, evidence-based practices adoption/implementation, and workplace learning (e.g., Leathers et al., 2016) shows that training alone rarely changes practice behavior. To align with these tenets, it was posited that a new training/technical assistance model linking training to other services (e.g., expert consultation, performance feedback, peer support, reminders, and case studies) could dramatically improve training outcomes. The new model, called Workwise, is an online series that provides participants interactive instructional/consultation activities, including virtual interactive training, real-time skill-based learning and practice, group and self-study activities, reading assignments, and discussions on topics essential to increasing knowledge, building skills, and changing practice through the adoption of evidence-based and promising practices. **Objectives:** Following this presentation, participants will be able to discuss the benefits of using technology-based interventions in practice.

**Methods:** Each Workwise series is an online interactive training and consultation initiative on treatment and recovery-related topics. The target population is individuals who: work in behavioral health, substance use disorders, or recovery support; support the use of technology-based interventions; can commit to participate for the length of the training (i.e., 4–8 weeks); and have access to technology appropriate to using the online videoconferencing platform. Participants complete pre-post-follow-up web-based surveys to assess their technology-related experience, knowledge, attitudes, and the impact of the series on changing and/or enhancing their technology-based practices. **Results:** To date, 192 individuals have participated in Workwise trainings. Findings suggest this type of training format provides opportunities to: 1) explore ethical and legal issues related to using technology; gain hands-on experience and get comfortable using an online platform; and learn from others. 80% said they applied what they learned within 30 days of completing the training. Detailed analysis will be presented. **Conclusions:** The Workwise model of using didactic and hands-on training provides opportunities to practice using technology to deliver services, including managing distractions that can occur during videoconferencing sessions, and receive feedback on how to deliver better technology-based services.

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### **73. A Descriptive Analysis of a Substance Use Consultation Service in an Acute Psychiatric Care Setting in Vancouver, Canada**

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**Background:** In Canada, over 35% of inpatients in acute psychiatric settings have concurrent substance use disorders and mental disorders. In Vancouver, over 57% of acute psychiatric inpatients are known to have concurrent substance use disorders and mental disorders. Providing care to these patients with complex needs is challenging and there is a paucity of evidence to inform care. The Addiction Medicine Consult Team (AMCT) at an acute psychiatric hospital in Vancouver is available to provide specialized, coordinated and interdisciplinary substance use care aimed at improving care outcomes and patient experiences.

**Objectives:** To characterize the population of inpatients receiving care from the AMCT and to describe the care provided in acute psychiatric settings by AMCT.

**Methods:** Retrospective chart review of 45 randomly selected inpatients out of 284 referred to the AMCT between April 30, 2016 and May 1, 2017. Data was analyzed using descriptive statistics. **Results:** The majority of inpatients seen by the AMCT were males, between 25-54 years of age, admitted involuntarily, 47% had two or more medical comorbidities, unstable housing and an unreliable source of income. Inpatients of Indigenous ethnicity were over-represented. The main reason for referral to AMCT was for opioid use and there was significant involvement by the AMCT social worker in care delivery. On discharge, only 27% of inpatients at risk for overdose were provided with a Take Home Naloxone kit.

**Conclusions:** The AMCT is providing a necessary service to a socio-demographically challenged population and the social worker's role is integral to inpatients' care experience and outcomes. There are opportunities to improve care planning for the transition from inpatient to community care as well as opportunities to utilize current evidenced-based practices in opioid agonist therapy consistently to improve patient outcomes.

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### **74. Frequent Users of Substance Use Treatment Services**

Kakoli Banerjee PhD – Santa Clara County Behavioral Health Services

**Background:** The topic of frequent users of health care services such primary care behavioral health, emergency room and inpatient services has been researched extensively (Fondow et al 2017; Heincelman et al 2016). The use of detoxification services has been explored (Chang et al 2016) though not other substance use services. **Objective:** This paper focusses on developing a profile of high users of substance use treatment services. Data from from a large California county's substance use treatment system is used to describe utilization patterns, substance use and demographic profile of frequent users and to identify the factors associated with higher use of substance use treatment services. Utilization of treatment services, which includes outpatient, residential and detoxification services, are analyzed to develop a profile of high users.

**Methods:** High use is operationalized as the top 10% of admissions (2105 admissions out of a total of 20843 treatment admissions) during a 4-year period (2012-16). A logistic regression analysis of high users (compared to other treatment clients) included demographic factors : race/ethnicity, gender, age group, employment status, living situation and referral source (criminal justice versus non-criminal justice) at first admission, and utilization factors such as the number of detoxification and residential admissions, the first modality of service and use of inpatient and emergency room services for physical or mental health problems during the 4-year period.

**Results:** Results showed that 10% of admissions involved more detoxification admissions comparison to the bottom 90% (4.3 vs 1.0), more days spent in residential treatment (29 vs 13 days) and total overall number of days in treatment (118 versus 114 days). Logistic regression results showed a good model fit by the Hosmer Lemeshow test (Chi sq 37.6, df 5, p ,000). The odds of being a high user increased with the number of residential admissions (Exp (b) 2.027), the number of detoxification admissions (Exp (b) 15.5) and criminal justice referral source (Exp(b) 1.417) and decreased with having stable housing (Exp (b) .382). **Conclusions:** Clients with more severe substance use and criminal justice background are more likely to be high users.

## **75. Referral to Outpatient Medication Assisted Treatment From Higher Levels of Care Leads to Improved Stabilization**

Robert C. Sterling PhD; Emily Loscalzo PsyD; Angelo Rannazzisi PsyD; & Meghan Morley M PhilEd - Thomas Jefferson University

**Background:** Methadone maintenance is recognized as an effective treatment for opioid use disorders with improvements in areas of legal status, social/physical functioning, and employment observed (Ball & Ross, 1991; Dole & Nyswander, 1965). Unfortunately stabilization following enrollment can be difficult to achieve (Jaremko et al., 2015). Anecdotally it is our observation that self-referral into outpatient medication assisted treatment (MAT) is frequently associated with less than optimal engagement patterns. **Objectives:** The present study was designed to examine method of referral into outpatient MAT and engagement/stabilization. **Methods:** Twenty individuals entering outpatient MAT at a university sponsored methadone maintenance program served as participants in this study. These individuals reported 13 + 7.06 years of opioid use. Participants were identified as either direct/self-referred (i.e., entering treatment directly from their community) or indirect (i.e., entry was facilitated from a higher level of care). **Results:** Results indicated that the two groups did not differ in duration of opioid use. Not surprisingly, given their pre-admission circumstance, indirect admissions reported significantly fewer days of recent opioid use at admission ( $t(18) = -3.892, p = .001$ ). With regard to metrics related to stabilization, we observed that the indirect admissions received a significantly greater number of milligrams of methadone in their first 90 days of treatment ( $t(18) = -3.822, p = .001$ ). While both groups were dosed an equivalent number of days (approximately 73), the average dose administered to the indirect condition was significantly higher, ( $t(18) = -5.917, p = .000$ ). The dose of direct referrals increased significantly during the first 90 days (approximately 50%) relative to that of indirect referrals, however that was a direct function of their initial dose being lower. Indirect admissions were ultimately more likely to achieve abstinence from opioids,  $X^2(1, N = 20) = 5.05, p = .025$ . Thirty and 90 day survival rates did not differ between the conditions. **Conclusions:** These findings, while preliminary, lead us to question whether traditional self-referral routes of entry into outpatient MAT need to be re-considered. If confirmed on a larger sample, these findings point to a need for inpatient stabilization prior to enrollment in outpatient MAT.

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## **76. Dimensions of Substance Use Disorder Stigma in a Recovery Cohort in WV**

Rajan Masih MD, MPH<sup>1</sup>, Michael Landis, MBA, AADC<sup>1</sup>, Barbra Masih, MS, CRC<sup>1</sup>, & Kabeer Masih, MS<sup>2</sup> – 1. Potomac Highlands Guild, Petersburg, WV; 2. Texas Tech University Paul L. Foster School of Medicine

**Background:** Stigma is a major barrier to people with Substance Use Disorder (SUD) entering treatment and successfully navigating life in recovery. **Objective:** To identify specific dimensions of stigma experienced by people in recovery in WV: we sought to (1) Identify self, social, and structural stigma components experienced by people with SUD and quantify their impact on recovery (2) Identify the scope of stigma in people in recovery (3) determine the dimensions of stigma that serve as a barrier to successful recovery and reintegration.

**Methods:** Cross-sectional postal survey linking responses of randomly sampled people in recovery from SUD. 1000 people in recovery from SUD were given a survey designed to identify important areas of life, work, and social interaction impacted by stigma. **Participants:** A total of 1000 surveys sent to people in recovery. 571 respondents (57.1%) of 1000 eligible individuals were analyzed. **Measurements:** Primary outcome measure was the effect of stigma on life and employment. Key predictors were age, marital status, history of overdose, duration of recovery and drug of choice. **Results:** 63% of the respondents were male (n=360) and 37% were female (n=211). 50% divorced (n=286), 26% single (n=149) and 24% married (n=136). Age of respondents: age of respondents ranged from 15 (n=5) to 62 (n=1), median age was 24 (n=217). Drug of Choice: overall primary drug of choice was heroin 39% (n=226), Oxycodone 21% (n=123), Alcohol 18% (n=105) and Methamphetamine 11% (n=65). Length of recovery: Less than a year 45% (n=258). 1-5 years 40% (n=226). 5-10 years 12% (n=71). 10+ years 3% (n=16). History of overdose: yes 25% (n=144), no 75% (n=427). Where do respondents feel stigmatized? 51% of respondents (n=296) reported stigma at home. The second important area of stigma was related to employment (78% n=443) and background checks (58% n=332). The third important area of stigma was structural involving agencies such as law enforcement (89% n=508) the court

systems (78% n=443), and health care providers and facilities (47% n=270). **Conclusions:** In analyzing the specific dimensions of stigma, 4 themes emerged: Stigma is a barrier to (1) treatment, (2) recovery, (3) social interactions, and (4) reintegration.

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## **77. Prescription Drug Monitoring Program (PDMP) Utilization, Limitations, and Barriers Perceived by Physicians in West Virginia**

Rajan Masih MD, MPH<sup>1</sup>, Michael Landis, MBA, AADC<sup>1</sup>, Barbra Masih, MS, CRC<sup>1</sup>, & Kabeer Masih, MS<sup>2</sup> – 1. Potomac Highlands Guild, Petersburg, WV; 2. Texas Tech University Paul L. Foster School of Medicine

**Background:** Prescription Drug Monitoring Programs (PDMP) can have a significant impact on opioid prescribing and drug diversion. **Objective:** we sought to (1) estimate the PDMP impact on detection of drug diversion (2) approximate the scope of PDMP utility and (3) determine the barriers to PDMP use. **Methods:** Design Cross-sectional postal survey linking responses of randomly sampled physicians within specialty and registration strata. Participants: A total of 1000 surveyed physicians stratified into two subpopulations: PDMP non-registrants, and PDMP registrants. 635 respondents (63.5%) of 1000 eligible physicians were analyzed. Measurements: Primary outcome measure was PDMP use. Key predictors were clinic characteristics, including type of practice, years in practice, and number of employees. **Results:** No response-wave bias was identified. Of the 635 respondents 611 (96.22%) were registered with the WV PDMP and 24 (3.78%) were not (all VA physicians). Respondents querying the PDMP every time before prescribing opioids: sometimes 422 (66.46%), always 84 (13.23%), never 129 (20.31%). Ability to detect doctor-shopping on PDMP: sometimes 439 (69.13%), yes 151 (23.78%), no 45 (7.09%). Ability to detect pharmacy-hopping on PDMP: sometimes 315 (49.61%), yes 203 (31.97%), no 117 (18.43%). Sharing PDMP data with patients: sometimes 139 (21.89%), yes 75 (11.81%), no 421 (66.30%). Usefulness of the PDMP: very 380 (59.84%), somewhat 246 (38.74%), not useful 9 (1.42%). Barriers to use: difficult to access 599 (94.33%), time consuming 384 (60.47%), not integrated with EMR 51 (8.03%), limited access to surrounding states 91 (14.3%). In multivariable analysis after adjusting for key clinic characteristics, practicing at a managed care organization was associated with lower PDMP use [incidence rate ratio (IRR) = 0.19, 95% confidence interval (CI) = 0.05–0.73]. **Conclusions:** In this survey of WV physicians, most respondents reported that PDMP improved their opioid prescribing by decreasing prescription amounts and increasing comfort with prescribing opioids. Most physicians reported utility of the PDMP in detecting doctor-shopping and pharmacy hopping, thereby, reducing prescription drug diversion. Common barriers to PDMP use included not knowing about the program, registration difficulties and data access difficulties. Improving ease of access can potentiate enhanced use of the PDMP.

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## **78. Antibiotics After Missing The Vein? A Discussion of Recognition, Treatment, and Prevention of Skin and Soft Tissue Infections Among Persons Who Inject Drugs**

Dale Terasaki MD MPH - University of Colorado

**Background:** Skin and soft tissue infections (SSTI) are common among persons who inject drugs. While the treatments of cellulitis and skin abscesses are well established, using antibiotics to prevent these infections is less clear. This case highlights a rare risk of antibiotics in a common clinical scenario following improper drug injection.

**Learning Objectives:** 1. Recognize “drug-reaction with eosinophilia and systemic symptoms” 2. Differentiate a local inflammatory reaction from a true infection 3. Name two aspects of proper vein care for persons who inject drugs

**Case Presentation:** A 35-year-old man with a history of IVDU presented to the emergency department with mild pain and discomfort after missing his arm vein upon injecting. With minimal signs of infection, he was prescribed an oral antibiotic and discharged. He re-presented six days later with fever, diffuse rash, and hypotension, and he was admitted to the ICU for aggressive management including a central venous catheter and a lumbar puncture. He had rapid improvement with no infectious source ever found, and an infectious

disease team ultimately agreed with the primary team's suspicion for Drug Reaction with Eosinophilia and Systemic Symptoms (DRESS).

**Discussion:** When treating patients who inject drugs, there may be a temptation to prescribe antibiotics indiscriminately. However, prescribers should appreciate that antibiotics are not harmless, and should try to differentiate a local inflammatory reaction from a true infection. Prevention from a harm reduction standpoint should include sterile supplies and proper vein care in addition to encouraging addiction treatment.

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## **79. "Who Derives The Greatest Benefits From In-hospital Training in Addiction Medicine? A Mixed Methods Study"**

Jan Klimas PhD, MSc; Lauren Gorfinkel BSc; Breanne Reel MPH; Huiru Dong PhD (Cand); Keith Ahamad MD; Christopher Fairgrieve MD; Mark McLean MD; Annabel Mead MD; Seonaid Nolan MD; Will Small PhD; Walter Cullen MD; Evan Wood MD, PhD; & Nadia Fairbairn, MD - British Columbia Centre on Substance Use

**Background:** Hospital-based clinical addiction medicine training can improve knowledge of clinical care for substance using populations. However, application of structured, self-assessment tools to evaluate differences in knowledge gained by learners who participate in such electives in hospital settings has not yet been addressed. We examined knowledge acquisition following completion of a clinical elective in addiction medicine at an urban hospital in Vancouver, Canada. **Methods:** All trainees undertaking a rotation with a hospital-based Addiction Medicine Consult Team (AMCT) at St. Paul's Hospital in Vancouver, Canada, were invited to complete an online, nine-item, likert-type self-evaluation survey both before and immediately after completion of the rotation. A purposefully selected sample of 18 trainees were invited to participate in qualitative interviews that elicited feedback on the rotation. **Results:** Of the total 157 invited trainees, 142 (90%) completed the pre-rotation self-assessment between May 2014 - May 2017. The median age was 29 years (interquartile range [IQR]=27-31) and the median clinical rotation duration was 14 days (IQR=12-26). The 88 follow-up participants were 45 medical students, 33 residents, 9 clinical addiction medicine fellows and an enhanced-skills family medicine physician in practice, respectively. Self-assessed knowledge of addiction medicine increased significantly post-rotation (mean difference in scores [MD] = 11.87; standard deviation [SD] = 17; P<.0001). Medical students were found to have the most significant improvement in addiction knowledge. The content of the qualitative interviews describes the dynamics involved in the learning process among interviewees. **Conclusion:** Completion of a hospital-based clinical elective was associated with improved knowledge of addiction medicine.

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## **80. Opioid Misuse and Psychiatric Comorbidities: Implications for Pain Care**

Valerie Hruschak PhD, ABD, MSW; Aimee Hildenbrand PhD; & Gerald Cochran PhD, MSW - University of Pittsburgh, School of Social Work

**Background:** Individuals who misuse opioids frequently have comorbid psychiatric issues, including post-traumatic stress disorder (PTSD) and depression which can have significant implications on pain care. Individuals with PTSD and opioid misuse demonstrate higher levels of maladaptive coping strategies and learned helplessness, compared to individuals with PTSD alone. However, additional research is needed to disentangle these relationships. **Objective:** This study aimed to examine whether depression mediated the relationship between PTSD and opioid misuse in patients filling opioid prescriptions. **Methods:** We administered a health survey in four community pharmacies among patients filling opioid medications. We examined whether depression mediated the relationship between PTSD and opioid misuse using ordinary least squares path analysis with bootstrapping. **Results:** 333 participants completed the health survey. Opioid misuse was reported among 16% of all participants, 33% of those who screened positive for PTSD, and 29% of those with a positive depression screen. Simple mediation analysis using ordinary least squares path analysis suggested that depression significantly mediated the relationship between PTSD and opioid misuse. Specifically, PTSD significantly predicted depression ( $a = .43$ ,  $SE_a = .06$ ,  $p < .001$ ,  $95\% CI = .31 - .54$ ), and

depression significantly predicted opioid misuse when controlling for PTSD ( $b = .13$ ,  $SE_b = .04$ ,  $p = .002$ , 95% CI = .05 - .22). There was a statistically significant indirect effect of PTSD on opioid misuse through a pathway mediated by depression ( $ab = .06$ ,  $SE_{ab} = .02$ , 95% CI = .02 - .10). However, the direct effect of PTSD on opioid misuse was likewise significant ( $c' = .12$ ,  $SE_{c'} = .05$ ,  $p = .01$ , 95% CI = .03 - .22), suggesting partial mediation. **Conclusions:** The study results have helped to enhance our understanding of the relationships between opioid misuse and psychiatric comorbidities which can inform a more tailored treatment approaches for this at-risk population. Results suggest that depression partially mediated the relationship between PTSD and opioid misuse, underlining the pressing need for screening, assessment, and intervention protocols for individuals with psychiatric comorbidities who are being prescribed opioids for pain management.

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## **81. A Case Report: Linkage of an Incarcerated Individual With Opioid Use Disorder to Addiction Treatment Post-Release**

Karen A. Hannon BSN, CARN, LADC; Sarah K. McKeon BSN, RN; Ricardo Cruz MD, MA, MPH; Marc R. Larochelle MD, MPH; Sondra Looby-Gordon MD; Alicia S. Ventura MPH; Donna R. Beers MSN, RN-BC, CARN; & Colleen T. LaBelle MSN, RN-BC, CARN - Clinical Addiction Research and Education Unit, Department of Medicine, Boston Medical Center and Boston University School of Medicine; Grayken Center for Addiction, Boston Medical Center

**Background:** In Massachusetts (MA), the risk of opioid-related overdose death is 56 times higher post-incarceration than in the general public; risk of death is highest in the first month post-release. MA prisons and jails rarely offer methadone or buprenorphine, standard of care for opioid use disorder (OUD), prior to release. Boston Medical Center (BMC) and the South Bay House of Correction (HOC) developed the Post-incarceration And Re-entry Clinic (PARC) Program to connect recently released inmates with outpatient office-based addiction treatment.

**Learning Objectives:** 1. Describe the case of a 53-year old white male with OUD who was successfully linked to care at BMC immediately following his release from the HOC. 2. Examine the facilitators and barriers to successful initiation and continuation of buprenorphine/naloxone in this population.

**Case Presentation:** The individual met with an addiction nurse care manager (NCM) inside South Bay HOC on 2 separate occasions, the latter within one week of his release. During the initial meeting inside the HOC, the NCM conducted an addiction, medical and psychiatry history and began to build rapport; the second visit with the NCM was to alleviate the individual's anxiety about linkage to care and reaffirm re-entry plan. On the day of his release the patient walked from the HOC directly to BMC and was provided same-day initiation of 2mg buprenorphine/naloxone daily. Patient returned to BMC after 3 days for scheduled reassessment and dose titration. The patient has successfully returned for all follow-up visits to date. He is facing a number of economic and social challenges such as: homelessness, unemployment, co-occurring physical and mental illnesses.

**Discussion:** In spite of this individual with OUD's successful linkage to addiction treatment post -incarceration; ongoing success with treatment and recovery is challenged by unmet social, economic, and emotional needs. Programs treating people post-incarceration must be prepared to address social determinants of health. Proactively engaging this incarcerated individual while in the HOC resulted in linkage to outpatient addiction treatment and may reflect a replicable practice for engaging patients with OUD in correctional facilities, particularly those incarcerated in settings that do not offer standard of care for addiction treatment.

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## **82. Addiction Medicine and Psychiatry Co-visits in an Opioid Treatment Program**

Kenneth Morford MD; Jessica Zoltani MD; Kathryn F. Eggert LCSW; Jeanette Tetrault MD; Mary Ellen Savage MD; & Lynn Madde, PhD, MPA- Yale University School of Medicine, APT Foundation

**Background:** Persons with substance use disorders (SUD) often have co-occurring mental health (MH) and general medical (GM) conditions. However, within specialty addiction treatment programs, MH and GM services are often provided in separate settings, which lead to challenges accessing and coordinating care across

these specialties. **Objective:** In order to better address co-occurring MH and GM conditions among persons with opioid use disorder (OUD) maintained on methadone maintenance therapy (MMT), we developed a pilot program to provide comprehensive care by implementing joint MH and GM co-visits. **Methods:** Co-visits were implemented at the APT Foundation, which is a large, open-access addiction treatment center in New Haven, Connecticut. An Addiction Psychiatry fellow and an Addiction Medicine fellow board certified in psychiatry and internal medicine, respectively, were co-located in a methadone treatment program on Monday mornings from September 2017 to January 2018. Patients were seen on a walk-in basis by both fellows in a joint co-visit regardless of the chief concern. We standardized the approach including a psychiatric evaluation, medical history, medication reconciliation, and physical examination. Program evaluation included number of patients seen, diagnoses addressed, follow-up visits, and retention in MMT. Primary diagnoses were categorized as: (1) SUD, (2) MH, and (3) GM. Patient satisfaction was assessed through survey methods. **Results:** A total of 17 unique patients were seen during the study period. 88% of patients (n=15) presented with co-occurring SUD, MH, and GM, which were addressed through the development of an interdisciplinary treatment plan. One patient presented with SUD only and one patient presented with co-occurring SUD and MH. Within the diagnostic categories, 13 patients had >2 SUD, seven patients had one MH, nine patients had >2 MH, and 12 patients had >2 GM. 53% of patients (n=9) were seen in follow-up and 59% (n=10) remained in MMT. Patient survey data is pending. **Conclusions:** This pilot program demonstrated that collaborative co-visits involving Addiction Psychiatry and Addiction Medicine provides an innovative approach for identifying and addressing co-occurring conditions among patients with OUD on MMT. The majority of patients had co-occurring conditions from all three diagnostic categories. Future efforts will focus on retention.

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### **83. Increasing Pharmacotherapy for Alcohol Use Disorder in a Veteran's Affairs (VA) Interdisciplinary Primary Care Patient Centered Medical Home**

Julie Edwards MSN, APRN; Elizabeth McLaughlin PhD; Priya Duggal MD; Arjun Gokhale MD; John Huston MD; Richard Smith MD; Jacob Quinton MD; Louis D'Onofrio MSN, APRN; Cara Kurlander MD; Danielle Wojtazjek PharmD; Marcus Harrison BS; Sharen McKay PhD; Shannon Drew MD; & Rebecca Brienza MD - VA Connecticut Center of Excellence in Primary Care Education

**Background:** Alcohol use disorder (AUD) is a debilitating disease resulting in significant morbidity, mortality, and cost. AUD is undertreated due to insufficient provider education, lack of comfort with indicated pharmacotherapy, and low screening rates. At present, no coordinated effort has been made to improve alcohol use screening and management as part of the routine care in our Primary Care setting. **Objective:** To improve care of patients with AUD by increasing prescribing of AUD pharmacotherapy by 10%. **Methods:** This was a quality improvement initiative by an interdisciplinary team in the West Haven VA Center of Excellence in Primary Care Education. The team included residents and faculty from medicine, nursing, pharmacy and psychology. After an educational needs assessment was performed, psychiatry and psychology professionals developed and presented a three-seminar curriculum covering assessment, identification and treatment of AUD, including pharmacotherapy and motivational interviewing. Psychiatry presented a fourth booster seminar to reinforce learning objectives. Primary Care providers saw their patients as usual in clinic throughout the project and met weekly to discuss the project. The principal outcome measured was the number of new prescriptions written for AUD, (collected by querying the pharmacy database). These were verified by a sample chart review. This was calculated cumulatively throughout the project and plotted on a run chart. **Results:** Over eight months, the number of prescriptions for AUD increased from 8 patients to 15 patients (5.5% to 10.1% of our population with AUD). Qualitative feedback from team members suggests that following the educational intervention they are more confident in assessing, identifying and treating AUDs. **Conclusions:** An interdisciplinary educational intervention is an effective approach to increase pharmacotherapy for AUD's in a Primary Care setting. Clinical team meetings allowed an educational intervention to be incorporated into a pre-existing setting. This suggests that care for AUD can be improved in other Primary Care settings utilizing a similar approach. Interdisciplinary education on collaborative care teams improves patient care via utilization of all team members' roles and scopes of practice.

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#### **84. Feasibility On The Frontline: Using a Systematic Approach to Assess Local Conditions in Addictions Treatment Improvement Efforts**

Dina Chavira PhD; Mary Kaye Johnson PsyD; D. Lee McCluskey PhD; & Erin P. Finley PhD, MPH - South Texas Veterans Health Care System

**Background:** The growing movement to bridge the gap between science and clinical practice has resulted in the adoption of evidence-based practices (EBPs) across the healthcare industry. Several empirically-supported treatments (ESTs) have been developed to treat substance use disorders; however, the widespread use of these protocols or associated EBP approaches has been challenging for several reasons such as treatment modality mismatch, treatment philosophy differences among interdisciplinary providers, and organizational barriers.

**Objectives:** The objectives of the current qualitative, quality improvement study were to conduct a gap analysis of group therapy practices to identify change targets in a short-term VA residential treatment facility and to assess the knowledge, perceptions, and acceptability of EST and EBP options among the frontline staff.

**Methods:** Thirteen group facilitators in a Substance Abuse Residential Rehabilitation Treatment Program at a VA facility in South Texas were recruited to participate in semi-structured, open-ended interviews informed by the CFIR framework. A gap analysis was conducted using the best practices identified by the Substance Abuse and Mental Health Services Administration Treatment Improvement Protocol (TIP) series. Data assessing provider perspectives were analyzed using a rapid qualitative approach to expedite the delivery of findings to staff for quality improvement efforts. **Results:** Findings suggested programming could be improved by introducing more structure in certain groups (e.g., pre-planned rotating topics, curriculum) and increasing programming coordination among the interdisciplinary team. Group facilitators were generally open to more structured group programming with some flexibility permitted to keep patients engaged and meet emerging needs. Characteristics of the patient population might limit meaningful engagement with more cognitively-demanding interventions. Organizational factors that might impact change efforts, such as a lack of knowledge regarding a unifying theory of change, were identified. **Conclusions:** Integration of EBPs in residential substance abuse treatment may not be a straightforward process due to several factors at the patient, provider, and organizational level. Systematic evaluations of programs could facilitate programming changes by identifying feasible change targets and the unique facilitators and barriers of change within a specific program.

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#### **85. Are There Gender, Racial, or Religious Denominational Differences in Religiosity's Effect on Alcohol Use and Binge Drinking Among Youth in the U.S.? A Propensity Score Weighting Approach**

Audrey Hang Hai MSW – The University of Texas at Austin

**Background:** Alcohol use/misuse is a prevalent health issue among adolescents and emerging adults globally and in the United States and may lead to adverse health and social consequences. Religiosity has been identified as an important protective factor against alcohol use/misuse among adolescents and emerging adults.

Identifying moderators in the relationship between religiosity and alcohol involvement have important implications for alcohol use/misuse prevention and intervention development. If moderation effects are present, preventions/interventions should be adapted to specific youth subgroups rather than taking a “one-size-fits-all” approach. Theories and the few previous studies suggest that gender, racial, and/or denominational differences may exist in the religiosity-alcohol relationship. However, extant empirical studies suffer from various limitations that prevent more informative conclusions to be drawn. **Objective:** This study aims to determine whether the relationship between religiosity and alcohol use/misuse among youth depends on gender, race, or religious denomination. **Methods:** The present study overcame the limitations of extant studies by using longitudinal data from a nationally representative sample and robust analytical methods ( $N=1,969$ ). This study uses the propensity score weighting method to control for a large number of confounding factors. Propensity score weights were estimated nonparametrically using Generalized Boosted Models, a machine learning method that affords advantages over logistic regression. **Results:** Findings from this study indicated that gender and religious denomination might not moderate the relationship between religiosity and alcohol use/binge drinking among American youth, whereas racial difference was present. Among White youth, religiosity was found to have a buffering effect against alcohol use and binge drinking. However, among non-White youth, religiosity

was not found to have an effect on alcohol use or binge drinking. **Conclusions:** Findings about the absence of gender or denominational differences in the religiosity-alcohol relationship suggest that preventions/interventions of youth alcohol involvement that are religiously based or sensitive may not need to adapt their efforts based on youth's gender or religious denominations. More importantly, when addressing alcohol use/misuse issue among White American youth, religious and faith-based organizations, youth religious group leaders, and clergy should be included in the prevention/intervention efforts.

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## **86. The Effectiveness of Spiritual Interventions For Substance Use- A Systematic Review and Meta-analysis**

Audrey Hang Hai MSW; Sunyoung Park PhD; Cynthia Franklin PhD; Diana Dinitto PhD; Allan Cole PhD; & Krik von Sternberg PhD – The University of Texas Steve Hicks School Of Social Work

**Background:** Substance use is a prevalent public health issue and is associated with various adverse consequences for individuals, families, and the society. Spiritual interventions (e.g., twelve-step-based interventions and faith-based interventions) are one of the primary treatment options for people coping with substance use problems. However, significant knowledge gap exists regarding the effectiveness of spiritual interventions for alcohol and other drug use problems. **Objective:** This study evaluates the effectiveness of spiritual interventions in reducing substance use, maintaining abstinence, and improving mental and social well-being among individuals with substance use problems. **Methods:** Ten electronic databases and relevant studies' references were searched for eligible randomized controlled trials examining the effectiveness of spiritual interventions. Two reviewers independently conducted screening, data extraction, and risk of bias assessment. Robust variance estimation in meta-regression was used to analyze treatment effect size estimates and to conduct moderator analysis. **Results:** Twenty studies were included in the meta-analysis. Spiritual interventions were shown to be more effective when compared with less intensive control interventions (e.g., 12-Step Narcotics Anonymous plus methadone maintenance treatment versus methadone maintenance treatment alone) ( $g=0.537$ , 95% confidence interval [CI]=[.052, 1.020]). Difference was not found in terms of effect sizes when comparing spiritual intervention to other psychosocial interventions such as Cognitive Behavioral Therapy ( $g =0.133$ , 95% CI = [-.073, .339]). The effectiveness of spiritual interventions does not depend on gender, race, length of treatment, or whether the spiritual intervention is 12-step based. **Conclusions:** Spiritual interventions appear to be effective in supporting individuals with substance use problems.

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## **87. Integrated Behavioral Intervention for Trauma and Substance Misuse (IBITS): A Novel Approach to Treating PTSD and Substance Use Disorder (SUD)**

D. Lee McCluskey PhD; John D. Roache PhD; Dina Chavira PhD; & Emma L. Mata-Galan PsyD - South Texas Veterans Healthcare/UT Health San Antonio

**Background:** Clinicians are faced with a number of difficulties when addressing co-occurring PTSD – SUD. Comorbidity complicates treatment and diminishes prognostic outcomes, and it has historically been assumed that SUD has to be controlled first, before PTSD can be addressed. This is not evidence-based and results in Individuals falling “through-the-cracks” due to the burden of having to enroll in multiple treatments and receiving care that fails to address comorbid problems and achieves poorer outcomes. In recent years, positive actions have been taken to rectify this problem and new DoD/VA guidelines recommend treating comorbid disorders concurrently with trauma-focused treatments. However, the use of theoretically distinct models of treatment, resulting in uncoordinated care and conflict for patients, continues to be a problem. **Objective:** To utilize systematic quality improvement to examine a patient-centered, theoretically integrated, behavioral treatment for both trauma and substance (IBITS) misuse in a residential and aftercare program for veterans. This model relies heavily on classical and operant conditioning mechanisms for dysfunction, and approached behavior change from an experimental perspective. Central to this approach is the idea that symptoms of both PTSD and SUD are at least partially maintained by the avoidance of uncomfortable stimuli (e.g., cravings, certain thoughts, difficult emotions). Treatment focused on helping patients understand the role of avoidance in

co-occurring PTSD-SUD, and patient-centered, recovery-oriented, approach behavior; with some portion of each session dedicated to motivation. **Methods:** To establish preliminary evidence for efficacy, data are presented from a four patient case-series. Self-report data were gathered using empirically validated measures of PTSD, substance use, and avoidance behavior. Patients also provided multiple drug screens during treatment. **Results:** Large improvements were noted on all outcome measures, and all patients showed PTSD symptoms decline to below clinical cutoff before the end of treatment. **Conclusions:** While limited to a small case series analysis, these results suggest IBITS showed promising outcomes for treating comorbid PTSD-SUD concurrently. Future research needs to evaluate IBITS more systematically. More precise methods are needed to collect SUD outcomes. As only two of the four patients actively participated in aftercare program, a contingency-based component to increase aftercare participation is currently being considered.

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## **88. Integrated Behavioral Intervention for Trauma and Substance Misuse (IBITS) as an Adjunct to Buprenorphine with Naloxone in the Treatment of Co-occurring Combat-Related PTSD and Opiate Use Disorder-A Case Study.**

D. Lee McCluskey PhD; John D. Roache PhD; Dina Chavira PhD; Troy A. Moore PharmD; M. Kate Medina MA; LCDC; & Emma L. Mata-Galan; PsyD - South Texas Veterans Healthcare/UT Health San Antonio

**Background:** Substantial evidence supports the need for concurrent treatment of PTSD and substance use disorder. Untreated PTSD in individuals receiving treatment for opiate use disorder (OUD) has been associated with ongoing functional pathology despite significant improvements in substance misuse (Mills et al., 2007; Trafton et al., 2006). **Learning Objectives:** This poster presents the outcomes of utilizing IBITS as an adjunct to care in a combat veteran who met criteria for opiate use disorder and PTSD and was concurrently treated with Buprenorphine with Naloxone. This poster examines the theoretical model for IBITS to treat co-occurring PTSD and OUD, and how IBITS was utilized as a successful adjunctive treatment to Buprenorphine with Naloxone during a residential and then aftercare/outpatient setting.

**Case Presentation:** The patient was a 45 year old, Black, Army Veteran diagnosed with PTSD resulting from combat in Operation Iraqi Freedom. He was seen for 10 sessions of IBITS combined with usual care which included multiple sessions with addiction counselors, medical staff, other prescribers, and various other staff regarding opiate replacement therapy. Over the course of these sessions he presented 23 negative urine drug screens, reported very few cravings for opiates, and reported that his PTSD symptoms (measured by the PTSD Checklist for the DSM-5) decreased from 65 to 14; which is well below the clinical cutoff for PTSD related pathology.

**Discussion:** These findings provide preliminary case-related evidence for the efficacy of IBITS as an adjunctive therapy to Buprenorphine with Naloxone for individuals with co-occurring PTSD and OUD. While these results are promising, more research utilizing proper methods of experimental control and randomization are needed to show generalizability of these findings. Further limitations are discussed.

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## **89. Psilocybin-assisted Group Therapy for Demoralization in Long-term AIDS Survivors**

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**Background:** Long-term AIDS Survivors (LTAS) are people living with HIV (PLWH) who were diagnosed prior to the advent of combined antiretroviral therapy. Compared to HIV seronegative peers, LTAS (like older PLWH more generally) suffer higher rates of depression, anxiety, trauma exposure, substance use and risky sexual behaviors (High, 2012; Greene, 2015). Demoralization is a syndrome common in palliative care patients and it is characterized by a sense of helplessness, hopelessness and a loss of meaning and purpose in life (Robinson, 2016). Psilocybin is a 5HT2A agonist and classic psychedelic Schedule I drug that can improve depression and anxiety in cancer patients when combined with individual psychotherapy (Griffiths, 2016).

**Objectives:** This study seeks to determine the safety and feasibility of combining a brief course of group therapy with a single individual psilocybin administration visit (0.3mg/kg po) half-way through the course of

therapy as a treatment for demoralization in LTAS. **Methods:** An on-going open-label Phase I trial of psilocybin-assisted group therapy for gay-identified LTAS >50 years old who suffer from moderate-to-severe demoralization; participants are recruited from the community. Primary outcomes include adverse events and rates of recruitment and retention. Secondary outcomes include self-report measures of demoralization, complicated grief, depression, PTSD, shame, antiretroviral medication adherence, and pre-post AUDIT and DUDIT. Safety and preliminary efficacy are evaluated with descriptive statistics. This trial is approved by the FDA, DEA and UCSF IRB. **Results:** To date, six participants have completed the trial, retention is 100%, and no related serious adverse events occurred. Average pre/post-psilocybin self-report scores include: Demoralization Scale-II 17.8 / 3.2 (>8 = moderate); Inventory for Complicated Grief 25.8 / 13 (>25 = significant functional impairment); CESD-R 32.3 / 11.2 (>25 = MDD likely); PCL-5 25.2 / 6.3 (>33 = PTSD likely). **Conclusion:** This trial demonstrates the safety and feasibility of administering psilocybin as an adjunct to group (vs individual) psychotherapy for palliative care patients with psychiatric distress. Preliminary results resemble those seen in patients with cancer. These findings suggest that psilocybin-assisted group therapy may have a rapid and significant positive impact on mood and trauma-related symptoms in PLWH.

#### References:

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