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Research, Care and Policy

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BOOK OF ABSTRACTS



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BOOK OF ABSTRACTS

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St. Vincent Charity Hospital Addiction Medicine Fellowship
- 58. 30. A Study of Methadone Treatment by Opiate-Dependent Individuals Ages 50–55 Years**
LaMart Hightower, LMSW, CAADC, PhD
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- 60. 33. Advanced Practice Registered Nurse Performance of Screening and Brief Intervention after Graduation**
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- 61. 35. Two Methods for Teaching Motivational Interviewing to Residents in a Small Group Setting**
Alisha Goodrum, MD; Joao Filipe Monterio, PhD; Mindy Sobta, MD, MS, MPhil
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Avik Chatterjee, MD, MPH; Jared W. Klein, MD, MPH; Chinazo Cunningham, MD, MS
Boston Health Care for the Homeless Program
- 63. 37. New Hampshire Screening, Brief Intervention, and Referral to Treatment (“SBIRT”) Interprofessional Education (“IPE”) Training Collaborative**
Pamela Dinapoli, RN, PhD, CNL¹; Lisa Dotson, MSW⁷; Kristina Fjeld-Sparks, MPH²; Nancy Frank, MPH⁸; Diana Gibbs, BA, CPS⁹; Joseph O’Donnell, MD¹⁰; Helen Pervanas, PharmD, RPh³; Kate Semple Barta, JD⁴; Paula Smith, MBA, EdD candidate⁵; Douglas Southard, PhD, MPH, PA-C¹¹; Devona Stalnaker-Shofner, EdD, LPC, NCC¹²; Jennifer Towle, PharmD, RPh⁶
¹University of New Hampshire; ²New Hampshire AHEC; The Dartmouth Institute for Health Policy & Clinical Practice (TDI); ³Massachusetts College of Pharmacy and Health Sciences University; ⁴The Dartmouth Institute for Health Policy & Clinical Practice (TDI); ⁵Southern NH AHEC at Lamprey Health Center; ⁶Massachusetts College of Pharmacy and Health Sciences University; ⁷Dartmouth College, Center for Program Design Evaluation; ⁸North Country Health Consortium, Northern NH AHEC; ⁹North Country Health Consortium, Northern NH AHEC; ¹⁰Geisel School of Medicine; ¹¹Franklin Pierce University; ¹²Antioch University New England
- 64. 38. Pass the Mic: Adolescents Explain Their Discontent With ‘Idle Time’ and it’s Facilitation of Alcohol Use in Urban Tanzania**
Marni Sommer, DrPH, MSN, RN; Allison Carney, MPH; Lusajo Kajula-Maonga, MPhil; Sam Likindikoki, MD; Mobolaji Ibitoye, MPH; Graca Marwerwe, MPH; Sylvia Kaaya, MD
Columbia University Mailman School of Public Health
- 64. 39. High Alcohol Density and Accessibility Facilitate Alcohol Use Among Adolescents in Urban Tanzania**
Mobolaji Ibitoye, MPH; Sam Likindikoki, MD, MMed; Allison Carney, MPH; Hassan Hamisi, MA; Sylvia Kaaya, MD, PhD; Marni Sommer, DrPH, MSN, RN
Columbia University Mailman School of Public Health
- 65. 40. Initiative for Quality Improvement to Manage Chronic Pain in HIV Primary Care**
Gina C. Dobbs, MSN, CRNP; Paula Hunt, DNP, RN, PHCNS-BC; Susanne Astrab Fogger, DNP, PMHNP-BC, CARN-AP, FAANP
University of Alabama at Birmingham, 1917 HIV/AIDS Clinic
- 65. 41. Pediatric Caregiver Interest in Outpatient Substance Use Education**
Alyssa Brown, MPH¹; Brittany L. Carney, MS²; Sarah Bagley, MD^{2,3}; Julia Potter, MD^{2,3}
¹Northeastern University; ²Boston Medical Center; ³Boston University School of Medicine
- 66. 42. A Continuum of Care Model for Alcohol Use Disorder**
Marlene Martin, MD; Saloni Kumar, MD; Michael Hutchinson, MFT; Elizabeth Leary, MSN, RN; Patricia Brady, MSW; Thomas Ormiston, MD
Santa Clara Valley Medical Center, Zuckerberg San Francisco General Hospital
- 66. 43. Screening, Brief Intervention and Referral to Treatment (SBIRT) Training in Medical Professional Programs: Implementation and Dissemination**
Gail D’Onofrio, MD, MS; Shara H. Martel, MPH; Jeanette Tetrault, MD; Joanne Iennacco, PhD, PMHNP-BC, APRN; Todd W. Rofuth, DSW; William Rowe, DSW; Diane E. Michaelson, LCSW; Jaak Rakfeldt, PhD; Uchenna T. Nwachuku, EdD, NCC; Louisa L. Foss-Kelly, PhD, LPC, NCC; Michael V. Pantaloni, PhD
Yale University

- 69. 44. Translating an Evidence-based SBIRT Protocol into Practice to Address Depression, Alcohol and Drug Use Among Pregnant Women Living with HIV (LWHIV)**
Chizoba Anako, DNP, MSN, CRNP, FNP-BC; Christine Savage, PHD, RN, CARN, FAAN; Deborah S. Finnell, DNS, PMHNP-BC, CARN-AP, FAAN; Rachel Scott, MD, MPH, FACOG
Johns Hopkins University, School of Nursing
- 69. 45. A Forgotten Population in Primary Care: Residents' Attitudes and Beliefs About Substance Use**
Courtney F. Bancroft, PsyD
Montefiore
- 70. 46. Can We Improve Attitudes Towards Dual Diagnosis Patients?: Use of a Countertransference Process Group in Psychiatric Residency Training**
Kathryn Quinn Johnson, DO, MA; Christian DeMoine Neal, MD, MPA
Virginia Tech Carilion School of Medicine - Carilion Clinic
- 70. 47. Childhood Trauma and Criminal Justice Involvement**
Daniel Schatz, MD; Maria Khan, PhD, MPH; Joy Scheidell, MPH; Chris Frueh, PhD; Faith Scanlon
NYU
- 71. 48. Improving Undergraduate Nursing Curricula by Evaluating Practicing Nurses' Attitudinal Barriers and Levels of Preparation for the Evidence-Based Care of Patients with Substance Use Disorders**
Katherine Fornili, DNP, MPH, RN, CARN, FIAAN; Charon Burda, DNP, PMHCNS, PMHNP-BC, CARN-AP
University of Maryland School of Nursing
- 71. 49. Latino and African American Social Workers' Substance Use and Service Utilization**
Josey Madison, MSW, LCSW; S. Lala Straussner, PhD, LCSW; Evan Senreich, PhD, LCSW; Jeffrey Steen, PhD, LCSW
New York University
- 72. 50. Wounded Healers: Examining Alcohol and Other Drug Problems and Treatment Among Licensed Social Workers**
S. Lala A. Straussner, PhD, LCSW; Evan Senreich, PhD, LCSW; Jeffrey Steen, PhD Candidate, LCSW
- 73. 51. "Analysis of State Resources for Implementing Pharmacy-Based Naloxone"**
Elizabeth Roche, PharmD Candidate; Jeffrey Bratberg, PharmD
University of Rhode Island
- 73. 52. Impact of RBP-6000 on Patient-reported Outcomes in Patients with Opioid Use Disorder: Results of a Randomized, Placebo-controlled, Phase 3 Study**
Vijay R. Nadipelli, BPharm, MS; Caitlyn T. Solem, PhD; Naoko A. Ronquest, PhD; Yu-Chen Yeh, MS, RPh; Christian Heidbreder, PhD; Susan M. Learned, MD, PharmD, PhD; Vishaal Mehra, MD, CPI
Indivior Inc.
- 74. 53. Usability of Naloxone Nasal Spray by Age and Literacy Level: A Pooled Analysis of Human Factors Studies**
Melissa Beck, BA; Julie L. Aker, MT(ASCP)
Concentrics Research
- 74. 54. Implementation of a Nationwide Health Economics Consultation Service to Assist Substance Use Researchers: Lessons Learned**
Sean M. Murphy, PhD; Jared A. Leff, MS; Ben P. Linas, MD, MPH; Jake R. Morgan, PhD; Kathryn E. McCollister, PhD; Bruce R. Schackman, PhD
Weill Cornell Medical College
- 75. 55. Cost of Incarceration and Parole/Probation and Treatment Needs for Alcohol/Drug Use Disorders**
Dhruv Sarin, MD; Aleksandra Zgierska, MD, PhD
University of Wisconsin Madison Family Medicine; Case Western UH Family Medicine
- 76. 56. Pediatric Specialists' Attitudes and Concerns Regarding Marijuana Use Among Adolescent Patients**
Dylan Kaye, BA; Kara Magane, MS; Joseph Allario, MS; Sharon Levy, MD, MPH; Elissa Weitzman, MSc, ScD
Division of Adolescent/Young Adult Medicine, Boston Children's Hospital

- 76. 57. Advance Practice Nurses Enhancing Education for Nurses to Provide Optimal Care of Patients with Substance Use Disorders**
Christopher Shaw, RN, MSN, ANP, PMHNP-BC, CARN, AP; Dawn Wiliamson, RN, DNP, PMHCNS-BC, CARN-AP; Joseph Gustin, RN, MSN, PMHNP-BC; Sara Fisher, RN, MSN, PMHCNS-BC
The Massachusetts General Hospital
- 77. 58. Digital Epidemiology of New Drugs of Abuse**
Jessica R. Allen, MD; LeTonia Adams, MD; Corneliu Stanciu, MD
East Carolina University
- 77. 59. Improving Provider Stigma and Compassion for Substance Use in Pregnancy**
Jim Walsh, MD; Vania Rudolf, MD; David Sapienza, MD; Grace Isner, MHA; Suzanne Peterson, MD; Jeroen Vanderhoeven, MD; Anuj Khattar, MD
Addiction Recovery Services

~ *Best Research Abstract Award* ~

Mortality After Nonfatal Opioid Overdose: Medication For Opioid Use Disorder is Associated With Lower Risk

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Boston University School of Medicine and Boston Medical Center

Background: Methadone, buprenorphine, and naltrexone are approved medications for opioid use disorders (MOUD) that reduce opioid use in randomized controlled trials. Methadone and buprenorphine are associated with reduced mortality in observational studies. Survivors of opioid overdose are at increased risk of fatal opioid overdose; however, the mortality benefit from MOUD among overdose survivors is unknown.

Objectives: To identify the association between receipt of MOUD and all-cause mortality following nonfatal opioid overdose. **Methods:** We analyzed a retrospective cohort of Massachusetts residents ages 11 years and older who experienced a nonfatal opioid overdose in 2012-2014. We used individually linked state-based data from ambulance encounters, hospital treatment, the prescription monitoring program, substance use treatment programs, all payer claims, and death records. Nonfatal opioid overdose was identified from ambulance and hospital-based encounters. We examined monthly receipt of MOUD following overdose as treatment in a methadone maintenance program, receipt of buprenorphine, or receipt of naltrexone. We assigned individuals as exposed to MOUD through the month following last receipt given increased mortality risk following discontinuation. We used a multivariable Cox proportional hazards model to examine time to death with MOUD as the monthly time varying predictor of interest. We controlled for sociodemographic characteristics, mental health comorbidities, and other medications. **Results:** We identified 19,095 individuals who survived an opioid overdose. Over 12 months follow-up, 5,594 (29%) received MOUD in > 1 month. 2,157 (11%) received methadone for a median of 5 months [interquartile range (IQR):2,9], 3,150 (17%) received buprenorphine for a median of 4 months [IQR:2,8], and 1,144 (6%) received naltrexone for a median of 1 month [IQR:1,2]. Mortality was 5% (n=971). Receipt of methadone and buprenorphine were associated with decreased risk of mortality (methadone adjusted hazard ratio (AHR): 0.6 [95% confidence interval (CI):0.4-0.8]; buprenorphine AHR: 0.7 [95% CI:0.5-0.9]). Naltrexone was not associated with mortality (AHR: 1.3 [95% CI:0.8-2.2]).

Conclusions: A minority of individuals received MOUD following nonfatal opioid overdose; however, receipt of methadone and buprenorphine were associated with reduced risk of death. Efforts to link and engage overdose survivors with MOUD may improve survival.

~ *Best Research Abstract Award-Runner-Up* ~

Improving Adherence to Chronic Opioid Therapy Guidelines to Reduce Opioid Misuse in Primary Care: A Cluster Randomized Controlled Trial

Jane M. Liebschutz, MD, MPH; Ziming Xuan, ScD, SM; Christopher W. Shanahan, MD; Marc LaRochelle, MD, MPH; Julia Keosaian, MPH; Donna Beers, BSN, RN-BC, CARN; George Guara, RN, BSN; Kristen O'Connor, RN, BSN; Daniel P. Alford, MD, MPH; Victoria Parker, DBA, EdM; Roger D. Weiss, MD; Jeffrey H. Samet, MD, MA, MPH; Julie Crosson, MD; Phoebe A. Cushman, MD; Karen E. Lasser, MD, MPH Section of General Internal Medicine, Boston Medical Center

Background: Prescription opioid misuse is a national crisis. Few interventions have improved adherence to opioid prescribing guidelines. **Objective:** To determine whether a multicomponent intervention, "Transforming Opioid Prescribing in Primary Care (TOPCARE)" improves guideline adherence while decreasing opioid misuse risk. **Methods:** We conducted a cluster randomized, controlled clinical trial among 53 primary care providers (PCPs) and their 985 patients receiving chronic opioid therapy for pain. The study was performed from January 2014 to March 2016 in a Boston safety-net hospital and three community health centers. Intervention PCPs received nurse care management, an electronic registry, one-on-one academic detailing, and

electronic decision tools for safe opioid prescribing (www.mytopcare.org). Control PCPs received electronic decision tools only. Primary outcomes included documentation of guideline-concordant care (both a patient provider agreement in the electronic health record and at least one urine drug test) over 12 months, and ≥ 2 early opioid refills. Secondary outcomes included opioid dose reduction (i.e. 10% decrease in Morphine Equivalent Daily Dose [MEDD] at trial end) and opioid discontinuation. Adjusted outcomes controlled for differing baseline patient characteristics: substance use diagnosis, mental health diagnoses, and language.

Results: The mean patient age was 54.7 years (standard deviation (sd) 11.5); patients received a mean of 57.8 mg MEDD (sd 78.5). At one year, intervention patients had higher odds of receipt of guideline-concordant care (69.8% vs. 35.3%, $p < 0.001$, adjusted odds ratio (AOR) 3.3, 95% CI 1.7 to 6.6), agreements (of the 376 without agreement at baseline, 53.8% vs. 6.0%, $P < 0.001$, AOR 11.9, 95% CI 4.4 to 32.3) and UDTs (79.0% vs. 54.6%, $p < 0.001$, AOR 2.4, 95% CI 1.1 to 5.2). There was no difference in odds of early refill receipt between groups (20.7% vs. 20.1%, AOR 1.1, 95% CI 0.7 to 1.8). Intervention patients were more likely to have either a 10% dose reduction or opioid discontinuation compared to controls (AOR 1.6, 95% CI 1.3 to 2.1; $p < .001$). In adjusted analyses, intervention patients had 6.8 mg (se 1.6) lower mean MEDD compared to controls ($p < .001$).

Conclusions: A multicomponent intervention improved guideline-concordant care but did not decrease early opioid refills.

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

Optimizing The Impact of Alcohol and Drug Screening and Brief Intervention Among a High-Risk Population Receiving Services in New York City Sexually Transmitted Disease Clinics: A Process and Outcome Evaluation of Project Renew

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University at Albany School of Public Health

Background: Unhealthy substance use is associated with increased rates of STDs, including HIV. In a high-risk STD clinic population in New York City (NYC), 30.5% and 16.5% reported a lifetime or current substance use disorder, respectively, yet only 1.4% were in treatment and 13.2% have ever been in treatment. Screening, brief intervention and referral to treatment (SBIRT) was first implemented in STD clinics in 2005, piloted in one NYC clinic, with the goal of reducing substance use and the associated risky behaviors which increase the risk STD acquisition. **Objectives:** Building upon lessons learned, Project Renew represents the third iteration of SBIRT implementation in NYC STD clinics with the goal of expanding the reach of SBIRT services within and across STD clinics citywide and decreasing substance use, poor mental health, and risky behavior.

Methods: SBIRT services were delivered February 2012-January 2015. Patients screening positive for substance misuse on the AUDIT and/or DAST-10 were provided a brief intervention and interviewed using the Substance Abuse and Mental Health Services Administration Government Performance and Results Act data collection tool at baseline and six-month follow-up. Patients scoring in Zones 3-4 (AUDIT > 15 or DAST-10 > 2) were offered additional sessions of extended brief intervention (EBI). Service delivery was assessed using electronic medical records. **Results:** 130,597 pre-screenings for risky substance use were conducted, 66,989 (51%) of which were positive leading to 17,474 brief interventions and 1,138 referrals. Between baseline and follow-up, there was a 19.7% and 43.2% decrease in days of alcohol and drug use, respectively ($p < .05$). Greater decreases in use were seen among patients offered EBI (36.0% and 55.9% decrease in days of alcohol and drug use, respectively). Patients also self-reported reductions in number of sexual contacts and experienced fewer days of depression and anxiety ($p < .05$). **Conclusions:** Project Renew successfully expanded the reach of services from previous project iterations and led to reductions in substance use, sexual risk behavior, and poor mental health which may help to prevent acquisition of HIV or other STDs. Based on positive results, services have been sustained under the ThriveNYC initiative, ensuring essential care to a large population of high-risk New Yorkers.

~ *The John Nelson Chappel Best Curriculum, Quality Improvement, and Program Abstract Award – Runner-Up* ~

Intravenous Antibiotics and Feasibility and Acceptability of a Medically Enhanced Residential Treatment (MERT) Model Integrating Residential Addiction Treatment

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Oregon Health & Science University

Background: Hospitalizations for severe infections associated with substance use disorder (SUD) are increasing. People with SUD often remain hospitalized for many weeks instead of completing intravenous antibiotics (IV-ABX) at home; often, they are denied skilled nursing facility (SNF) admission or home infusion. Residential SUD treatment facilities are not equipped to give IV-ABX. We developed a medically enhanced residential treatment (MERT) model integrating residential SUD treatment and long-term IV-ABX as part of a hospital-based addiction medicine service, the Improving Addiction Care Team (IMPACT). **Objective:** To assess MERT feasibility and acceptability. **Methods:** Descriptive analysis of key informant interviews and medical chart review. Participants included all IMPACT patients requiring ≥ 2 weeks IV-ABX discharged from February 1 to August 1, 2016. **Results:** 45 participants met inclusion criteria; mean age 39, 44% female, 84% white. 100% had insurance including 78% Oregon Medicaid. 87% had opioid use disorder, 67% had meth use disorder, and 16% alcohol use disorder. Top admitting diagnoses included endocarditis (38%), osteomyelitis (31%), bacteremia (20%). 7 of 45 patients discharged to MERT; 17 patients declined MERT and 21 were ineligible for: ongoing medical complexity (7), leaving hospital against medical advice (5), disruptive behaviors (2), insurance (2), legal (2), death (1) or other (2). IV-ABX completion rates, actual versus recommend number of IV-ABX days, and out-of-hospital IV-ABX days were greater for those treated in SNF than MRT settings (Table). 4 patients left MERT before completing antibiotics. We ended MERT after 6 months due to low patient acceptability and IV-ABX completion rate. **Conclusions:** An integrated model of residential SUD treatment and IV-ABX was feasible, but had limited patient acceptability. IV-ABX treatment was more successful among patients admitted to SNF. Future models testing integration of SUD treatment in SNFs might lead to better engagement and IV-ABX

Table. Outcomes by treatment location

	Any	Hospital	MERT	SNF	Home
Total (n)	45	24	7	11	3
IV-ABX completion, n (%)	20 (44%)	10 (42%)	3 (43%)	6 (55%)	1 (33%)
Actual/recommended IV-ABX-days (% range)	84% (7-100%)	78% (7-100%)	69% (29-100%)	92% (67-100%)	94% (81-100%)
Mean out-of-hospital IV-ABX-days, n (range)	8.8 (0-55)	0	14.4 (0-39)	21.5 (8-55)	18.7 (16-23)

Postpartum Depression and Stress among Postpartum Women with Opioid Use Disorder

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Background: Approximately 60% of women with opioid use disorder (OUD) have psychiatric co-morbidities and are at increased risk for postpartum depression. Additionally, the postpartum period represents a time of increased stress due to prolonged infant hospitalizations for neonatal abstinence syndrome, limited social support and resource availability. **Objective:** To evaluate the prevalence of postpartum depression and associated factors among postpartum women with OUD. **Methods:** From May 2016 to April 2017, 156 postpartum women with OUD completed a series of assessments including the Edinburgh Postnatal Depression Scale (EPDS) as part of a larger clinical trial on immediate postpartum contraception at the University of Pittsburgh. Assessments were completed via phone or Internet at 2, 4 and 6 weeks postpartum. An elevated EPDS score was defined as ≥ 13 . Participants with an elevated score were contacted by the research staff and/or the study physician and referred to behavioral health resources as needed. **Results:** Of participants, 95.5% (149/156) completed at least one questionnaire and 85.2% (133/156) completed all three questionnaires at 2, 4, 6 weeks postpartum. Median EPDS scores were 6 (IQR 3.0-10.5) at 2, 4 and 6 weeks postpartum. Among respondents, 23.5% (35/149) had at least one EPDS score of 13 or greater, and 9.4% (14/149) had multiple scores of 13 or greater. We successfully contacted 65.7% (23/35) of participants with elevated EPDS scores. Among participants with an elevated score, 6 were engaged in psychiatric care, 8 were referred to behavioral health resources, and 9 felt they had sufficient support and declined any resources/referrals. A subset of participants (n=58) answered additional questions about postpartum stressors. At 6 weeks postpartum, 91.4% (53/58) indicated at least one significant source of stress and 20.7% (12/58) indicated ≥ 5 significant sources of stress. Most common sources of stress were lack of sleep (31/58, 53.5%), finances (27/58, 46.6%), partner (13/58, 22.4%), family (13/58, 22.4%) housing (12/58, 20.7%) and transportation (12/58, 20.7%). **Conclusions:** The prevalence of postpartum depression is high among women with OUD, and is complicated by many concurrent psychosocial stressors. Resources to provide social and behavioral health support to new mothers with OUD are necessary.

Sexual Behavior and Contraceptive Use History Among Pregnant Women with Opioid Use Disorder

Hollis J. Laird, MPH; Mary J. Turocy, BS; Leah C. Klocke, BS; Kelley A. Jones, PhD, MPH; Beatrice A. Chen, MD, MPH; Debra L. Bogen, MD; Elizabeth E. Krans, MD, MSc

University of Pittsburgh

Background: Women with Opioid Use Disorder (OUD) frequently engage in high-risk sexual behaviors. Among sexually active women in opioid treatment programs, 40-75% report no contraceptive use. Even among women using contraception, 45-55% report using only condoms without more effective, hormonal contraception. More than 86% of pregnancies conceived by women with OUD are unintended, compared to 31-43% of pregnancies in the general population. **Objective:** To understand sexual behavior and contraceptive use patterns among pregnant women with OUD. **Methods:** We conducted semi-structured, qualitative interviews with 40 pregnant women with OUD enrolled in a larger clinical trial evaluating the impact of immediate postpartum placement of the contraceptive implant. Interviews were audio-recorded and lasted 30-60 minutes. Two investigators qualitatively analyzed and independently coded each transcript using Atlas-Ti software. A two-coder iterative content approach was used to analyze the data. **Results:** The majority of participants were Caucasian (95%), single (92.5%), had Medicaid insurance (80%), aged 21 -29 (50%), unemployed (65%), and had a high school degree or less (50%). The median age at first sexual experience was 14.3 (range 13.0-16.0) years old, participants had a median of 22 (range 8.0-29.0) lifetime sexual partners, and the majority of patients (82.5%) were not using any form of contraceptive prior to pregnancy. Four themes emerged from qualitative

analysis: 1) Limited exposure to contraceptive education prior to first sexual experience— many participants had little knowledge regarding condom use or birth control prior to their first sexual experience; 2) High-risk sexual behavior – the majority of patients (97.5%) described high-risk sexual behaviors such as having sex without condoms, while intoxicated, or exchanging sex for drugs or money; 3) Unsafe relationships may decrease contraceptive use: participants reported limited ability to advocate for condom and contraceptive use when in an unsafe relationship; 4) Infrequent hormonal contraceptive utilization: patients often described infrequent and intermittent contraceptive use since they became sexually active. **Conclusions:** High-risk sexual behavior and inconsistent contraceptive use is prevalent among women with OUD. Educational initiatives should be implemented while women are connected to care to educate them on contraceptive methods and decrease the amount of unintended pregnancies.

Utility of Urine Drug Testing in Determining Breastfeeding Eligibility Among Mothers with Opioid Use Disorder

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Background: Breastfeeding infants exposed to opioids in-utero decreases severity of neonatal abstinence syndrome. But, national guidelines advise against breastfeeding in women with opioid use disorder (OUD) with positive third trimester urine drug tests (UDT), based on the assumption that this test adequately predicts postnatal sobriety. **Objective:** Examine the degree to which prenatal UDTs predict postnatal sobriety in women with OUD. **Methods:** We conducted a retrospective review of pregnant women with OUD receiving methadone or buprenorphine treatment at an urban academic medical center between 2006-2015 with at least one 3rd trimester UDT and one postnatal UDT. An aberrant UDT was defined as a positive test for barbiturates, benzodiazepines, cocaine, methadone, buprenorphine, opiates, or oxycodone with no prescriptions containing the substance or known cross-reactant. Rates of aberrant UDTs during pregnancy and postpartum were computed. Sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) were calculated comparing third trimester and postpartum UDT results and compared using the McNemar's test. **Results:** There were 545 pregnancies among 503 women. Average age was 28.3 years, 88% (443) were white/non-Hispanic, 93% (467) received public insurance, 43% (216) had adequate prenatal care (Kessner Index). At time of delivery, 269 (53%) received buprenorphine and 47% (234) received methadone, 60% (300) had Hepatitis C, and 68% (342) had a psychiatric diagnosis. Women with aberrant tests decreased from 45% in the first trimester to 12% at time of delivery, but increased to 25% post partum. The predictive value of UDT's in the entire third trimester, 90 to 30 days prior to delivery, and 30 days prior to delivery, showed low sensitivity (34, 36, 36% respectively) and PPV (48, 44, 26% respectively), but had a higher NPV (69, 74, and 85% respectively), p-value all <0.05. **Conclusion:** Negative prenatal UDTs in the 30 days prior to delivery are significantly associated with no postpartum aberrant use. However, aberrant use during the third trimester, and particularly 30 days prior to delivery, had poor concordance with continued postpartum use. In motivated women with OUD engaged in treatment and prenatal care, decisions about breastfeeding eligibility should not be based solely on the results of UDT's.

A Pilot Randomized Controlled Trial of a Computer-Delivered Brief Intervention For Substance Use and Risky Sex During Pregnancy

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Background: Sexually transmitted infections (STIs) are an increasingly critical and costly health problem for American childbearing women. Pregnant women who misuse substances are more likely to engage in risky

sexual behavior that leads to STIs. Substance use and risky sex during pregnancy are both associated with numerous negative consequences for the woman and the developing fetus. **Objectives:** The objective of this study was to assess participants' perceptions of a computer-delivered, single-session brief motivational intervention plus booster session addressing both substance use and STI risk, and to examine the preliminary efficacy in reduction of substance use and risky sex at 4-month follow up assessment. **Methods:** The study design was a two-group, randomized controlled trial. Recruitment of 50 pregnant women (40% Latina; 24.4 years old (SD = 5.31)) with an average of 13 weeks gestation (SD = 4.5 weeks) was conducted at a prenatal clinic in a large inner-city hospital. **Results:** Ratings of acceptability of the intervention was consistently very high with ratings of satisfaction ranging between 6.3 and 6.8 on a 1-7 scale. At the 4-month follow-up, participants in the intervention arm reported a significantly larger reduction in any marijuana or alcohol use compared to participants in the control group (time-by-group interaction $p = 0.015$) based on 2-group clustered logistic regression using a generalized estimating equations approach. There was a higher reduction in condomless vaginal sex at follow-up in the HCEM arm than control (27% vs. 5%), although this was not significant ($p = 0.127$). **Conclusions:** The results of this pilot study are encouraging with respect to the acceptability and preliminary efficacy of intervention in reducing alcohol/marijuana use and condomless sex during pregnancy, supporting the next step of testing the intervention in a larger sample.

“My Shooting Up is Sex, It's My Penetration:” The Intersection of Women's Sexual Pleasure and Injection Drug Use

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Background: There is a dearth of literature concerning the sexual behaviors of women who inject drugs. The existing literature emphasizes the violence, trauma, and social disadvantage experienced by these women and obscures any sense of agency or sexual pleasure. This omission imperils our ability to develop effective interventions for women, ignores the true context of their sexual and injection practices, and presumes women to be free of agency and thus at the will of external social, environmental, and economic factors.

Objectives: This qualitative study strives to extend the boundaries of conventional risk-focused research to understand the complex and multi-dimensional sexual practices of women who inject drugs. Understanding the sexual experiences of this population could bring new insights to treating both substance abuse and sexual health. **Methods:** Purposive sampling was used to select women who inject drugs from a syringe exchange program in NYC. The PI and trained study staff conducted in-depth interviews with twenty-six women. Topic guide covered injection practices, settings, sexual practices, and decision-making influences. The interview transcriptions were thematically coded in Atlas.ti with a grounded theory approach to understand the concerns, actions, and practices to further explain patterns. **Results:** Four themes emerged with respect to women's descriptions of their sexual and injection experiences: (a) linguistic parallels of sexual and injection experiences, (b) substituting sex with injection drug use, (c) pleasure, and d) injection drug use as intimacy. Our findings indicated that there was much positive discourse about sexual experiences and injection drug use practices, with some women describing injecting as a substitute for negative sexual experiences, and others noting that IDU served as a foundation for intimacy and eroticism in a relationship. **Conclusions:** In contrast to the literature, women who inject drugs demonstrated power and agency and discussed pleasurable sexual experiences. Ultimately, interventions should recognize the realities of women's experiences to help empower them to practice safer sexual and injection practices.

Addressing Medication-Assisted-Treatment (MAT) Systemic Failures and Questions to Provide Safe and Competent Treatment to Vulnerable Populations

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Background: Medication-assisted-treatment for substance use disorder (SUD) provides comprehensive access, support, and eventual recovery. There are individuals, however, where the current system does not meet their needs appropriately while propagating barriers. This report evaluates systematic flaws that impeded the ability to meet the patient at her stage of change. **Learning Objectives:** To examine current systematic procedures in substance use disorder treatment. To analyze alternative practices for those that fail within the current system. **Case Presentation:** This case follows the pregnancy and subsequent care of a 29-year-old female in treatment for heroin, cocaine, and benzodiazepine addiction with a history of polysubstance use disorder, bipolar disorder, borderline personality disorder, and possible seizures. She was started on buprenorphine/naloxone prior to and throughout pregnancy. During her G9P1252 pregnancy she persistently struggled with benzodiazepines and intermittently with cocaine. After delivering at 25 weeks, CPS became involved and removed the child per state regulations. The patient was informed that treatment with buprenorphine/naloxone would prevent her from regaining custody. In supporting self-efficacy, the patient initiated detox to administer injectable naltrexone, which, unfortunately, failed. During this time, she electively terminated buprenorphine/naloxone medication, which prompted heroin injection with escalation of both cocaine and benzodiazepine use. A direct relationship was found between buprenorphine/naloxone treatment reinstatement and heroin discontinuation in urine samples. To reduce future harm and prevent heroin overdose, treatment with buprenorphine/naloxone was continued despite concurrent substance use of cocaine and benzodiazepines. **Discussion:** Her complex disease highlights many questions surrounding effective SUD treatment. She struggled with accessing individualized care, continued polysubstance use against medical advice, and legal and CPS involvement hindered her treatment. This case also underlines issues of provider responsibility where the system is incapable of meeting the patient's needs appropriately. Health professionals should be aware of systemic flaws so they can appropriately assist patients in navigating competent care. There are remaining concerns surrounding: 1) was continuing treatment the lesser of two evils to prevent heroin overdose or 2) should discharge or alternative options have been considered. Ensuing discussion is needed to ensure systemic policies meet the needs of vulnerable populations.

Factors Associated With Methadone Opioid Agonist Treatment Discontinuation Among People Who Inject Drugs

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Background: Methadone maintenance therapy (MMT) is a key treatment for opioid use disorder, although premature discontinuation of MMT can compromise treatment gains and increase overdose death risk. **Objectives:** To examine the sociodemographic factors and substance use patterns associated with MMT discontinuation among a cohort of people who inject drugs (PWID) in Vancouver, Canada. **Methods:** Data were derived from two prospective cohorts of PWID. The outcome of interest was MMT discontinuation, defined by participant self-report as being on MMT at one study visit and not being on MMT at a subsequent semi-annual study visit. Multivariable generalized estimating equations (GEE) were used to identify factors independently associated with MMT discontinuation. **Results:** From December 2005 to May 2015, 1301 participants had accessed MMT, among whom 288 (22%) discontinued MMT at least once during the study period. In multivariable GEE analyses, homelessness {Adjusted Odds Ratio (AOR)= 1.46, 95% Confidence Interval [CI]: 1.09-1.95}, \geq daily heroin injection (AOR=5.17, 95%CI: 3.82-6.99), \geq daily prescription opioid use (injection or non-injection) (AOR=2.18, 95%CI: 1.30-3.67), recent incarceration (AOR=1.46, 95%CI: 1.01-2.12), and not being on any form of income assistance (AOR=2.14, 95%CI: 1.33-3.46) were each independently associated with MMT discontinuation. Higher methadone dose (>100mg vs. <60mg per day) (AOR=0.44, 95%CI: 0.31-0.62) and greater proportion of study visits on methadone (>50% vs. <50%) (AOR=0.63, 95%CI: 0.47-0.84) were negatively associated with MMT discontinuation. **Conclusions:** Discontinuation of MMT in this setting was common and associated with markers of severe opioid disorder, not being on social income assistance, as well as recent homelessness and incarceration. These findings underscore a need for improved

access to stable housing, as well as sustained MMT provision during transitions between community and incarceration. Future research should explore how challenges associated with lack of housing, income instability, and incarceration experiences impact sustained MMT use.

Nurse Practitioner and Physician Assistant Experiences in Opioid Use Disorder Management from the Substance Use Warmline

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Background: The 2016 Comprehensive Addiction and Recovery Act (CARA) gives buprenorphine prescribing privileges to nurse practitioners (NP) and physician assistants (PA) to expand patient access to substance use treatment services. Novel educational tools and mentorship opportunities must be developed to support the unique learning needs and experiences of these providers. **Objective:** In December 2015, the Clinician Consultation Center (CCC), part of the Health Resources and Services Administration’s Bureau of Primary Health Care and the HIV/AIDS Bureau, launched a nationwide Substance Use Warmline (SUW) to increase access to free, timely, and evidence-informed addiction medicine consultation. Its target audience is primary care clinicians, including NPs and PAs. The SUW aims to provide on-demand support for the medical management of substance use and disseminates information regarding Medication Assisted Treatment and training opportunities. **Methods:** Caller demographics and experience, including substance use certification and DATA 2000 waiver status, were collected for each caller. Case details were logged in a secure, HIPAA-compliant database. Cases were analyzed to determine the number of repeat NP and PA callers. **Results:** NPs and PAs comprised 24% of total calls (55/227) to the SUW since its inception. 75% of NP and PA callers work in community clinic settings. The majority of calls (55%) involved prescription or non-prescription opioids. Similarly to calls from MDs/DOs, NP and PA cases featured patients with polysubstance use (51%) and/or multiple comorbidities (51%), including HIV and chronic pain. 35% of NP and PA callers called multiple times, with 60% of repeat callers calling more than twice. No callers had obtained their DATA 2000 waiver. **Conclusions:** The SUW is a useful tool that delivers point-of-care, case-based consultation to NPs and PAs who manage patients with substance use. Calls from NPs and PAs are similar to calls from MD/DOs, as the majority of calls involve patients with opioid use disorders, polysubstance use, and comorbid conditions. The SUW is an innovative vehicle that provides clinical support during unique “teachable moments” and can encourage NPs and PAs to obtain the DATA 2000 Waiver.

Buprenorphine Treatment Outcomes among Opioid-Dependent Marijuana Users and Non-Users

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Background: National guidelines caution about poor prognosis for patients who are actively using marijuana or other psychoactive substances during treatment for opioid use disorder. However, little is known about the impact of marijuana use in patients receiving primary care-based buprenorphine treatment. **Objective:** We compare buprenorphine treatment outcomes (1, 3, and 6-month treatment retention) in baseline marijuana users versus non-users with opioid use disorder who initiated buprenorphine treatment at an urban primary care clinic. **Methods:** We conducted a retrospective cohort study of 159 patients who enrolled in buprenorphine treatment between 2013 to 2015. Marijuana use was extracted from a standardized medical record intake form based on patients’ reported marijuana use within 30 days of initial evaluation for buprenorphine treatment. Treatment retention was determined by the time between initial and final buprenorphine prescriptions, and was categorized as being retained at 1 month (≥ 30 days), 3 months (≥ 90 days), and 6 months (≥ 180 days). We used logistic

regression analysis to test whether baseline marijuana use was associated with treatment retention. **Results:** At baseline, 25% of patients (40 of 159) reported marijuana use. Prevalence of other psychoactive substances use was 13% (N=20) for benzodiazepines, 37% (N=59) for alcohol, and 14% (N=22) for cocaine. There was no significant difference in treatment retention at 1 month (aOR=0.98, 95% CI: 0.45-2.12), 3 months, (aOR=0.82, 95% CI: 0.39-1.75), or 6 months (aOR=1.6, 95% CI: 0.77-3.36) between marijuana users and non-users.

Conclusions: Among patients receiving primary care-based buprenorphine treatment in a primary care setting in the Bronx, buprenorphine treatment retention was not worse in marijuana users than non-users. Patients with opioid use disorder who use marijuana can benefit from buprenorphine treatment, and should not be excluded from primary care-based buprenorphine treatment programs. Future work should corroborate whether use of marijuana along with other psychoactive substances such as benzodiazepines and alcohol affect buprenorphine treatment outcomes.

Critical Time Intervention to Facilitate Successful Transition from Residential Substance Abuse Treatment

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Background: Although residential substance abuse treatment has been shown to improve substance use and other outcomes, relapse following discharge is common. Surprisingly, few evidence-based practices exist to satisfactorily address the unique needs of persons transitioning from RSAT. **Objective:** The purpose of this paper is to describe the adaptation and development of Critical Time Intervention for Reentry (CTI-R) services for persons transitioning from RSAT, while also describing the design and sample statistics for a NIDA-funded randomized controlled trial (RCT). **Methods:** We conducted semi-structured interviews with 17 staff working in outpatient and residential substance abuse treatment settings and 32 individuals receiving long-term residential treatment. We then used participatory planning methods via a Residential Transition Advisory Board made up of university and agency stakeholders. The research team developed an initial coding scheme a priori based on the socio-ecological model. Transcriptions of interviews were formally analyzed by three analysts using framework analysis. Descriptive statistics will be presented on the sample and baseline functioning of participants in the RCT, as well as lessons learned from study recruitment and implementation. **Results:** The presentation provides a systematic process for intervention development research with the following steps: 1) understanding of barriers and facilitators to transition; 2) establishment of a strong theoretical basis; and 3) adaptation and development of the intervention manual and fidelity protocol. In our qualitative study, participants reported primary areas of intervention at multiple levels, including increasing access to housing and employment, providing linkages to aftercare services and community resources, repairing and strengthening positive support networks, and providing individually-tailored discharge preparation and in-vivo transitional services. Participants in the RCT are primarily male (60%), self-identify as Black or Latino (78%), and report a mean age of 41 years. The majority are mandated to treatment (59%) and report mental health (59%) and physical health (47%) needs, as well as homelessness (81%) and unemployment (66%) before admission to RSAT. **Conclusions:** CTI-R is a potentially useful model which is based on theory and grounded in harm reduction principles and evidence-based practices, including motivational interviewing, cognitive behavioral therapy, and assertive outreach, to provide reentry services for persons transitioning from RSAT.

The Cornerstone at Helping Up Mission Clinic: A Promising Community-Academic Collaboration

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Background: The Helping Up Mission (HUM) was established in 1885, and provides housing and rehabilitative services to men from the Baltimore area. It is located in East Baltimore, approximately 1 mile

from Johns Hopkins Hospital (JHH), and occupies the 1000 block of East Baltimore Street. There is a steady state census of over 500 men residing at the Mission; they can reside there for a year while in the mission's Spiritual Recovery Program. The men typically come from unstable housing environments, are poor, and have significant substance use disorders (SUDs). HUM's model is a supportive therapeutic community providing holistic and comprehensive treatment services with a focus on blending spirituality with medicine. A growing interest evolved within HUM leadership to have Johns Hopkins provide on-site, evidence-based SUD treatment services. To achieve this goal, Johns Hopkins chose to use an established evidence-based treatment model that had previously been employed on one of its campuses. **Objectives:** The Cornerstone at Helping Up Mission clinic opened in 2012. The clinic provides on-site SUD treatment to residents of the mission and is a state-licensed Behavioral Health program that is CARF accredited for intensive outpatient (IOP) and outpatient (OP) services. Clinic practice guidelines are grounded within an evidenced-based model of Reinforcement-Based Treatment (RBT), which has been studied across different SUD treatment populations (Jones et al., 2005; Tuten et al., 2012). The clinic is supported completely by fee-for-service reimbursement with no additional grant support. **Results:** The clinic has served over 700 clients to date with plans for further expansion of its census capacity. This collaboration has yielded low weekly positive urinalysis rates (~5%) and high client engagement is evidenced by 80-85% attendance rates for IOP clients. The clinic is now actively collecting quality improvement data to assess longitudinal outcomes. **Conclusion:** The Cornerstone at Helping Up Mission clinic is a financially viable model of a successful community-academic collaborations with high engagement and promising patient outcomes. Future research will aim to characterize critical treatment components and optimize its functioning as health services learning environment.

Online Interventions for Problem Gamblers With and Without Co-Occurring Mental Health Concerns: 3-Month Follow-Up Results From a Randomized Controlled Trial

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Background: Many people with gambling concerns are unwilling or unable to access face-to-face treatment, leading to the need to develop alternatives, such as online interventions for those in need. The focus of the current project was to develop the most effective online treatment to help people who have both gambling concerns and mental health difficulties (specifically with depression and/or anxiety). The study evaluated whether it was helpful to provide simultaneous access to both an online gambling intervention and an Internet intervention for mental health difficulties. **Methods:** Participants who were concerned about their gambling were recruited using online advertisements. Those who met criteria for current problem gambling were randomized to one of two conditions – a G-only intervention comprising an online intervention for problem gambling and a G + MH intervention comprising an online problem gambling intervention and an intervention for depression or anxiety (MoodGYM). Baseline assessment included measures of current psychological distress. Participants were followed up at 3-months. The 6-month follow-up is ongoing. **Results:** A total of 284 problem gambling participants were recruited into the study of which 75% reported psychological distress at baseline (score of 22 or more on the Kessler 10). Follow-up rates at 3-months were poor (38% returned their online surveys). Outcome analyses indicate that, for those who did not display psychological distress at baseline, there were no significant differences between groups in levels of improvement on either of the two primary outcome measures (days gambling in the last 30; NODS score). For participants displaying psychological distress, participants in the G + MH condition displayed a greater improvement in NODS scores compared to participants in the G-only condition ($p = .055$). **Conclusion:** There may be some benefit to providing combined gambling and depression/anxiety online interventions for problem gamblers with current psychological success. Given the low follow-up rate, the results of this trial should be interpreted with caution.

Addiction Knowledge and Attitudes Among Correctional Health Staff in NYC Jails

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Background: Among the incarcerated population, drug overdose is the leading cause of death post-release. The NYC jail system's methadone program was the nation's first jail-based medication assisted treatment (MAT) program and remains the nation's largest. Despite groundbreaking addiction treatment efforts, misinformation about substance use persists among health and correction staff. The NYC Department of Correction (DOC) is responsible for all security needs, while Correctional Health Services (CHS), a division of NYC Health + Hospitals, provides medical and mental health care, including substance use treatment, for the NYC jail system.

Objective: To assess baseline attitudes and knowledge about addiction among CHS and DOC staff. **Methods:** We modified the validated survey tool, Substance Abuse Attitude Survey (SAAS), and distributed a 31-question online survey to correctional health staff (clinical and non-clinical) and DOC staff over a 5-week period from December 2016 to January 2017. A total of 482 respondents (387 CHS; 95 correction staff) completed the survey which mostly used a five-point Likert type scale for degrees of agreement or disagreement. **Results:** Select findings include the following: 51% of respondents believed that all heroin use leads to addiction; 22% believed that addiction is associated with a weak will; and 25% considered addiction to be a medical disease. These findings indicate a lack of substance use knowledge among health and correction staff, raising concerns that stigma persists towards individuals with addiction, which can act as a barrier to care. Additionally, only 67% of respondents believed that MAT (e.g. methadone and buprenorphine) can be effective in treating opioid addiction. Future analysis will reveal the impact of sex, race, age, education and employment on attitudes and knowledge about addiction. **Conclusion:** This is the first survey to assess attitudes and knowledge of addiction among jail-based clinical, non-clinical and correction staff. The findings strongly suggest the need and desire for increased addiction education among staff in NYC jails, regardless of role. By November, extensive trainings will have taken place, and pre- and post-training evaluation will be conducted.

Integrating Prescribed Injectable Opioid Agonist Therapy into a Drug Treatment Court Program: A Case Study

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Background: Opioid overdose is a leading cause of preventable death in North America, and individuals with opioid use disorder (OUD) in the criminal justice system face a particularly high risk of fatal overdose post-release. Drug court programs were developed to minimize harms by prioritizing treatment over more punitive approaches; however, only a fraction of drug court participants have access to first-line medications for OUD. Further, despite emerging evidence for the efficacy of injectable opioid agonist therapy (OAT) in treating individuals with severe OUD where past treatment with first-line therapies has been unsuccessful, this treatment has never, to our knowledge, been implemented in correctional settings.

Learning Objectives: (1) Describe health and social outcomes for a patient treated with injectable OAT as part of a drug court program; (2) Identify innovative approaches to improve outcomes for patients with OUD in correctional settings.

Case Presentation:

A 50-year-old man with a history of severe OUD, multiple interactions with the criminal justice system, and prior unsuccessful treatment attempts with methadone, was initiated on injectable diacetylmorphine (i.e., medical heroin). He received 300mg of injectable diacetylmorphine, witnessed three times per day in a

supervised injection room. During a 1.5-year stabilization phase, the patient's illicit opioid use was significantly reduced to 1-2 times per month. He subsequently enrolled in Vancouver's Drug Treatment Court (DTC) for drug-related charges preceding initiation on injectable OAT and remained on this therapy during 16-months in DTC. Following DTC graduation, he continued to receive treatment and returned to gainful employment in the community, with no further charges or episodes of incarceration.

Discussion:

This is the first reported case of an individual successfully completing a drug court program while receiving injectable OAT for opioid addiction. The patient's treatment plan played an integral role in drug court completion and long-term adherence, leading to improved health and social outcomes including cessation of illicit drug use, enhanced quality of life and improved social functioning. The case highlights the importance of individualized, evidence-based treatment in drug court programs. These programs present an ideal opportunity to engage individuals in care and disrupt the cycle of offending associated with untreated addiction.

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28 Year-Old With Opioid Use Disorder Delivers Baby While in Custody

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Background:

US incarceration settings typically offer opioid agonist treatment (OAT) only to women who are pregnant, if at all. If a woman on OAT delivers while in custody, OAT is withheld after birth. This occurs despite WHO standards which stipulate that people who are incarcerated should have access to opioid agonist treatment (OAT).

Learning Objectives:

1. explain how the existing addiction treatment system and criminal justice system interact for pregnant patients
2. demonstrate how OAT can reduce harm, even when it is insufficient to achieve abstinence
3. advocate for evidence-based treatment of incarcerated patients with opioid use disorder (OUD)

Case Presentation:

A 28 year-old woman with a history of severe OUD learned she was pregnant after polysubstance overdose while on maintenance methadone. She did not engage in prenatal care despite many encounters with the health care system. Her pregnancy course was marked by polysubstance use and incarcerations. While incarcerated,

she delivered a healthy baby and her parental custody rights were suspended.

The obstetrics team successfully advocated with the jail for continuing methadone postpartum due to the increased risk of relapse and overdose on release. Post release she plans to continue OAT and engage in residential substance use disorder treatment for mothers and work toward family reunification.

Discussion:

OAT in pregnancy reduces overdose risk, drug use, increases prenatal care engagement, and improves birth outcomes. Yet many pregnant women lack access to adequate treatment. Evidence shows that OAT while incarcerated reduces subsequent overdose risk, improves continuation to treatment on release, and reduces recidivism. Yet corrections facilities do not follow evidence-based guidelines for treatment, resulting in destabilization and overdose.

OAT in and out of incarceration provided some stability and benefit, in the midst of a prenatal course that was fragmented by polysubstance use and incarceration. Maintaining and prioritizing access to OAT for patients who are incarcerated is necessary though not sufficient to address the high risk of overdose. Advocating with health providers and criminal justice policymakers for bringing the standard of addiction treatment for incarcerated people is warranted.

Association of Accumulated Criminal Justice Involvement with Health Outcomes Among Women Who Use Illicit Drugs: Latent Class Analysis

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Background: Among people who use illegal drugs, involvement in the criminal justice (CJ) system often involves a series of arrests, incarcerations and periods of community supervision that stretch over decades. Most research examining health and CJ involvement doesn't account for this accumulation of different types and lengths of CJ exposures over time. **Objective:** To determine patterns of CJ accumulation using latent class analysis in a sample of women who use illegal drugs. To examine the association of CJ accumulation classes with health outcomes and unmet health care need using multivariate analysis. **Methods:** A community-based, cross-sectional survey of women who use heroin, methamphetamine, crack cocaine and/or powder cocaine (N=624) was conducted in Oakland, California from 2012-2014. We identified patterns of CJ accumulation using latent class analysis (LCA), a multivariate method that assumes an unobserved categorical variable that divides a population into mutually exclusive and exhaustive latent classes. We estimated associations between latent class membership and study outcomes using logistic regression, which allowed for testing a dose-response relationship with a grouped linear term. **Results:** The final model specified three classes of CJ involvement, with patterns of low, medium and high involvement in different aspects of the CJ system. Compared to the 'low' CJ involvement class, the medium and high classes were associated with a greater likelihood of having vision problems (p for trend <.001), dental problems (p for trend =.015), hepatitis C virus infection (p for trend <.001) and a mental health diagnosis (p for trend <.001). There was no association between class of CJ involvement and hypertension, respiratory problems and chronic pain. There was a positive association between higher CJ class and unmet physical (p for trend <.001) and mental (p for trend = .002) health care need. **Conclusions:** Latent class analysis is a promising method to capture the reality of CJ involvement, which often includes multiple experiences of different durations in different parts of the system. Class of CJ accumulation was associated with some health problems, but not others. Additional research is needed to fully understand the interplay between accumulated lifetime CJ experience and its impact on health.

Jail-Based Initiation of Buprenorphine/Naloxone Treatment for Patients with Opioid Use Disorders

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Background: Opioid-use disorders (OUD) are highly prevalent among jail-incarcerated patients. Buprenorphine maintenance treatment (BMT) reduces morbidity and mortality in patients with OUD. Jail-incarceration presents an opportunity to initiate or continue BMT. We hypothesize three benefits of BMT in jail-setting: (1) decrease illicit drug use in jail, (2) maintain opioid tolerance and reduce overdose risk on reentry, and (3) facilitate long-term retention in treatment. Models for delivering BMT in jails are limited and patients seeking this treatment are not well understood.

Objectives: To describe our pilot BMT program in the NYC jail system on Rikers Island. To describe clinical characteristics of patients enrolled in BMT. To identify opportunities for further research on program effectiveness. **Methods:** Participants with OUD were identified at intake based on urine toxicology and clinical history. Patients enrolled in methadone-maintenance treatment (MMT) or BMT in community and who met eligibility criteria were continued on treatment during incarceration. Patients meeting criteria and not enrolled in community treatment were offered treatment initiation in jail. Those selecting BMT underwent evaluation by physicians experienced in buprenorphine prescribing. A jail-specific buprenorphine/naloxone initiation and follow-up protocol was developed. Upon discharge from jail patients were given four days of medication and a community appointment for continued drug treatment. Feedback from community partners was collected for quality-improvement purposes. Patient data was collected using our electronic health record. **Results:** From September 1, 2016 to April 31, 2017, we initiated 131 patients on BMT. Of these patients, 49% used intravenously, average daily use was 19 bags, 53% had experience with MMT, 41% were followed by mental health, 11.9% HIV+, 21.7% Hep C+, 93.7% had public insurance on arrest, and 24.5% were street homeless. Average number of prior arrests was 8. Median length of treatment prior to discharge was 30 days. Linkage to treatment varied by month. 15 patients had treatment discontinued due to medication diversion. **Conclusion:** Providing BMT in jail-setting is feasible and well-received by patients. Patients seeking BMT in jail-setting frequently had experience with methadone. Challenges included assessing motivation for long-term drug treatment, medication diversion, and linkage to continued treatment on discharge.

Healthcare Providers' Role in Adolescents' Perceived Risk of Alcohol Use

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Background: Initiation of alcohol use peaks in adolescence. Perceived risk of alcohol use is a known protective factor for delay of alcohol initiation and degree of use; however, it is unknown if screening for alcohol use in clinical settings affects adolescents' perceived risk of alcohol. **Objective:** Examine the association between asking about alcohol use in health care visits with perceived risk of alcohol among adolescents. **Methods:** We conducted a retrospective cross-sectional study using the 2014 National Survey on Drug Use and Health (NSDUH). We included respondents aged 12-17 years who visited a health care professional in the past year. The exposure of interest was reporting being asked about alcohol use in a health care encounter in the past year. The primary outcome was perceiving 4-5 drinks of alcohol daily as great risk. We used multivariable logistic regression, controlling for potentially confounding demographic, psychosocial, and behavioral characteristics. We used survey procedures in SAS to account for the complex sampling design of NSDUH. **Results:** We identified 9277 respondents who met inclusion criteria, corresponding to approximately 16,896,350 million adolescents. 51.6% were female. Nearly half (47.7 %) reported being asked about alcohol use during a health care encounter. 61.7% perceived daily binge drinking to be great risk. Adolescents who were asked about alcohol use were more likely to report daily alcohol consumption to be great risk (1.14 [95% CI 1.02-1.28]). Other correlates of increased perceived risk were female gender (1.59 [95% CI 1.41-1.79]), not missing school in the last month (1.74 [95% CI 1.11-2.74]), participation in extra-curricular activities (1.24 [95% CI 1.02-1.50]), religiosity (1.15 [95% CI 1.00-1.31]), urban residence (1.77 95% CI [1.37-2.28]), parents discussing drug use (1.13 [95% CI 1.01-1.28]), low sensation seeking (1.34 [95% CI 1.17-1.52]), and decreased peer substance use (1.16 [95% CI 1.05-1.28]). In school drug education (1.05 [95% CI 0.92-1.20]), and parental income (0.92 [95%CI 0.73-1.16]) were not associated with perceived risk of alcohol use. **Conclusions:** Asking about alcohol

use in health care encounters is associated with increased adolescent perceived risk of alcohol and, therefore, may represent an opportunity to delay initiation and risky use of alcohol.

Does Perceived Risk of Harm Mediate the Effects of a Primary Care Alcohol Screening and Brief Advice Intervention For Adolescents?

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Background: A previous study found adolescents receiving brief computer-facilitated screening and clinician advice (cSBA) in primary care reported lower rates of alcohol use at follow-up compared to usual care. One intervention component was provision of science-based information about alcohol risks for adolescents' developing brain and health. A hypothesized intervention mechanism was enhancing perceived risk of harm from alcohol use. **Objective:** This study examined whether perceived risk of harm mediated the effect of cSBA on adolescent drinking. **Methods:** We analyzed data from a quasi-experimental trial of cSBA among 2096 12-18 year-old patients recruited from 9 New England practices. The study used a before-after design with practices being their own control. An 18-month Treatment as Usual (TAU) phase was followed by clinician training and an 18-month cSBA phase with computer-administered screening, individualized feedback, health risk information, and clinician brief advice. We stratified analyses by baseline past-12-month alcohol use and used mediated logistic regression modeling to examine any past-3-month drinking at 3-months. We tested 2 mediator variables representing trajectories from baseline to 3-months in perceived risk of harm (PROH) of trying alcohol, and of binge drinking on weekends. Each trajectory variable had three categories: 2=stayed high (moderate/great risk), 1=increased to moderate/great risk, or 0=stayed at, or declined to, no/low risk. We examined mediation by PROH of trying alcohol among baseline non-users, and PROH of binge drinking among baseline users. **Results:** Among baseline non-users (n=1449), the cSBA effect was partially mediated by PROH (trying alcohol) (total effect beta [95%CI] = -0.773 [-1.481, -0.064]; indirect effect -0.066 [-0.206, -0.007]), with cSBA associated with higher PROH over time compared to TAU (0.140 [0.026, 0.255]), and higher PROH decreasing odds of reporting past-3-month drinking at follow-up (-0.482 [-0.925,-0.038]). Similarly, among baseline users (n=647), PROH (binge drinking) partially mediated the cSBA effect (total effect -0.474 [-0.890, -0.058]; indirect effect -0.096, [-0.245, -0.016]), with cSBA enhancing PROH (0.204 [0.030, 0.378]) and higher PROH reducing odds of reporting drinking (-0.470 [-0.733, -0.207]). **Conclusion:** A brief computer-facilitated primary care intervention can enhance adolescents' perceived risk of harm from alcohol which in turn contributes to reduction in short-term drinking rates.

Predictors of Success Over Two Weeks of Attempted Abstinence From Marijuana in Young Adults

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Background: Young adults using marijuana frequently often recognize problems with their use and try to quit on their own. Effective interventions to support marijuana abstinence in natural life contexts are needed.

Objective: To identify individual characteristics and factors occurring in the natural environment during usual use associated with success during attempted abstinence in young adults. **Methods:** We conducted a prospective, observational study of marijuana use and attempted abstinence in a community sample of young adults (age 18-25 years) who were using marijuana >5 days/week and planning to try quitting on their own. Participants provided urine for THC-COOH and completed a survey of sociodemographic characteristics, substance use history and diagnoses, marijuana expectancies, motives for use, confidence to abstain, and perceived social support. On their personal smartphone, they completed ecological momentary assessment (EMA) reports during two weeks of usual marijuana use, followed by EMA reports during two weeks of attempted abstinence. Reports were in response to randomly-timed signals 6 times/day (momentary) and one

scheduled time daily (diary). Reports assessed marijuana craving, accessibility, situational permissibility, and use, as well as motivation to not use. Baseline characteristics and EMA data during usual use were examined in relation to no momentary or diary report of use during attempted abstinence. **Results:** Forty young adults enrolled. Five participants with THC-COOH <5 ng/mL (inconsistent with frequent use) were excluded. EMA response rates [median (IQR)] were momentary 73.8% (60.7%-79.8%) and diary 85.7% (71.4%-92.9%). One participant did not report use during “usual use”; analyses were conducted with data from the remaining 34 participants (M = 21.96 years, 47% female). Just over one-fourth (26.5%) of participants did not use during attempted abstinence. Higher severity of dependence, negative marijuana expectancies, confidence to abstain, and perception of family support, were each associated with successful abstinence. Lower percent of momentary reports of situation permitting use and lower momentary ease of acquiring marijuana during usual use were each also associated with subsequent 2-week abstinence (all $p \leq .05$).

Conclusions: Marijuana use severity and expectancies, abstinence self-efficacy, family support, and momentary accessibility and permissibility during usual use may predict short-term success with attempted abstinence in young adults.

Primary Care Testing of the National Institute for Alcohol Abuse and Alcoholism’s (NIAAA) Youth Screener for Identifying Underage Alcohol Use Severity

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Background: In 2011, NIAAA introduced a two-item alcohol use screening tool for 9- to 18-year-olds to promote screening in busy primary care settings. **Objective:** To assess reliability and validity of this tool among youth at annual well-visits. **Methods:** We recruited a gender-balanced sample of 176 3rd-5th grade, 419 6th-8th grade, and 509 9th-12th grade patients (total=1104, ages 9-19) from five Massachusetts pediatric offices. Upon arrival, youth completed the screening items on a tablet computer, which included age-specific differences in recommended ordering and wording of questions. Criterion measures were researcher-administered Timeline Follow-Back (TLFB) interview for past-12-month drinking-days, and self-administered Diagnostic Interview Schedule for Children (DISC) for an alcohol use disorder (AUD) based on DSM-5 criteria. For test-retest reliability, a subsample of 319 (of 409 invited, 78% response rate) completed the identical items online within one week. We constructed a risk-level variable (non-drinker, lower, moderate, highest) using NIAAA-recommended age-specific drinking-days thresholds. We examined kappa/intra-class correlation coefficients (ICC) for reliability; sensitivity (Sn), specificity (Sp), positive/negative predictive values (PPV/NPV) for validity; and receiver operating curves (ROC) for identifying optimal cutpoints. All participating IRBs approved the protocol, including a parent consent waiver for 12- to 17-year-olds. **Results:** Elementary school-aged patients had near-zero drinking prevalence and were excluded from further analyses. The remaining sample (N=928, ages 11-19) had mean age=14.6 (SD=2.1 years); 50% girls; 43% White non-Hispanic, 11% Black non-Hispanic, 30% Hispanic, 15% Asian/Other; 64% had college-graduate parents; 21% reported past-12-month drinking; 5% had an AUD. Compared to the TLFB criterion, the screen’s consumption item had Sn=.79 (95% CI .72-.94), Sp=.96 (.94-.97) for identifying any-drinking; ICC for agreement in number-of-drinking-days was .70. Test-retest reliability was moderate-high for any-use (kappa=.79); number-of-drinking-days (ICC=.83); and NIAAA risk-level (kappa=.73). For detecting an AUD, a >moderate risk-level defined by NIAAA cutpoints had Sn=.47 (.33-.61), Sp=.93 (.91-.94), PPV=.22 (.17-.29), NPV=.995 (.99-.998). ROC analysis showed an optimal cutpoint of >3 past-12-month drinking-days for identifying AUD among high school-aged patients (Sn=.76/Sp=.84/PPV=.32/NPV=.97). **Conclusions:** The NIAAA youth screening tool showed moderate-high reliability and validity for assessing any-drinking and number-of-drinking-days. However, the NIAAA-recommended thresholds for a >moderate risk-level should be lowered to improve sensitivity for detecting an AUD.

RX For Addiction and Medication Safety (RAMS): Evaluation of Teen Education for Opioid Misuse

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Background: Fatal opioid drug overdoses in the United States surpassed 33,000 in 2015. Rhode Island (RI) ranks 5th in the nation in per capita for fatal overdoses. Past year nonmedical pain reliever use was 4.7% and lifetime use was 7.3% for US adolescent. **Objective:** A pre-post survey measured changes in 9th grade students' knowledge, confidence, attitudes and perceptions of opioid use disorder prevention, overdose response with naloxone, treatment, and recovery, following the delivery of a multi-modal interactive substance use disorder curriculum. **Methods:** A convenience sample of eight RI public school districts were recruited to participate in a 3-hour novel substance misuse education curriculum over the 2016-17 academic year. URI pharmacy students were trained by expert faculty in the curriculum content and delivery. Freshman in each school were administered two IRB, RI Department of Education, and school committee-approved surveys containing previously validated questions. One survey was administered prior to program delivery, and an identical survey was administered after completion of curriculum delivery. Each survey used a unique identifier to link participant results. Surveys collected demographic data, substance use and misuse knowledge, students' perceptions of substance misuse harm, reported drug use, as well as, risk and protective behaviors. **Results:** 51% (n=459) of matched respondents were female. 15.4% and 13% report lifetime and past year prescription opioid misuse, respectively. Of those reporting past year misuse, 30.5% used in the past month. Among students who incorrectly identified substance misuse examples at baseline, we recorded a 59-78% increase in correct responses. Among the 78.2% of students who had never heard of naloxone at baseline, 68.3% more students reported naloxone knowledge on the final survey. We observed a statistically significant increase ($p < 0.001$, 2-tailed paired sample t-test) in confidence to recognize and response to overdose and refer victims to treatment. 31.5% of teens reported an increase in awareness of recovery groups.

Conclusions: RI 9th grade students' knowledge and confidence of opioid misuse, overdose response, and recovery resources increased following the delivery of a multi-modal interactive substance use disorder curriculum.

Patient Factors Associated with Tapering Among Patients on Chronic Opioid Therapy

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Background: To address the epidemic of opioid overdose, guidelines recommend tapering chronic opioid therapy (COT) when risks of continued COT exceed benefits. However, little is known about likelihood and predictors of tapering, and there is potential for provider bias. **Objective:** To identify factors associated with tapering in COT patients receiving stable doses of opioids for chronic non-cancer pain. **Methods:** Using electronic medical record data from 2007 to 2014, we conducted an observational cohort study in an urban academic healthcare system in Bronx, New York. Eligible patients: 1) received COT: ≥ 3 monthly opioid prescriptions in 2 consecutive 6-month periods; 2) were on a stable opioid dose: $< 20\%$ change in average daily morphine milligram equivalent (MME) dose across the 2 periods; and 3) were retained in care: ≥ 1 outpatient visit per 6-month period. Patients with low baseline doses (< 5 MME) and cancer were excluded. Patients were followed for 2 years with average daily dose calculated per 6-month follow-up period and compared to baseline. Tapering was defined as $\geq 30\%$ dose reduction in any follow-up 6-month period, and sensitivity analyses were conducted with alternate definitions. We conducted logistic regression analyses using stepwise selection to determine the association of sociodemographic factors (age, gender, race/ethnicity, languages spoken) and clinical factors (baseline opioid dose, concurrent benzodiazepine use, and alcohol use disorder using ICD-9 codes) with tapering. **Results:** Of 1,816 eligible COT patients, 981 (54.0%) were tapered. Black non-Hispanic

patients were more likely tapered than white non-Hispanic patients (adjusted OR [AOR] 1.46, 95% CI 1.05 – 2.02); women more likely tapered than men (AOR 1.34, 95% CI 1.10 – 1.63). Additionally, those with high baseline doses (≥ 100 MME) were less likely to be tapered than those with low baseline doses (< 100 MME) (AOR 0.42, 95% CI 0.34 – 0.51). Concurrent benzodiazepine use was not associated with tapering. Sensitivity analyses yielded similar findings. **Conclusions:** In this cohort, black race and female gender were associated with tapering, which could indicate provider bias. Concurrent benzodiazepine use and high opioid doses were either not associated or negatively associated with tapering, which may be inconsistent with recommendations to taper when risks exceed benefits of continued COT.

A Case Series of Protracted Abstinence Syndrome Following Opioid Taper in Chronic Pain: Recognizing and Managing a Life-Threatening Epiphenomenon

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Background: In response to the new CDC guidelines on opioid management in chronic non-cancer pain, many patients on long term opioid therapy are being tapered off by their physicians. There is increasing reports of patients going through life threatening complications, often due to the easily treatable condition of protracted abstinence syndrome (PAS), But, this clinical scenario is not appropriately recognized.

Learning objective: Understand the complications of withdrawing opioid therapy in a therapeutically dependent patient and how to manage it.

Case presentation: A 53-year old patient with failed back syndrome and chronic pain syndrome who was managed with high dose opioid therapy (180 daily milligram morphine equivalent) presented 1 year after an opioid taper with a blood pressure (BP) of 245/128, severe chest pain and diffuse body pain. He also reports severe depression, anxiety, insomnia, restless legs at night and severe loss of functional status after opioid taper. He gives history of over 15 emergency room visits and few hospitalizations for high BP, stroke like symptoms, chest pain to rule out myocardial infarction. His BP and other symptoms would come under control with nitroglycerine, multiple anti-hypertensives and intravenous opioids while in the hospital and each time he would be discharged with multiple antihypertensives, but no pain medications. All work up was negative. In the clinic, this was recognized as severe opioid dependence with PAS and he was induced on buprenorphine. His BP immediately came down and his pains resolved within an hour. By 48 hours, he was back to his normal clinical and functional as he was 2 years back. The patient remains stable after many months on buprenorphine based treatment. Synopsis of a few more cases with psychiatric and medical decompensation following opioid taper that was recognized and managed successfully as protracted abstinence syndrome will be presented.

Discussion: The phenomenon of protracted abstinence syndrome (PAS) after cessation of substance use is a well-recognized phenomena in addiction medicine. We discuss the characteristics and presentation of PAS in the setting of opioid therapy of pain, the underlying mechanisms and management principles will be discussed in detail.

The Primary Care Provider Experience in an Intervention to Improve Adherence to Opioid Prescribing Guidelines

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Background: Multiple recent guidelines aim to increase the safety of opioid prescribing for chronic nonmalignant pain (CNMP). We analyzed implementation of an intervention (TOPCARE, “Transforming

Opioid Prescribing in Primary Care”) to improve PCP adherence to opioid prescribing guidelines. **Objectives:** To explore 1) how TOPCARE influences PCPs’ knowledge, attitudes, and behavior regarding the opioid guidelines and 2) how PCPs’ clinical contexts affect TOPCARE implementation. **Methods:** We conducted in-person, semi-structured interviews with 22 of 24 intervention PCPs from TOPCARE, a cluster RCT at 4 safety-net clinics consisting of a patient registry, population management by nurse care managers (NCMs), education by academic detailers (ADs), and electronic decision tools. We performed qualitative thematic analysis of transcribed interviews, double-coding every third interview. Our conceptual model merged two frameworks: Cabana et al.’s “Why don’t physicians follow clinical practice guidelines?” and Rycroft-Malone’s “Promoting Action on Research Implementation in Health Services” (PARIHS). **Results:** Key themes included increased knowledge, unexpected feedback, increased outcome expectancy, transfer of tasks to NCMs, reduced isolation, and reduced variability. PCPs gained knowledge of guidelines via expertise of NCMs, ADs, and electronic tools. PCPs received unexpected feedback about patients by applying guidelines: “TOPCARE came and [NCM] said, ‘You’ve never checked urine on this person.’ It was a shock—I’d considered [the patient] one of my stars!” PCP attitudes toward CNMP did not change under TOPCARE. However, PCP outcome expectancy increased; PCPs voiced expectations that applying guidelines would yield useful results: “Now, I’m more systematic about using PEG [pain scale] and seeing opioids as a trial.” PCP behavior changed via NCMs assuming guideline-recommended tasks. In examining PCPs’ clinical contexts, we found that TOPCARE reduced PCP isolation in opioid prescribing decisions, particularly through partnerships with NCMs: “It gives me a second opinion, somebody else’s eyes.” Variability among prescribing styles hindered guideline implementation; PCPs believed TOPCARE reduced that variability: “We’d had prescribers in the past who were ‘cowboys,’ prescribing a lot. [Under TOPCARE], we’re more together about how we prescribe.” **Conclusions:** An intervention to improve adherence to opioid guidelines increased PCPs’ knowledge and outcome expectancy. PCPs experienced tangible and emotional support to reduce variability and enable guideline-concordant care.

Increasing Provider Compliance With Random Urine Drug Screening in Patients Prescribed Controlled Substances at a Community Health Center (CHC) in East Boston

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Background: Substance misuse is common among patients in primary care settings. In light of the recent epidemic in opioid use and overdose deaths, it is crucial to ensure safe prescribing practices and prevent diversion of controlled substances provided to patients. To assist providers prescribing controlled substances, especially opioids for chronic pain, the CDC has released guidelines focused at improving patient safety. One of the guidelines recommends random urine drug screening at least once a year, which has become standard of care. At East Boston Neighborhood Health Center (EBNHC) a policy of random urine drug screening every 6 months was adopted in 2016 for any patient receiving monthly controlled substance prescriptions. A quality improvement project was initiated in 2017 to assess provider adherence. **Objective:** To improve and assess adherence to the EBNHC policy requiring a random urine drug screen every 6 months in patients with controlled substance agreements. **Methods:** A quality improvement program was implemented using an EPIC dot phrase that automatically populates the most recent urine drug screen date and results and prompts the provider to co-sign an order for UDS at next pick up if most recent UDS is greater than 6 months in the past (determined by team nurse). Compliance was assessed by a prospective chart review on patients listed on the Department of Family Medicine controlled substance recall list (for opiate, benzodiazepine, stimulant or tramadol) at 3 month intervals for 6 months. **Results:** Implementation of the EPIC dot phrase increased by 53.7% the percentage of patients on controlled substance agreements who had undergone random urine drug screening in the previous 6 months (from 40.8% to 62.7%, $p=0.011$). **Conclusions:** Implementation of an EPIC dot phrase that easily tabulated the results of the most recent urine drug screen date and results and that alerted providers if patient required a urine drug screen for patients receiving monthly controlled substance

prescriptions significantly increased provider compliance. This can translate to better patient safety and outcomes.

Quality Measures of Prescription Opioid Utilization in a Large State Medicaid Program

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Background: The Pharmacy Quality Alliance (PQA) recently operationalized 3 measures of potentially unsafe prescription opioid use: high opioid dosages (high dose), multiple prescribers and pharmacies (multiple providers), and concurrent use of opioids and benzodiazepines (concurrent use). These indicators may be implemented at payer- or provider-levels and potentially tied to financial/other incentives to reduce their prevalence. Little **is known about the prevalence of these indicators or the characteristics of patients potentially affected.** Objectives: To examine the prevalence of the PQA quality measures and demographic and health characteristics of identified patients. **Methods:** We constructed 3 annual cross-sectional cohorts (2013-2015) using Pennsylvania Medicaid data following PQA specifications. We limited our analysis to non-cancer, non-hospice patients aged 18-64, not dually Medicare/Medicaid eligible with ≥ 2 opioid prescriptions equaling a ≥ 5 day supply during a year. High dose was defined as >120 morphine milligram equivalents for ≥ 90 consecutive days. Multiple providers was defined as opioid prescriptions from ≥ 4 prescribers and ≥ 4 pharmacies. Concurrent use was defined as a ≥ 30 day supply of overlapping opioids and benzodiazepines. We calculated univariate prevalence of these measures by patient-level characteristics. **Results:** From 2013 (N=73,072) to 2015 (N=85,710), high dose prevalence increased from 5.1 (n=3,753) to 5.5% (n=4,708), multiple providers decreased from 7.1 (n=5,215) to 5% (n=4,311), and concurrent use decreased from 29.1% (n=21,244) to 28.4% (n=24,346). Of those with the measures in 2015, disability represented the largest eligibility category (high dose=61.7%, multiple providers=41.8%, concurrent use=58.5%). Approximately 35% of those in the 2015 cohort with high dose and more than half with multiple providers (53.3%) or concurrent use (58.6%) had anxiety disorders. Over 40% of those with high dose and approximately 60% with multiple providers or concurrent use had mood disorders. Enrollees with multiple providers had the highest prevalence of medication assisted treatment (5.8%) and fatal/nonfatal heroin/opioid medication overdose (2.7%). **Conclusions:** Measure prevalence ranged from 5-30%. High levels of disability and comorbid mood, anxiety, and substance use disorders suggest providers may require additional supports to adequately care for this population, which support could be delivered via integrated healthcare models.

Overdoses on Prescribed Opioids in Massachusetts, 2013-14

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Background: Fatal opioid overdoses are attributed commonly to prescribed opioids, rather than diverted or street opioids, like heroin and illicitly-made fentanyl. Among people who died from opioid-related overdose in Massachusetts, we linked overdose toxicology and prescription monitoring program (PMP) records to determine the proportion attributable to prescribed opioids.

Methods: Among Massachusetts' residents who died of an opioid-related overdose between 7/1/2013 and 12/31/2014, we analyzed individually-linked opioid toxicology and PMP records. A prescribed opioid overdose was defined as the opioid present in toxicology was also dispensed in the month of or the month before. We also calculated the proportion of overdoses for which opioids prescribed in the PMP were not present in toxicology. **Results:** Among 1628 Massachusetts' residents who died of an opioid-related overdose, morphine (47%) and fentanyl (33%) were the opioids most commonly present in toxicology, followed by oxycodone

(15%), methadone (8.2%), buprenorphine (7.2%), hydromorphone (3.3%), and hydrocodone (2.4%). There were 11% (179/1628) in which at least one opioid present in toxicology was prescribed and 4.1% (67/1628) in which all opioids present in toxicology were prescribed. Only 1.8% (14/759) of morphine and 2.4% (13/537) of fentanyl overdoses were prescribed opioid overdoses. Whereas, 34% (82/244) of oxycodone, 22% (29/133) of methadone, 26% (31/118) of buprenorphine, 11% (6/54) of hydromorphone, and 28% (11/39) of hydrocodone overdoses were prescribed opioid overdoses. Among decedents with an opioid prescription at the time of overdose, 63% (143/227) of oxycodone, 67% (63/94) of buprenorphine, 78% (39/50) of hydrocodone, and 74% (17/23) of hydromorphone patients did not have the prescribed opioid present in toxicology. **Conclusion:** In Massachusetts in 2013-2014, morphine and fentanyl were the most common opioids present on overdose toxicology, but were least commonly prescribed to overdose decedents. Opioids commonly prescribed were often not present on overdose toxicology. Linking overdose toxicology to PMP records can help better attribute overdoses to prescribed opioids, diverted prescription opioids, heroin, and illicitly-made fentanyl.

Acceptability and Usability of a Tablet-Based Device for Substance Use and Physical Activity Screening in Primary Care

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Background: In primary care practices, electronic screening can potentially overcome implementation barriers and help clinicians. Acceptability and usability are key elements in successful implementation. **Objective:** With the help of product designers, we developed a tablet-based device for primary care waiting rooms. The device was designed to inspire ease and comfort and the tablet program was carefully designed to maximize ergonomics. It comprises screening for tobacco, alcohol, illicit drugs, prescription drug use and physical activity. A summary of the screening results with emoticons is then presented to patients. Patients who screen positive have the option to answer additional questions on alcohol use and to receive an electronic brief intervention. The aim of the study was to assess acceptability and usability of the device. **Methods:** In February 2017, the device was piloted in 4 different primary care practices in suburban and rural Switzerland. On random half-days, patients in the waiting room were encouraged by a research assistant to use the device and asked to complete a satisfaction questionnaire. Visual analog scales with 5 choices were used (“strongly disagree” to “strongly agree” or “not useful at all” to “very useful”). **Results:** During the evaluation period and while the research assistant was present, 280 patients attended the practices and 99 (35.4%) used the device. Of them, 82 (82.3%) completed the satisfaction questionnaire. Mean (SD) age was 49.9 (16.9), 54.5% were female; 94% considered the device easy to use (“agree” or “strongly agree”), 93% considered the questions easy to understand, 79% considered their friends would be willing to use the device, while 8% reported that answering the questions made them uncomfortable, and 12% that they would prefer if the primary care physician asked the questions. Most considered “useful” or “very useful” to be asked about their tobacco (92%), alcohol (92%), drug (99%), prescription drug use (91%) and physical activity (87%). **Conclusions:** Among patients who used the device, its acceptability and usability were good. The developed device appears easy to use and patients generally perceived being asked about substance use and physical activity as useful. Nevertheless, the proportion of patients accessing the device remained limited.

Tailoring Service Design for Homeless Primary Care: What Matters?

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Background: Homeless persons often experience suboptimum primary care in mainstream settings. Some programs tailor service design to include outreach or other features, but such modifications are optional and poorly studied. Research to identify which primary care design features matter most requires a taxonomy of

those features. **Objectives:** We qualitatively examined homeless primary care service design features, a key step in a planned survey to correlate service features with patient experience among 6000 Veterans. **Methods:** A multidisciplinary team conducted 35 semi-structured interviews with staff across two Veterans Administration (VA) Homeless Patient Aligned Care Teams (HPACTs, n=22) and a non-VA Health Care for the Homeless Programs (HCH, n=11), taking detailed notes. Ten domains of interest for coding were culled from foundational literature on primary care and existing surveys. We identified features that were consistent or notably different across sites, or that could be challenging for organizational surveys. **Selected Results:** Common features under “Accessibility”, were open access and outreach with social and clinical staff. One stated outreach purpose was mitigating client distrust. Under “Service range”, expansive services (medical, social, psychological, substance use disorder care) were common, including help with benefits and ID cards. Under Coordination/Continuity, there were inconsistencies how care for substance use disorders was incorporated into the primary care workflow. Geographic proximity to substance use and mental health personnel appeared to matter. While “warm handoffs” were common, interdisciplinary “huddles” were not uniformly endorsed, and were sometimes seen as a checkbox exercise. Under “Human Resources/Management” themes included recruitment of employees based on moral commitment, efforts to schedule intra-organizational staff support, and sharing of successes and sorrows. All sites saw care as enhanced by efforts to make boundaries between medical, behavioral and social (i.e. housing/shelter) functions seamless. Partial exemption from standard primary care quality metrics was relevant in some sites. **Conclusions:** Tailored primary care service for homeless individuals may depend on service features, personnel selection and configuration and relationships among staff, some of which are likely to be measurable. Programmatic efforts to mitigate client distrust and protect caregiver emotional sustainability were notable, and could prove challenging to measure in formal organizational surveys.

“It Takes a Village: Implementation of Substance Use Screening in School Based Health Centers”

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Background: Prevention and early intervention for adolescent substance use is of increasing importance. Age of first substance use is correlated with lifetime risk of substance use disorder, with 90% originating in adolescence. Although evidence supporting screening, brief intervention, and referral to treatment (SBIRT) is emerging and school-based health centers (SBHCs) are positioned to effectively deliver this service, uptake has been sub-optimal. **Objective:** We aimed to expand adolescent SBIRT by increasing use of the CRAFFT, a validated screening tool for substance use in pediatric populations, and enhancing SBIRT knowledge and skills through inter-disciplinary training. **Methods:** Culturally relevant adolescent SBIRT training for the Fair Haven Community Health Center (FHCHC), a federally-qualified health center with five SBHCs, was conducted in two phases. First, weekly meetings were held involving an addiction medicine fellow and an inter-professional team including a pediatric provider, behavioral health clinician, and office manager to review principles in adolescent SBIRT. The group then developed an institution-wide training and implementation plan for providers at FHCHC. Two one-hour training sessions were held in January 2017 including adolescent SBIRT and the CRAFFT, case discussions with expert panelists, and skills practice. Reference materials summarizing CRAFFT scoring, brief intervention strategies, and local referral centers were provided. The percentage of physicals for adolescents age 12 to 18 that included the CRAFFT were measured pre- and post-educational intervention. **Results:** Fifty providers including nurses, nurse practitioners, physicians, and behavioral health clinicians received training. The percentage of physicals that included CRAFFT documentation rose from 5.9% the year prior to the intervention to 82% eight weeks afterward (Table 1). **Conclusions:** An educational intervention on adolescent SBIRT had a notable impact on screening documentation using the CRAFFT. Aspects of this program that contributed to its effectiveness include the emphasis on supporting local champions through a train-the-trainer model and joint delivery of tailored inter-professional education. Materials from this effort can be adapted to implement adolescent SBIRT in other SBHCs.

<i>Table 1: Percentage of Physicals Including CRAFFT Screening Time Period</i>	Full Year 2016	1/2017	2/2017	3/2017	4/2017
# of Physicals	1366	96	74	89	88
% CRAFFT Use	5.9%	9.4%	32.4%	82%	81.8%

Acceptability and Feasibility of the Tobacco, Alcohol, Prescription Medication, and Other Substance Use (TAPS) Tool in U.S. Primary Care Patients

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Background: The TAPS Tool was developed as a brief substance use screening and assessment instrument for primary care. **Objectives:** As part of a validation study of the TAPS Tool, we evaluated its acceptability to patients and feasibility of administration. **Methods:** Participants (N=2,000) recruited from five primary care clinics completed interviewer-administered (IA-TAPS) and computer self-administered (SA-TAPS) versions of the TAPS Tool. Time required and requests for assistance were recorded, and participants completed a 10-item questionnaire addressing user-friendliness, comfort, and format preference. We examined results for all participants and for subgroups: elderly (>65 years), lower education (<high school), alcohol/drug use, sex, race, and ethnicity. **Results:** Almost all participants found the TAPS Tool easy to understand (99%), and said they would share results with their doctor (95%). 31% preferred the IA-TAPS, 38% the SA-TAPS, and 45% had no preference. The IA format was more frequently preferred by participants who were less educated (49% versus 26.2%, $p<0.01$); used prescription drugs (34% versus 30%, $p<0.01$); or were elderly (36% versus 30%, $p=0.08$). The SA format was preferred by participants who were African-American (40% versus 35%, $p<0.05$); or used drugs (43% versus 37%, $p=0.07$).

The mean time to complete IA-TAPS was 2.4 minutes; 90% of participants completed in <3 minutes. The mean time to complete the SA-TAPS was 4.5 minutes; 90% of the participants completed in <7 minutes. The SA-TAPS was completed more slowly by participants who had lower education (mean 6.0 minutes) or were elderly (mean 6.1 minutes). Assistance was requested by 8% for the IA-TAPS, and by 25% for the SA-TAPS. SA-TAPS assistance was most frequently requested by those who had lower education (38%, $p<0.01$), were elderly (48%, $p<0.01$), or used prescription drugs (31%, $p<0.05$). **Conclusions:** Both formats of the TAPS Tool were well accepted. The SA-TAPS was preferred by subpopulations who may experience more stigma related to substance use, while the IA-TAPS was preferred by those who may have more difficulty using a computer. The time required for the TAPS would be feasible in most primary care settings, but patients who are older or less educated may need assistance with the self-administered version.

Linking Patients with Buprenorphine Treatment in Primary Care: Predictors of Engagement

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Background: Office-based buprenorphine treatment offers to expand the reach of effective treatment for opioid use disorders. Unfortunately, patients may be lost during the initial engagement period (between seeking treatment and induction with medication). Few data are available regarding rates and predictors of successfully reaching induction. **Objectives:** Examine the prevalence and predictors of successfully completing the engagement period in an office-based buprenorphine treatment program. **Methods:** The study sample consisted of 100 consecutive patients seeking treatment in an office-based buprenorphine treatment program at an urban, academic primary care clinic. Patients complete phone intake, nurse visit and physician visit prior to

buprenorphine induction. We reviewed electronic medical records to describe the time to complete each step in the process and used multivariate logistic regression to identify independent predictors of reaching induction. **Results:** Sixty percent of the sample dropped out prior to induction, with the majority dropping out prior to the nurse visit. For patients who successfully completed induction, median time between screening intake and first dose/induction was 18 days (interquartile range 13-30 days). After adjustment for other factors, completion of induction was significantly less likely in patients with recent polysubstance use (OR=0.15, 95% CI=0.04 – 0.53), prior methadone treatment (OR=0.05, 95% CI=0.01-0.36), prior buprenorphine treatment (OR=0.60, 95% CI=0.01-0.47), or other prior treatment (OR=0.19, 95% CI=0.04-0.98). Other sociodemographic characteristics, such as younger age, minority race/ethnicity, homelessness, unemployment, history of incarceration and relationship status were not significant independent predictors of induction. **Conclusions:** In this sample of patients seeking treatment for opioid use disorders in a primary care based buprenorphine program, over half of patients were not successful in starting medication and those with polysubstance use or previous substance use treatment were even less likely to be successful. Programs should be thoughtful when enacting policies that might prevent treatment-seeking patients from starting medications. Additionally, some patients might need enhanced support to successfully start treatment with buprenorphine.

Buprenorphine Treatment at 10 Years: Trends in an Urban Community Health Center

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Background: Opioid use disorder (OUD) and overdose deaths have dramatically increased. Buprenorphine effectively treats OUD and can be integrated into primary care. As the opioid epidemic has evolved, we are not aware of studies examining primary care-based buprenorphine treatment outcomes over time. Understanding trends in buprenorphine treatment outcomes can inform program implementation. **Objective:** We examined trends over 10 years in primary care-based buprenorphine treatment outcomes. **Methods:** We conducted a retrospective cohort study of patients with OUD who initiated buprenorphine treatment at a Bronx primary care clinic between 2005 and 2015. Treatment retention was determined by the time between initial and final buprenorphine prescriptions, and was categorized as being retained at 1 month (≥ 30 days), 3 months (≥ 90 days), 6 months (≥ 180 days), 9 months (≥ 270 days), and 12 months (≥ 360 days). To determine the trend of treatment retention over time, we conducted logistic regression analyses with predictive margins, using year as the main independent variable and treatment retention as dependent variable. **Results:** Over 10 years, 733 patients initiated buprenorphine treatment at the primary care clinic. Mean overall treatment retention was 77%, 69%, 52%, 44%, and 35% at 1, 3, 6, 9, and 12 months. The probability of 3-, 6- and 12-month treatment retention significantly decreased per year (3 month: -2.3% per year [-3.5 to -1.2%]; 6 month: -2.9% per year [-4.1 to -1.7%]; 12 month: -2.4% per year [-3.7 to -1.1%]). **Conclusions:** From 2005 to 2015, we found a decreased probability of buprenorphine treatment retention over time. These findings may reflect broader worsening of many trends in the opioid epidemic, including worsening rates of opioid use, use disorder, and overdose. As the opioid epidemic continues to worsen, primary care-based buprenorphine treatment programs should consider developing and implementing interventions to improve treatment outcomes.

Characteristics of Growth in Addiction Medicine Fellowships, 2016/2017-2017/2018

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Background: The United States has a notable shortage of physicians trained in Addiction Medicine (ADM). ADM physicians play key roles in prevention and early intervention activities, pharmacotherapy for addiction,

addressing addiction-induced medical problems, and training other healthcare professionals in ADM practices. The Addiction Medicine Foundation (TAMF) was created in 2007 to address the workforce deficiency of trained ADM physicians and to formally bring recognition of the sub-specialty into the “House of Medicine” through recognition by the American Board of Medical Specialties and recognition of post-graduate ADM physician training by the Accreditation Council of Graduate Medical Education. TAMF has fostered the development of 12-month ADM training fellowships based in medical schools and academic teaching hospitals. The first 10 ADM Fellowship programs were approved by TAMF in 2011. By March of 2017, there were 46 ADM Fellowship programs in North America. **Objective:** The rapid growth of ADM Fellowships suggests that this is a critical time to evaluate the characteristics and impact of these programs. The current study surveyed each Director of the 46 ADM Fellowships across North America to describe growth, demand for graduates, training experiences, and obstacles to maintaining ADM Fellowships. **Methods:** Web-based questionnaires were disseminated in the spring of 2017. Response rate was 100%. **Results:** ADM Fellowship Directors reported that the number of available ADM Fellowship positions will increase 23% over the next year (from 63.0 to 82.5 available positions, $p < .01$), and applications for these positions have increased by 14% for the upcoming year. The majority of Directors indicated that demand for ADM Fellows upon graduation was high (79.5%). On average, programs provided more than 6 different clinical training sites to ADM Fellows, although the curricular areas of adolescent substance use, prevention, obstetrics, and neonatal abstinence syndrome were reported most frequently as hardest to address. Regarding obstacles for maintaining programs, 56.8% of Directors identified securing funding as the most pressing need. **Conclusions:** ADM Fellowships continue to demonstrate notable growth, indicating increased availability of physicians with expertise in Addiction Medicine. While programs demonstrate a variety of clinical training experiences, deficits in specific areas suggest the need for shared resources across institutions.

A New Model for Teaching Residents Judicious Opioid Prescribing

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Background: Internal medicine residents lack confidence managing opioids in patients with chronic pain, but few educational interventions have provided experiential training. **Objectives:** We developed a resident teaching practice specialty session for patients with chronic pain, the Power Over Pain (POP) Clinic, to provide guideline-adherent care and improve resident training about judicious opioid prescribing. **Methods:** POP Clinic is a weekly session at a large internal medicine teaching practice in Bronx, NY. All patients in the practice who are prescribed opioids for chronic pain are seen at least yearly. POP Clinic is staffed by PGY2&3 residents who rotate thrice yearly and are precepted by IM attendings with opioid expertise. Visits address patient goals, treatment history, opioid regimen, functional status, mental health and substance use. Precepting content includes: risks and benefits of opioids, optimizing medications and non-pharmacologic treatments, specialty referrals, joint injections and naloxone prescribing. Didactic sessions precede each clinic and address: safety and efficacy of opioids, multimodal pain care, urine drug test (UDT) interpretation, and identifying opioid use disorder. We administered a questionnaire to assess residents’ baseline knowledge, attitudes and practices about COT immediately prior to their first POP clinic. **Results:** Between 9/2016 and 5/2017, 44 residents saw 59 unique patients and conducted 28 follow up visits. Thirty-nine (87%) of residents completed the baseline survey. Only 4 (11%) felt comfortable managing chronic pain, and only 6 (17%) reported consistent precepting about chronic pain. Routine use of treatment agreements (8%) and UDT (6%) was low. Although 51% felt comfortable interpreting UDT results, only 19% passed a UDT knowledge test. Resident expectations for POP clinic included more education about non-opioid therapies, dosing and tapering opioids, interpretation of UDT, and better communication strategies. **Conclusions:** Using existing resources, we successfully implemented a weekly clinic focused on pain and opioid management to improve resident education. The need for this curriculum was reinforced by our findings that residents received inconsistent precepting, infrequently monitored patients on opioids, and lacked UDT knowledge. POP clinic can serve as a model for delivering guideline-adherent care and training residents to manage patients on opioids for chronic pain.

"We've Learned... It's a Medical Illness, Not a Moral Choice." Effects of a Multi-Component Addiction Medicine Intervention on Hospital Providers' Perceptions of Care.

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Background: Substance Use Disorder (SUD) is rarely addressed in hospital settings. The Improving Addiction Care Team (IMPACT) is a multi-component intervention for hospitalized adults with SUD that includes an inpatient addiction medicine consult service and rapid-access pathways to post-hospital SUD treatment. **Objective:** To qualitatively understand IMPACT effects on interprofessional hospital providers' perceptions of care. **Methods:** We conducted semi-structured individual interviews and focus groups with 35 healthcare providers (e.g. nurses, hospitalists, specialists, social workers) at a single urban academic medical center between February and July 2016. We conducted a thematic analysis using an inductive approach at the semantic level. **Results:** Participants described that prior to IMPACT, hospitalization did not address addiction. This adversely affected patient care, leading to withdrawal, patients leaving against medical advice and a chaotic, unsafe care environment. Absent standards and systems, providers felt they were 'left to their own' to manage boundary setting and challenging behaviors. Ineffective SUD care led to widespread distress and feelings of futility among providers.

After IMPACT, participants described a sea change for how providers approach SUD. Many described that IMPACT 'completely reframed' addiction as a treatable chronic disease and 'elevated the consciousness ... that substance use disorders are brain disorders and not bad behavior.' Many noted that IMPACT improved provider and patient engagement by treating withdrawal, improving patient-provider communication, and managing challenging behaviors. As one surgeon stated, by treating withdrawal and addressing behavior issues "it's easier for the staff to take care of them, it's safer, and, and the patients feel better taken care of." Many noted that IMPACT humanized care for people with SUD by role-modeling compassionate care and supporting clear boundaries. Providers described relief, which they attributed to presence of expert guidance and decreased feelings of ineptitude and futility. Providers noted that IMPACT does not address many of the social determinants including homelessness, limited social support, or severe mental illness that contribute to poor outcomes. **Conclusions:** Multi-component hospital SUD interventions have the potential to change culture, improve provider experience, and reframe SUD as a treatable chronic disease.

Enhancement of a Behavioral Health Rotation for Family Medicine Residents to Promote Skillfulness in Motivational Interviewing

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Background: MI is an evidence-based strategy for conducting brief behavioral health interventions in primary care, including those focused on smoking and risky alcohol use. Unfortunately, when physicians intervene with patients, fidelity to motivational interviewing is often low even following training. The current investigative team sought to revise and enhance a Family Medicine Year 1 Behavioral Health Rotation to have an increased focus on development of MI skillfulness. Prior to this revision, the rotation primarily relied on a participant-observer model, with patients seeking behavioral health services from a Family Medicine psychologist. Such behavioral health services typically focus on mental health concerns such as depression and adjustment issues. While residents report finding these experiences valuable, they often struggled to translate the MI skills they saw demonstrated to brief medical based consultations. **Objective:** The specific aim of this curricular innovation was to systematically evaluate the impact of an enhanced first year Family Medicine Residency behavioral health rotation that focused on brief medical encounters on the development of objectively measured

skillfulness in MI. **Methods:** Participants were six, first year Family and Community Medicine Residents. Participants completed a standardized patient interview that was rated for fidelity to MI, using the Motivational Interviewing Treatment Integrity Scale. Participants received one-on-one instruction in MI, for four half-day behavioral health clinics. Instruction included didactics, role-plays, video viewing and coding, completion of publically available online learning modules, assignment and discussion of relevant readings, and observation of faculty with behavioral health patients followed by structured debriefing. In addition, residents received one session of shadowing in their regularly scheduled continuity clinic per week, followed by MI-based feedback and coaching. Standardized patient post-training assessments were administered following the rotation. Improvements in MI skillfulness were measured with Cohen's d effect size calculations. **Results:** There was improvement on all measured MITI competency benchmarks, except MI non-adherent behavior. Effect sizes were large and ranged from .36 to 1.39. There was variability in outcomes and only two residents scored competent on all measured outcomes post-training. Residents reported high satisfaction with the curriculum. **Conclusions:** The enhanced behavioral health rotation is a promising approach to promoting skillfulness in MI.

Teaching SBIRT to Social Work Students: A Three-Year Evaluation Study

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Background: Studies indicate that social work students often lack knowledge and have negative attitudes regarding working with alcohol and drug misusing clients. In response to this, all master's and bachelor's social work students at a Northeastern college received over six hours of training in "SBIRT" (Screening, Brief Intervention, and Referral to Treatment) in practice classes, with many using SBIRT in field placements. SBIRT is an evidence-based practice for screening clients for substance-misuse and providing brief interventions to reduce substance-misuse harms. **Objective:** This study examined if SBIRT training positively affected social work students' knowledge and attitudes regarding working with substance-misusing clients, whether they found SBIRT effective, and whether they used SBIRT after graduation. **Methods:** From 2013-2016, 664 students (243 MSW; 421 BSW) were trained in SBIRT. Prior to training, students completed a pre-test. After training, they completed a post-test. Several months later, students completed an "end-of-semester" survey. Questionnaires were completed in the classroom. Nine months after graduating, students completed a survey online or by telephone regarding their use of SBIRT. For the pre-test, post-test, and end-of-semester surveys, a 16-item version of the Drug and Drug Problems Perceptions Questionnaire was used to determine attitude levels toward working with substance-misusers. A 12-item Knowledge Test created by the researchers measured students' understanding of how to work with substance-misusers. Items also inquired about participants' use of SBIRT in field placements and their opinions about SBIRT's effectiveness. The post-graduation survey asked participants about their use of SBIRT while employed. **Results:** From pre-test to end-of-semester survey, students' increases in knowledge and attitudes regarding working with substance-misusers were statistically significant. Respondents who used SBIRT in field placements demonstrated higher levels of knowledge and attitudes than those who did not. 86.2% of students who used SBIRT found it to be "very" or "somewhat" effective. Nine months post-graduation, 48.3% of participants employed as social workers reported using SBIRT. **Conclusion:** The results indicate that incorporating SBIRT training into practice classes enhances students' knowledge and attitudes regarding working with substance-misusers. Using SBIRT in field placements significantly increased benefits of classroom training.

Virtual Reality-Based Training for Screening, Brief Intervention, and Referral to Treatment in Social Work Education

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Background: Screening, brief intervention, and referral to treatment (SBIRT) is designed to identify individuals at-risk for substance use disorders (SUD), ameliorate consequences, and refer them to appropriate resources. Social workers' roles in healthcare and intervention delivery uniquely qualify them for SBIRT delivery. Relatively little has been done to incorporate SBIRT training into bachelors/masters social work curricula. Virtual reality-based SBIRT education is a potentially valuable/scalable training modality, but its efficacy in training social work students is unknown. **Objective:** This pilot study sought to determine the efficacy of a novel virtual reality/didactic-based SBIRT curriculum for social work students. **Methods:** We implemented a pre-experimental pre/posttest study design. Students underwent yearlong classroom instruction of the SBIRT curriculum paired with virtual reality educational sessions. Classroom instruction trained students in SBIRT delivery skills which were practiced in the virtual environment. Changes in six composite scores were calculated to determine instructional efficacy. These measures included: perceived competence, confidence, readiness, knowledge of SBIRT curriculum, attitudes toward individuals with SUD, and ability to work with individuals with SUD. Data were analyzed using paired-samples t-tests, and demographics were analyzed using descriptive statistics. **Results:** A total of 169 students completed the baseline assessment, and 30.1% (n=51) completed the posttest-evaluation. Those who completed the baseline and follow-up surveys were mostly female (n=45, 88%) and white (n=44, 86%). Respondents showed significant increases in measures of competence ($M\Delta=+12.4$, $p<.01$, $d=1.07$), confidence ($M\Delta=+11.9$, $p<.001$, $d=0.63$), readiness ($M\Delta=+10.2$, $p<.001$, $d=0.69$), attitudes toward individuals with SUD ($M\Delta=+1.5$, $p=.016$, $d=0.21$), and ability to work with individuals with SUD ($M\Delta=+3.4$, $p<.001$, $d=0.6$). **Conclusions:** Study findings suggest virtual reality/didactic-based SBIRT training may elevate social worker students' competence, confidence, readiness, ability to engage with individuals with SUD, and attitudes toward those with SUD. Future research should ensure higher participation for follow-up assessments. Future research should also seek to replicate these findings and explore effective strategies to implement these trainings in schools of social work across the US.

Training Pharmacy Students to Address Substance Use in Primary Care

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Background: Substance use disorder is a topic often avoided in clinical care. To motivate a cultural shift, team members should be engaged and offered training. Based on the success of a robust Screening, Brief Intervention, and Referral to Treatment (SBIRT) program incorporated into clinical workflows of four primary care practices (resulting in 85,000 patients screened and referred accordingly), pharmacy students were trained during their 4-week ambulatory care advanced pharmacy practice experiences. Typical patient-care contributions include identification of medication-related problems and medication counseling. Through proper training and an interprofessional collaboration, pharmacy students may be valuable assets to the clinical team in identifying patients with substance use. **Objective:** To enhance pharmacy students' knowledge, skills, and comfort addressing substance use in clinical settings utilizing a customized interprofessional curriculum and existing SBIRT workflows. **Methods:** Pharmacy students completed a certified online course and in-person SBIRT training led by patient health coaches. The online training introduced SBIRT and supplemental material on motivational interviewing. Subsequent in-person training reinforced content from the online training, with the addition of peer role-playing and feedback. Pre- and post-surveys gauging students' knowledge, attitudes and skills were administered respective to the in-person training. Students had the option of providing SBIRT services, which was tracked by the team. **Results:** 68 pharmacy students completed the training. Prior to the in-person training, 48 students (72%) were familiar with SBIRT screening; post-training, 66 students (97%) were familiar. Before training, 23 students (34%) believed patients in their primary care practice would be comfortable discussing their substance use; that number increased to 39 students (57%) after training. Over 4 months, pharmacy students screened 41 patients for substance use, 14 patients were given a brief intervention,

and 4 patients were eligible for a referral to treatment. **Conclusion:** With these thoughtful curricular enhancements, pharmacy students reported increased understanding and comfort speaking to patients about substance use. Training pharmacy students to conduct SBIRT screening in the primary care setting is an effective means of expanding team-based efforts to address substance use in clinical settings. In diversifying the roles of clinical team members, more patients are screened and timely brief interventions are made.

EMS Can Safely Transport Intoxicated Patients to a Sobering Center as an Alternate Destination

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Background: The San Francisco Sobering Center [Sobering] is a 24/7 nurse-run facility implemented in 2003 to provide care for adults with acute alcohol intoxication. Since inception, paramedics follow a county-EMS protocol to determine which patients were eligible for transport directly to Sobering instead of an emergency department [ED]. In addition, police, EDs, street outreach refer patients. Services include: vital sign monitoring, oral rehydration, nutrition, ADL support, wound care, and referrals to detoxification, urgent care, and shelter. Licensed clinical social workers provide care coordination and case management. **Objectives:** This study evaluated the ability of Sobering to operate as an alternative destination for intoxicated adults referred by ambulance. Our aims are to 1) describe EMS alternate destination protocols, 2) count total ambulance discharges to the ED, and 3) describe clinical reasons for discharge to the ED. **Methods:** This study is a secondary data analysis of admissions at Sobering from July 2014 to June 2016, in which patients were discharged to the ED via ambulance. Two nurse leaders performed a case review on all secondary transfers. The reason for transfer was categorized, and if there were disagreement, a consensus decision was reached. Emergency physicians independently verified case review findings. **Results:** From July 2014 to June 2016, a total of 7,617 adults aged 18 and older were referred to the SFSC. Of these, 2,723 were referred directly from ambulance. Overall, 4.5% (n=344) of all patients and 6.7% (n=242) of those brought in by ambulance were transferred to an ED. Evaluating only those referred by ambulance (n=242), primary reasons for transfer were: tachycardia (27%), developing evidence of alcohol withdrawal (19%), pain control (18%), emesis (13%), client request without obvious need (13%), and elevated blood pressure (12%). There was one death (cocaine intoxication). Though a majority of patients transferred to the ED were transported one time in the study period (n=151), 32 clients were transported multiple times (range 2 to 9). **Conclusion:** This study finds the Sobering Center is an appropriate alternate destination for the care of acute alcohol intoxication. A majority of patients referred were appropriate for the level of support provided, and did not require transfer to the ED.

Initiating Extended-Release Naltrexone in Frequent Emergency Department Users With Severe Alcohol Use Disorders is Feasible and Acceptable

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Background: Frequent Emergency Department (ED) users with severe alcohol use disorders (AUDs) account for a disproportionate share of healthcare visits and costs. Typically, they receive minimal intervention during ED visits and are excluded from research as they are difficult to engage, nonadherent to treatment, and suffer from myriad bio psychosocial comorbidities. We aimed to assess the feasibility and acceptability of initiating and continuing efficacious pharmacotherapy as well as studying the effects of the intervention in this challenging population and clinical setting. **Methods:** Randomized, openlabel study of initiating treatment with 12 months of extended-release naltrexone (XRNTX) plus care management (CM) vs. referral alone in N=50 adult ED patients. Eligible subjects have at least 10 ED visits within 24 months, meet DSM5 criteria for

moderate severe AUD, and at least 2 heavy drinking days per week. Care management consists of a research coordinator, supervised by the physician principal investigator, linking subjects to existing community resources. Monthly XRNTX injections and research visits at 3, 6, and 12 months occur in a clinical research space within the hospital. Effects on healthcare utilization, heavy drinking, quality of life, and consequences of drinking are being explored by triangulating validated questionnaires, biomarker analyses, and administrative data. **Results:** We have enrolled 30 subjects since September 2015. There are no significant differences in baseline characteristics between arms; mean age 42.3 (5.6), 28/30 male, racially diverse, 27/30 graduated high school, 26 homeless. Thus far, 45 of 66 (68.2%) of scheduled research visits have been completed; the window to complete visits remains open for 11 of the incomplete visits. 100 of 147 (68.0%) monthly XRNTX injections have been administered for a median of 8 (IQR 2.75-10.5) injections per subject. There have been no intervention related serious adverse events. Two subjects have been lost to follow up. Another was withdrawn due to a brain injury. **Conclusion:** This interim analysis strongly suggests that initiating treatment with XR-NTX+CM in frequent ED users with severe AUDs is feasible and acceptable. Adherence to treatment and study retention in this marginalized population has exceeded expectations.

University of Colorado Addiction Medicine Consultation-Liaison Service: Descriptive Analysis and Attitudes Among Inpatient Staff

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Background: Over 20 million Americans suffer from substance use disorders (SUD) and at least 11% of hospital stays include a diagnosis of SUD. Therefore, hospitalization represents a key opportunity for assessment, intervention, and linkage to treatment. The University of Colorado Hospital established an addiction medicine consultation-liaison service (CLS) in July 2014, and it expanded rapidly to meet a growing need. **Objectives:** To characterize the CLS over a one-year period, to examine changes in staff attitudes over this time, and to discuss challenges and future directions. **Methods:** We selected a twelve-month sample from December 2015 to November 2016. Variables were tallied and analyzed in Microsoft Excel. A survey measuring practice behaviors and attitudes regarding SUDs was distributed to inpatient staff (including RNs and MDs) in 2014 (pre-launch) and again in Spring 2017 (post-implementation). **Results:** Over twelve months, the CLS saw 596 patients, with 60.7% coming from medical units, 30.5% from surgical units, and 4.0% from obstetrics. The mean age was 42, 40% were initially seen by an MD, and 72% met ASAM criteria for residential treatment. Alcohol use disorder was the most common diagnosis (61.2%) followed by opioid related diagnoses (26.2%). We identified many barriers to effective post-discharge treatment coordination including poor access to medication-assisted treatment (MAT) clinics and lack of residential facilities accepting public payer sources. The staff survey revealed that more respondents in 2017 viewed patients with SUDs as open to discussing their use (28.6% to 50.5%, $p=0.015$) and having insight into their condition (14.3% to 41.0%, $p=0.002$). Furthermore, more respondents had prescribed a SUD medication (48.9% to 75.0%, $p=0.002$) and made various types of referrals for SUD. However, physicians were over-represented in the second survey compared to the first. **Discussion:** The results suggest that the CLS was well utilized, that there are significant barriers to post-discharge linkage to care, and that attitudes of providers about patients with SUD may have changed during CLS implementation. Future directions include increasing education for inpatient care providers about treatment of SUD, demonstrating cost-savings of the CLS, and improving immediate MAT access post-hospitalization within our hospital system.

Characterizing Substance Use and Readmission Risk Among Patients Admitted For Heart Failure at an Urban Safety-Net Hospital

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Background: Heart failure readmissions are costly to the health care system and hazardous for patients. A few studies have shown correlation between substance use and heart failure readmission, but further characterization of substance use in heart failure patients and specific substances related to readmission risk are lacking.

Objective: To characterize the prevalence and patterns of substance use among patients admitted for heart failure and the relationship between use of specific substances and 30-day readmission. **Methods:** We obtained demographic and utilization data on patients admitted for heart failure from July 2014 to June 2015 at our urban safety-net hospital and abstracted methamphetamine, cocaine, heavy alcohol, opioid, and tobacco use from chart review. We performed descriptive statistical analysis and logistic regression to evaluate the relationship between substance use and readmission. **Results:** Patients with at least one admission for heart failure (n=194) were 39% African-American, 78% English-speaking, and 10% homeless. Many (41%) had risky substance use, including 17% methamphetamines, 24% cocaine, 14% heavy alcohol, and 5% non-prescription opioids. Polysubstance use was common: 42% of patients using methamphetamines also used cocaine, and 58% of patients using heavy alcohol also used stimulants. The prevalence of tobacco use was 36%, including 45% of patients with a readmission, and 59% of patients with risky substance use. Risky substance use was more common among patients with more readmissions: of patients without readmission, 36% had risky substance use, compared with 49% of patients with one readmission and 69% of patients with two or more readmissions. After adjusting for race, language, gender, age, homelessness, having a primary care provider, length of stay, insurance type, and use of individual substances, methamphetamine use was associated with increased odds of readmission (OR 3.62, 95% CI 1.40-9.38). Heavy alcohol use also was associated with increased odds of readmission, but the relationship was not statistically significant (OR 2.31, 95% CI 0.88-6.05).

Conclusions: Substance use is common among urban safety-net patients admitted for heart failure, and methamphetamine use is a predictor for readmission in our population. Interventions to prevent heart failure readmissions should address substance use.

Social Determinants of Health Among Emergency Department Patients Who Screen Positive For Unhealthy Alcohol or Drug Use

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Background: Emergency department (ED) patients have high levels of substance use as well as high levels of social needs that could impact health and the effectiveness of programs such as SBIRT. Yet little research has examined social determinants of health (SDOH) among ED patients who use alcohol or drugs. **Objective:** We examined five different SDOH among ED patients with and without unhealthy alcohol and drug use. **Methods:** We surveyed a random sample of ED patients at an urban, public hospital from November 2016–April 2017. Eligible patients were: ≥ 18 years old, medically/psychiatrically stable, not in police/prison custody, spoke English or Spanish, and had not already participated. RAs administered a 20–40 minute survey interview. We used validated single-item screeners for unhealthy alcohol and drug use (Smith, et al. 2009, 2010). Questions on self-reported past 12 month social needs were taken from national surveys or prior studies. **Results:** 1157 of 1412 eligible patients participated (41.7% women; mean age 48 years; 53.5% Hispanic/Latino, 22.1% white, 29.0% black). Nearly one-third (31.2%) screened positive for unhealthy alcohol use and 20.5% for any drug use. Regarding SDOH, rates among patients overall vs. those with unhealthy alcohol use vs. those with drug use were: 1) unemployed or unable to work 42.9%, 46.7% (chi-sq $p=0.08$ for difference between those who did vs. did not screen positive), 60.2% ($p<.01$); 2) homelessness (including living “doubled up”) 21.0%, 30.5% ($p<.01$), 42.1% ($p<.01$); 3) financial insecurity (inability to meet essential expenses) 41.6%, 44.8% ($p=0.12$), 56.8% ($p<.01$); 4) telephone service disconnected due to late payments 20.5%, 24.5% ($p=0.05$), 30.2% ($p<.01$); and 5) food insecurity 51.1%, 57.2% ($p<.01$), 66.2% ($p<.01$). **Conclusions:** ED patients have high rates of social needs, with higher rates among patients with drug use and, to a lesser extent, those with unhealthy

alcohol use. Programs to address substance use or other health problems among ED patients must recognize the coexistence of significant social needs in this population.

The Intersection of Homelessness and Substance Use Among Emergency Department Patients

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Background: Homelessness and substance use are intimately related; nearly one-third of U.S. addiction treatment program clients are homeless or unstably housed. However, little research has examined rates of homelessness and housing instability among people with less severe substance use, such as those who might be targeted for SBIRT. **Objective:** We examined rates of homelessness and housing instability among a random sample of ED patients who did and did not screen positive for alcohol and drug use. **Methods:** We surveyed a random sample of emergency department (ED) patients at an urban, public hospital from November 2016–April 2017. Eligible patients were: ≥ 18 years old, medically and psychiatrically stable, not in prison/police custody, and spoke English or Spanish. Data collection shifts occurred during all days of the week and hours of the day. RAs administered a 20–40 minute survey interview. We used validated single-item screeners for unhealthy alcohol and drug use (Smith, et al. 2009, 2010). **Results:** 1157 patients participated. Nearly one-third (31.2%) screened positive for unhealthy alcohol use and 20.5% for any drug use. Overall, 12.1% of participants were literally homeless (spent the last night in a shelter or on the streets), including 16.7% of those with unhealthy alcohol use (chi-sq $p < 0.01$ for difference between those who did vs. did not screen positive) and 24.1% of those with drug use ($p < .01$). Rates of self-reported homelessness in the past 12 months (including living “doubled up”) were 21.0% overall, 30.5% for patients with unhealthy alcohol use ($p < .01$) and 42.1% for those with drug use ($p < .01$). Among patients not currently literally homeless, 27.7% had housing instability (were worried about not having stable housing in the next 2 months), including 33.8% of those with unhealthy alcohol use ($p < .01$) and 41.0% of those with drug use ($p < .01$). **Conclusions:** Homelessness and housing instability were prevalent among ED patients, with significantly higher rates among patients who screened positive for unhealthy alcohol or drug use. Understanding the intersecting problems of homelessness and substance use is important for ED-based SBIRT interventions and, more generally, for better addressing the complex social and behavioral health needs of ED patients.

Influence of Social Networks on Resilience in Persons Living with HIV and AIDS (PLWHA) With Active Substance Abuse Use Disorder (SUD)

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Background: Recent research links social networks in PLWHA and active SUD to outcomes such as medical service utilization, adherence to antiretroviral medication treatment, and participation in high risk behaviors for HIV transmission. However, there has been limited investigation into the potential influence of social networks on drug use behaviors in these populations. We conducted a qualitative study in middle-aged PLWHA with current opioid- or cocaine-use to explore the influence of social networks on drug use behaviors. **Objectives:** Describe social networks’ influence on decisions to start and stop drugs in PLWHA with active SUD who are current opioid- or cocaine-users. **Methods:** We conducted semi-structured qualitative interviews with 20 PLWHA with current cocaine- or opioid-use receiving HIV care in an urban outpatient setting. Two researchers independently coded the qualitative interviews, focusing on transitions in drug use and participants’ explanations about them. They paid careful attention to how social networks were described in the context of drug use generally to ensure the potential role of social networks in drug use transitions was captured. Using these initial codes, the researchers identified themes associated with drug use transitions and social network

involvement in drug use, revised and recoded when needed, and developed hypotheses. The entire research team reviewed the material, discussed and came to consensus about the codes and hypotheses. **Results:** We found three main themes: 1. After periods of abstinence, participants reported episodes of drug use usually using terms that indicated loss of control over their life situations. 2. Even if family members were drug users, they were perceived as encouraging participants to lower drug use. Relapses were typically described as disappointing family members. 3. Relapses frequently occurred in the context of interactions with drug-using acquaintances, who were influential only during difficult periods when the participant felt loss of control.

Conclusions: To encourage health promotion and harm reduction among drug-using PLWHA, individual-level interventions may be insufficient. Community-based or family interventions should be considered. Inclusion of key members of their social networks in interventions specific to drug use behaviors and HIV treatment may be one strategy to help patients develop and maintain positive health behaviors.

HIV and Hepatitis C (HCV) On-Site Testing and Treatment at U.S. Syringe Service Programs in 2015

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Background: HIV and Hepatitis C (HCV) disproportionately impact people who inject drugs (PWID). Syringe service programs (SSP)s play an important role in connecting PWID with health services, but little is known about the on-site provision of HIV and HCV testing and treatment services. **Objective:** To understand the types of on-site HIV and HCV testing and treatment services available at syringe service programs in the United States. **Methods:** Data are from the Mount Sinai Beth Israel and North American Syringe Exchange Network (NASEN) survey administered annually by mail/email to SSPs from a list developed with NASEN. The survey collects program level information, including harm reduction and health services. For the 2015 survey, questions about HIV and HCV testing were expanded after being piloted with 6 SSPs. We report interim results from 100 SSP responses received as of February 7, 2017. Descriptive statistical analyses were conducted. **Results:** Rapid antibody testing was offered by most SSPs (91% for HIV and 78% for HCV), with fewer programs offering venipuncture antibody testing (64% for HIV, 53% for HCV). Even fewer programs conducted on-site viral load testing (34% for HIV, 32% for HCV). More SSPs offered on-site clinical evaluations for HIV (39%) than HCV (14%). SSPs conducting on-site HIV venipuncture testing were significantly more likely to provide HIV clinical evaluations and treatment on-site than programs without venipuncture testing ($p<0.05$). Similarly, SSPs with on-site venipuncture for HCV testing were significantly more likely to provide HCV viral load testing and HCV clinical evaluations ($p<0.05$). SSPs reported that on average, 15% of their participants were tested for HIV and 13% were tested for HCV on-site. Among those tested on-site, 4% tested antibody positive for HIV and 27% for HCV. **Conclusions:** HCV incidence is undoubtedly much higher than HIV. Yet, SSPs provide more on-site services for HIV than hepatitis C, even though clients test positive for HCV more frequently than for HIV. Improving on-site HCV services could be an important strategy to improve diagnosis and treatment rates of infected PWID and to improve HCV prevention and control in this population.

Hepatitis C Treatment and Cure in an Opioid Treatment Program: Program Design and Real-World Outcomes

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Background: Hepatitis C a common disease that disproportionately affect people who inject drugs (PWID). Historically, PWID have been ineligible for treatment. Direct acting anti-virals (DAA) have facilitated the treatment and cure of hepatitis C, including for those with active substance use disorders. Directly observed

therapy (DOT) for medication has been demonstrated to be a highly effective tool for disease management. **Methods:** Here we describe a sustainable model for hepatitis C treatment with DOT of DAAs embedded in a methadone treatment program in an urban, underserved setting. External grant support provided an 80%-time nursing position, but otherwise the program used existing clinic staff, including a provider seeing patients one half-day per week. Medications were primarily obtained through the patients' insurance, which were primarily publicly-financed. Patients received directly-observed therapy (DOT) for the HCV medications. **Results:** Over ten months of program operation time, 75 patients have received treatment through our HCV-DOT treatment program. 34/75 (45%) patients have completed treatment, 41/75 are actively on treatment, and 32/34 (94%) have documented cure (by 12 week-SVR). 2/34 patients were lost to follow-up after completing treatment. **Conclusions:** Hepatitis C treatment is feasible and highly successful when embedded in drug treatment. Directly-observed therapy (DOT) for medication administration is a valuable component of treatment, and should be utilized more broadly. Treating PWID is a crucial component of HCV eradication. Our program adds to a city-wide initiative in San Francisco for HCV elimination, and may serve as a model for other opioid treatment programs (OTPs) pursuing this goal.

Eradicating Hepatitis C in an Opioid Treatment Program: Implementing Universal Screening and Assessment as the First Step

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Background: In the United States, just one third of opioid treatment programs (OTPs) report providing on-site Hepatitis C (HCV) screening despite the fact that people who inject drugs are disproportionately infected with HCV and injection drug use is the leading risk factor for HCV acquisition. While screening is the essential first step, further assessment is needed to diagnose chronic HCV and identify patients needing treatment. Based on successful outcomes for integrated HIV services, OTPs may represent an ideal setting for integrated HCV screening, assessment and treatment for this at-risk population. **Objective:** To provide integrated, onsite HCV screening and assessment for all patients enrolled in our OTP. **Methods:** The Opiate Treatment Outpatient Program (OTOP) is an urban, publicly-funded, hospital-based OTP providing methadone maintenance treatment to over 600 highly vulnerable patients annually. We initiated universal opt-out HCV testing for all patients without documented HCV status at intake and annually (with required medical exams). Positive HCV antibody results were followed with a viral load to determine chronicity. Patients with chronic HCV met with a medical provider for HCV education and referral to treatment. HCV status was characterized in one of six ways: chronic infection, resolved without treatment, resolved after treatment, antibody (+) only, uninfected or unknown. Results for all patients were recorded in the medical record to allow for aggregate analysis, identification of active infection and referral to treatment. **Results:** At the end of 13 months, 100% of OTOP's current patients had an HCV status documented in the medical record (Table 1). The screening process was integrated into workflow with minimal impact. Table 1 HCV status for all OTOP patients (N=585)

Chronic infection	Resolved without treatment	Resolved after treatment	Antibody (+) only	Uninfected	Unknown
status 262(45%)	111(19%)	29(5%)	4(<1%)	178(30%)	1(<1%).

Conclusions: OTOP successfully integrated routine HCV screening and assessment into our OTP with minimal impact on staff or resources. The program laid a foundation from which to build collaborative community partnerships for treatment access and grant funding. This initiative provides a model for integrated HCV screening and assessment in OTPs, which is a crucial first step towards cure and decreased transmission.

Factors Associated with Interest in Drug Treatment Among Syringe Exchange Clients Who Use Opioids

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Background: Opioid use disorder is a growing problem across the United States. Despite the existence of effective, evidence-based treatments, a large majority of people with opioid use disorder do not receive treatment. Increasing treatment receipt is an essential component of the public health response to the opioid crisis. **Objective:** This exploratory study examines factors associated with interest in treatment among opioid-using syringe exchange program clients. **Methods:** Survey data were collected at 17 syringe exchanges in 16 counties across Washington State during 2015; 438 respondents reported current opioid use and were not currently in treatment, and thus were eligible for analyses. Cross-sectional bivariate analyses and multivariate logistic regression were conducted to examine demographic and social factors, drug use behaviors and consequences, and health care access and use factors associated with interest in treatment (measured as reported interest in getting help to reduce or cease drug use). **Results:** In multivariate analyses, interest in treatment was positively associated with female gender (AOR=1.84; 95% CI: 1.07, 3.13), having an abscess (AOR=1.91; 95% CI: 1.10, 3.32), and having received treatment services (AOR=6.37; 95% CI: 2.47, 16.40) in the past year. Interest was negatively associated with older age (AOR=0.76; 95% CI: 0.58, 0.99 for ten-year increase), methamphetamine use (AOR=0.46; 95% CI: 0.25, 0.86) and pharmaceutical opioid use (AOR=0.56; 95% CI: 0.33, 0.94) in the past three months. **Conclusions:** Public health and health care professionals who work with people who use opioids should consider factors associated with interest in treatment when planning treatment engagement interventions. Future research is needed to assess the generalizability of these findings and to better understand why certain factors may be positively or negatively associated with treatment interest.

Model For Fentanyl-Induced Respiratory Depression and Its Reversal By Naloxone

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Background: In 2015, 33,000 fatal opioid overdoses in the United States were reported. 467,000 adolescents reported nonmedical use of opioids in the past month. While oxycodone and hydrocodone continue to be the most commonly prescribed opioids resulting in deaths, illicitly manufactured fentanyl and heroin deaths have surpassed prescription opioid-related deaths. Naloxone, an opioid antagonist, is widely accessible to the public through pharmacies and community groups. As reports of “naloxone-resistant” fentanyl-related overdoses grow, new ways to describe naloxone’s action in fentanyl overdose are needed. **Objective:** To design a simulator model for use as an educational tool to illustrate respiratory depression caused by fentanyl and its reversal with naloxone. **Methods:** The simulation model was built using published data on the pharmacokinetic and pharmacodynamic characteristics of fentanyl and naloxone. It was constructed to demonstrate the effects of five doses of intravenous fentanyl, and the number and timing of intranasal naloxone doses required to reverse any observed respiratory depression. When respiratory function reaches a critical value, a message prompts users to administer naloxone. The respiratory response is then presented. **Results:** The simulator model was able to reproduce the effects of fentanyl and naloxone as portrayed in the literature. The model demonstrated that higher fentanyl doses require multiple doses of naloxone over time to reverse respiratory depression, due to its shorter duration of action. The model provides the viewer with the steps to administer intranasal naloxone, call 911 for definitive medical help, and to conduct rescue breathing. **Conclusions:** The simulator model can be used to increase public awareness, especially among teenagers of the danger of fentanyl overdose and the proper use of naloxone. Model demonstrates the increased potency of fentanyl and how easily and rapidly it can produce severe, fatal respiratory depression. The model clearly demonstrates the short half-life of naloxone. Additional doses of naloxone may be required for fentanyl-related overdoses, and therefore it is essential to call 911 as soon as possible in the event of suspected opioid overdose, even if the rescuer is equipped with naloxone.

Concerns an Opioid Antidote Could “Make Things Worse”: A Comparison of Belief in Risk Compensation Among Emergency Responders and Treatment Providers Participating in Naloxone Distribution Training

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Background: Among the largest barriers to widespread adoption of naloxone distribution programs are concerns that individuals who use opioids and have access to naloxone will engage in more dangerous drug use, be less likely to seek treatment, and otherwise feel enabled in their drug use. Despite an absence of empirical support for compensatory behavior, these beliefs remain widespread. To date, no investigations have examined differences in perceived risk of naloxone-related compensatory behavior across professions, or whether these concerns are significantly modified by participation in overdose education and naloxone training. **Objectives:** The current study aimed to answer three questions: 1) Are there baseline differences in endorsement of risk compensation beliefs between emergency responders vs. substance use/mental health treatment providers? 2) Does training modify risk compensation beliefs? 3) If so, does profession type moderate pretest vs. posttest differences in such beliefs? **Methods:** Participants (N = 509) were Emergency Responders (ER; n = 378; 89% law enforcement) and substance use/mental health Treatment Providers (TxP; n = 131) who completed assessments before and after attending an overdose education and naloxone distribution program. Participants completed a 5-item scale focused on compensatory behavior in the context of naloxone access. **Results:** TxPs reported less belief in risk compensation than ERs at baseline ($t(1,544) = 8.94, p < .001$). Participants in both professions reported significant training pre-post reductions in endorsement of risk compensation claims (ER: $t(1,377) = 8.47, p < .0001$; TxP: $t(1,130) = 8.93, p < .0001$), though the difference was greater among treatment providers ($F(6, 491) = 11.53, p < .0001$). **Conclusions:** Results indicate profession-specific belief systems regarding compensatory behavior in the context of increased naloxone access. Emergency responders expressed greater concern regarding these potential iatrogenic effects. Though concerns were significantly reduced through participation in overdose education and naloxone training, the reductions were greater among treatment providers than emergency responders. These findings underscore the importance of considering profession-specific interests in the development and implementation of tailored training modules for effective overdose education and naloxone training programs.

Characteristics of Nonfatal Opioid-Related Overdoses in Massachusetts among Emerging Adults

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Background: Emerging adults (ages 18-25 years) have a higher prevalence of opioid use compared with any other age group and have high mortality from opioid-related overdoses. From a neurological perspective, these high risk individuals are in the midst of developmental changes. Hence, unique characteristics different from older adults may be relevant to the creation of effective interventions after a nonfatal overdose. **Objectives:** To describe and compare characteristics of emerging adults with nonfatal opioid-related overdose by younger age (18-21 years) and older age (22-25 years). **Methods:** We examined a retrospective cohort of individuals who experienced a nonfatal opioid-related overdose in Massachusetts between 2012-2014. We used individually linked state-based data, including medical claims, ambulance encounters, and death records. Nonfatal opioid-related overdoses were identified through hospital and ambulance encounters. We used summary statistics to describe patient characteristics of emerging adults who experienced a nonfatal opioid-related overdose. **Results:** During the study period, 22,525 people experienced a nonfatal opioid-related overdose resulting in a medical encounter. Of these individuals, 19% (n=4268) were emerging adults. Twenty-eight percent (1209/4268) of emerging adult nonfatal overdoses were among 18-21 year olds. Compared to older emerging adults (22-25 years), younger emerging adults (18-21 years) were 43.8% (n=530) female versus 38.4% (n=1174) and 10.7% (n=129) homeless versus 13.7% (n=418). In the year following nonfatal overdose, 15% (n=181) of 18-21 year olds received buprenorphine and 6.7% (80) received methadone compared to 19% (n=584) who received

buprenorphine and 11.8% (361) who received methadone in the 22-25 year-old age group (Table). **Conclusions:** Emerging adults represented nearly 1 in 5 non-fatal opioid-related overdoses in Massachusetts between 2012-2014. The majority of these were in 22-25 year olds. Characteristics of emerging adults appear to evolve over the 18-25 year-old period and treatment after an overdose varies by age with implications for engagement in care. These evolving characteristics include gender, housing status, and history of medication treatment. In the year following an overdose, fewer than 20% received medication treatment with buprenorphine or methadone. Next steps will be to explore factors associated with engagement with addiction treatment after nonfatal overdose to prevent future overdose mortality in this age group.

Non-prescription Fentanyl Positive Toxicology: Prevalence, Positive Predictive Value of Fentanyl Immunoassay Screening, And Description of Co-Substance Use

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Background: Fentanyl is a synthetic opioid that is 50-100x more potent than morphine. Opioid overdose deaths in Massachusetts linked to illicitly-manufactured fentanyl sold as heroin have increased dramatically. In response, Boston Medical Center added presumptive urine fentanyl testing with reflex confirmation testing to standard urine toxicology panel. **Aim:** To describe fentanyl toxicology test results at Boston Medical Center, identify the positive predictive value of presumptive fentanyl immunoassay, and describe co-substance use among those with unexpected fentanyl positive results. **Data and Methods:** All inpatient and outpatient urine toxicology tests between January 1, 2016 and June 30th, 2016 were included. We excluded individuals with an outpatient prescription for fentanyl or administered fentanyl within 72 hours of the urine drug test. Positive presumptive fentanyl immunoassay tests underwent reflex chromatography confirmation testing for acetyl fentanyl, fentanyl, and norfentanyl. Samples that confirmed positive for acetyl fentanyl and/or fentanyl and/or norfentanyl were considered true positives. **Results:** Of 11,873 urine samples, 10.4% of samples screened fentanyl positive and 8.8% were confirmed fentanyl positive. The positive predictive value of a positive urine fentanyl screen was 85.7%. Of 4,398 unique patients, 13.2% had at least one test confirmed positive for fentanyl. Patients with confirmed fentanyl positive were more likely to have positive urine drug test for barbiturates, benzodiazepines, cocaine, methadone, and opiates, and less likely to have oxycodone or buprenorphine. **Conclusion:** Among patients tested at a New England urban safety-net hospital, non-prescription fentanyl use was common and was associated with greater use of other substances, warranting the inclusion of routine fentanyl testing. While the positive predictive value of the screening test was high, confirmation testing detected substantial numbers of false positives.

	All samples (n=11,873)	Confirmed Fentanyl Positive Samples (n=1,053)	Fentanyl Negative Samples (n=10,820)	p value
Fentanyl screen positive	10.40%	100%	0%	
Fentanyl confirmed positive	8.80%	100%	0%	
Amphetamines	5.60%	6.40%	5.50%	
Barbiturates	1.10%	1.70%	1.00%	0.03
Benzodiazepines	11.70%	19.80%	9.90%	<0.001
Buprenorphine	52.10%	46.90%	52.50%	<0.001
Cocaine	8.60%	35.50%	6.00%	<0.001

Methadone	7.70%	15.00%	7.00%	<0.001
Opiates	15.20%	60.30%	10.80%	<0.001
Oxycodone	12.00%	7.10%	12.50%	<0.001

“It’s Not Heroin Anymore!” Experiences Injecting Adulterated Heroin in Four East Coast States

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Background: Fentanyl and other synthetic drugs are being found in heroin or sold as heroin in the United States (1). Some of the highest increases in overdose deaths from synthetic opioids have happened in Massachusetts, New Hampshire, Maryland and Maine (2). Although street heroin usually varies in purity and adulterants (3, 4), including episodes of contamination with fentanyls (5), the duration and extent of the current US opioid overdose epidemic suggests something more unusual may be occurring in the heroin supply. With their intimate experience of the drug supply, people who use heroin can be a valuable source of knowledge in understanding these changes. **Objective:** To investigate perceptions and experiences of the contemporary US heroin supply among people who inject heroin and how they are interpreting and adapting to heroin use amidst increased overdose risks in cities across four eastern states. **Methods:** The ‘Heroin in Transition’ study conducts rapid ethnography at sites where new or unusual forms of heroin have been reported. Interviews (n=65), ethnographic observation, film and photography were conducted with people injecting heroin in urban areas of Maryland, Massachusetts, New Hampshire and Maine (2015-2017). We will examine their experiences and perceptions of using heroin in the current supply along with researchers’ observations. **Results:** The term ‘heroin’ is being used loosely to describe a range of products on sale. Interviewees described some as ‘real’ heroin, some containing heroin with other psychoactive adulterants and others as synthetic drugs with zero heroin content. Some respondents were using tester shots as a precaution against overdose. Many reported the recent deaths of friends, family and acquaintances from overdose. While knowledge of fentanyl and its pharmacological properties varied widely across these sites, people who injected drugs expressed contrasting approaches in seeking, avoiding or keeping themselves safe from heroin suspected to contain fentanyl. **Conclusion:** Rigorous testing of ‘heroin’, standardized across laboratory facilities, is needed to inform both those using drugs and those working with them regarding the actual content of the substances. Continued support for and expansion of naloxone distribution and training is needed along with locally tailored advice on the use of tester shots.

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Towards a Typology of the New Heroin: User Perceptions of and Experience With ‘Heroin’ in New England

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Background: Since 2011 opioid-related overdose deaths in Massachusetts have more than tripled, with 1979 deaths reported in 2016. Of the 1374 deaths where a toxicology screen was available, approximately 75% screened positively for fentanyl (1). Fentanyl, a synthetic opiate, is 25-40X more potent by weight than heroin and its presence makes heroin use more unpredictable and deadly. An ethnographic team qualitatively assessed heroin, its adulterants and their use in the region.

Objectives: To understand the perceptions and experiences of people who inject drugs (PWID) sold as heroin in Massachusetts and examine the resultant medical and social consequences of these emergent heroin forms.

Methods: A team of five conducted a rapid ethnographic assessment in northeast Massachusetts and Nashua, New Hampshire in June 2016, performing (n=34) qualitative interviews with PWID eighteen or older.

Results: Analysis indicated: 1) the composition and appearance of heroin changed in the last four years; 2) heroin was cheaper and more widely available than before; and 3) heroin 'types' had proliferated with several products being sold as heroin in New England. These consisted of two forms of heroin (alone), fentanyl (alone), and a combination. In the absence of readily available toxicological information on retail-level heroin, our research noted a hierarchy of fentanyl perception methods, with embodied effects considered most reliable in determining if 'heroin' had fentanyl in it, followed by taste, then appearance. Solution appearance was usually thought to be more reliable than powder color. This presentation will describe the new 'heroin' typology and discuss PWIDs' perceptions of and adaptations to these substances.

Conclusions: Heroin in New England has new appearances, is increasingly adulterated by fentanyl and is causing overdoses at alarming rates. The heroin typology presented is inexact but can be validated by correlating PWIDs' discernment with drug toxicological testing. If validated, this typology would be a valuable harm reduction tool. Further research on IDUs' adaptations to heroin adulteration could reduce risks in this new normal of heroin/synthetic combinations.

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1. Internal Medicine Resident Attitudes and Skills Regarding Opioid Overdose Prevention Efforts

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Background: Opioid overdose deaths continue to rise. Efforts to reverse this epidemic include community-based opioid overdose prevention education and naloxone distribution. There is growing interest in incorporating overdose prevention efforts into curriculum for physician trainees. However, few residency programs deliver such curriculum and little is known about internal medicine resident attitudes towards training patients in opioid overdose prevention efforts. It is also unclear if differences exist between residents in categorical and primary care programs. **Objectives:** We examined resident attitudes and skills regarding overdose prevention efforts and explored differences by program. **Methods:** Between 2016-2017, we conducted a cross-sectional study of internal medicine categorical and primary care residents at an academic medical center in the Bronx, NY. Online surveys were anonymously administered to all 150 residents. Questions were adapted from a previously published survey and inquired about demographic characteristics, clinical practice, and confidence in, responsibility for, and barriers to overdose prevention efforts. We conducted simple frequencies for these categories and Likert scale data were dichotomized to examine differences by residents' program using chi-square tests. **Results:** Of 85 residents (59% response rate), mean age was 30 years, and most were categorical residents (72%) and white (53%). About half (53%) were first-year residents. Many residents do not 1) routinely screen for risk of overdose (67%) or 2) educate on overdose prevention and prescribe naloxone (85%). Although most feel responsible to screen (93%) and provide education and prescribe naloxone (86%), few are confident in their ability to do so (46% and 15%, respectively). Compared with categorical residents, primary care residents routinely screen for risk of overdose (71% vs. 18%, $p < 0.001$), provide overdose prevention education and prescribe naloxone (29% vs. 7%, $p < 0.05$), and feel confident in these practices (76% vs. 28%, $p < 0.001$). **Conclusions:** Internal medicine residents feel responsible for counseling their patients to reduce opioid overdose risk and prescribe naloxone, but few do so in clinical practice. Residency education should improve resident skills in overdose prevention education and prescribing naloxone. Additionally, different curricular needs may be necessary for primary care versus categorical residents.

2. Pediatric Clinicians' Responses to a Computer-Facilitated Adolescent Substance Use Screening and Brief Advice System for Primary Care

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Background: Clinician feedback is critical for determining feasibility and likelihood of adoption of an adolescent screening and brief advice system at busy pediatric practices. **Objective:** To assess clinicians' experiences implementing computer-facilitated Screening and Brief Advice (cSBA) with adolescent primary care patients. cSBA consists of a self-administered screen with personalized feedback and education about substance use-related health risks that patients complete on a tablet computer before seeing their clinician. The system produces a Clinician Report with screening results and "talking points" for brief advice. **Methods:** After completion of patient recruitment, clinicians at five Boston-area pediatric practices were invited to complete an online questionnaire comprised of 18 closed- and open-ended items on usefulness, challenges, and suggestions for improvement. Two investigators independently reviewed the open-ended responses to derive main themes, negotiated differences to achieve consensus, then coded all responses. **Results:** 50 of 54 (93%) participating clinicians completed the survey. Responders had been in practice a mean of 17 ± 9.7 years since residency. Nearly all (88%) rated cSBA as moderately/very useful in their practice; 80% reported increased confidence in addressing adolescent substance use; 62% would recommend it to other providers, while 32% were undecided. System components cited as most useful were the pre-visit screening, report of results and risk level, and recommended tailored talking points that reinforced science-based information. Some

noted that pre-visit self-administered screening seemed to increase patient honesty over face-to-face clinician interview. Many liked that cSBA helped initiate and guide a discussion with their patient tailored to risk level; e.g., they gave more praise and encouragement to their non-using patients for making healthy choices, and discussed prevention strategies. Respondents reported receiving positive feedback from parents who appreciated having their children receive science-based prevention messages from professionals they trust and respect. The most difficult aspects of cSBA included an increase in visit time for some patients, and its lack of integration into the EMR system; many suggested having it built into the EMR to streamline the workflow. **Conclusions:** Clinician feedback supports the utility and feasibility of the cSBA system for pediatricians' offices; integration into EMR systems is needed.

3. Sexual and Physical Assault and Substance Use: An Analysis of Cannabis Use among Community Recruited Urban Women

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Introduction: Sexual and physical assault are known correlates of substance use, particularly cannabis use. However, research on the prevalence of recent cannabis use among community recruited urban women with a history of trauma is sparse.

Objective: We aim to examine the effects of sexual and physical assault on recent cannabis use among community recruited urban women. **Methods:** Data were derived from 204 participants in the PERMSS Project: Promoting Education and Research on Mood, Stress, and Substances, recruited from various community sites in Baltimore, MD. The Life Events Checklist (LEC-5) was used to assess lifetime sexual (e.g. sexual act performed through force, threat, or harm) and physical (e.g. beaten-up, attacked/threatened with a weapon) assault, while the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) assessed past 3-month cannabis use. **Results:** Among our sample, the prevalence of lifetime sexual and physical assault was 22% (N=43) and 37% (N=72) respectively, with 26% (N=53) reporting past 3-month cannabis use. Participants were categorized as never experiencing physical or sexual assault (59%), either experiencing sexual or physical assault (22%), and experiencing both sexual and physical assault (19%). Multivariable logistic regression analyses revealed that women who experienced both sexual and physical assault had over twice the odds of recent cannabis use compared to non-victims (AOR 2.42, 95% CI: 1.01-5.82). However, women who experienced either physical or sexual assault, with the clear majority of these women only experiencing physical assault, had three times the odds of cannabis use compared to non-victims (AOR 3.04, 95% CI: 1.4-6.63). Furthermore, when asked to report which drug caused the most problems in their lifetime, victims of sexual assault compared to non-sexual assault victims, identified cannabis as the second most problematic substance (19% vs. 10%) (p value <.001); while victims of physical assault, compared to non-physical assault victims, identified cannabis as the most problematic substance (17% vs. 9%) (p value <.001). **Conclusion:** Victims of assault had significantly greater odds of recent cannabis use and were more likely to identify cannabis as causing lifetime problems. Interventions to identify and reduce cannabis use among assault victims are warranted.

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4. A Comparative Analysis of Online vs In-Person Opioid Overdose Prevention Training for First Year Medical Students as an Adjunct to Basic Life Support

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Background: To help address the growing opioid overdose epidemic and increase substance use topics in medical school curricula, the authors introduced opioid overdose prevention training with naloxone for all first year medical students as an adjunct to required basic life support training, as an online and in-person training over three years. In our prior work we demonstrated that in-person opioid overdose prevention training as an adjunct to BLST improves knowledge and preparedness. **Objectives:** To compare the educational outcomes; knowledge, preparedness, and attitudes, for online vs in-person opioid overdose prevention training. **Method:** Opioid overdose prevention trainings were conducted in person in the Fall of 2014 and the Fall of 2015, and online in the Fall of 2016. First year students completed pre- and post-training surveys covering three measures: knowledge, attitudes towards patients with opioid use disorders, and self-reported preparedness to respond to an opioid overdose. Online and in-person scores across all three measures were compared using an ANCOVA across two years of trainings. **Results:** As compared with in-person-training online-training was not statistically different when controlling for pre-test scores for knowledge (Estimate -0.06, 95%CI -0.48 – 0.35) and Attitudes (Estimate 0.64, 95%CI -0.22 – 1.50), with statistical evidence for superiority for preparedness (Estimate 2.10, 95%CI 0.97 – 3.22). Feedback from both years were generally positive, with 96% of the in-person group saying future classes should receive the training and 95% of the online group saying all medical schools should provide the training. **Conclusions:** Online-training has become a more common method of medical education due to its many advantages including standardization, scalability and flexibility to accommodate asynchronous learning. However, few studies have performed analyses of online-training vs in-person-training for relative effectiveness. The authors have demonstrated that for opioid overdose prevention training, online-training is statistically comparable to in-person-training. These results and the advantages of online curricula, support the use of online-training for opioid overdose prevention training. These results support the further expansion of online opioid overdose prevention training to other groups.

5. Impact of a Student Led Opiate Overdose and Naloxone Distribution Intervention to Supplement RN & NP Curriculum

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Background: Opioid overdose (OO) leads injury related deaths with over 52,000 in the United States in 2015. Increasingly, nursing curricula are including content related to opioid use, yet skills related to OO prevention are not always taught. To address this gap, the Nursing Students for Harm Reduction (NSHR) created a naloxone training program. The program was grounded on the evidence that naloxone trainings for community bystanders reduce OO and local emergency room costs.

Objectives: The hour long, interactive training is based on harm reduction principles that encourage strategies to reduce the harms associated with opiate use disorder and the national opioid epidemic. The objectives of the program are to provide information on opioid epidemiology and impact, harm reduction principles, recognition of and response to OO, naloxone administration, and for the nurse practitioner participants, encourage co-prescribing naloxone with opiates. **Methods:** NSHR offers this training to pre-licensure, master's specialty, and doctoral nursing students at Johns Hopkins and University of Maryland at Baltimore Schools of Nursing. Students were informally asked about their motivation for attending and the impact of the training on their education and nursing practice. **Results:** In collaboration with the Baltimore Harm Reduction Coalition, NSHR has trained 728 nursing students since 2015. Motivations for attending the training included, "desire to help community or family members," "its timeliness," and "seeking more information about OO." Upon completing the training attendees reported feeling more confident about discussing naloxone and OO with patients and family members. Nursing students report that the training was an important addition to their nursing education and an important skill they will use in practice and in the community. Additionally, two OO reversals have been reported by attendees. There is a dearth of literature addressing the role that nursing students, nurses, and nurse practitioners can play in combating the opioid epidemic. **Conclusions:** With the rising OO rate, nurses, as bystanders, educators, and prescribers, have an important role in reducing the fatality of these events. NSHR's

hour long extra-curricular training provides the essential knowledge and skills to competently provide OO rescue.

6. Discrepancies Between Favorable Attitudes About Substance Use Interventions and Use of SBIRT in Clinical Practice

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Background: Behavioral health workforce shortages in the field of substance and alcohol use treatment have prompted master's level social work programs to increase curricular attention in this area. Federally funded Screening, Brief Intervention, and Referral to Treatment (SBIRT) training programs have been introduced to bridge this skill gap and enhance preparedness among an interdisciplinary workforce. Ensuring support and practice of SBIRT skills in the field is necessary to better serve patients impacted by substance and alcohol use. However, sufficient data regarding the facilitators and barriers to SBIRT use in clinical field placements is lacking. **Objective:** The purpose of this evaluation was to assess students' and field instructors' indication of importance, appropriateness, and confidence in using SBIRT and to explore student SBIRT use in practice. **Methods:** SBIRT training participants included master's-level social work students (n=253) and clinical field instructors (n=63). SBIRT attitudes, confidence in skill use, and importance were measured post-training by the MU-ADEPT Attitudes, Self-Perception of Knowledge, and Skills instrument among both groups. Students' SBIRT use in field placements was measured 30 days post-training by a two-question measure assessing their frequency of SBIRT use and if there was no use, why not. Field instructors' confidence in supervising SBIRT was measured pre- and post-training on a Likert-type scale. **Results:** 79% of clinical field instructors and 69% of students agreed or strongly agreed that substance use screening and intervention are important and appropriate. Students overwhelmingly reported not utilizing SBIRT in practice: 76% of students cited a "lack of support or resources from their placement site" or that SBIRT "does not fit within their internship responsibilities," despite 89% of field instructors expressing confidence in supervising students' use of SBIRT. **Conclusions:** Understanding the disconnect between favorable attitudes toward substance use screening and intervention and use of SBIRT skills in clinical practice is critical. Qualitative inquiry into barriers to the implementation of SBIRT in practice among clinical field instructors, partnered with nuanced questioning regarding students perceived barriers to SBIRT use, are crucial next steps to enhancing the connection between classroom education and clinical practice.

7. Using the Alcohol Single-item Screening Question for Screening and Assessment in the Emergency Department

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Background: Streamlining the assessment of unhealthy alcohol use may help boost adoption in Emergency Departments (EDs). The validated single-item alcohol screening question may provide information on severity (Saitz et al., 2009, 2010, 2014), and eliminate the need for further assessment to guide intervention. **Methods:** A nearly random convenience sample of English or Spanish-speaking adults from an urban, public ED were asked "How many times in the past 12 months have you had [X] or more alcoholic drinks in a day?" (where X is 5 for men and 4 for women). Patients with positive responses (i.e. any use) were asked to select the closest frequency of use among "less than monthly," "monthly," "weekly," or "daily or almost daily," followed by the Alcohol Use Identification Test (AUDIT). We tested our hypothesis that heavy drinking frequency dichotomized to [less than or equal to monthly] vs. [weekly or more] could discriminate between patients with AUDIT scores of 0-15 (zones 1-2) and 16-40 (zones 3-4), to determine who should receive brief advice vs. brief intervention. We calculated the sensitivity, specificity, likelihood ratios, area under the receiver operating curve

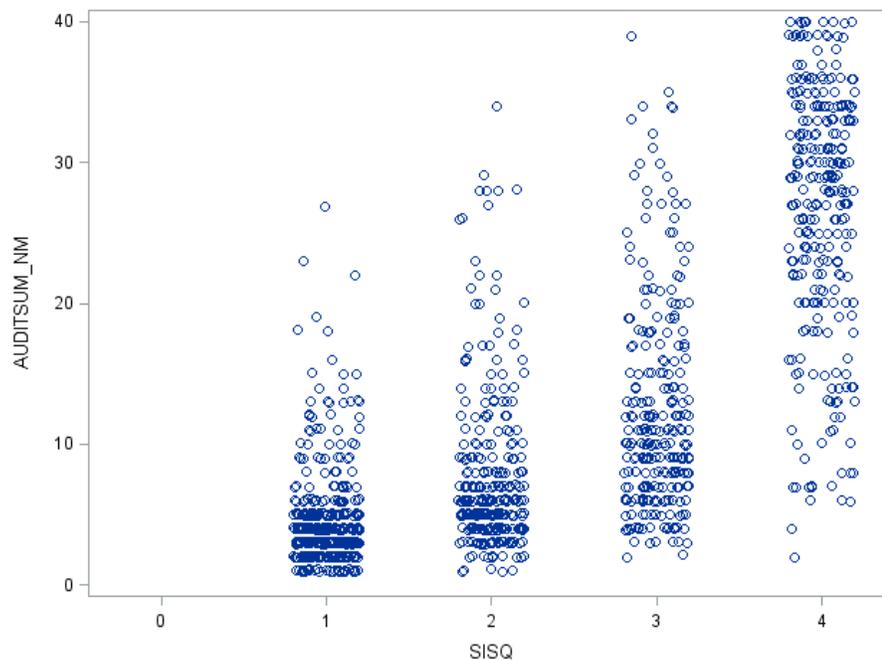
(AUROC), and performed k-fold cross-validation using k=5 folds.

Results: 1310 of 4281 patients (30.6%) screened positive for unhealthy drinking. Among those, 72.3% had an AUDIT score ≤ 15 ; 27.7% had a score > 15 . Figure 1 shows the positive relationship between AUDIT score and heavy drinking frequency. Using a frequency of weekly or more to identify patients with an AUDIT score of > 15 had a sensitivity of 89.3%, specificity of 74.0%, positive likelihood ratio of 3.43, negative likelihood ratio of 0.14, AUROC of 0.90 (95% CI: 0.88–0.92), and cross-validation AUROC of 0.85 (95% CI: 0.82–0.88).

These relationships held across, age, sex, and race/ethnicity.

Conclusions: In this sample of ED patients, the categorized frequency of heavy drinking reported in the single-item screening question was excellent at discriminating AUDIT scores at a cut-off of 15, and thus at determining intervention.

Figure 1: Jitter plot of AUDIT score and heavy drinking frequency (0 = never, 1 = less than monthly, 2 = monthly, 3 = weekly, 4 = daily/almost daily)



8. Launch of Universal Screening for Behavioral Health Conditions at a Safety-Net Health System

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Background: There is significant evidence supporting screening for depression and unhealthy alcohol use in primary care settings; many health-care systems are embarking on screening programs targeting behavioral health (BH) conditions. **Objectives:** To describe the experience of a BH screening program at a Massachusetts safety-net health system. **Methods:** We introduced a program of annual screening for adult primary care patients. We used the Patient Health Questionnaire-2 (PHQ-2) to screen for depression, NIAAA-single-item question to screen for alcohol, NIDA-single-item question to screen for drug use; we also pilot-tested anxiety screening. Patients with 'positive' results on initial screening tools received secondary assessments (PHQ-9, AUDIT, DAST). After the program had been in place for one year at 11 primary care practices, we collected data from the Electronic Medical Record (EMR) including demographics, medical conditions, BH diagnoses, screening rates and results, and health-care utilization. **Results:** There were 82,999 adults in our patient population; 35% had Medicaid, 34% commercial insurance, 10% Medicare, and 1% uninsured. Thirty-nine

percent were white non-Hispanic, 19% Hispanic, 16% black non-Hispanic, and 9% Asian. We screened 58% of the adult population for depression, and found a ‘screen-positive’ rate of 19%; 35% of patients had ≥ 1 day of heavy alcohol use in the past year and 7% had used an illegal drug or prescription medication for non-medical reasons. Of 3764 patients who completed an AUDIT, 20% had results consistent with hazardous alcohol use. Of 1060 patients who completed a DAST, 25% had results showing at least a ‘moderate’ level of problems related to substance use. Among patients with an addiction diagnosis, 38% screened ‘positive’ for depression. Eleven percent of patients with an addiction diagnosis had ≥ 1 inpatient hospitalization during the year (vs. 5% of the general population); 37% of patients with addiction had ≥ 1 Emergency Department visit (vs. 23%).

Conclusions: Screening for mental health and addiction conditions in a safety-net primary-care population is feasible, and reveals prevalence rates warranting attention. Among patients with addiction, co-existing mood symptoms are common, and need for medical care is significant.

9. Collaboration for the Development of Alcohol Screening and Brief Intervention (SBI) Training Modules

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Background: The American Association of Colleges of Nursing (AACN), the Centers for Disease Control and Prevention (CDC), John Hopkins University School of Nursing and the University of Pittsburgh School of Nursing collaborated on a Workforce Improvement Project (WIP) to Develop Alcohol SBI Online Training Modules for advance practice nursing students. Alcohol SBI refers to a public health intervention of routinely screening and identifying patients who may be drinking too much (CDC, 2014). Alcohol consumed during pregnancy, also known as alcohol-exposed pregnancies (AEP), can lead to birth defects or Fetal Alcohol Spectrum Disorder (FASD) (Green, et al., 2016). The WIPs online training modules were developed to address the gap in alcohol-related content in nursing curricula.

Objectives:

- Describe how Alcohol SBI can be used to promote health and wellness for women.
- Review the specific components of Alcohol SBI.
- Implement online educational modules for the workforce development of nurses.

Methods: The WIPs online training modules were based on the CDC publication, Planning and implementing screening and brief intervention for risky alcohol use: A step-by-step guide for primary care practices (CDC, 2014). This publication provided the framework for the development of the online modules. Regular meetings between subject experts and development teams occurred for the development of the online modules. Special focus was given to the assessment portion of the online modules to ensure learners would be provided with authentic assessments.

Results Advanced Practice Nursing students took a pre-test; completed Alcohol SBI 101, FASD 101, and one nurse-specialty (Clinical Nurse Leader, Nurse Administrator, or Nurse Informaticist) module; then completed a post-test to demonstrate mastery of the core content. Alcohol SBI knowledge significantly increased ($t(5)=2.99$, $p=0.01$); as well as Role Adequacy ($t(5)=2.99$, $p=0.012$), Role Support ($t(5)=3.08$, $p=0.03$), and Task Specific Self-Esteem ($t(5)=3.12$, $p=0.03$). Advanced practice nursing students expressed satisfaction with the course (92%). **Conclusions:** The WIPs online training modules are easily accessible, online educational programming that bring Alcohol SBI to advanced practice nursing students and provide an interactive method for achieving competency in the delivery of Alcohol SBI.

10. National Survey on Policies and Procedures and Experiential Requirements for Drug Screens in Pharmacy Programs

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Background: Substance misuse is a national epidemic and threatens all communities, resulting in an array of social, economic and healthcare costs. It does not discriminate by age, race, gender, geographic location or income. Alarming numbers of healthcare students report using substances during class, at work and while performing patient care activities. Drug screens are one deterrence mechanism to substance misuse, as well as a tool in determining the extent of substance misuse within a healthcare program. **Objectives:** Explore drug screening requirements, policies, and procedures among pharmacy programs, the frequency of drug-related incidents, and types of substances misused by pharmacy students. **Methods:** IRB-approved web-based and paper surveys were sent to pharmacy deans, experiential education, and student affairs personnel at 135 US ACPE-accredited and candidate status programs. The survey instrument used skip logic and consisted of 4 to 26 questions, depending on individual responses, plus 6 demographic questions. The researchers computed descriptive statistics and conducted chi square tests to analyze the data, identify relationships and draw conclusions (SPSS, v. 24.0.0.0, IBM). **Results:** Ninety-eight administrators responded (73% response rate). Sixty-one percent reported a urine drug screen requirement for students, with a 10-panel screen most commonly (72%) required. Ninety-three percent of programs require students to pay for screening, with the cost averaging \$42 per screen. Programs reported an average of 2.7 substance-related events per year, with alcohol, marijuana, amphetamines, opioids and benzodiazepines most commonly involved. Schools that do not screen reported twice as many incidents as those that screen students. **Conclusions:** Only two-thirds of the schools of pharmacy have a drug screening policy and those that do, their policies generally are non-random, and ill-defined. If a drug screening program is instituted, random screening is ideal, with direct observation of the specimen collected. A written policy with specific procedures that address a variety of situations should be consistently and fairly applied among all students - as drug abuse does not discriminate. These results will assist healthcare professional program administrators, in evaluating their need to institute or enhance a drug screening program.

11. Marchiafava-Bignami Disease (MBD) and Diffusion Tensor Image (DTI) Tractography

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Background: Introduction: MBD is a rare central nervous system disease characterized by demyelination of the corpus callosum mostly found in men with alcohol use disorder and malnutrition. The onset is sudden, presenting with stupor, coma or seizures and sometimes gait abnormality (spasticity), psychiatric problems, hemiparesis, aphasia, apraxia and incontinence with a resultant high morbidity and mortality rates.

Learning Objectives: To create awareness so that clinicians will be able to identify the symptoms of MBD when patients with alcohol use disorder and malnutrition present with the similar symptoms. **Case Presentation:** Patient is a 30-year-old left-handed African-American with history of hypertension, diabetes type I, hypothyroidism, alcohol use disorder, who presented with c/o altered mental status, urinary incontinence, slurred speech and left-sided weakness. Work up was done to r/o acute ischemic stroke or hemorrhage, other causes of encephalopathy, e.g. seizures with post-ictal state but all were negative. Lab findings were significant for anemia and hypoalbuminemia. He was followed by psychiatry for suicidal ideation, depression, and agitation, CT brain without contrast was unremarkable but MRI brain showed bilateral centrum ovale restricting lesion with restriction in splenium of the corpus callosum. The diagnosis of MBD was confirmed with DTI Tractography which showed significantly diminished commissural fibers extending to the right central

semiovale lesion, near absent or significantly diminished commissural fiber extending through the corpus callosum indicating demyelination. Empirical management of meningitis, seizures followed by management of malnutrition with dietary supplements, multivitamins, and rehabilitation. He responded to treatment, evidenced by resolution of his presenting symptoms and by day ten of hospitalization, he was cleared and discharged to home, to follow-up in the outpatient clinic. **Discussion:** This is a peculiar case because of earlier onset as opposed to onset around age 45, rapid recovery and minimal disability as he could work independently before discharge from hospital. This case also shows added benefit of the DTI tractography in the diagnosis of MBD, as clinical presentation was consistent with radiological findings. MBD is rare and often an incidental finding with high morbidity and mortality, but early diagnosis and treatment played a role in the quick recovery.

12. A Tablet-Based Device for Substance Use and Physical Activity Screening: Spontaneous Use in Primary Care Waiting Rooms

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Background: Screening and brief intervention for unhealthy substance use in primary care is challenging. Electronic devices may help clinicians to deliver screening and brief interventions to their patients, but spontaneous use in waiting rooms may be limited. **Objectives:** We developed a tablet-based device specifically designed for primary care practices waiting rooms. The device offers screening for tobacco, illicit drugs, prescription drugs, physical activity and those screening positive for unhealthy alcohol use have the option of completing an electronic brief intervention. The aim of the study was to assess how patients would use the device in their primary care physician's waiting room. **Methods:** In February 2017, we recorded the number of patients attending 4 primary care practices, the number of patients completing the screening and screening results. On random half-days, a research assistant was present to offer patients to use the device, allowing for comparison between spontaneous and assisted use of the device. When the research assistant was not present, a poster invited patients to use the device.

Results: Out of 1781 patients attending the 4 practices, 342 (19.2%) used the device. Spontaneous use was lower (243 completed screen out of 1501 patients, 16.2%), compared to use assisted by a research assistant (99 completed screen out of 280 patients, 35.4%). Data indicated a profile of heavier severity for patients with spontaneous use, compared to counterparts, being younger (44.5 [17.1 vs. 49.9 [16.9], $p=.009$), more likely to smoke cigarettes (41.3% vs. 29.6%, $p=.04$), and use drugs (11.5% vs. 4.1%, $p=.04$), respectively. No statistically significant group differences were observed regarding proportion of patients with unhealthy alcohol use (58.4% vs 49.0%), prescription drug use (26.3% vs. 16.7%) and reporting insufficient physical activity (52.3% vs. 47.9%). Spontaneous use was associated with a 54.5% completion of an electronic alcohol brief intervention (45.8% completion with assisted use). **Conclusions:** Spontaneous use was lower compared to assisted use and appeared to self-select patients with tobacco and drug use who appear more likely to use the device.

13. Attitudes Toward Buprenorphine Among Staff and Providers at an Urban Hospital Based Primary Care Clinic Before and After Implementation of an Office-Based Opioid Treatment (OBOT) Program

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Background: Prior research suggests that acceptability of buprenorphine treatment may be positively associated with its use in treatment programs. Little is known about how views about buprenorphine treatment for opioid addiction change among clinic staff and providers when clinics implement OBOT programs. **Objective:** We sought to compare clinic members' knowledge about the effectiveness of buprenorphine and attitudes about whether primary care providers (PCPs) should prescribe buprenorphine prior to and one year following implementation of an OBOT program. **Methods:** Providers and staff at an urban

academic primary care clinic were asked to complete a self-administered survey that included belief in the effectiveness of buprenorphine and opinion as to whether or not PCPs should prescribe buprenorphine, assessed using a Likert scale from 1 (strongly disagree) to 5 (strongly agree), and were dichotomized at >4 for “strong belief”. Assessments occurred both immediately prior to and one year following implementation of an OBOT program that provided physician buprenorphine waiver training and substantial nursing support. We used Chi-square tests to examine differences in staff and provider attitudes between the two time points. **Results:** There were 71 clinic team members in the initial sample; the following year, 39 members completed the survey. Age, race, and gender of participants who completed the second survey did not significantly differ from those who completed the baseline survey. One year following implementation of the OBOT program, 56% of providers and staff believed strongly that buprenorphine was effective for treatment of opioid addiction, compared to 48% who held this belief prior to implementation ($p=0.38$). Staff and providers were significantly more likely to strongly believe that PCPs should prescribe buprenorphine following the first year of the OBOT program (69% vs 39%, $p=0.003$). **Conclusions:** In this urban academic primary care clinic, views about buprenorphine treatment changed following implementation of an OBOT program. Clinic members were more likely to believe strongly that PCPs should prescribe buprenorphine for treatment of opioid addiction.

14. Implementation of Buprenorphine Training For Internal and Family Medicine Residents

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Background: Opioid use disorder (OUD) is undertreated nationally in part due to a shortage of experienced providers. Skills acquisition during residency has been shown to translate to a higher likelihood of using those skills in independent practice. Providing buprenorphine training and support to residents is a potential tactic for addressing the OUD epidemic. **Objective:** We aimed to train internal and family medicine residents to obtain their DEA waivers, then empower them to treat OUD with adequate supervision via an ongoing didactic curriculum. We identified baseline perceptions among residents undergoing the training, including perceived barriers to treating OUD in resident continuity clinics, degree of confidence in the management of OUD, and concerns about integrating the treatment of OUD into current practice. **Methods:** Three trainings were held residents using the Providers’ Clinical Support System For Medication Assisted Treatment (PCSS-MAT) curriculum, augmented with an additional hour describing the logistics of our residency clinic office-based opioid treatment (OBOT) program. Baseline perceptions regarding OUD treatment were obtained prior to the training. After the training, residents were encouraged to offer treatment to appropriate patients in their existing panel, or to see new patients referred specifically to OBOT. We offered on-going oversight from attending physicians experienced in the treatment of OUD, as well as protected time for case-based didactics to discuss difficult cases. **Results:** 58 residents attended the trainings, with 42 (72%) obtaining their DEA waivers. Overall, residents were enthusiastic about the prospect of treating patients with OUD. Lack of adequate training and time constraints were commonly perceived as major barriers to providing treatment. Generally, categorical internal medicine residents had more concerns about treating patients with OUD compared to primary care internal medicine or family medicine residents. Since the training, nine residents (21% of those waived) have provided treatment to a total of 22 patients. **Conclusions:** We successfully implemented buprenorphine training among internal and family medicine residents at a large academic center, which resulted in residents becoming waived and prescribing buprenorphine to patients in their clinic. Buprenorphine training should be an essential component of residency training to meet the growing need for effective OUD care.

15. Characteristics of Synthetic Cannabinoid Users among Youth Admitted to Inpatient Substance Disorders Treatment

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Background: Synthetic cannabinoids (SC) are full cannabinoid agonists that are one type of a growing number of chemicals referred to as new psychoactive substances. Clinical case and poison control reports indicate adverse effects including autonomic instability, renal failure, seizures, psychosis, and confusion. Little information about who is using exists, though surveys and studies with adults find SC users to be younger and users of other substances. No literature has been found characterizing adolescents and young adults in treatment, while it is not uncommon to encounter these patients. **Objective:** Identification of personal characteristics associated with SC use among 12-25 year olds in substance treatment. **Methods:** A retrospective chart review was used to identify SC users (n=227) and a comparison group of randomly selected nonusers (n=202) in patients with cannabinoid use history who were admitted to inpatient substance disorders treatment at a single facility in 2014. Logistic regression models estimated the association between characteristics (demographics, drug of choice, other drug use, school dropout, legal involvement) with SC use (lifetime/never, current=last 30-day/past). **Results:** SC use was more common among males (aOR=1.64, CI=1.02, 2.63, p=0.04), Whites (aOR=1.94, CI=1.18, 3.20, p=0.009), and Lesbian-Gay-Bisexual-Transgender identifying youth (aOR=2.19, 95% CI=1.06, 4.52, p=0.04); while it was less common among those preferring opioids (aOR=0.49, CI=0.30, 0.80, p=0.004). Lifetime use of hallucinogens was the only drug associated with lifetime SC use (aOR=1.68, 95%, CI=1.08, 2.62, p=0.03). Among SC users, 16% report it as a drug of choice and 31% were current users. Current SC use was more likely among youth that had two or more drugs of choice compared to only one (aOR=2.43, 95% CI=1.13, 5.22, p=0.02). No differences were found by age, admission status, insurance coverage, family history of substance use, history of legal involvement, or school dropout. **Conclusions:** It is important to screen all patients for SC use, though some youth may be more vulnerable to use SC such as non-opioid users, lesbian-gay-bisexual-transgender youth, and legally involved youth. Knowledge of personal characteristics that are associated with SC use may help health care providers to recognize users and consider treatment as well as recovery implications.

16. Implementation of a Pragmatic Overdose Education and Naloxone Distribution Program in an Urban Emergency Department

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Background: Distribution of overdose education and naloxone distribution (OEND) to individuals at risk for opioid overdose has been identified as one of several priority approaches to decrease opioid-associated morbidity and mortality. Despite efforts by multiple state agencies, state legislators, physicians, pharmacists and community harm reduction organizations to increase community naloxone distribution in Connecticut, barriers to OEND in high-risk populations such as emergency department (ED) patients after opioid overdose persist. **Methods:** In August 2016, a pragmatic pilot program to distribute CT Department of Public Health provided OEND to ED-patients at a single, large urban academic ED at risk for opioid overdose was implemented. A stakeholder group of pharmacists, physicians, nurses and administrators collaboratively developed a protocol for program implementation. Key program goals included OEND to patients at risk for opioid overdose and seamless integration into current ED workflow with an effort to minimize additional documentation and regulatory barriers that may impede effective implementation. No patient follow-up, enrollment or research data collection occurred, although acceptability of take home naloxone was discussed during qualitative interviews in a research study of 20 patients seeking ED care after opioid overdose that overlapped with program implementation. **Results:** Between 8/12/2016 and 3/25/2017, naloxone kits were distributed to 81 individuals (or surrogates) identified by ED staff to be at risk for opioid overdose. Patients accepting kits had a mean age of 35 (25th-75th %: 20 to 59), were predominantly white (75% white, 11% black, 11% other, 1% Asian), non-Hispanic (89%), and overwhelmingly received a kit during ED-visit for opioid overdose (89%). Concurrent qualitative interviews with patients after opioid overdose revealed an overall positive perception of community naloxone distribution, acceptability of ED-based naloxone distribution to individuals at risk for overdose and a strong desire to avoid future overdoses. **Conclusions:** Overdose

prevention and naloxone distribution programs can be integrated into the workflow of busy Emergency Departments with minimal additional requirements for ED staff and are acceptable to patients at high risk of opioid overdose, including those seeking care for acute non-fatal opioid overdose.

17. An Interprofessional Substance Use Disorders Course with Learning in the Classroom and Applying on the Floors

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Background: Substance use disorders (SUDs) affect millions of Americans. Despite its prevalence, few healthcare professionals are exposed to SUDs education in their respective programs, which may be one reason for resource insufficiency. **Objective:** We developed a SUDs course for health professions students that combined classroom learning with practical application to patient care in the clinical setting. We used Bloom's cognitive, affective, and psychomotor learning domains as an educational framework to create numerous intentional opportunities for students to deepen their knowledge, assess their attitudes, and develop their patient counseling skills. **Methods:** The primary outcome of the study was a comparison of students' scores on the Substance Abuse Attitude Scale (SAAS) pre- and post-course completion. Secondary outcome was to compare students' self-assessment scores of their patient counseling to residents' assessments of them on the Liverpool Communication Skills Assessment Scale (LCSAS). **Results:** One-hundred twelve students participated in our SUD course over a nine-month period. Ninety-five students completed both the pre- and post-course SAAS surveys. The total SAAS survey score and individual domain scores for non-moralizing, treatment optimism, and treatment intervention demonstrated significant improvement post-course. Eighty-nine students completed a motivational interview with a patient. Eighty students had a LCSAS self-assessment paired with a residents' assessment. Mean scores for individual items on the LCSAS for both groups' assessment were approximately 3.5 indicating students' communication was assessed as "acceptable" to "good." **Conclusions:** Bloom's Taxonomy was a useful educational framework to ensure a systematic development of our SUD course, and through participation in our course, students touched each of Bloom's three learning domains.

18. Addressing Addiction in Palliative Care Patients with a History of Opioid Use

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Background: Providers who care for patients with cancer and other conditions for which palliative treatment with chronic opioids is indicated have recently drawn attention to the challenge of identifying and managing addiction in this patient population [1]. Trainees often feel ill-equipped to differentiate pain from addiction or manage concerning opioid use despite frequently facing patient encounters that demand these skills [2].

Learning Objectives:

1. Identify risk factors for opioid use disorder in patients receiving long-term prescription opioids.
2. Utilize a functional goal-setting approach to pain management that prioritizes safety.
3. Coordinate care with an Addiction Medicine specialist in challenging patient encounters.

Case Presentation: A 43-year-old man with a history of Crohn disease presented with new back pain and fever and was found to have Chronic Myeloid Leukemia in lymphoid blast crisis. After initiation of curative-intent chemotherapy, the patient required escalating doses of opioids for which Palliative Care was consulted. The state prescription drug monitoring database revealed that the patient had obtained oxycodone and benzodiazepines from different providers over the past two years and had previously been prescribed buprenorphine-naloxone. Three weeks into the hospitalization, the patient was noted to have oxycodone in his pocket and a straw and credit card in his bathroom concerning for intranasal use. Palliative Care was asked to re-evaluate the appropriateness of the opioid regimen. The consultant did not identify any red flags; however,

the lack of comprehensive risk assessment during the intake process may have compromised the reliability of subsequent assessment [1].

Discussion: Taking a thorough history and using instruments such as the Opioid Risk Tool, which has been validated in cancer and non-cancer pain patients, and the Screener and Opioid Assessment for Patients with Pain Revised, can facilitate addiction risk assessment[1,3,4]. Providers should help patients define realistic goals of opioid treatment to minimize the risk of developing opioid use disorder [5]. More research is needed to inform best practices for treating palliative care patients with concerning prior opioid use [6]. Involvement of an Addiction Medicine specialist, ideally through a formal consultation service, is recommended in general medicine settings [7] and may be especially useful to overcome challenging situations.

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19. Understanding Trust/Mistrust of Healthcare in a Community-Based Substance Abuse Treatment Program

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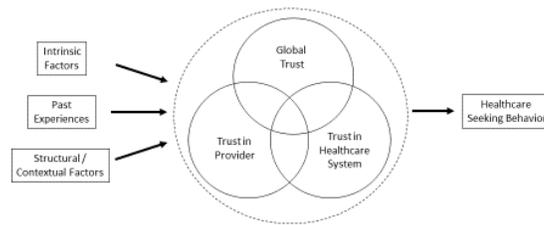
Background: Trust and mistrust of different elements of the healthcare system is an important determinant of healthcare utilization and health outcomes. The literature on healthcare trust research is categorized by studies that examine generalized trust, trust in healthcare organizations, or trust in healthcare providers. Women seeking community-based substance abuse treatment at The Next Door (TND) as they re-enter the community from incarceration, homelessness, and/or histories of personal trauma are a uniquely vulnerable population characterized by higher rates of chronic and serious health problems, higher incidence of communicable diseases, and higher rates of co-occurring psychiatric diagnoses. Mistrust has been cited anecdotally by women at TND as one of the major barriers to health optimization. **Objectives:** This qualitative study seeks to delineate clients' perceived importance of global trust, trust of healthcare systems, and trust of healthcare providers in guiding their decisions to seek care. Additionally, the study aims to identify other perceived motivations and barriers to care. **Methods:** A series of key informant interviews (3 administrative and clinical directors), one staff focus group (7 participants), and five client focus groups (34 members) were conducted, audio-recorded, transcribed and independently coded for theme extraction using open-ended interview questions developed a priori. **Results:** Qualitative data analysis identified the following thematic categories that inform our conceptual framework of "healthcare trust/mistrust" in this vulnerable population:

- Intrinsic Factors (personality/personal behaviors, beliefs/perceptions)

- Past Experiences (trauma histories, encounters with [racial] discrimination, stigma of addiction/mental health disorders)
- Structural/Contextual Factors (geographic access to care, insurance coverage/cost, professional healthcare roles and caseloads, encounters with healthcare professionals—positive and negative, naiveté navigating healthcare system, lack of guidance, limited time, inadequate resources)

While early childhood experiences shape an individual’s global trust in others, encounters with providers and the healthcare system interact to enhance or diminish healthcare trust, and subsequently influence healthcare seeking behavior. See Figure 1. Conceptual Model of healthcare Trust. **Conclusions:** This conceptual framework will inform a quantitative methods study to determine validity and reliability of existing “healthcare trust” scales and explore mediators and moderators of trust/mistrust in this vulnerable population.

Figure 1. Conceptual Model of Healthcare Trust



20. Development and Implementation of a Mindfulness Based Parenting program for Women in Treatment for Opioid Use Disorder

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Background: Mothers with opioid use disorder are at high risk for adverse childhood experiences (ACEs), poor mental health, perceived and parental stress and maladaptive parenting. **Objective:** Mindfulness Based Parenting (MBP) for Mothers in Drug Treatment is a United States Department of Health and Human Services funded trauma-informed program to improve parenting among pregnant and parenting women in drug treatment for opioid dependence, integrated into a comprehensive treatment program including outpatient medication-assisted treatment and medically monitored residential treatment. **Methods:** A pretest posttest design was used with repeated measures. 160 women were recruited from a substance use treatment program into the 12-week long intervention. Children were aged 3 to 36 months. The primary outcome was an objective measure of quality of parenting behavior. Self-reported exposure to childhood trauma, perceived and parenting stress, mindfulness, and mindful parenting were also measured and analyzed using multilevel modeling.

Results: The MBP intervention resulted in clinically significant improvements in objective quality of parenting behavior and self-reported mindful parenting. A three-way interaction suggested higher baseline ACEs and higher program attendance significantly predicted improved quality of parenting behaviors at a greater rate over time. Higher reported mindful parenting was associated with a greater rate of improvement in quality of parenting and self-reported mindfulness, perceived and parenting stress significantly improved. **Conclusions:** Study findings suggest a trauma-informed MBP intervention for parenting women with opioid dependence is associated with significant clinical improvements in quality of parenting behavior. Results show promise in supporting parenting of mothers receiving treatment for opioid dependence to enhance bonding between the dyad. This dynamic oral presentation will present the development and implementation of MBP into an opioid treatment program for pregnant and parenting women. Findings will be presented that demonstrate the effect of the intervention on self-reported and observed parenting domains. In addition, qualitative findings from the

MBP intervention on the lives of the participants will be shared. Lastly, hands-on skills and techniques tailored to the population will be demonstrated giving participants the opportunity to experience several mindfulness practices.

21. Opioid Tapering Leads to Renal Failure: When What Seems Right Turns Out Not to Be

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Background:

A rise in opioid use disorder has spurred efforts to reduce prescribing. As a result, many providers have initiated tapers unilaterally on otherwise stable patients, sometimes with favorable results. Situations where unfavorable outcomes lead to exacerbation of medical illness have not been described.

Objectives:

1. Attendees will identify risk factors for adverse outcomes from opioid taper/discontinuation
2. Attendees will describe aspects of the 2016 CDC Guideline concerning taper decisions.
3. Attendees will anticipate interactions between opioid-related care and medical illness.

Case presentation:

Patient was a 73 year old man with history of kidney transplant in 2003, admitted to hospital in spring of 2017 with worsening renal function. His history was notable for diabetes, depression, alcohol use disorder in remission and chronic widespread osteoarthritis. His medications included 3 anti-rejection medications, sertraline, and trazodone. Laboratory workup showed rising creatinine from 1.5 (fall, 2016) to 4.7 (spring, 2017), a 75% loss of his remaining renal function. He had received opioids for arthritis since 2001, with a regimen of methadone 60 mg and oxycodone 25 mg from 2011 through 2014 (217.5 Morphine Milligram Equivalents, MME). He underwent three 50% dose cuts over two years, each proposed as a safety enhancement, arriving at hydrocodone 7.5 thrice daily (22.5 MME) in July 2016. In hospital he described late 2016 as involving progressive fatigue, inability to coordinate life activities or adhere to anti-rejection medications. Kidney biopsy confirmed transplant rejection. Diuretics and anti-rejection medicines were restarted, along with oxycodone 10 mg qid. His energy improved but renal function did not.

Discussion:

This patient experienced a 90% opioid dose reduction, with progressive behavioral disorganization resulting in near total loss of his transplanted kidney and projected resumption of hemodialysis. At no point was opioid use disorder diagnosed. Persistent dysfunction after opioid taper is poorly understood but may reflect long-term CNS alterations related to both affect and reward, underlying mood disorder, and resurgent pain. The 2016 CDC Guideline on Prescribing Opioids does not recommend a policy of involuntary taper absent personalized assessment that opioid benefits fail to exceed harms. Pending definitive trial data, individualized decision-making and close follow-up are advisable.

22. Effectiveness of a Hybrid Interprofessional Format to Train Health Professions Students in Screening, Brief Intervention, and Referral to Treatment (SBIRT) for Substance Misuse and Abuse

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Background: Interdisciplinary education prepares students for interdisciplinary care in the work force. Current literature indicates health profession students trained in addictions education in interprofessional settings are satisfied with the training and feel prepared for practice as a professional. These training sessions often combine

experiential and didactic elements.

Objective: To determine the effectiveness of interdisciplinary Screening, Brief Intervention and Referral to Treatment (SBIRT) for substance misuse/abuse training using a combined online and in-person model to promote application of training.**Methods:**

Third-year pharmacy, first-year physician assistant (PA), first-year occupational therapy (OT), and graduate nursing students from Shenandoah University participated in SBIRT training in the spring of 2016. The students completed two hours of online modules covering the background, screening tools, brief intervention, and geriatrics. The live training consisted of interdisciplinary peer role-play and interviewing standardized patients. Students received surveys 30 days after completion of their first clinical rotation or 30 days post training if already in clinical training when SBIRT workshop occurred to assess SBIRT application. **Results:** Of the students trained, 239 returned a 30-day follow-up survey. Overall, 33% of the students surveyed applied SBIRT to their current practice. On a 5-point Likert scale, 54% of students were likely to use SBIRT during clinical student experiences; PA students were the most likely. Barriers to implementation most cited by students were absence of patient interactions followed by lack of preceptor knowledge. All health professions students reported they were more likely to use SBIRT as practitioners than as students. Overall 64% of students were likely to use SBIRT after graduation. **Conclusion:**

Teaching students SBIRT in a multimodal, interdisciplinary format leads to application during student clinical experiences. Students envision themselves using SBIRT more often as professionals. Location restrictions or lack of preceptor knowledge were reasons cited for why students had not yet applied SBIRT; however, when they become practitioners, these will no longer be barriers, and this may contribute to the increased likelihood of SBIRT application after graduation.

23. Operation Naloxone: Overdose Prevention Service Learning for Student Pharmacists

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Background: The U.S. is in the midst of an opioid overdose epidemic. Naloxone is the drug of choice for acute opioid overdose reversal. Provider and community education is essential to prevent overdose fatalities. Service learning programs can impact pharmacy students' attitudes regarding addiction and harm reduction. **Objectives:** To assess the impact of engaging in service learning on knowledge retention and attitudes regarding addiction and harm reduction in student pharmacists.**Methods:** Student pharmacists at The University of Texas College of Pharmacy were invited to participate in overdose prevention training. Clinical faculty led a ninety-minute train-the-trainer session covering opioid overdose epidemiology and the role of naloxone. Student directors scheduled community outreach events in college student housing cooperatives that were identified as common sites for recreational drug use. Student pharmacists engaged in each outreach event for two hours. The first hour included a team huddle to review training materials. The second hour included the workshop for college students. All student pharmacists who participated in the train-the-trainer session were surveyed to assess knowledge retention and attitudes regarding addiction and harm reduction. Responses from student pharmacists who engaged in community outreach events were compared to those who did not. A Mann-Whitney U test was utilized to analyze the data, and Hedges' g with 95% confidence intervals was used to calculate effect size.

Results: Student pharmacists participating in community outreach events had a statistically significant increase in knowledge retention scores ($p < .001$, effect size = 0.97 (0.49-1.46)). The difference in attitudes between both groups was not statistically significant ($p = .967$, effect size = 0.20 (-0.66-0.27)). However, the attitudes were mostly positive as the majority of pharmacy students either agreed or strongly agreed with various harm reduction statements, including a statement on supervised heroin injection facilities. **Conclusion:** Students who participated in outreach gained better mastery over clinical knowledge and had a slightly increased but not statistically significant positive attitude towards harm reduction. Our findings suggest that it may be worthwhile to increase outreach event opportunities in the required curriculum.

Knowledge retention

$p < .001$, effect Size = 0.97 (0.49-1.46), range 0-5

Outreach Attendance	n (%)	mean	median	SD	95% CI
Yes	28 (35)	4.71	5	0.535	4.51 - 4.92
No	51 (65)	3.82	4	1.053	3.53 - 4.12

Attitudes toward harm reduction

$p = .967$, effect Size = 0.20 (-0.66-0.27), range 4-20

Outreach Attendance	n (%)	mean	median	SD	95% CI
Yes	28 (35)	6.39	6	1.423	5.84 - 6.94
No	51 (65)	6.84	6	2.626	6.10 - 7.58

24. An Examination of Opiate Use Disorder Treatment Policies in Two Justice System Settings in South-Central PA

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Background: Opiate overdose deaths are at record levels in Pennsylvania (PA), requiring a public health approach to substance use disorders. Policymakers nationwide have called for increased access to evidence-based “medication-assisted treatments” (MAT) for opiate use disorder, utilizing buprenorphine, naltrexone or methadone. Criminal justice populations have a high prevalence of opiate use disorder, yet rarely have access to these medications. **Objective:** The project goal was to examine policies that support or hinder access to MAT in justice system settings (county jails and drug courts) in South-Central Pennsylvania, identifying areas of opportunity to improve public health outcomes. A secondary goal was to determine if there were existing statewide policy initiatives or proposals. **Methods:** I collected qualitative data from semi-structured interviews with drug court and jail staff, held meetings with statewide policy advocates, and observed drug courts. I also conducted a literature review, and examined policy reports, legislative databases, and media reports. **Results:** Echoing the literature, I found multiple policy and structural barriers. One key issue is the need for policy alignment on medications between all supervised environments, allowing for transitions by individual in treatment between the jail, drug court, day reporting center, and treatment facilities. Some advocacy for MAT access was identified, and openness to policy change by drug court or jail leadership was seen as key. Drug court staff showed limited awareness of: 1) new federal policies to drive use of MAT in drug courts, 2) a new PA state prison MAT initiative, or 3) legislative mandates in other states. Jail staff were interested in policies at other jails. Among additional research needs is exploring the belief that “separate but equal” recovery groups would be required for MAT and non-MAT participants. **Conclusion:** This project demonstrated a case study approach that could be expanded to a statewide assessment, as access and barriers to opiate use disorder treatments vary on the local level. Policy recommendations include: focusing on county jail access to MAT as a first step to wider justice system implementation; and exploring DEA regulatory changes, i.e. expanding waivers that allow methadone administration in hospitals to prison settings.

25. Enhancing Skill Development Among Undergraduate and Graduate Nursing and Social Work Students: The Curriculum Infusion Model

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Background: The pervasiveness of problems associated with substance use makes it imperative that future health professionals be trained on how to identify and address risky substance use among their patients. Research has shown that conducting screening, brief intervention, and referral to treatment (SBIRT) leads to positive patient outcomes, such as decreased alcohol use; fewer alcohol-related health problems or ED visits; improved economic outcomes due to more cost effective healthcare; and better worker productivity. Nurses and social workers are in a position to have a significant impact on substance use problems by conducting SBIRT with their patients. Unfortunately, many healthcare professionals lack the requisite knowledge and skills to identify substance use disorders (SUDs) and are often unprepared to intervene with and refer patients with substance-related problems. Previous research shows that the more substance abuse-related content is integrated into existing course work, the more likely students are to report assessing substance use in their patients post-graduation. Similarly, academic training has been shown to be a stronger predictor of preparedness than informal or formal continuing education training and theoretical knowledge will only be used in professional practice if it is functionally relevant.

Objective: Use innovative instructional strategies and curricular detailing, including discipline-specific and frontier/telehealth issues, to promote awareness, use, and implementation of SBIRT by nursing and social work students through the development of a discipline-specific Curriculum Infusion Package (CIP) that includes a sequence of didactic and experiential learning activities designed for integrated instruction and prepared for regional and national dissemination **Methods:** Undergraduate and graduate-level nursing and social work students received didactic training and then demonstrated their ability to conduct SBIRT with simulated patients in a clinical lab practice setting. **Results:** Pre-to-post survey results suggest CIPs effectively increased knowledge and decreased stigmatizing attitudes towards individuals with SUDs. Satisfaction surveys indicated students believed the training increased both their confidence and capacity to address substance abuse in their patients in medical systems and settings. **Conclusion:** This project filled a crucial gap in preparing nurses and social workers by training pre-service students to identify, intervene, and refer individuals at risk of developing SUDs and positively impact student skills, knowledge, and attitudes.

26. Prescription Drug Monitoring and Diversion Prevalence in Methadone Maintenance

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Background: Prescription Drug Monitoring Programs (PDMPs) have recently been implemented to reduce misuse and diversion of controlled substances (Sajed et al., 2016; Patrick et al., 2016; Jones et al., 2016). Given the very real potential for diversion and misuse in a medication assisted treatment (MAT) population, PDMPs may become valuable tools in this environment. **Objective:** The current study was designed to: 1) determine the prevalence of controlled substance prescriptions among individuals receiving MAT, and 2) assess whether rates of possible diversion differ across individuals with and without methadone take-home privileges (THPs). **Methods:** Participants were 70 randomly selected patients in MAT for whom Pennsylvania State PDMP reports were available across a six month window. Twenty-four of these individuals had THPs; 46 did not. Diversion of a substance was operationally defined as having less than 75% of urine drug screens positive for a controlled substance identified on the PDMP. Urinalysis results over the six month period were available in the clinical record. Prescriptions and corresponding urinalysis metabolites reviewed included opioids, benzodiazepines, amphetamines, barbiturates, and carisoprodol. **Results:** Of individuals with THPs, 13% were found to have

controlled substance prescriptions in the PDMP versus 50% of individuals without THPs. There was a trend towards more diversion of oxycodone by individuals without THPs: 4% versus 20% for those with and without THPs, respectively ($X^2 = 3.05$, $p = .081$). A similar trend was observed regarding diversion of any opioid by individuals without THPs: 4% versus 22%, respectively ($X^2 = 3.68$, $p = .055$). **Conclusions:** While it was expected that individuals with THPs would be less likely to divert controlled substances, we were surprised at the relatively low prevalence of diversion that was observed across both groups. While the data may allay some trepidation about diversion, significant safety concerns regarding overdose risk remain for those on methadone who are prescribed controlled substances with possible additive or synergistic effects. These results reinforce the need for PDMP reviews for those in MAT and plans for managing prescriptions, including coordinating care with prescribers of controlled substances to ensure safety.

27. Geriatric Conditions and Functional Status in Middle-Aged and Older Adults with Opioid Use Disorder

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Background: The number of older adults entering opioid treatment programs is growing, but little is known about the characteristics and healthcare needs of this aging treatment population. **Objective:** To determine the prevalence of common geriatric conditions in a sample of older adults currently on methadone maintenance treatment (MMT). **Methods:** We performed a geriatric assessment on a cross-sectional sample of 25 adults aged 50 years or over, currently enrolled in the opioid treatment program at Bellevue Hospital in New York City and on MMT. Self-reported data on geriatric conditions, healthcare utilization, chronic medical conditions, physical and cognitive function, walking speed, and grip strength were collected. **Results:** The mean age of participants was 59.5 years (range 52-76), 24% were female, 20% Hispanic, 40% white, 24% black, and 1.6% other. Of the participants, 80% reported a past year household income of <\$15,000. For geriatric conditions, 68% reported a fall in the previous 2 years, 20% urinary incontinence in the past year, 28% visual impairment, 12% hearing impairment, and 40% met the Fried Criteria for frailty. 80% of the participants self-reported 2 or more chronic medical conditions. For function, 12% reported a disability in the instrumental activities of daily living. In terms of health care utilization, 72% reported emergency room use in the past year, 24% were hospitalized in the past year, and 60% reported having a primary care physician. **Conclusions:** Older adults with OUD in a large urban opioid treatment program have high rates of geriatric conditions, functional disability, and acute healthcare utilization. A geriatric-based approach to clinical care that focuses on function and addresses geriatric conditions is needed to improve the health of this vulnerable and growing population.

28. Multiple Chronic Conditions and Illicit Drug Use Among US Adults

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Background: The prevalence of multiple chronic medical diseases among adults in the US is increasing, and an estimated quarter of adults have >2 chronic conditions. Adults with multiple chronic conditions (MCC) present challenges for health care systems to provide coordinated and cost-effective care. However, drug use can increase the risk for or exacerbate certain chronic diseases, and may complicate their management. Little research has focused on the burden of chronic disease and substance use problems. **Methods:** We examined cross-sectional aggregated data from 3 annual administrations (2012-2014) of the National Survey on Drug Use and Health (NSDUH) from 115,335 adults aged ≥ 18 to analyze associations between self-reported multiple chronic medical conditions and past-year drug use. We considered 12 self-reported chronic conditions queried in NSDUH and categorized the number of chronic conditions (0, 1, or >2) related to each illicit substance used (past-year use and substance use disorder). Logistic regression models were used to examine correlates of MCC

among past-year drug users. **Results:** 25.5% reported 1 chronic condition and 11.8% reported ≥ 2 chronic condition. Among adults with chronic conditions, past-year illicit drug use was reported by 22.6% with 1 chronic condition and 18% with ≥ 2 chronic conditions. Past-year substance use disorder was reported by 4.3% with 1 chronic condition and 3.7% with ≥ 2 chronic conditions. Cannabis and opioid analgesics (nonmedical use) were the most common illicit substances reported. In the adjusted model, among adults reporting past-year illicit drug use, adults with > 2 conditions were more likely to be older, have lower income, be married, report tobacco dependence, and report depression, anxiety, or having received mental health treatment in the past year. **Conclusion:** Although MCC were less common among the NSDUH participants than in other national surveys, a substantial number of adults with MCC reported using an illicit drug in the past year. Past-year illicit substance users with MCC were more likely to also have nicotine dependence and report mental health disorders, which are also chronic conditions. This group with high multimorbidity may be particularly vulnerable to the negative effects of illicit substances (e.g., unintentional injuries, adverse impact on chronic disease management).

29. What is it About My Controlled Drug Prescribing?" ... Reflections From Medical Board Identified Problem Prescribers.

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St. Vincent Charity Hospital Addiction Medicine Fellowship

Background: Prescribing controlled drugs has challenged physicians, advanced practice nurses and physician assistants for decades. Balancing the need to protect patients from harm while relieving suffering continues to be a clinical challenge to this day. Some clinicians have greater difficulty with this challenge than others, and a very small subset encounter problems from their licencing agencies due to problem prescribing. Learning about the acute knowledge, attitude and / or skill deficits of these “impaired prescribers” of controlled drugs can inform and guide the training of all prescribers. **Objective:** 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. Since 2010 each mandated course participant has submitted a pre-course reflective essay to “identify a clinical scenario, patient case or professional situation that represents the controlled substance prescribing resulting in your interest in this course”. These reflective essays have been categorized based on their common themes in order to learn about this group of problem prescribers and to develop preventative educational interventions for students and residents. – describes the program, quality improvement, or curricular objective. **Methods:** After IRB review, reflective essays were de-identified, read by the course director and categorized in the following ways: pattern v. isolated prescribing event, primary controlled drug involved, combinations of controlled drugs, diagnosis involved (i.e. pain/anxiety/ADHD/etc), and self assessment of primary skill deficit. **Results:** 752 participant essays. 77% mandated to attend. 78% prescribing pattern, 22% isolated event. 73% primarily opioids, 20% sedative-hypnotics, 7% stimulants. 72% involved chronic pain management, 15% anxiety, 6% ADHD, 3% insomnia. 21% with medical record documentation problems. 14% prescribing to family members. 4% prescriber psych/addiction impairment. **Conclusions:** There are clinical deficits present in clinicians identified as problematic prescribers by their licensing boards. These involve lack of knowledge, attitudes and skills in patterns that are quite applicable to all clinicians. Studying the acute prescribing challenges of this small group of clinicians can help inform principles of controlled drug prescribing for all trainees.

30. A Study of Methadone Treatment by Opiate-Dependent Individuals Ages 50–55 Years

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Background: Today's methadone patients differ from those of the past due to increases in polydrug use, mental health issues, and medical needs. Patients requiring methadone treatment due to their opiate dependency are now older than those who initially presented for treatment when methadone therapy first began. There will be a growing number of older people who will become dependent on opiates as the population continues to age. **Objectives:** The purpose of the present study was to assess the relationship between methadone maintenance and the life experiences of opiate users ages 50–55 years. The research engaged 8 individuals who met the criteria, acknowledged a history of opiate dependency, and were involved in a methadone maintenance program. **Methods:** Face-to-face interviews were used to collect data from Opiate dependent individuals from individual residing in the Midwest who were using methadone as part of their treatment. Content analysis of the study data was conducted with the assistance of NVivo 11 which was used to code and identify categories and themes. **Results:** Emergent themes that resulted from the study included: the impact of methadone use on participants' relationship with others, participants' attitude toward being an older methadone user, mental health stressors related to being an older methadone user, struggles in attending the methadone clinic daily, and needing other treatment besides treatment for methadone use. **Conclusions:** The study supports social change by informing professionals working with opiate dependent individuals who may want to develop or improve treatment interventions appropriate for this population.

31. Evaluation of a Workshop with Feedback and Coaching on Family Medicine Resident Motivational Interviewing Skillfulness and Attitudes

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The University of New Mexico

Background: Primary care providers can play a critical role in the prevention of disease and death by intervening to reduce behavioral risk factors. Motivational interviewing (MI) has demonstrated efficacy for a wide array of behavioral issues in medical settings. Despite its strengths, little is known about effective strategies for training providers in MI. Training workshops and performance feedback and coaching are promising strategies but little research has been conducted with resident learners.

Objectives: To evaluate the impact of a workshop and feedback and coaching on MI skillfulness and attitudes among 2nd Year Family Medicine Residents. **Methods:** Second Year Family Medicine Residents from a large academic health center were invited to participate. Participants completed a baseline assessment with self-report attitude scales and provided an MI practice sample. Two, 4-hour MI workshops were conducted and FU1 was completed. Participants were then randomly assigned to receive or not receive feedback and coaching. A second follow-up assessment was conducted (FU2). Control participants then received feedback and coaching, followed by a third follow-up (FU3). Attitude scales included MI Confidence, Perceived Responsibility, Self-Reported MI Use, and Perceived Barriers. Practice samples were coded using the Motivational Interviewing Treatment Integrity Code 3.1.1. **Results:** Of eligible participants (N=13), 12 (92%) agreed to participate and attended the workshops. 100% of participants completed FU1 and FU2 and 92% and (11/12) completed FU3. At baseline, the majority of residents failed to meet beginning MI proficiency. 25% met the beginning proficiency threshold of open-ended questions and none met the competency threshold. Similarly, only 8% met beginning proficiency of reflection to question ratio. MI Global Scores did not significantly improve following the workshop, however attitudes did significantly improve. Self-Reported Use and Confidence were significantly lower among participants who received feedback. **Conclusions:** While an MI workshop improved attitudes towards MI, changes in proficiency based on global ratings from a standardized practice sample were not observed. Clinic-based feedback and coaching improved skillfulness but negatively impacted attitudes. Though the sample size is limited, results suggest that additional workshop time may be needed to improve practice and that feedback and coaching are promising instructional tools.

32. Development of the Yale Addiction Medicine Collaborative: An Interdisciplinary Addiction Medicine Interest Group

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Background: Substance use is a leading cause of morbidity and mortality in the United States. Lack of access to care has been considered one of the key drivers of the opioid epidemic. Integrated team-based care has been proposed as component to addressing the treatment gap. To achieve this, inter-professional collaboration and education are essential. Mentoring is a critical component of the professional school experience, and education is essential to developing a competent work-force. **Objective:** The objective of the Addiction Medicine Collaborative (AMC) is to serve as a nidus for mentorship, education, and scholarship for students across the breadth of health professional schools at Yale. We also aim to promote interest in pursuing careers in addiction medicine. **Methods:** The AMC includes health professional students from the Schools of Medicine, Nursing, Public Health and the Physician Assistant training program. The AMC meets routinely to engage in didactic education, skill building activities, and service learning opportunities. The range of topics has included: opioid overdose, harm reduction strategies, the role of psychedelics in addiction, role of APRNS in addressing the opioid epidemic, and practicing addiction medicine internationally. **Results:** The AMC is formally recognized as an interest group by two health professional schools (the Yale School of Medicine and School of Nursing) and has participants from the school of public health and physician assistant training program. It has a total of 120 members and has hosted 7 events with average attendance of 30 individuals (range 10-60) at each event. To date, 99 health care professional students have been trained in naloxone, and AMC is serving as a forum to advance state-wide naloxone legislation. Additionally, the AMC collaboration led to a grant for scientific inquiry in the field of addiction medicine. **Conclusions:** The AMC is an inter-professional interest group that emphasizes collaboration and may encourage interest in careers in addiction medicine, enhance learning opportunities, and promote scholarship in the field.

33. Advanced Practice Registered Nurse Performance of Screening and Brief Intervention after Graduation

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Augusta University

Background: Though significant resources have been devoted to training students across health disciplines to perform alcohol and drug screening, brief intervention, and referral to treatment (SBIRT), little is known about the use of these skills once program graduates enter practice. **Objective:** To assess trained Advanced Practice Registered Nursing (APRN) graduates' use of SBIRT. **Method:** SBIRT training was provided to APRN students enrolled in any of 8 programs in the Southeastern United States. SBIRT curriculum was integrated into existing coursework in each program. Students enrolled in the study completed a web-based questionnaire 6 months after graduation. **Results:** Almost half (48%) of 73 respondents were practicing in outpatient settings, 30% were in inpatient or emergency settings and 22% were in community or other settings. Validated screening instruments were already being used at half of respondents' practice sites prior to their arrival. Approximately 22% of respondents indicated that SBIRT activities increased after their arrival. Half reported that alcohol and drug screening questions were a routine part of vital signs. Quantity/frequency questions were the most commonly used means of screening. Most (81%) reported that they usually/always perform alcohol screening at the initial patient visit, while over half regularly perform screening during acute and/or chronic care visits. Drug screening results were similar. Only 17% had not counseled any patients to cut down or quit using alcohol in the past 30 days, while about 1 in 3 had not addressed drug use with patients during this time. Three elements: feedback, advice, and goal-setting, are important components of brief interventions. Almost half reported they usually/always include all 3 elements in an intervention. When a patient is willing to make a change, the most

common response was to refer to a support group such as AA (56%) followed by individual counseling (53%) and formal treatment (35%). Only 1 in 4 indicated that they regularly discuss medications known to aid recovery efforts. **Conclusions:** SBIRT trainees report high levels of SBIRT activity 6 months after graduation as well as increased SBIRT activities by their new colleagues. SBIRT training appears to be a promising approach for disseminating SBIRT into clinical practice.

34. Food Addiction and Binge-eating Disorder in Patients With Obesity: Frequency and Prognostic Significance

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Background: Food addiction and binge-eating disorder (BED), alone and in combination, are common in community and clinical groups of persons with obesity. Both forms of disordered eating are associated with greater psychopathology and recent findings with treatment-seeking patients with BED co-morbid with obesity suggest that the presence of food addiction may represent a more disturbed variant. **Objective:** To examine the frequency and prognostic significance of food addiction in patients with co-existing BED and obesity in a randomized clinical trial. **Methods:** Participants were 186 obese patients with BED (mean age 48, 71% female, mean BMI 39) assigned to six-month behavioral and stepped-care treatments. Assessments were performed by trained and monitored doctoral-level and independent assessors at baseline, throughout treatment, post-treatment, and 6- and 12-month follow-ups with reliably-administered semi-structured interviews and measures. “Food addiction” was assessed using the Yale Food Addiction Scale (YFAS). BED and eating-disorder psychopathology were assessed using the Eating Disorder Examination interview. **Results:** Food addiction classification was met by 61% (N=114/186) of participants. Intent-to-Treat analyses of remission rates (defined as zero binges/month) at 12-month follow-up revealed that the percentage of remitted patients with food addiction (40%) versus without food addiction (51%) did not differ significantly. Mixed models analyses revealed significant main effects for food addiction on continuous outcomes measures of binge-eating frequency, eating-disorder psychopathology, and depression; post-hoc analyses indicated the food addiction group had significantly greater pathology at baseline and most time points throughout the course of treatment and following treatment through 12-month follow-ups after completing treatments (i.e., 18 months). Food addiction did not show significant main effects for weight-loss. Mixed models did not reveal significant interaction effects between food addiction and time on any treatment outcomes. **Conclusions:** These findings suggest that, among treatment-seeking adults with co-morbid BED and obesity, food addiction is common (61%) and may signal a more disturbed variant of BED. Although food addiction did not significantly predict differential treatment outcomes, it showed significant main effects on most variables (except weight loss) over time. These findings have implications for clinical practice and research.

35. Two Methods for Teaching Motivational Interviewing to Residents in a Small Group Setting

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Background: Motivational interviewing (MI) is a patient centered style of counseling that focuses on self-reflection to lead to behavior change. Various systematic reviews and meta-analyses have shown that using MI techniques increases patients’ propensity to make positive behavior changes that impact their health (Graves E, et al). We have clear evidence that MI works, but little is known about teaching the technique to residents. **Objective:** To teach MI techniques to residents at an internal medicine program in a small group setting **Methods:** The curriculum was presented over two twenty minutes sessions in February 2016 and one two hour session in September 2016. The curriculum covered the techniques and application of MI and strategies to overcome the barriers to using MI. The curriculum presented to primary care interns in September 2016 included the same material and interactive activities to practice MI techniques. Residents completed anonymous

post and pre-intervention surveys. **Results:** Please see tables. **Discussion:** The implementation of a MI curriculum improved residents’ knowledge and confidence. In this sample, residents’ baseline agreement with the importance of MI was high and did not significantly change. The attitudes of a strictly primary care group is not different from that of other residents. Practicing techniques of MI among a small group setting was favorable, particularly in practicing reflective listening. Our results are consistent with prior studies showing the educational interventions among residents can improve MI knowledge, attitude, and practices.

Table 1: Residents in September Intervention		
Resident Characteristics, % (n)	Baseline (N= 56, response rate = 74%)	Follow up (N= 39, response rate = 51%)
Female Gender	50% (28)	59% (23)
Postgraduate year		
PGY 1	45% (25)	54% (21)
PGY 2	27% (15)	26% (10)
PGY 3	28% (16)	20% (8)
Primary Care Residents	31% (17)	34% (13)

Table 2: Primary Care Residents’ Attitudes	Pre Intervention	Post Intervention
“MI is an important technique”		
Strongly Agree	50%	50%
Agree	50%	50%
“I feel confident using MI techniques”		
Strongly Agree	0%	33%
Agree	50%	66%

36. Are We Ready? A Survey of Trainees and Attendings Interested In Prescribing Buprenorphine Avik Chatterjee, MD, MPH; Jared W. Klein, MD, MPH; Chinazo Cunningham, MD, MS
Boston Health Care for the Homeless Program

Background: Opioid use disorder (OUD) causes significant morbidity and mortality. Buprenorphine is effective in treating OUD, but many providers certified to prescribe buprenorphine prescribe to few or no patients. Little is known about how provider attitudes toward and perceived barriers to buprenorphine prescribing vary by level of training. **Objective:** Assess how attitudes towards and perceived barriers to buprenorphine prescribing varied depending on trainee or attending physician status. **Methods:** In May 2017, we invited providers who attended a workshop on integrating buprenorphine into primary care at the Society for General Internal Medicine’s national conference to anonymously self-administer a previously published survey that inquired about buprenorphine-related attitudes, barriers, and experiences. We used the chi-square test to examine differences in these domains between trainees and attending physicians. **Results:** Of 68 participants with completed surveys (58% response rate), 22 (31%) were trainees and 46 (66%) were attending physicians. Of the 30 (44%) physicians who were waived, only 21 (31%) had prescribed buprenorphine. Attendings were more confident in counseling patients about substance use than trainees (46% vs 27%, $P=0.05$). Regarding attitudes, 90% felt that OUD is treatable (no difference between groups), but 12% (0% of trainees but 17% of attendings, $P<0.01$) felt that OUD patients are unpleasant and 22% felt that OUD patients have too many problems (no difference). Otherwise, trainees and attendings were similar in the barriers they reported: 52% reported a lack of knowledge, 35% reported no access to an addiction expert and 36% reported inability to refer to an addiction treatment program. Concern about buprenorphine diversion was reported by 44%, concern for buprenorphine abuse by 23%, resistance from colleagues/staff by 37%, medico-legal risk by 18%, and inadequate reimbursement by 13%. Only 9% felt that training requirements were burdensome. **Conclusion:** Most respondents felt that OUD is treatable, yet few already prescribe buprenorphine. Trainees and attendings both reported important but actionable provider- and systems-levels barriers to buprenorphine prescribing including lack of knowledge and lack of access to treatment programs and consultants

37. New Hampshire Screening, Brief Intervention, and Referral to Treatment (“SBIRT”)

Interprofessional Education (“IPE”) Training Collaborative

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¹University of New Hampshire; ²New Hampshire AHEC; The Dartmouth Institute for Health Policy & Clinical Practice (TDI); ³Massachusetts College of Pharmacy and Health Sciences University; ⁴The Dartmouth Institute for Health Policy & Clinical Practice (TDI); ⁵Southern NH AHEC at Lamprey Health Center; ⁶Massachusetts College of Pharmacy and Health Sciences University; ⁷Dartmouth College, Center for Program Design Evaluation; ⁸North Country Health Consortium, Northern NH AHEC; ⁹North Country Health Consortium, Northern NH AHEC; ¹⁰Geisel School of Medicine; ¹¹Franklin Pierce University; ¹²Antioch University New England

Background: New Hampshire’s high rates of substance use disorders and related comorbidities is exacerbated by poor access to quality health care, as a majority of the state is medically underserved. This project increases the number of health professionals with the knowledge, skills, and attitudes to be leaders in implementing “SBIRT” and increases access to quality care for underserved populations who suffer from substance use disorders. **Objectives:** a. Train NH’s incoming healthcare workforce to utilize SBIRT interprofessionally; b. Support integration of SBIRT in clinical practice in NH; c. Provide culturally appropriate substance misuse screening to vulnerable groups as identified by racial, ethnic, gender, disability, and sexual orientation. **Methods:** A collaborative banded under the NH Area Health Education Center (“AHEC”), including: Antioch University; Franklin Pierce University; Geisel School of Medicine at Dartmouth College; Massachusetts College of Pharmacy and Health Sciences University; and University of New Hampshire. Adapting curricula provided by SAMHSA, the schools provide robust training in SBIRT, reinforced through simulations. IPE is conducted via: 1) An interactive online platform accessible across academic institutions, and 2) An in-person IPE Day. Evaluation is mixed methods, longitudinal transformation. Data are analyzed,

triangulated and reported regularly to inform changes and assess progress. Feedback includes: 1) Tracking participation in activities, 2) Pre-post surveys to assess learners' knowledge and perceptions, 3) Surveys of faculty members regarding project implementation within the participating programs, and 4) Targeted qualitative methods to understand the trajectory and contextual factors that may affect sustainability of program efforts. **Results:** Through group exercises and reflective learning, nearly 700 students in 3 years will become highly competent team members in SBIRT, serving the diverse needs of the population. To date, over 500 students have benefited from training, including 340 participants in interdisciplinary forums. Participants report improved communication and collaboration skills in clinical settings and increased competency in SBIRT application. **Conclusions:** Education in the SBIRT process using interprofessional competencies enhances skills that will be needed to implement SBIRT in clinical practice.

38. Pass the Mic: Adolescents Explain Their Discontent With 'Idle Time' and it's Facilitation of Alcohol Use in Urban Tanzania

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Background: Adolescent alcohol consumption causes a host of adverse health effects; however structural and environmental factors enabling alcohol initiation and heavy use are not well documented Africa. **Objectives:** The objective of this qualitative study was to explore the experiences of adolescents in relation to environmental and social factors enabling their alcohol use in urban Tanzania. **Methods:** 177 Adolescents aged 15-19 from varying socioeconomic statuses participated in 16 groups of 7-12 youth (separated by sex and in-school/out-of-school status) at sites in 4 different locations in Dar es Salaam, Tanzania. Participatory methods including listing and ranking activities and group discussions, as well as in-depth interviews were used to explore adolescent's recommendations for structural interventions to prevent or reduce adolescent alcohol use. **Results:** Adolescents expressed dissatisfaction with the amount of "idle time" they experienced after their school day, and the scarcity of alternative opportunities for using their energy; concluding that it created excess free time and enabled alcohol use. Structural factors, including lack of youth employment, the built environment (e.g. alcohol outlet density), coupled with poor enforcement of existing alcohol laws, facilitated adolescents' use of alcohol. A lack of functional public space (e.g. football pitches) was also perceived to reduce the capability of channeling energy and free time into healthy social activities. The adolescents recommended creating extracurricular activities (e.g. sports teams) to occupy their time out of school. **Conclusions:** The adaptation of the existing physical environment to accommodate space for after school activities should be prioritized when trying to mitigate alcohol use among adolescents.

39. High Alcohol Density and Accessibility Facilitate Alcohol Use Among Adolescents in Urban Tanzania

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Columbia University Mailman School of Public Health

Background: Alcohol consumption has been increasing across sub-Saharan Africa in recent years due to widespread use of local brew alcohol and intensive marketing by commercial alcohol companies that often target youth. **Objective:** The objective of this qualitative study was to assess the role of alcohol accessibility and advertising on adolescent consumption in urban Tanzania. **Methods:** Research team members physically mapped all alcohol-selling outlets and alcohol advertisements within a 0.25-mile radius of study sites (schools and youth centers) in four areas of Dar es Salaam, Tanzania. 177 boys and girls aged 15-19 participated in 16 participatory activity groups (separated by sex and in-school/out-of school status) across the sites. Participatory activities included drawing places within the community where youth buy, drink or are given alcohol, and anonymous individual writing on personal experiences with alcohol. **Results:** The density of alcohol-selling

outlets and types of alcohol sold varied by site, with density ranging from 9-126 outlets/site and variations corresponding with differences in built environment and socioeconomic contexts of the sites. Despite a legal drinking age of 18, participants reported having easy access to alcohol and identified several locations within their communities where youth go to buy or drink alcohol. Youth favored sellers in the community who were unlikely to question their purchase, and places located near local youth hangout spots (e.g. football pitch). **Conclusion:** High availability of and easy access to alcohol in urban Tanzania may be contributing to increasing rates of adolescent alcohol consumption. Structural and environmental approaches are needed to curb adolescents' access to and heavy use of alcohol.

40. Initiative for Quality Improvement to Manage Chronic Pain in HIV Primary Care

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University of Alabama at Birmingham, 1917 HIV/AIDS Clinic

Background: The Centers for Disease Control and Prevention (CDC) guideline for prescribing opiates for chronic pain promotes opioid prescribing practice improvement for Human Immunodeficiency Virus (HIV) primary care clinicians. Prescribing opiates for chronic pain to adults living with HIV exceeds that of the HIV-uninfected. Chronic pain is common in people living with HIV, and the incidence of chronic pain ranges from 39-85%. Depression, serious mental illness, history of abuse, and/or substance use coupled with long-term opioid therapy to treat chronic pain for people living with HIV necessitates monitoring to avert potential dependence, addiction, and use disorder. A quality improvement effort to identify the current population in the HIV clinical setting with a face-to-face treatment agreement tool increases prescriber awareness of the underlying conditions of the patients receiving monthly opioids. **Objective:** Establish the current state of the HIV clinical setting based upon documented co-morbid conditions and surveillance of Patient-Provider Opioid Treatment Agreement adherence. **Methods:** Administer the Patient-Provider Opioid Treatment Agreement to all patients receiving monthly prescriptions over the course of 9 months while recording co-occurring diagnosis associated with harms with opioids and monitoring for treatment agreement adherence (urine drug screening, attendance to appointments, Prescription Drug Monitoring Program, and aberrant behaviors). **Results:** In the HIV clinical setting with 3,341 active patients, HIV primary clinicians write prescriptions for 232 of the patients. 47.4% have depression, 26.7% have anxiety, 23.3% have a serious mental health condition, 6.5% have alcohol use disorder, and 25% have substance use disorder. 12% of patients discontinued from the plan for varied reasons (N=27): transfer of care (N=1), nonadherence (N=2), no longer required (N=5), tapered (N=5), diversion and/or multiple providers (N=3), illicit drug use other than opiates (N=5), death not due to cancer (N=1), and opioid misuse/use disorder (N=5). **Conclusions:** Patients receiving opioids for chronic pain management occupy many risks. The CDC guideline implementation will improve safety with opioid prescribing and serve clinicians to discern opioid misuse, dependence, and use disorder with concomitant chronic pain.

41. Pediatric Caregiver Interest in Outpatient Substance Use Education

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Background: Adolescence is a time of initiation of drug and alcohol use. Caregivers can play a key role in mediating the risks associated with adolescent substance use. However, caregivers may not be prepared with accurate content or the skills needed to communicate effectively about substance use. **Objective:** To conduct a needs assessment of pediatric caregivers in an urban, academic primary care practice to inform development of psychoeducation curriculum about adolescent substance use.

Methods: We conducted a cross-sectional survey of a convenience sample of caregivers in the waiting room of an urban ambulatory pediatrics practice from March 2017 to May 2017. Participants self-administered a brief

survey in the waiting room. Survey domains included caregiver monitoring, caregiver interest in substance use topics, logistics of potential sessions, and potential barriers to session attendance. Data was entered into Excel and descriptive statistics were calculated. **Results:** Thirty-seven caregivers agreed to participate. Fifty-nine percent (n=22) had only children under 11 years of age. Approximately 38% (n=12) live in Boston and 20% (n=7) reported a family history of a substance use disorder. Half of study respondents expressed interest in services addressing drug and alcohol use. Among those who expressed interest, group sessions with other caregivers were preferred over didactic talks or individual sessions with healthcare providers. Caregivers expressed the most interest in learning strategies to keep their child and/or themselves healthy (n=26), how to communicate about substance use (n=23), and warning signs of potential problematic substance use (n=16). Work and childcare were cited as the top two barriers to attendance of potential educational sessions. **Conclusions:** In this survey of pediatric caregivers, 1 in 5 reported a family history of a substance use disorder. Despite this, only half of the caregivers reported interest in educational sessions pertaining to pediatric substance use. Sessions focused on general health promotion and improving communication about substance use held the greatest appeal. Next steps will include development of an education curriculum for caregivers based on results of this needs assessment.

42. A Continuum of Care Model for Alcohol Use Disorder

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Background: Santa Clara Valley Medical Center is a county hospital that treats a vulnerable patient population. Alcohol related admissions are common among hospitalized patients. There has been little care coordination for patients with alcohol use disorder (AUD) among our providers.

Objective:

- Design and evaluate a workflow to identify patients with AUD.
- Evaluate rates of AUD screening, social work (SW) intervention, and initiation of medication assisted treatment (MAT).
- Describe characteristics of patients with AUD.
- Compare pre and post-intervention 30 and 90 day emergency department (ED) visits and admissions.

Methods: In September 2016, the Alcohol Use Disorders Identification Test-C (AUDIT-C), a three-question screening tool for AUD, was added to the medicine admission order set. Admitting nurses completed screening and referred patients who screened positive to SW. SW assessed patients for AUD and performed a brief intervention. Patients with AUD expressing interest in MAT were evaluated by the primary team for gabapentin and/or extended release naltrexone (XR-NTX) and initiated on treatment if appropriate. Patients who received XR-NTX were referred for continued treatment.

Results: Figure 1

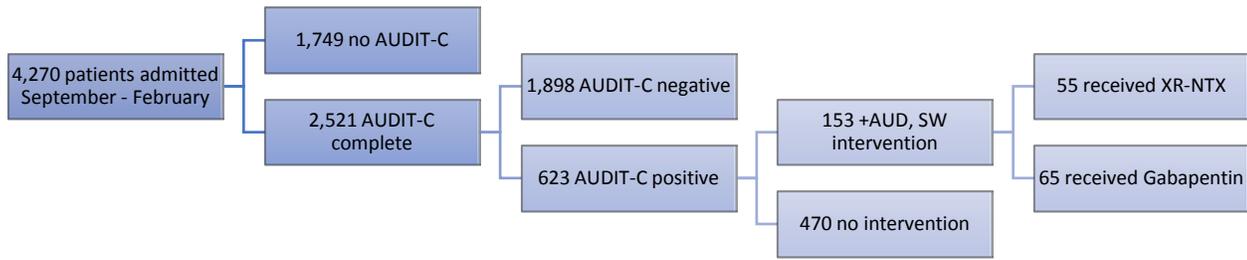


Table 1

Characteristics		Percentage
Male	110	71.9%
Homeless	55	35.9%
Psychiatric co-morbidity	91	59.5%
Substance use	39	25.5%
Prior alcohol rehabilitation	83	54.2%
Alcohol rehabilitation in the last year	22	14.4%
Drinking Days*	20.1	
Interested in MAT	105	68.6%

Table 2

MAT Initiation	Number of patients	Percentage
XR-NTX administered	55	35.9%
XR-NTX follow up	22	40.0%
Gabapentin at discharge	65	42.5%

Table 3

Average ED Visits & Admissions	30 days pre ⁶⁷	30 days post	90 days pre	90 days post*
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All Patients	0.53	0.46	1.16	1.41
XR-NTX	0.44	0.33	1.49	1.33
All Patients**	1.21	0.66	2.66	2.05
XR-NTX**	1.35	0.54	5.13	2.28

Conclusions: More than half of admitted patients were screened for at risk drinking. Only a subset of patients who screened positive received SW intervention. Patients with AUD have high rates of homelessness, mental health illness, and substance use. Many patients are interested in MAT, but only a subset receive it on discharge. Decreased ED visits and hospitalizations among patients who received XR-NTX and had high use of hospital and ED services prior to intervention were seen.

43. Screening, Brief Intervention and Referral to Treatment (SBIRT) Training in Medical Professional Programs: Implementation and Dissemination

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Background: Substance use disorders cause significant morbidity and mortality, yet many medical professionals fail to recognize and/or treat these disorders. **Objectives:** As part of a SAMHSA medical professional training grant we sought to demonstrate the feasibility and effectiveness of training SBIRT among students of medical professions including, Advanced Practice Nursing at Yale School of Nursing, Social Work and Counseling at Southern Connecticut State University, and Medicine at Yale University School of Medicine SBIRT to improve the health of patients with substance use disorders and facilitate adoption into practice.

Methods: Project faculty in each specialty were trained in performing and teaching SBIRT, using the Brief Negotiation Interview. The faculty integrated the teaching and implementation strategies to enhance success in their practice areas. Training sessions included didactic and skills-based workshops with web based resources available (www.yale.edu/sbirt). Post-training, medical students were evaluated performing SBIRT on standardized patients by direct faculty observation using the BNI Adherence Scale. **Main outcome measures:** Number of medical professionals trained, performance of SBIRT in clinical practice, training satisfaction.

Results: 884 students (mean age 30 years [range 20-64], 71% female) were trained to competency from 10/06/14-4/10/17.

Expected to Train Trained Brief Interventions

Nursing 240 241 154

Social work 240 255 229

Medical 240 273 165

Counseling 163 115 45

TOTAL 883 884 593

Satisfaction scores: Students were very satisfied with their training reporting an average score of 1.7 on 4 domains. (1=very satisfied - 5=very dissatisfied). **Conclusions:** We successfully trained our expected number of medical professional trainees. All programs have incorporated SBIRT into their respective curricula ensuring sustainability. **Implication:** We increased the capacity of medical professionals offering SBIRT in a variety of medical settings contributing to the health of the public.

44. Translating an Evidence-based SBIRT Protocol into Practice to Address Depression, Alcohol and Drug Use Among Pregnant Women Living with HIV (LWHIV)

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Background: Among Pregnant women living with HIV, rates of depression are alarmingly high ranging from 30.8% to 78% compared to 10-15% in HIV negative women (Bonacquisti et al., 2014). Alcohol use during pregnancy is also detrimental to maternal and child health. Addressing depression, drug and alcohol use is critical to the prevention of mother to child transmission and minimizes maternal complications during pregnancy. There is also an urgent need to better understand the pervasiveness and severity of these issues through formal screening. An evidenced based approach to address this need is Screening, Brief Intervention, and Referral to Treatment (SBIRT) (SAMHSA, 2016). **Objectives:** 1) To assess the satisfaction of licensed personnel following a 2-day workshop as well as their confidence to deliver SBIRT in the future 2) To evaluate the SBIRT protocol implemented to assure early identification of depression and/or at-risk substance use among pregnant women LWHIV. **Methods:** The four steps in the cycle include Plan, Do, Study and Act. Plan: staff education and the SBIRT process implementation. Do: engaged stakeholders affected by the clinical problem and implemented screenings including brief intervention and referral to treatment. Study: decided on what data to collect and method of collection. Act: stakeholder's feedback, and reports of improvements. **Results:** A total of seven staff participated in the 2-day workshop. Participants were surveyed at the end of the workshop on satisfaction with education (3 items) and confidence in being able to deliver SBIRT (3 items). All five providers were "satisfied" with the 2-day workshop and 80% reported very confident with use of SBIRT. 100% screening rate achieved post implementation. BI was provided and documented in the EMR for 3 of 10 patients screened to be at moderate risk for depression. Referral to treatment to the on-site psychologist for patient screened to be at moderate risk for depression. **Conclusions:** Appropriate implementation of the SBIRT clinical strategies can increase the quality of care provided to pregnant women living with HIV (LWHIV).

45. A Forgotten Population in Primary Care: Residents' Attitudes and Beliefs About Substance Use

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Background: Treatment of Substance Use Disorders (SUDs) has traditionally been seen as "specialty" care which has led to a lack of adequate training about SUDs in the general medical field. Given the large number of SUD patients that present to PC, need to train primary care (PC) providers is significant, and growing. Additionally, recent understanding of addiction as a chronic illness contributes to the idea of continuity care for this population. When studied, 94% of primary care physicians failed to diagnose and treat addictions, and most patients from the same study reported that their primary care physicians "did nothing" about their addiction. **Objectives:** To conduct an educational intervention within the PGY1 residency curriculum to focus on resident knowledge, attitudes and beliefs about SUDs. Goals of curriculum include awareness of stigma, understanding of historical biases and misconceptions that have led to health disparities, conceptualization of SUD as chronic disease, understanding the problem in a psychological, political, and social context. **Methods:** Educational intervention was an SUD curriculum presented via didactic over a period of 1.5 hours. An anonymous survey made in-house was distributed to 30 PGY1 residents, pre-and-post intervention. A likert scale (ranging from 1-strongly disagree, to 5-strongly agree) was used to evaluate the attitudes, beliefs, and perceived knowledge. 19 matched pre/post survey pairs were completed out of 30 residents in PGY1 year. **Results:** Pre-tests results indicated possible ceiling effects. Overall, PGY1's experienced attitudinal change and perceived change in knowledge and ability after the intervention. Though individually and by-group there were effects of rating

selves more confident on pre-test and less able/confident on post-test, after receiving education. **Conclusions:** Study highlights importance of integrating SUD treatment and training in PC and the impact of teaching on attitudes and beliefs around this topic. Study also possibly indicates that residents may feel overly confident in relation to this topic area prior to learning. Results suggest the need for continued, reinforced and experiential teaching on this subject.

46. Can We Improve Attitudes Towards Dual Diagnosis Patients?: Use of a Countertransference Process Group in Psychiatric Residency Training

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Background: People with substance use disorders (SUDs) often have co-occurring psychiatric illness, but many do not receive treatment that addresses both conditions. Treating this patient population takes patience, persistence and often innovative and creative approaches. Studies have shown that clinicians generally have negative attitudes towards dually diagnosed patients. These attitudes have the potential to negatively influence clinical decision-making and patient care. The complex emotions that arise when treating individuals with SUDs may contribute to the development of negative attitudes towards these patients. **Objective:** The goal of this group is to foster self-reflection, analyze the influence of provider feelings on decision making and increase awareness and understanding of complex emotions in the clinical encounter. **Methods:** Psychiatric trainees at Virginia Tech Carilion School of Medicine organized a monthly transference/countertransference process group to explore emotional reactions and examine ambivalence in the therapeutic dyad. Transference and countertransference issues in the clinical encounter were discussed, with the aim of encouraging a psychodynamically-informed approach to patient care. Participants were encouraged to bring clinical material to discuss and psychodynamic readings were assigned. All residents and fellows were invited to attend the monthly group. At the end of the year a survey was sent out to evaluate the group and nine responses were received. **Results:** Seventy-seven percent of respondents felt the group helped manage complex emotions associated with residency and/or patient care. Sixty-six percent felt that that a group like this contributes to physician wellness. Respondents also provided feedback comments. **Conclusion:** Clinical material brought to the group often involved negative emotions present when treating patients with substance use disorders. Participants reported that the group was helpful with overall wellness and in managing complex emotions. Further growth and development of this group and making it a formal part of the residency curriculum, may improve physician wellness and attitudes towards this patient population.

47. Childhood Trauma and Criminal Justice Involvement

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Background: With nearly 11 million people arrested in 2015 the need to identify upstream risk factors driving criminal justice involvement (CJI) is crucial. We lack the understanding of the influence of childhood trauma on CJI risk across the lifecourse and of protective factors that may mitigate the impact of trauma on CJI.

Objective: To examine the relationship between childhood trauma and CJI in adolescence and adulthood and assess whether effects were reduced among those with close mentorship in young adulthood. **Methods:** We analyzed data from the National Longitudinal Study of Adolescent to Adult Health, a nationally-representative sample of adolescents in grades 7-12 during the 1994-95 school year who were re-interviewed during young adulthood (2001-02; ages 18-26) and adulthood (2007-08; ages 24-32) (n=12,288 with data at all waves). We examined nine traumatic events before age 18: neglect; emotional, physical, and sexual abuse; parental incarceration; parental binge drinking; and witnessed, threatened with, and experienced violence). We used logistic regression to estimate the odds ratios and 95% confidence intervals for associations between each individual trauma and the cumulative trauma score with delinquency, arrest, and incarceration during

adolescence and adulthood, and tested whether associations were moderated by having a close mentor in adulthood. **Results:** In adjusted analyses, increasing exposure to childhood trauma was associated with CJI in adolescence and adulthood in a dose response fashion. Experiencing one, two, or three or more traumas was linked to greater than 2, 6, and 10 times the odds of adolescent incarceration trauma. Effects weakened but remained into adulthood. Each individual trauma was significantly associated with delinquency, arrest, and incarceration; in adjusted models associations generally remained. Parental incarceration was consistently one of the, if not the most, strongest correlate of each form of CJI. Associations between cumulative trauma score and CJI were blunted among those with a close mentor compared to those without. **Conclusion:** Cumulative trauma score shows a stepwise increase in CJI. This dose response is mitigated by being close to a mentor. Future studies should continue to look for ways to protect vulnerable children to the harms of trauma.

48. Improving Undergraduate Nursing Curricula by Evaluating Practicing Nurses' Attitudinal Barriers and Levels of Preparation for the Evidence-Based Care of Patients with Substance Use Disorders

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Background: This curriculum evaluation project was designed to improve the care of patients with substance use disorders (SUDs) by identifying specific areas of attitudes and knowledge deficits reported by practicing nurses for future curricular modifications and continuing education opportunities. In a popular undergraduate elective course in addictions nursing, students conduct a semi-structured interview with a practicing nurse of his or her choice using an anonymous nurse interview questionnaire form. Then they summarize the collective demographic and qualitative responses about attitudes, beliefs, and reported levels of preparation for working with patients with SUDs in non-specialty medical settings. **Objectives:** 1) Describe an undergraduate nursing assignment wherein students interview practicing nurses regarding perceptions about working with patients who have substance use disorders (SUDs); 2) Describe how results of this evaluation can be used to inform nursing curricula revisions that address attitudinal barriers, knowledge deficits, stigma, cultural competence, language, and relationship factors to enhance delivery of evidence-based nursing care. **Methods:** This project involved a review of secondary data previously collected by students with little faculty oversight over actual data collection. Course faculty re-reviewed the anonymous nurse interview questionnaires, performed frequency counts for quantifiable responses, and summarized qualitative information related to attitudes, beliefs and opinions about learning needs for both patients and nurses. Data analyses included only de-identified information. The Miles and Huberman content analysis method was used to independently code qualitative data, generate code lists, establish consensus, and identify recurrent themes. Samples of verbatim statements were selected for each theme. **Results:** Numerous recurrent themes emerged regarding levels of SUDs-related training and preparation, lack of information about evidence-based practices, use of stigmatizing language, and lack of cultural competence. **Conclusions:** Study results suggest a need for SUDs-related revisions to pre-professional nursing curricula, as well as a need for SUD-related continuing education opportunities for practicing nurses in all nursing specialties. Information from this evaluation may be used to inform future curricular changes, but may not be generalizable to other settings or populations

49. Latino and African American Social Workers' Substance Use and Service Utilization

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Background: The concept of "wounded healers," in which helping professionals struggle with their own personal problems has been written about for many years, beginning with the work of the Swiss psychoanalyst Carl Jung (1916). The literature on wounded healers in the field of substance abuse is mostly limited to how a counselor's recovery status impacts the client (Doyle, 1997) and supervision (Culbreth & Borders, 1999).

Additional literature examines issues related to helping professionals seeking treatment for substance abuse (Siebert, 2005). Literature regarding Latinos and African Americans and substance abuse treatment suggest the need for cultural competent treatment (Guerrero, 2013; Paz, 2002), and focuses on the client population (Rojas, Hallford, Brand, & Tivis, 2012), but does not address Latino and African American service providers, and specifically social workers. **Objective:** The Social Workers' Self-Reported Wellness (SWSRW) survey explored social workers' wellness related to physical and mental health, substance use, adverse childhood experiences, and issues related to the workplace. This presentation aims to present findings regarding substance use and service utilization by those social workers who self-identified as Latino or African American. **Methods:** SWSRW (2015) used a 75-item mixed-methods questionnaire conducted through the online Qualtrics platform. Email addresses were obtained from 13 state licensing boards, and 6,112 social workers responded to this study, 696 of which self-identified as either Latino or African American. **Results:** Almost seven percent of Latino and African American respondents combined identified that they have had problems with alcohol or drugs (AOD) at some point over the course of their social work career. Combined, almost five percent identified as ever having used professional services for problems with AOD, the majority of which utilized self-help groups and outpatient services. Quantitative findings will be compared to the data regarding the study's general social work population, and qualitative data will illuminate how receiving treatment has affected their work as social workers. **Conclusions:** This presentation will discuss the findings of a multi-state study exploring substance use and treatment utilization by Latino and African American licensed social workers and how these findings compare to other social workers.

50. Wounded Healers: Examining Alcohol and Other Drug Problems and Treatment Among Licensed Social Workers

S. Lala A. Straussner, PhD, LCSW; Evan Senreich, PhD, LCSW; Jeffrey Steen, PhD Candidate, LCSW

Background: Carl Jung used the term “wounded healers” to describe medical professionals with personal histories and ailments that resembled their patients' problems. This presentation shares findings from *Social Workers' Self-Reported Wellness*, an online, multistate study which assessed the personal and workplace experiences of 6,112 licensed social workers. The nature and scope of respondents' problems with alcohol and other drugs (AOD)—and their utilization of treatment to address these issues—was examined. **Objective:** This presentation will discuss research findings related to social workers' AOD problems, their utilization of treatment, and how these experiences influenced their decisions to enter the profession and affected their work. Results will be compared to studies of other health professionals. **Methods:** *Social Workers' Self-Reported Wellness* was an online study of 6,112 licensed social workers in 13 states, representing all four federal regions designated by the U.S. Census Bureau. Administered in 2015, this study consisted of a 75-item questionnaire with standardized measures and items created specifically for this study. The adjusted response rate was 28%, and 91% of individuals who started the survey completed it. Mixed methods data collected from the study assessed the nature and scope of respondents' AOD problems and utilization of treatment, among other issues. **Results:** Analysis of quantitative data indicated that 9.5% of respondents reported a history of alcohol problems, and 5.7% had a history of drug problems. Among respondents with AOD problems, 34% indicated these issues influenced their decisions to become social workers, and 39% reported these issues affected their work. Almost half of respondents (42.6%) with AOD problems reported utilization of treatment, with self-help groups and outpatient counseling the most frequently-used modalities. Content analyses of qualitative data illuminated the ways in which AOD problems and treatment affected respondents' work as social workers. **Conclusions:** This study found that 7.7% of respondents experienced AOD problems over the course of their social work careers. Given the critical nature of their work, social workers' AOD problems could have particularly deleterious consequences for clients, organizations, and communities. This presentation shares findings from the study and implications for the health workforce.

51. “Analysis of State Resources for Implementing Pharmacy-Based Naloxone”

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Background: Due to the devastation of United States current opioid overdose crisis, interventions need to be made immediately to reduce deaths due to opioid overdose. Naloxone, a proven intervention to reverse acute opioid overdoses, is stocked and available from pharmacies, yet dispensing remains low. Systematic collection of laws, Naloxone prescriber status, dispensing locations, etc. was conducted for all 50 States, D.C. and Puerto Rico. Information specific to prescribers, pharmacists, and patients will be centralized per state for greater awareness and education about naloxone access. **Objective:** Create the first comprehensive, national resource for pharmacists, policymakers, harm reductionists, and other naloxone advocates, to provide a blueprint for best practices to implement pharmacy based naloxone. **Methods:** We seek to create a database of existing web resources related to pharmacy-based naloxone for all 50 states, Washington D.C. and Puerto Rico, to better describe, analyze, and highlight connections (or lack thereof) between key stakeholders such as pharmacy associations, maps on naloxone access, state legislatures, boards of pharmacy and medicine, harm reduction organizations, task forces on opioid overdose, and state departments of health and mental health. **Results:** States progressive in naloxone access enacted laws for a variety of health care professionals to prescribe and dispense naloxone. These states may also allow standing orders for which patients and loved ones are dispensed and educated on the use of naloxone for times of crisis. For the general public, those states advanced in naloxone access have databases with maps to the nearest pharmacy that dispenses naloxone. Furthermore, educational information and professional resources are linked on state health care departments and boards of pharmacy to increase awareness. States lacking or recently enacting naloxone regulations should use states like Massachusetts or Rhode Island as a platform. **Conclusions:** This will be the first attempt at a state-specific national database of pharmacy based Naloxone resources. Next steps include sustainable funding to support the creation of a searchable, updated, web based resource for patients, professionals, and caregivers to find the closest location to find naloxone, a real-time discussion forum for naloxone advocates within and between states; and links to peer reviewed, publicly available educational materials for patients and health professionals.

52. Impact of RBP-6000 on Patient-reported Outcomes in Patients with Opioid Use Disorder: Results of a Randomized, Placebo-controlled, Phase 3 Study

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Indivior Inc.

Background: Opioid use disorder (OUD) is associated with substantial physical, social, psychological, and economic burdens. Considering these endpoints in evaluating new treatments is important. **Objectives:** To assess the effect of monthly depot buprenorphine (RBP-6000) vs. placebo on patient-reported outcomes (PROs): health status, health-related quality of life (HRQoL), treatment satisfaction, and employment/insurance status. **Methods:** PROs were collected in a Phase 3, placebo-controlled study assessing efficacy, safety, and tolerability of 2 regimens of RBP-6000: 300mg (6x300mg injections) and 100mg (2x300mg followed by 4x100mg injections) over 24 weeks in 489 treatment-seeking subjects with moderate-to-severe OUD. PROs included EQ-5D-5L, SF-36v2, Medication Satisfaction Questionnaire (MSQ), and employment/insurance status items. Changes from baseline to end of study were compared across treatment arms using mixed models for repeated measures. **Results:** Subjects receiving 300mg vs. placebo had significantly greater changes from baseline on the EQ-5D-5L index (difference=0.0636, P=0.0025), EQ-5D-5L visual analog scale (VAS; difference=5.9, P=0.0166), and SF-36 physical component score (PCS; difference=3.8, P=0.0002). Subjects receiving 100mg vs. placebo had significantly greater changes from baseline on the EQ-5D-5L VAS (difference=7.7, P=0.0017) and PCS (difference=3.2, P=0.0018). Differences on EQ-5D-5L index with 300mg,

VAS with 100mg, and SF-36 in both groups vs. placebo were found to be clinically meaningful based on published benchmarks established in other chronic conditions. Treatment satisfaction was reported by 88% of each regimen of RBP-6000 and 46% of placebo-treated subjects ($P < 0.001$ for both). Employment increased by 10.8%, 10.0% with 300mg and 100mg respectively, and decreased by 12.6% with placebo; weekly hours worked increased by 4.2 hours, 3.8 hours with 300mg and 100mg respectively, and decreased by 0.4 hours with placebo. The percentage of insured subjects increased by 4.1%, 4.7% with 300mg and 100mg respectively, and decreased by 8.4% with placebo. **Conclusions:** Compared to placebo, RBP-6000 was associated with significant improvements in health status, HRQoL, and treatment satisfaction from baseline to end of study in subjects with OUD. Additionally, RBP-6000 was associated with increased employment and health insurance. These findings provide important insights on the impact of OUD treatment from a patient perspective; additional research on the clinical meaningfulness of results in OUD is needed.

53. Usability of Naloxone Nasal Spray by Age and Literacy Level: A Pooled Analysis of Human Factors Studies

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Concentrics Research

Background: The United States is in the midst of an unprecedented epidemic of opioid overdose-related deaths. Naloxone nasal spray (NNS; 4 mg/0.1 mL or 2 mg/0.1 mL) is a high-concentration, low-volume, ready-to-use, intranasal formulation approved by the US Food and Drug Administration (FDA) for emergency treatment of known or suspected opioid overdose. FDA-approved NNS is a combination product consisting of drug (naloxone) and device (unit-dose system for nasal drug delivery). For combination (drug/device) products intended for use by laypersons, FDA requires that the product user interface be assessed in human factors studies to ensure that the product can be used safely and effectively. Human factors studies demonstrated that laypersons were able to safely and effectively use FDA-approved NNS without prior training. **Objective:** The aim of this analysis was to evaluate the usability (ability to properly deploy the effective dose) of FDA-approved NNS in adolescents and individuals with low literacy. **Methods:** A pooled analysis of data from 2 human factors studies of FDA-approved NNS included 2 prespecified subgroups: adolescents (aged 12-17 years) and participants with low literacy (reading level \leq 8th grade for adults or below grade-level for adolescents [aged 12-17 years], based on a standardized health literacy test). This analysis evaluated simulated emergency administration (life-size full mannequin) of FDA-approved NNS without prior review of labeling or instruction on product use. Administration included 2 critical tasks: (1) insert ready-to-use product nozzle into nostril, and (2) press plunger to release dose into nose (ie, press plunger while keeping nozzle in nostril and press plunger sufficiently to release the dose of naloxone). **Results:** Data included 84 participants (25 adolescents and 59 adults; 26 low-literacy and 58 normal-literacy). Both critical tasks were completed correctly by 84.0% of adolescents (versus 93.2% of adults) and 84.6% of low-literacy (versus 93.1% of normal-literacy) participants. **Conclusions:** This analysis demonstrated that, without instruction or training, a cross section of the population (adults and adolescents, normal and low literate) can complete the critical steps necessary to properly deploy 4 mg naloxone via the combination (drug/device) FDA-approved NNS product in simulated emergency situations.

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54. Implementation of a Nationwide Health Economics Consultation Service to Assist Substance Use Researchers: Lessons Learned

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Background: Economic evaluations provide evidence that assists providers, payers, and policy makers in improving evidence-based prevention and treatment services, and maximizes the efficiency of service delivery. The Center for Health Economics of Treatment Interventions for Substance Use Disorders, HCV, and HIV (CHERISH) is a multi-institutional center of excellence, funded by the National Institute on Drug Abuse. The Center's mission is to develop and disseminate health-economic research on healthcare utilization, health outcomes, and health-related behaviors that informs substance use disorder treatment policy and HCV and HIV care of substance users. **Objective:** To ensure that substance use, HCV, and HIV researchers interested in incorporating an economic analysis into their project are able to do so in a methodologically appropriate manner. **Methods:** We designed a consultation service that is free to researchers whose work aligns with CHERISH's mission. The service includes up to 6 hours of consulting time. After researchers submit their request online, they receive a screening call from the consultation service director, who then connects them with a consultant with the relevant expertise. Researchers and consultants complete web-based evaluations after completion of the consultation. Six-month follow-ups will be completed by researchers to track the progress of their projects. **Results:** Within 2 years of establishing the consultation service, we have received 25 consultation requests from researchers (5 trainees, 13 with < 10 years experience, 7 with > 10 years experience) on projects including planning a study/grant application (21), analyzing data from an existing study (2), and preparing a manuscript (1); 18 were HIV/AIDS-related. All researchers agreed or strongly agreed that consultation expectations and objectives were clearly defined, the consultant's expertise was matched appropriately with their needs, and that they were satisfied with the overall experience. Results were similar for consultants with regard to expectations/objectives (84%), expertise (95%), willingness to recommend the service (100%), and overall satisfaction (95%). **Conclusions:** There is a clear need for economic methodological guidance among substance use, HCV, and HIV researchers. Our initial experience has been successful in providing this expertise.

55. Cost of Incarceration and Parole/Probation and Treatment Needs for Alcohol/Drug Use Disorders

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University of Wisconsin Madison Family Medicine; Case Western UH Family Medicine

Background: Alcohol and drug misuse and use disorders are associated with increased rates of incarceration, which, in turn, is related to high economic impact. Treatment of alcohol/drug use disorders may help reduce these costs. This is especially important for states, such as Wisconsin, where the rates of incarceration have been increasing. **Objective:** To assess the costs related to incarceration and its alternatives (parole/probation) in the context of treatment needs for alcohol/drug use disorders. **Methods:** Descriptive analysis of the Wisconsin Department of Corrections (DOC) data on those incarcerated in adult and juvenile institutions, aftercare, correction sanctions or placed in parole/probation from July 2015 through June 2016. **Results:** During the assessed one-year period, 89,786 individuals were involved in the DOC-managed programs, including 22,311 incarcerated adults (20,928 men), 275 incarcerated juveniles (246 men), 66 juveniles in the aftercare, 82 juveniles in the corrective sanctions, and 67,053 individuals on parole/probation. The DOC-estimated daily operational per-person cost reached \$87.42 and \$105.87 for an incarcerated adult man and woman, respectively; \$321.48 for an incarcerated juvenile; \$63.13 and \$101.24 for a juvenile in the aftercare and the corrective sanctions, respectively; and \$8.25 for an individual on parole/probation. The annual DOC cost related to the above populations reached \$957,511,757 (incarcerated adults: \$719,477,184; incarcerated juveniles: \$32,141,892; juveniles in aftercare: \$1,510,448 and sanctions: \$3,023,229; parole/probation: \$201,359,004), representing approximately 2.7% of the annual operating state budget. Per DOC estimates, majority of inmates (70%) had treatment needs related to alcohol/drug use disorder. **Conclusions:** With the state's operating budget recommended at \$35.938 billion in fiscal year 2015-16, the annual cost related to incarceration and parole/probation is enormous. A large proportion of incarcerated individuals has alcohol/drug related treatment needs; it is possible that effective treatment of these individuals prior to, during or after incarceration or parole/probation can help reduce criminal activity and related costs.

56. Pediatric Specialists' Attitudes and Concerns Regarding Marijuana Use Among Adolescent Patients

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Background: Marijuana legislation is rapidly changing across the country, with twenty-six states legalizing marijuana use in some capacity. Several medical professional organizations, including the American Academy of Pediatrics, have issued statements outlining the risks associated with marijuana use among adolescents (AAP, 2015), however, little is known about the attitudes/concerns regarding patient marijuana use held by subspecialists who treat medically vulnerable youth. **Objective:** To assess pediatric specialists' attitudes/concerns regarding marijuana use among their adolescent patients and to determine if there are differences in these attitudes and concerns by subspecialty type. **Methods:** US endocrinologists or rheumatologists who regularly see patients aged 14-17 years with diabetes or juvenile idiopathic arthritis or lupus were recruited from professional networks to complete an online survey. We used descriptive statistics to characterize the sample overall and by subspecialty type. Chi-square analysis and logistic regression were used to examine associations between subspecialty type and attitudes/concerns about marijuana use. **Results:** Of 232 survey responses (64.7%/35.3% by endocrinologists/rheumatologists), the majority report concern for the side effects (78.9%) and long-term effects (80.2%) of marijuana use for their patients. More than one-third (34.5%) agreed/strongly agreed that some patients would benefit from using medical marijuana, however, only 13.4% endorsed feeling comfortable recommending marijuana to a patient if medically appropriate. Endocrinologists were more likely to report being moderately/very concerned about marijuana's impact on a patient's symptom severity (OR=4.31, 95% CI: 2.42-7.66), ability to manage their condition (OR=3.39, 95% CI: 1.76-6.59), adhere to their medications (OR=3.40, 95% CI: 1.59-7.27), and the effectiveness of a patient's medication (OR=4.31, 95% CI: 2.42-7.66) compared to rheumatologists. **Conclusion:** Pediatric specialists report concern about the side effects and long-term effects of marijuana use as well as discomfort recommending the use of marijuana as medicine for patients. Concerns regarding the disease-specific impact of marijuana differed by subspecialty type, with endocrinologists more likely to be moderately/very concerned about the impact of marijuana use on a patient's management of their disease, adherence to and effectiveness of their medication, and symptom severity. Further investigation is needed to explore whether differences in pediatric specialty providers' attitudes/ concerns influence the health messages they provide to patients.

57. Advance Practice Nurses Enhancing Education for Nurses to Provide Optimal Care of Patients with Substance Use Disorders

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Background and Significance: In 2014, over 21 million people over 11 years old had a substance use disorder (SUD). SUD contributes to more deaths and illnesses than any other preventable disease. Nurses in health care settings need addiction education to provide unbiased quality, safe care. Evidence shows that addictions education improves patient outcomes and decreases costs and certification in a clinical specialty, such as addictions nursing enhances knowledge and reflects excellence and expertise. **Purpose:** Advanced Practice Registered Nurses (APRN's) providing education, training and support to staff nurses enhances comfort levels and improves nurse's attitudes and knowledge of SUD. **Methods:** Nurse's attitudes and knowledge levels were examined before and after implementation of an inpatient Addiction Consult Team (ACT) in a major medical center. APRN's served as content experts and trainers in comprehensive five month staff nurse educational intervention focusing on addiction. Attitudes and knowledge levels were examined before and after the study. Surveys, qualitative interviews and pre/ post testing with staff nurses revealed these educational interventions

successful. Seventeen of thirty nurses participating in the educational intervention took the Certification for Addictions Registered Nurse exam (CARN) with an 82% passing rate, surpassing that of the National average. **Results:** Active participation of APRN's in clinical and educational interventions coincided with overall improvements in nurses' attitudes, comfort and knowledge levels in treating SUD as evidenced by Pre/Post Testing, Survey and Qualitative responses and pass rates for the CARN exam. **Conclusions:** Overall, nurses reported positive change in attitudes; comfort and knowledge levels following the implementation of ACT, ongoing engagement with APRN's and participation in a formalized five month SUD educational intervention. The high pass rate on the CARN exam reflects the depth of specialty knowledge acquired through the educational program. **Implications for Practice and Future Research:** Participants responses to surveys, qualitative results, improvements in pre-post testing and CARN exam pass rates revealed the positive impact that APRN's have in providing support and education to staff nurses caring for patients with SUD.

58. Digital Epidemiology of New Drugs of Abuse

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Background: Psychoactive substances have been used for millennia. The internet has promoted knowledge dissemination and global exchange of new synthetic compounds. Substances emerging in clandestine laboratories are now available in small local communities worldwide with drug enforcement agencies slow in tracking. Laws controlling possession and use are even being circumvented through chemical modifications. Due to challenges on traditional drug control systems, novel creative ways of monitoring are needed to not only determine local prevalence but also characterize physical, psychological and social patterns amongst drug users. **Objectives:** The aim of this pilot study was to assess the usability of an online survey tool designed to quantify and monitor local trends in use of cannabis and two novel synthetic compounds – synthetic cannabinoids and synthetic cathinones as well as gather user de-identified epidemiological data by self-report. This will allow users to see how their drug use compares to others like them, offering objective, personalized feedback taking individualized characteristics into account.

Methods: An online questionnaire (<http://www.ecu.edu/cs-dhs/areyouawarenc/Survey.cfm>) was designed in Qualtrics and distributed through the use of media advertising. All data collection is secure, anonymous and cannot be traced back to any individual. **Results:** Based on 150 respondents, results indicate most participants in the survey are single Caucasian males, in their early 20s, either employed or in college. Of those using, most reported first use in mid-late teens. 94% of participants have used with majority being current users. Although one quarter of these report daily use, the majority is evenly split anywhere between once a week to a few days and most use fairly low amounts obtained at low cost. Concerning is that 75% of users have reported operating a vehicle within two hours of use and an even high portion has been in a vehicle with someone who has used.

Conclusions: Online tracking constitute a novel, more efficient means of overcoming the public health challenge of up to date monitoring of rapidly emerging substances and characterize users locally. Expanding the use of such tools is likely to provide tremendous help to everyone.

59. Improving Provider Stigma and Compassion for Substance Use in Pregnancy

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Background: Chemical dependency 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, resulting in poor-quality care for the chemically dependent pregnant woman and her baby. Developing

educational tools to enhance health practitioners' knowledge while diminishing stigmatization has potential to improve maternal and fetal outcomes. **Objective:** The study measured the educational impact on substance use and withdrawal in pregnancy, and evaluated change in healthcare providers' attitudes, stigma, compassion and knowledge in providing care for chemically dependent women. **Study Design:** A cohort pre-post intervention study employed comparison of anonymous voluntary survey responses of OB healthcare providers at a conference dedicated to care of chemically dependent pregnant patients. The didactic led by addiction specialists presented 90-minute education on withdrawal and treatment of opioid, alcohol, benzodiazepine and marijuana use disorders. Recommendations and strategies for treatment and compassionate care for pregnant women with substance use were outlined. Primary outcomes included 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 provider's 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 95 of 114 attendees participated in the study (83%), and 88 pre-conference and 78 post-conference surveys met analytic inclusion criteria. Participant showed decreased stigma ($p < .015$) and improved compassion mean scores ($p < .036$). Providers demonstrated increased knowledge, comfort level of care, and referral to treatment ($p < .001$) and improved attitude scores ($p < .006$). Attendees agreed (90%) that the conference addressed best practices and provided information that would impact patient's care and management. **Conclusion:** The conference was successful in improving healthcare providers' education, perceptions and attitudes toward pregnant patients with chemical dependency. This project may offer a practical approach to reducing stigma and improving compassionate care in the area of substance use in pregnancy.