

Substance Use Disorder in America: Research to Practice, and Back Again Addressing the Gaps in Evidence-Based Policy and Practice

SUMMARY: These proceedings summarize the insights shared by nationally renowned panels of experts and overall themes discussed throughout a substance use disorder conference held at the University of Pennsylvania. The conference included experts from academia and public and private sectors, who came together to discuss the gaps in evidence-based substance use policy and practice, with particular emphasis on the opioid epidemic. The day concluded with an interactive session focused on the exchange of ideas and solutions to curb the opioid epidemic. Those ideas are included in these proceedings.

On June 9, 2017, 110 invited health researchers, clinicians, policymakers, health system leaders, and other stakeholders met at the University of Pennsylvania to discuss approaches to address the gaps in evidence-based substance use disorder policy and practice, with an emphasis on the current opioid epidemic. The conference was sponsored by the Center for Health Economics of Treatment Interventions for Substance Use Disorder, HCV, and HIV ([CHERISH](#)), a NIDA-funded Center of Excellence, and hosted by the Leonard Davis Institute of Health Economics ([LDI](#)).

The goal of the conference was to bring together policymakers, who make decisions about, and researchers, who study, the treatment of substance use disorder (SUD) in the United States within the context of the current opioid epidemic. Specifically, this conference was designed to improve the translation of current research for policy stakeholders and to inform future research so that it can be responsive to policymakers' needs. The conference began with a plenary that included a dynamic discussion about the history and scope of SUD. Conference breakout sessions covered the most pressing issues concerning opioid prescribing, evidence-based treatment of opioid use disorder, and the need to integrate treatment into the health system. The first set of breakout sessions were led by policymakers and the second by researchers. The conference participants then came together as one group for the keynote speaker, former Congressman Patrick Kennedy, who passionately shared his pursuit of insurance coverage parity for mental health and substance use treatment. The day concluded with an interactive session focused on exchanging policy ideas and solutions to curb the opioid epidemic.

Bruce Schackman, PhD, Principal Investigator and Director of CHERISH, welcomed the attendees and introduced CHERISH and its mission: to develop and disseminate health economic research on health care utilization, health outcomes, and health-related behaviors that informs SUD treatment policy and HCV and HIV care of people with SUDs. **Zachary F. Meisel, MD, MPH, MSHP**, Director of the CHERISH Policy and Dissemination Core, introduced the aims of the Core and conference: to improve the use and usefulness of policy-relevant and health economic research regarding SUD treatment.

Opening Plenary

The conference started with a plenary moderated by **Daniel Polsky, PhD**, LDI Executive Director. Panelists presented opening remarks:

A. Thomas McLellan, PhD, Co-founder of Treatment Research Institute, and former Science Advisor and Deputy Director of the White House Office of National Drug Control Policy, reviewed the history of SUD. For centuries, he explained, substance use has been considered "bad conduct" and has been addressed as a criminal justice issue. As a result, SUD has been treated and financed differently from other health conditions. Medical providers are not trained in SUD and treatment has only recently been covered by insurance. Dr. McLellan described opportunities for improvement in several policies and

practices, including educating the medical community (in the medical school curriculum) about SUD, working with insurance companies to ensure SUD coverage is based on evidence-based treatments, and informing and engaging consumers about SUD treatment.

Richard G. Frank, PhD, Margaret T. Morris Professor of Health Economics in the Department of Health Care Policy at Harvard Medical School, and Former Assistant Secretary for Planning and Evaluation in the U.S. Department of Health and Human Services, described the role of a researcher in public policy. He compared the environments of a researcher and policymaker, particularly focusing on the pace of work. He said that in government, an individual must work quickly to address difficult problems, often without a good, clean design. Dr. Frank discussed his own experience at the Centers for Medicare & Medicaid Services (CMS), where he focused on ex-offenders – a population with an overdose rate three times higher than the national average. Studies had shown that early engagement of these individuals resulted in both better health and economic outcomes. His team pulled all of that evidence together and convinced the CMS Administrator, the Attorney General, and White House officials that this was good policy based on economic and clinical evidence. He concluded that this was an opportunity to use research as the foundation to secure access to health care for high-risk individuals without requiring further legislation.

Joshua M. Sharfstein, MD, Associate Dean, Public Health Practice and Training at Johns Hopkins Bloomberg School of Public Health, and Former Principal Deputy Commissioner of the U.S. Food and Drug Administration, highlighted stigma and public misconceptions as a major concern. Dr. Sharfstein explained that people only look at outcomes they personally care about. Research can provide great evidence, but we must address this “block” that occurs when people do not hear the outcomes they want. Dr. Sharfstein called for research that explores effective delivery of evidence-based information to communities. He shared his own story of his time as health commissioner of Baltimore, when he worked with policymakers and clinicians to increase the number of buprenorphine prescribers. The intervention expanded SUD treatment, leading to fewer drug overdoses. Yet, better outcomes weren’t enough to convince everyone: the media still portrayed buprenorphine as the “new drug on the street that the government put there.” Dr. Sharfstein concluded that research evidence needs to be contextualized within a coherent narrative, so that policymakers (and the public) can extract meaning from the findings.

Responding to questions from the audience, the panel discussed barriers to treatment. Inpatient beds, they said, represent very little of the treatment need. The panel agreed that treatment must be evidence-based and meet patients’ needs. The panel admitted that substance use policies are often based on public perception, rather medical evidence. They suggested that payers (insurers) provide coverage based on the evidence of treatment. The panel concluded with thoughts on collaboration between researchers and decision makers. They stressed the importance of engaging and networking with others outside your own field of work. Researchers must be willing to engage with policymakers to better understand the practical research needs.

Breakout Group 1: Health Systems: Diagnosis and Treatment

POLICY PERSPECTIVES

Jeffrey Samet, MD, Professor in General Internal Medicine and Professor of Public Health at Boston University, moderated the panel discussion.

Jack Stein, PhD, Director of the Office of Science Policy and Communications at the National Institute on Drug Abuse (NIDA), reviewed the Department of Health and Human Services’ (HHS) [comprehensive opioid strategy](#). The strategy includes strengthening public health surveillance, advancing the practice of pain management, improving access to treatment, increasing availability of overdose-reversing drugs, and supporting cutting-edge research. NIH research initiatives focus on safe and effective pain management strategies, innovative medications and technologies, and interventions that reduce mortality. Dr. Stein highlighted new treatments, including emergency department-initiated buprenorphine, naltrexone in criminal justice populations, and a fentanyl vaccine in development. Dr. Stein also introduced the importance of public-private relationship and the development of [cascade-of-care](#) models that shift treatment services from a pay scale to a value scale.

Hillary Kunins, MD, Assistant Commissioner at the New York City Department of Health and Mental Hygiene, discussed responding to the community's needs. Dr. Kunins said that New York City has enough resources to accommodate most patients, but stigma continues to deter many. She encouraged the development of flexible harm reduction and treatment strategies that operate within an integrated system of health care delivery. Dr. Kunins added that it is important to understand that individuals will use both harm reduction and treatment systems simultaneously, and ultimately, we must meet the patients where they are.

Colleen LaBelle, MSN, RN-BC, Program Director, Clinical Addiction Research and Education (CARE) Unit at Boston University, expressed concern with current opioid policies. She pointed out that policy is not based on evidence and instead often creates a barrier to treatment. Specifically, she discussed the regulation of buprenorphine. Ms. LaBelle reviewed state and federal regulations that further contribute to the limited availability of providers for medication-assisted treatment (MAT), including prescribing restrictions placed on nurse practitioners.

RESEARCH PERSPECTIVES

Marcus Bachhuber, MD, Assistant Professor at the Albert Einstein College of Medicine, moderated the panel discussion.

Kathy Bradley, MD, Senior Investigator at the Group Health Research Institute and Affiliate Professor in Medicine and Health Services at the University of Washington, discussed her clinical trial to treat opioid use disorder in primary care. She explained that when a primary care clinic becomes self-sufficient (staffed with independent, knowledgeable MAT providers), it has transformative effects on SUD treatment outcomes. She elaborated on the importance of integrating behavioral health into primary care as well as using social marketing to normalize and destigmatize SUD in the health domains. The success of buprenorphine and MAT among patients in the trial changed perceptions among clinic health care workers who were initially resistant to treating SUD patients.

Adam Gordon, MD, Professor of Internal Medicine and Psychiatry at the University of Utah, focused on the role of MAT. Dr. Gordon posed several complex research questions to contextualize this issue: Can MAT fill the need for treatment in rural areas? Does the duration of MAT affect patient outcomes? Who is responsible for prescribing MAT through Medicaid and what patients qualify? Further expanding on the complexity, Dr. Gordon spoke about the nuances that make access to long-term SUD treatment challenging for most who need it.

Jennifer McNeely, MD, Assistant Professor at the New York University School of Medicine in the Department of Population Health, examined the value of SUD screening. She explained how screening tools should be assessed on a continuum, in which resources can then be provided accordingly. She emphasized that these resources should be evidence-based and convenient for self-administration. Dr. McNeely stated that, despite existing screening tools that would be effective assessments in clinical settings, the challenge is with implementation.

Breakout Group 2: Opioid Prescribing: Striking a Balance

POLICY PERSPECTIVES

Michael Ashburn, MD, Director of Penn Pain Medicine Center and Professor of Anesthesiology and Critical Care at the University of Pennsylvania moderated the panel discussion.

Rita Noonan, PhD, Branch Chief, Health Systems and Trauma Systems Branch, Centers for Disease Control and Prevention (CDC), gave an overview of the opioid epidemic. Opioid prescribing increased dramatically during the 1990s, and the United States remains far above the rest of the world in opioid prescriptions sold. She identified two groups with very different needs: those who need access to services and those who are at risk for SUD. Dr. Noonan explained five policy domains that must be addressed, including: (1) improving prescribing for pain, (2) improving management of addiction, (3) partnering with law enforcement, (4) cultivating community awareness and support (for example, notifying users of dangerous fentanyl batches), (5) rigorous, real-time monitoring of overdoses, with adaptive responses. Dr. Noonan also discussed supply side strategies, such as prescription drug monitoring programs (PDMP) and pain clinic regulations to

prevent so-called “pill mills.” Supply side strategies aim to mitigate the risk of an individual developing an SUD. She further discussed demand side strategies, targeting those who need treatment and other support.

Jean Bennett, PhD, Substance Abuse and Mental Health Services Administration (SAMSHA) Regional Administrator, highlighted opportunities, challenges, and research needs of policymakers as they relate to opioid prescribing. Dr. Bennett discussed her approach to incorporating pain practice into medical schools: empowering school leaders to develop the new curriculum. She reviewed ongoing research conducted by SAMHSA, including multiple publications focused on health economics and opioid use disorder.

Rachel Levine, MD, the Pennsylvania Physician General, shared the Commonwealth’s viewpoint and points of emphasis. Dr. Levine said that in 2016, 4,812 people died from drug overdoses in Pennsylvania, a 27% increase from 2015. Dr. Levine also discussed the concept of opioid stewardship. She explained that providers must learn to prescribe opioids more cautiously, understanding that there is a time and a place for the treatment. She compared this to reducing the use of antibiotics due to concerns about antibiotic resistance. The Pennsylvania Department of Health has additional opioid prescribing guidelines that expand on the CDC recommendations, including specialty areas such as orthopedics, obstetrics and emergency medicine. Pennsylvania has three ongoing initiatives: (1) a [prescription drug monitoring program](#) (PDMP) that went live in August 2016, (2) the Physician General’s standing order (for open prescriptions) for Naloxone at pharmacies, and (3) “[warm hand offs](#)” from the emergency departments (ED) to coordinate care for drug overdose patients and link them to substance use treatment programs. Additionally, the state has introduced Pennsylvania Coordinated Medication Assisted Treatment (PacMAT), a hub and spoke network that connects primary care physicians to a SUD expert who can help answer questions and concerns regarding prescribing MAT and facilitate SUD treatment.

RESEARCH PERSPECTIVES

Yuhua Bao, PhD, Associate Professor of Healthcare Policy and Research at Weill Cornell Medical College, moderated the panel discussion.

Deborah Dowell, MD, Senior Medical Advisor, CDC Division of Unintentional Injury Prevention, discussed the “[CDC Guideline for Prescribing Opioids for Chronic Pain](#).” Dr. Dowell was the lead author of the guideline, published in 2016. She reviewed current literature on opioid use for pain management. The CDC guideline concludes that opioids are modestly effective in reducing severe, acute pain, and pain associated with cancer, but have no established benefits of long-term use for non-cancer pain. Dr. Dowell also shared evidence that longer durations and higher doses of prescription opioids are associated with the development of opioid use disorder. Dr. Dowell presented studies that showed that pain, function, and quality of life of chronic opioid users improved with opioid dose reduction or discontinuation with support. One caveat: these randomized controlled trials were studied with motivated users, defined as those who want to cut down their opioid use.

Dan Hartung, PharmD, Associate Professor in the College of Pharmacy at Oregon State University, presented his research on Medicaid pharmacy benefits as a strategy to reduce opioid prescribing. These strategies include:

- (1) Preferred drug lists (formularies)
- (2) Quantity limits (46 states)
- (3) Prior authorization (45 states)
- (4) Point of Service (POS) adjudicated clinical criteria (42 states)
- (5) Step therapy, requires short-acting opioids prior to long-acting (32 states)
- (6) Lock in programs (46 states)
- (7) Dosage limits
- (8) Required use of PDMP (26 states)

Dr. Hartung presented limitations to research utilizing claims data, as this information does not capture out-of-pocket costs. His [research](#) showed that 13.5% of PDMP opioid fills of Medicaid beneficiaries were paid out-of-pocket. Patients paying

out-of-pocket can circumvent policies (such as prior authorization) and is a limitation to future claims data-based policy evaluations. He also suggested that sharing PDMP data between states can help to capture “unobserved” opioid use. Dr. Hartung stated that there is a diversity of pharmacy benefit strategies to reduce high-risk opioid prescribing but most remain understudied.

Stefan Kertesz, MD, Associate Professor, Division of Preventive Medicine at the University of Alabama at Birmingham School of Medicine, stated that while the CDC Guideline for Prescribing Opioids for Chronic Pain was a serious response to a serious problem, it may have had some unintended consequences. Policymakers and providers, he said, do not follow the guidelines correctly and often go too far in limiting opioid prescriptions for patients who may need them. Dr. Kertesz suggested opioid prescription policy is not simply “pill control,” and policies should not focus on the amount of opioid prescribed, without evidence. He specifically reviewed the [seventh recommendation](#) outlined in the CDC guidelines, which addresses patients already on an opioid-based therapy for chronic pain. The guideline recommends that this population be evaluated for the benefits and harms of continued opioid use. Dr. Kertesz noted that providers already do this with other chronic medical conditions, such as hyperlipidemia (high cholesterol), where treatment is based on multiple risk factors. He highlighted a major limitation to studies on opioid tapers and discontinuations, as these studies include only motivated patients, who want to reduce their opioid consumption. Dr. Kertesz stated it is important to clarify this recommendation. He suggested that while payers (insurance companies) and providers should embrace risk mitigation, legislation should not use target numbers (such as morphine equivalents) as policy. He also suggested that there is more nuance to these chronic pain patients and that a dosage limit can have severe unintended harms.

Breakout Group 3: Treatment: Access, Coverage, Quality, Costs

POLICY PERSPECTIVES

Gary Mendell, Founder and CEO of Shatterproof, moderated the panel discussion. He set the tone of the discussion by contrasting how a patient is compassionately treated for cancer and how a highly stigmatized patient is treated for SUD. Panelists addressed problems of access, coverage, quality, and costs through a policy perspective.

A. Thomas McLellan, PhD, co-founder of the Treatment Research Institute provided several different ways of thinking about treatment. Because patients, during treatment, often feel recovered and thus do not seek further outpatient care, insurers and payers need to incentivize continuity of care. To describe the treatment sector as it is now, Dr. McLellan used a metaphor that resonated in the room: he compared the lack of a full continuum of care to the inability of a car to run. All of the parts needed for continuity of care are already present in our health care system, just as the car’s parts are in a shop. But to have the desired full continuum of care (or a working car), there must be standardization and mutual understanding among stakeholders to bring all these parts together. Dr. McLellan noted that these parts can only be synchronized once consumer value is identified.

John O’Brien, MS, Senior Consultant in the Human Services Group at the Technical Assistance Collaboration, built upon Dr. McClellan’s remarks and talked about how to maintain quality treatment after people obtain coverage. He offered solutions that have worked in the past, such as regulation and litigation, but he placed particular focus on the need for public education to reduce stigma and payment reforms that would lower financial barriers to treatment. As of now, he argued, these two policy approaches are largely nonexistent.

In response to audience questions, Dr. McLellan and Mr. O’Brien clarified what it means to have access to SUD treatment, both in numbers and concept. Of the 23-25 million people diagnosed with moderate to severe substance abuse disorders (12 years and older), about 10% receive specialty treatment. The panel emphasized that 90% of the treatment received is outpatient, raising a myriad of issues from physical proximity to a health center to insurance coverage and continuity of care. Discussion further centered on prioritizing insurance and Medicaid payments for evidence-based treatments. The panelists illustrated the deficiencies in care. Most detoxification centers do not have follow-up and continuity of care, with 60% of patients expected to relapse in three months and 80% in six months. The panelists agreed that society will not be able to treat itself out of the opioid epidemic without early-stage interventions and prevention strategies in place.

RESEARCH PERSPECTIVES

Brendan Saloner, PhD, Assistant Professor in the Bloomberg School of Public Health at Johns Hopkins University, moderated the panel discussion.

Richard Frank, PhD, the Margaret T. Morris Professor of Health Economics at Harvard Medical School, provided a diverse statistical picture of the SUD epidemic in America. Rates of SUD are 30%-50% higher in low-income brackets, and only 26% of people with an opioid use disorder are treated. Dr. Frank outlined the reasons for individuals not receiving treatment: cost/affordability, 36%; availability, 16%; stigma, 22%; not ready to stop, 29+%.

Dr. Frank also noted that we have not seen an upswing of people treated in specialty programs, but we have seen an upswing in medication-assisted treatment. On an optimistic note, he argued that, despite the current political climate, SUD is free from “disfiguring” politics, with Medicaid becoming a quiet model of bipartisanship and the basis for expanding behavioral treatments.

Tami Mark, PhD, Senior Director of Behavioral Health at the Research Triangle Institute (RTI) International, discussed the history of Prozac as an example of how a new, effective medication can improve rates of treatment. After Prozac entered the market, she said, the rate of mental health treatment doubled. Dr. Mark believes that developing more effective medications is key to “solving” the SUD epidemic, and that the lessons of Prozac may apply to buprenorphine prescribing. She also emphasized the importance of paying attention to consumer demands, stating that consumers not only want medications that are safe and effective, but ones that make them feel better. Thus, she believes that drug agonists, such as buprenorphine, will ultimately be more desirable for patients than other treatment options.

Harold Pollack, PhD, the Helen Ross Professor in the School of Social Service Administration at the University of Chicago, explored the criminal justice system through his own research experiences at Cook County Jail in Chicago. The “[Supportive Release Center](#)” at Cook County was developed by his research team to help transition individuals with SUD after release. He was also involved in the Westside Narcotics Diversion and Treatment Initiative, where individuals with SUD were offered treatment as an alternative to prison. These initiatives, and others like them, can reduce recidivism and relapse rates. Dr. Pollack also spoke about Medicaid expansion, which he credited with making effective and comprehensive treatment possible. Lastly, Dr. Pollack urged the audience to have open dialogues with patients to better understand what they value most regarding screening and treatment.

In response to audience questions, the panel discussed Medicaid expansion and the impact of stigma on treatment access. The panel also discussed the current detox model and the feasibility of emergency room induction of MAT. Smoking was also used as a comparison to opioid use. Despite long-term consumption and individual value placed on smoking, people quit tobacco use for health, cosmetic, and other concerns. To motivate patients to seek treatment, the panel said, researchers must help identify what individuals value.

Keynote Address: Congressman Patrick Kennedy

Patrick Kennedy, former United States Representative and Co-Founder of One Mind, and Founder of the Kennedy Forum, gave the keynote address. The Congressman discussed mental health parity. He highlighted four key areas for advancing the treatment for substance use and other mental health disorders, including:

- quality and transparency
- brain health and fitness
- technology
- integration and coordination

Congressman Kennedy was very forthcoming about his own experiences with SUD. Despite some unexpected community support, he experienced barriers to advancing mental health reform due to stigma. He notes that stigma impacts politics, and without “political will” any policy proposal discussed at the conference cannot take root and grow. He believes our

current system is viewed “microscopically,” and that we lose the common narrative that substance use and mental health disorders affect every family. He believes the government is more likely to pass legislation as a result of moral obligation, rather than pure economic reasoning. He noted that we must put evidence and policy ideas in terms that will resonate with people.

CHERISH Needs Assessment Presentation

Zachary F. Meisel, MD, MPH, MSHP, Director of the CHERISH Dissemination and Policy Core discussed the findings of the CHERISH needs assessment. As part of the research program embedded within the Policy and Dissemination core, investigators conducted in-depth interviews with research end users that focused on identifying their needs for economic research to make informed policy decisions. With the help of the Center’s Policy Advisory Board, the investigators used snowball sampling to enroll 18 informants. An interview guide, informed by Mitton’s knowledge transfer [framework](#) of evidence-based policy, was designed and piloted to explore the barriers and facilitators to the adoption and use of economic research for the treatment of these conditions within the context of the evolving health care system. Individuals from government, integrated health systems, private health insurance, the pharmaceutical industry, clinical care, and patient advocacy were interviewed by staff trained in qualitative research methods. Four main themes emerged from the analysis of the interviews.

- Engagement with evidence: interviewees recommended early, ongoing, cultivated and informal relationships between researchers and decision makers.
- The use and usefulness of the research: interviewees asked for models and examples of evidence that spoke to local needs.
- Jargon and language: interviewees rejected the jargon and overly technical aspects of health economic research, especially if it made this evidence difficult to explain or summarize to peer stakeholders.
- Method and modes of communication from scholars to researchers: interviewees wanted to know more about how the research was done and requested a contextual narrative to be able to understand and repurpose the evidence for specific policy prescriptions.

Substance Use Disorder in America: Bridging the Gaps

The conference concluded with an interactive session focused on the exchange of ideas and solutions to curb the opioid epidemic. Attendees were asked to self-identify as a researcher or policymaker and sit at color-coded seat assignments designed to distribute researchers and policymakers equally among the 13 tables at the conference. Participants were shown a short video vignette featuring a woman sharing a true story about her daughter’s struggle with and eventual death from opioid use disorder. In the scenario, the family was referred to multiple inpatient treatment programs by their health insurance provider, in which MAT was discontinued and post treatment follow-up and care was not coordinated. Each table of 5-8 participants developed ideas to address the many complexities posed by this case, and then shared ideas with the larger group. After the conference, the ideas were summarized in the following categories and were ranked by conference attendees in a web-based evaluation form. The post-conference rankings are listed below:

QUALITY OF TREATMENT

- (1) Tie insurer payment to minimum standards for treatment based on evidence-based practice and continuity of care
- (2) Eliminate or reduce the burden of regulations of buprenorphine prescribing
- (3) Create an independent accreditation body that both rates treatment facilities on meeting standards of care and provides a complete listing of available treatment centers and their quality scores

CONTINUITY OF CARE

- (1) Assure in-person or telephone care coordination following discharge, through peer support or MAT providers
- (2) Promote the hub and spoke models (such as PacMAT), to ensure primary care physicians feel comfortable and supported prescribing MAT
- (3) Promote emergency department induction of buprenorphine prior to discharge or hospital admission

OPIOID PRESCRIBING / PAIN MANAGEMENT

- (1) Require insurance companies to cover alternative pain treatment modalities, so that opioids are not the default pain management
- (2) Tie the use and development of prescription guidelines to federal funding
- (3) Develop a state scorecard on prescribing that ranks the states in relation to their goals (and holds governors responsible)

CONSUMER ENGAGEMENT

- (1) Create a centralized system of treatment facilities and providers where patients can sign up themselves (Airbnb-type model)
- (2) Develop a family and consumer marketing campaign
- (3) Produce consumer-driven rating system or recorded metric of treatment programs
- (4) Fund programs that incentivize individuals into treatment (and start with research on best incentive programs)

Bruce Schackman, PhD, Principal Investigator of CHERISH, closed the conference by encouraging attendees to stay engaged with others in different fields, to continue the work toward the evidence-based policies and practices discussed during the conference, and to keep CHERISH informed of their progress to help the Center plan for next steps.

This Conference Proceedings is supported by Center for Health Economics of Treatment Interventions for Substance Use Disorder, HCV, and HIV (CHERISH), a National Institute on Drug Abuse-funded Center of Excellence (P30DA040500).

About LDI: Since 1967, the Leonard Davis Institute of Health Economics (LDI) has been the leading university institute dedicated to data-driven, policy-focused research that improves our nation's health and health care. Originally founded to bridge the gap between scholars in business (Wharton) and medicine at the University of Pennsylvania, LDI now connects all of Penn's schools and the Children's Hospital of Philadelphia through its more than 200 Senior Fellows. For additional information about LDI, contact Janet Weiner (email: weinerja@mail.med.upenn.edu; 215-573-9374).

<http://ldi.upenn.edu> | [@PennLDI](https://twitter.com/PennLDI)

About CHERISH: 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. The Center is a collaboration among Weill Cornell Medicine, Boston Medical Center, the University of Pennsylvania, and the University of Miami Miller School of Medicine. For additional information about CHERISH, contact Julia Mitchell (email: julia.mitchell@cherishresearch.org; 215-573-4599).

www.cherishresearch.org | [@cherishresearch](https://twitter.com/cherishresearch)

Authors: **Matthew Miclette, MSSP, BSN, RN-BC**, Leonard Davis Institute of Health Economics, University of Pennsylvania; **Isabella Cuan**, Center for Emergency Care Policy and Research Fellow, University of Pennsylvania; **Zachary F. Meisel, MD, MPH, MSHP** Director, Dissemination and Policy Core, Center for Health Economics of Treatment Interventions for Substance Use Disorder, HCV, and HIV; Associate Professor of Emergency Medicine, University of Pennsylvania