



ED-Initiated Buprenorphine: Economic Considerations

Presented by:

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NIDA CTN ED Research: Advancing ED-initiated Buprenorphine

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Center for Health Economics of Treatment Interventions for
Substance Use Disorder, HCV, and HIV



Weill Cornell Medicine
Population Health Sciences

Our Mission

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 people who use substances.

The logo for CHERISH, where the letters C, H, E, R, I, and S are in blue, and the letter H is in green.

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Economic Burden

From: *The Cost of Opioid Use Disorder and the Value of Aversion*
Murphy, SM. *Drug and alcohol dependence*. 217 (2020): 108382. doi: 10.1016/j.drugalcdep.2020.108382

- Cost-effective OUD treatment is critical for personal, public, and economic health
- Annual OUD-related costs to U.S. society in 2018 were \$787 billion¹
 - Excess healthcare expenditures: \$89 billion
 - Lost workplace productivity: \$65 billion
 - Justice-legal involvement: \$30 billion
 - Premature mortality: \$603 billion
- The mean present value of averting an OUD, across all ages = \$2.2 million

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Why is Economic Evaluation Important?

- Resources are limited; thus, the purpose of an economic evaluation is to inform real-world decisions
- Evidence of relative clinical effectiveness will not typically be sufficient for policymakers, payers, and other stakeholders, nor should it be
- Cost-effectiveness implies consideration of both the relative costs and effectiveness of alternative strategies, & efficient use of resources
 - Efficiency allows us to provide treatment to the greatest number of persons in-need
- Important to identify stakeholders (i.e., whose decisions do we want to inform)
 - Stakeholder perspective dictates which resources should be evaluated, and the value that should be assigned to them

Why is Economic Evaluation Important?

- Recommended stakeholder perspectives:
 - **Healthcare sector:** includes all formal healthcare costs incurred on behalf of the participant; i.e., costs associated with the intervention, and all downstream medical costs (e.g., follow-up OUD treatment, ED visits, inpatient stays, etc.)
 - **Societal:** encompasses all costs associated with the intervention, regardless of who incurs them, such as, all costs from the healthcare sector, as well as costs associated with patient participation in treatment (e.g., time, transportation), criminal-legal activity (tangible & intangible), and reduced workplace or educational productivity.
- Additional relevant perspective:
 - **Policymaker:** crucial to informing resource allocation decisions on behalf of the public, who is primarily responsible for funding healthcare and social safety-net resources for vulnerable populations, as well as for the direct costs of criminal-legal resources (e.g., courts, jails, etc.)

What is Cost-Effectiveness

Cost-effective \neq Cheap

Cost-effective \neq Cost saving

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Basic Cost-Effectiveness Principle: Thinking Incrementally

- CEA estimates the additional cost at which an intervention/program achieves a one-unit increase in effectiveness (a desired unit of outcome), compared to an alternative intervention/program
- Reported as incremental cost-effectiveness ratios

$$\text{ICER} = \frac{\text{Cost}_I - \text{Cost}_C}{\text{Effectiveness}_I - \text{Effectiveness}_C}$$

- Where “I” = Intervention and “C” = Control

Compensation/Political Barriers

From: Policies Should Promote Access to Buprenorphine for Opioid Use Disorder:
State and Federal Leaders can Eliminate Barriers

The Pew Charitable Trusts. 2021 May 24.

<https://www.pewtrusts.org/en/research-and-analysis/issue-briefs/2021/05/policies-should-promote-access-to-buprenorphine-for-opioid-use-disorder>

- Barriers to the implementation of low-threshold buprenorphine in the ED, and elsewhere, include:
 - Prior authorization requirements for initial buprenorphine prescriptions
 - Typically, insufficient/no reimbursement for patient-support services often critical to treatment success (e.g., social work, peer-support)
 - Scope of practice laws; e.g., many states either do not allow NPs to prescribe BUP, or only in consultation with a waived physician

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Concerns, Realities, and Solutions Regarding Opioid Use Disorder and Buprenorphine Treatment in the ED.*

Concern	Reality	Solution
Addiction is a moral failing; patients keep coming back to the ED time and time again.	Addiction is a chronic and relapsing disease that can be effectively treated with opioid-agonist therapies. Emergency physicians often see a skewed sample of patients not in treatment.	Provide patient-specific feedback to ED providers on success stories regarding engagement in treatment.
Providing buprenorphine to patients will lead to diversion.	There is less diversion of buprenorphine than of other opioids. Buprenorphine bought off the street is often used to reduce withdrawal symptoms. Every buprenorphine pill taken is one less opportunity for overdose, complication of injection drug use, or death.	Offer limited supplies, preferably 2–7 days' worth of treatment, until an appointment with a community provider or program can be arranged.
Initiating buprenorphine treatment is complicated, and the ED is already crowded and chaotic.	Buprenorphine is safer and more predictable than many medications used in routine ED practice. Treatment can be accomplished in less time than an urgent care visit.	Integrate protocols electronically into the ED workflow from triage to discharge that engage all providers in order to facilitate a simplified and streamlined process. Identify a cadre of champions available to support new prescribers.
Initiating buprenorphine will increase length of stay.	Initiating buprenorphine will reduce length of stay and reduce the potential for violent behaviors and injury to staff. Buprenorphine markedly reduces withdrawal symptoms in 20–30 minutes.	Streamline protocols and educate staff to achieve times of 60–90 minutes from presentation to discharge, in keeping with urgent care criteria.
There is a lack of referral sites for patients who have initiated buprenorphine treatment.	Most communities have treatment resources of which the ED staff are unaware.	Partner and develop relationships with community resources and local health departments to permit efficient referral and feedback. Hire an ED staff member such as a health promotion advocate, which is helpful and cost-effective. ³
Patients will return repeatedly for redosing.	Repeated visits for redosing have not been demonstrated at sites that consistently offer buprenorphine.	Develop treatment plans that are similar to those for other chronic diseases, such as sickle cell disease. Treat withdrawal with buprenorphine and referral.
Patients will flock to the ED for treatment.	Patients with OUD are already in the ED. Sites with ED-initiated buprenorphine do not report an uptake of patients seeking treatment.	Initiate treatment protocols at triage to promote rapid assessment, treatment, and referral.
Many patients don't want treatment anyway.	Some patients, often after an overdose, are not ready for treatment after a brief psychosocial intervention, but discussion may lead to a change in motivation in the future. The ED visit is often a missed opportunity to engage patients who may be contemplating a positive change but need guidance and support.	Introduce harm-reduction strategies such as overdose prevention and naloxone distribution. Establish rapport to facilitate improved outcomes.
Obtaining a waiver to prescribe buprenorphine is too burdensome.	The training required to obtain a waiver can be done all online or as half-day courses coupled with half-day online services. Most training is free and similar to other required learning and counts toward CME requirements for specialty certification, recertification, and licensing in many states.	Identify resources online and at institutions using the SAMHSA and ASAM websites. Offer faculty development days or group learning events.

*ASAM denotes the American Society of Addiction Medicine, CME continuing medical education, and SAMHSA the Substance Abuse and Mental Health Services Administration.

From: Emergency Departments — A 24/7/365 Option for Combating the Opioid Crisis

D'Onofrio G, McCormack RP, Hawk K. *N Engl J Med*. 2018 Dec 27;379(26):2487-90.



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What we Know about Economic Value of ED-Initiated BUP

From: Cost-effectiveness of emergency department-initiated treatment for opioid dependence

Busch SH, et al. *Addiction*. 112.11 (2017): 2002-2010.

- CEA conducted alongside seminal trial by D'Onofrio, et al. (2015) testing brief intervention + ED-initiated BUP-NX + ongoing primary care based BUP-NX; brief intervention + referral to community-based treatment; referral alone
- Healthcare sector perspective was adopted
- Intervention costs were estimated retrospectively
- Effectiveness measures:
 - Receiving formal addiction treatment on the 30th day after randomization
 - Number of days of illicit opioid use, in the past 7, at 30-day follow-up
- ED-initiated buprenorphine was the dominant strategy, under both measures of effectiveness

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Economic Questions that will be Answered via CTN-0069 and -0099

- We are conducting comprehensive cost-effectiveness analyses alongside both trials
- The objective of CTN-0069 was to determine the impact of a standard educational strategy versus Implementation Facilitation (IF) on the provision of ED-initiated buprenorphine with referral for ongoing MOUD and rates of patient engagement in formal addiction treatment on the 30th day after the ED visit
- The objective of CTN-0099 was to compare the effectiveness of sublingual (SL-BUP) and 7-day extended-release injectable (CAM2038, XR-BUP) with regard to engagement in formal addiction treatment at 7 and 30 days

Economic Questions that will be Answered via CTN-0069 and -0099

- Both studies will include a detailed analysis of the resources and associated costs required to implement the interventions, including IF components, and sustain them
 - This will be completed for each site
- Cost-effectiveness analyses will be conducted from multiple stakeholder perspectives: healthcare, societal, and state policymaker
- Measures of effectiveness will include:
 - Process measure – participant engagement in formal OUD treatment at day 30
 - Clinical measure – time abstinent from opioids
 - Economic measure – quality-adjusted life-year (QALY)

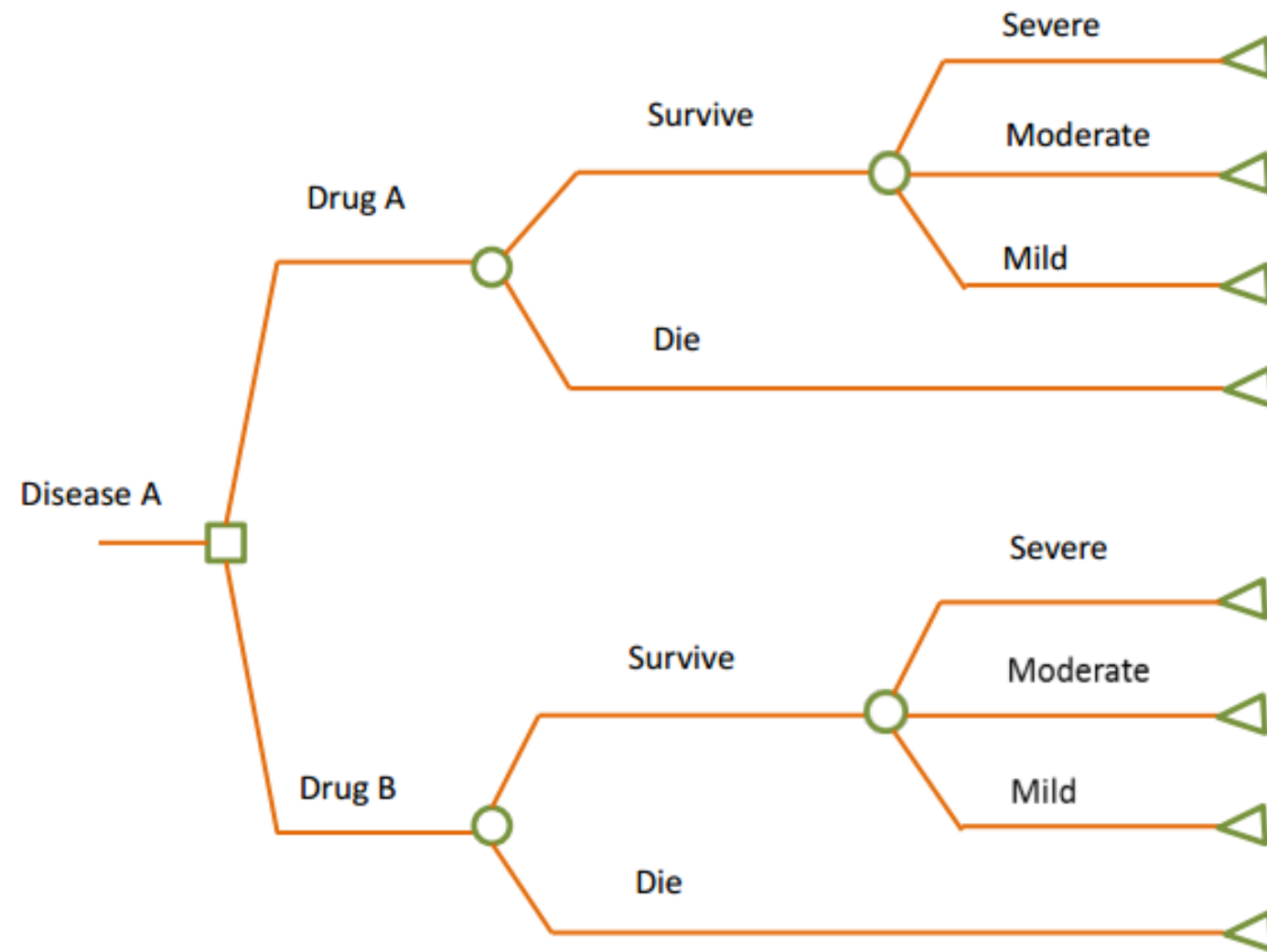
Economic Questions that will be Answered via CTN-0069 and -0099

- The QALY is widely-recognized as the most important measure of effectiveness for economic evaluations
 - Combines the health-related quality-of-life associated with the participant's health state and the amount of time they spend in that state
 - Generalizable across interventions for different diseases/disorders
 - Only outcome measure with generally-accepted value thresholds against which cost-effectiveness can be assessed

Economic Evaluation Methods

- Econometric-based evaluations conducted alongside clinical trials using econometric methods
 - allow short-term costs and effects to be directly observed, and their uncertainty measured
 - Additional advantages pertaining to RCT design (e.g., reduced likelihood of Type 1 and 2 errors)
- Decision analytic models: integrate data from multiple sources to simulate clinical and economic outcomes accrued by hypothetical patients within a pre-defined framework of alternative intervention strategies, including the assumed sequence of events that may occur following a given strategy
 - One of the primary strengths is ability to evaluate outcomes over a longer time frame
 - The quality of the model relies heavily on its structure/framework, and the inputs chosen

Decision Analytic Models



Nodes:

□ decision point
between treatment
options

○ possible events that
patients experienced

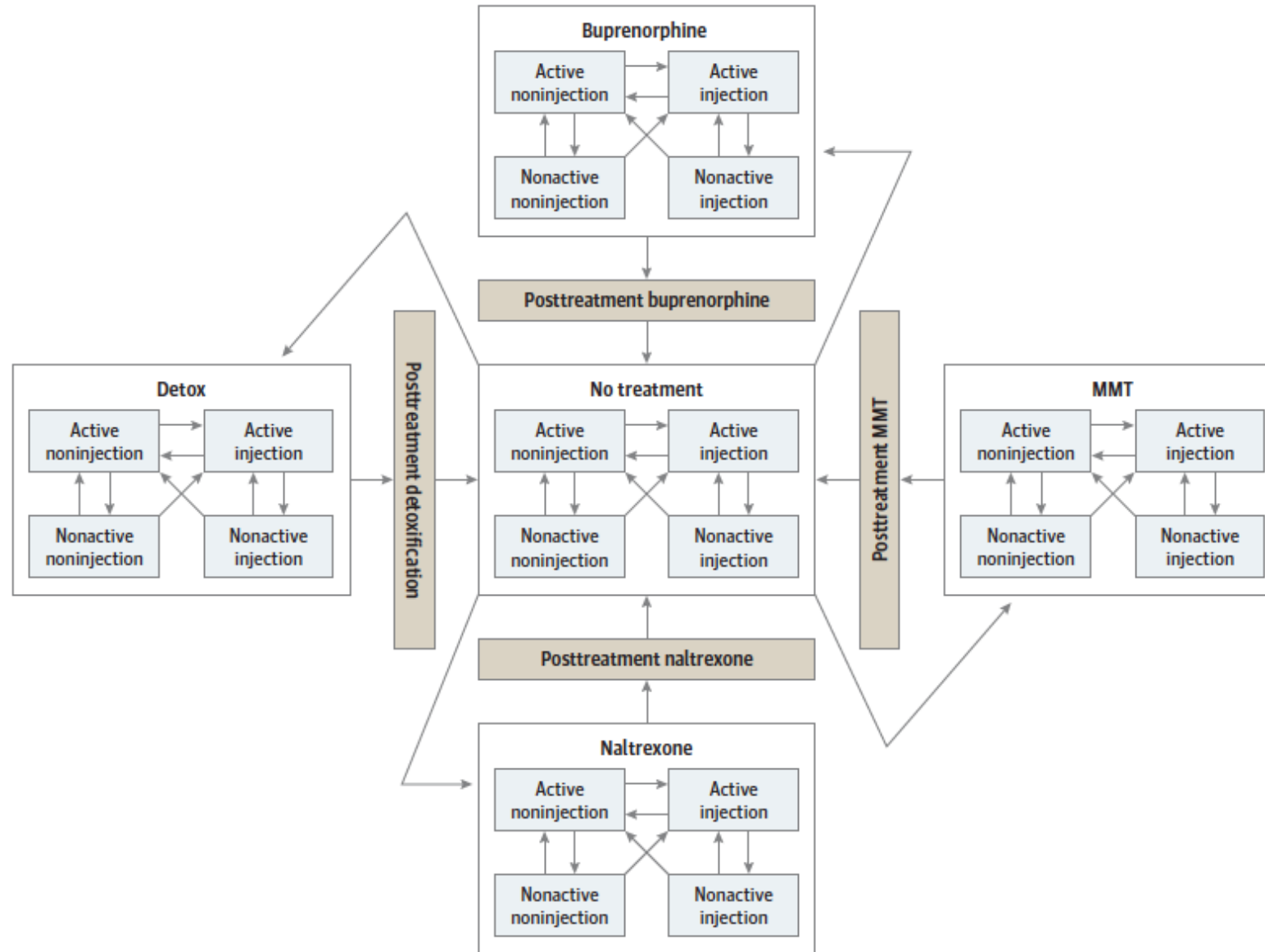
△ terminal nodes

**Mutually exclusive for
pathway*

**probability should be
1.0 in the end*

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From: Projected Estimates of Opioid Mortality after Community-Level Interventions

Linas, BP, et al. *JAMA network open.* 4.2 (2021): e2037259-e2037259.

Institute for Clinical and Economic Review (ICER)

- Nonprofit, nonpartisan organization that utilizes decision analysis to “conduct comparative clinical and cost-effectiveness analyses of health care interventions, such as drugs, devices, and diagnostics”
- ICER has a well-established Value Assessment Framework, which includes:
 - Discussions with relevant stakeholders, such as patient groups, clinical and academic experts, manufacturers, and third-party payers to finalize a topic for assessment
 - Develop and post Draft Scoping Document for public comment
 - Following consideration of comments and literature review, ICER conducts analysis & produces a Draft Evidence Report for public comment, as well as chosen experts
 - ICER reviews stakeholder comments, revises as necessary, & issues a revised Evidence Report
 - ICER then hosts a public meeting to present findings
 - Next, an ICER independent appraisal committee votes on key questions raised by the report
 - Finally, “policy roundtable”, consisting of stakeholder experts develop recommendations on how evidence can inform policymaking and practice considerations
- Final report is posted on ICER website

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Thank You!

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