UAMS EM Journal Club Summary
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Efficacy and Cost-effectiveness of Emergency Department Initiated Buprenorphine

Clinical Bottom Line

Emergency department initiated buprenorphine treatment was associated with a higher subject enrollment in formal addiction treatment at 30 days, higher number of illicit opioid free days in the last week, and was found to be more cost-effective when compared to alternative treatments with intervention or outpatient referral. Although there is moderate potential for error in these trials, ED administration of buprenorphine should be considered in this population as the benefits studied greatly outweigh the risks.

PICO

P: Adults >18 with opioid dependence
I: Administration of buprenorphine
C: Intervention or outpatient referral
O: Enrollment in addiction treatment at 30 days, number of illicit opioid free days in the last week

Background

Opioid addiction causes a heavy burden on individuals, family members, and society and can lead to premature loss of life in an otherwise healthy population. In 2014, 2 million individuals were found to have prescription opioid use disorder, and many of these individuals seek frequent emergency department care for complaints related to opioid dependence. It was found that only 11% of individuals needing treatment were enrolled in formal addiction treatment centers.

Trial 1

D'Onofrio G, O'Connor PG, Pantalon MV, Chawarski MC, Busch SH, Owens PH, Bernstein SL, Fiellin DA. Emergency department-initiated buprenorphine/naloxone treatment for opioid dependence: a randomized clinical trial. JAMA. 2015 Apr 28;313(16):1636-44. doi: 10.1001/jama.2015.3474.

Pubmed link: https://www.ncbi.nlm.nih.gov/pubmed/25919527

Validity Rating

Moderate risk for Bias

The Basics

This study from Yale was designed to compare the efficacy between 3 interventions for opioid dependence in the ED. The study design was a robust randomized controlled trial that studied a

very difficult to evaluate population while controlling for numerous confounding variables. The 3 interventions compared were:
1. Screening + Referral,
2. Screening + Brief intervention (10-15min Brief Negotiation Interview) + Referral
3. Screen + Brief intervention + ED initiated buprenorphine + Referral

Exclusion Criteria
Police custody, suicidal, already in addiction treatment, needing opiates for painful condition in the ED, non-English speaking, other difficulty communicating (mental status), hospitalization

Primary Outcomes
-Whether or not patient is receiving formal addiction treatment at 30 days following randomization

Secondary Outcomes
-Illicit opioid use
-HIV Risk Behaviors
-Addiction Treament Service Use

Results
-78% of patients in the buprenorphine group vs 45% in the brief intervention group vs 37% in the referral alone group reported being in formal addition treatment at 30 days post randomization. This primary outcome was statistically significant in favor of buprenorphine.
-No significant different in opioid negative urine tox tests among the 3 groups
-No significant difference in HIV risk behaviors among the 3 groups
-No significant difference in the average number of outpatient visits among the 3 groups

Limitations/Biases
-The primary outcome showing positive results for buprenorphine was tied to multiple other interventions making unclear which intervention had the biggest difference
-Secondary outcomes were self reported by patients
-No explicit discussion of adverse outcomes related to buprenorphine

Trial 2

Busch, Susan H, et al. Cost Effectiveness of Emergency Department-initiated Treatment for Opioid Dependence. Addiction. 2017 Nov;112(11):2022-2010. Doi: 10.1111/add.13900.Epub 2017 Aig 16

Pubmed link: https://www.ncbi.nlm.nih.gov/pubmed/28815789

Validity Rating
Moderate risk for bias

The Basics

The aim of this study was to evaluate the cost-effectiveness of three separate interventions for the treatment of opioid dependence. The study was based on a previous randomized control trial comparing intervention, out-patient referral, and emergency department-initiated buprenorphine treatment for opioid dependence. Measured health-care use was converted to dollar values and these 3 groups were analyzed for cost-effectiveness.

Exclusion Criteria

- Participants under the age of 18

Primary Outcomes

- Engagement in formal addiction treatment at 30 days, willingness-to-pay
- Illicit opioid-free days in the last week

Secondary Outcomes

- Costs related to crime
- Patient-time costs

Results

- There was no significant difference in health-care costs between the intervention, referral, and ED initiated buprenorphine groups.
    - ED initiated buprenorphine vs brief intervention (P=0.90)
    - Brief intervention vs referral (P=0.76)
    - ED initiated buprenorphine vs referral (P=0.66)
- There was a significant increase in subjects enrolled and receiving formal addiction treatment at 30 days in the ED initiated buprenorphine group compared to other groups.
    - ED initiated buprenorphine vs brief intervention (P=<0.001)
    - Brief intervention vs referral (P=0.46)
    - ED initiated buprenorphine vs referral (P=<0.001)
- There was a significant decrease in days of self-reported illicit opioid use in the past 7 days in the ED initiated buprenorphine group.
    - ED initiated buprenorphine vs brief intervention (P=0.0044)
    - Brief intervention vs referral (P=0.66)
    - ED initiated buprenorphine vs referral (P=0.009)
- Even under the most conservative assumptions (willingness-to-pay of $0), subjects receiving ED initiated buprenorphine treatment are most likely to be enrolled in and receiving formal addiction treatment at 30 days, and are more likely to have fewer days of self-reported illicit opioid use in the last 7 days.

Limitations/Biases

- Outcomes: Enrollment in treatment at 30 days may not reliably predict a subjects likelihood of abstinence from illicit opioid use. Illicit opioid use in last week is self-reported.
- There is a short study time of 30 days post-randomization.

- Health care utilization was self-reported by subjects, and may lead to error in cost calculations.
- There was so formalized cost-estimation instrument, and costs were analyzed retrospectively.