Determining the Economic Impact of Medication Non-Adherence in Persons Treated with Depot-Injectable or Sublingual Buprenorphine for Opioid Use Disorder

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Background

- CAM2038 (CAM), an investigational depot-injectable buprenorphine formulation intended to treat opioid use disorder (OUD), was more effective than sublingual buprenorphine+naloxone (SL-BPNx) in a recent Phase 3 clinical trial.[1]
- In previous economic analyses, CAM was estimated to reduce direct medical costs versus SL-BPNx among persons treated for OUD.[2,3]
- These analyses applied 100% medication adherence, which is not an optimal assumption given the misuse and diversion potential of orally-administered MAT, which are associated with greater risk of relapse.[4,5]
- Objective: Estimate the impact of MAT non-adherence on direct medical costs for persons treated with CAM or SL-BPNx.

Methods

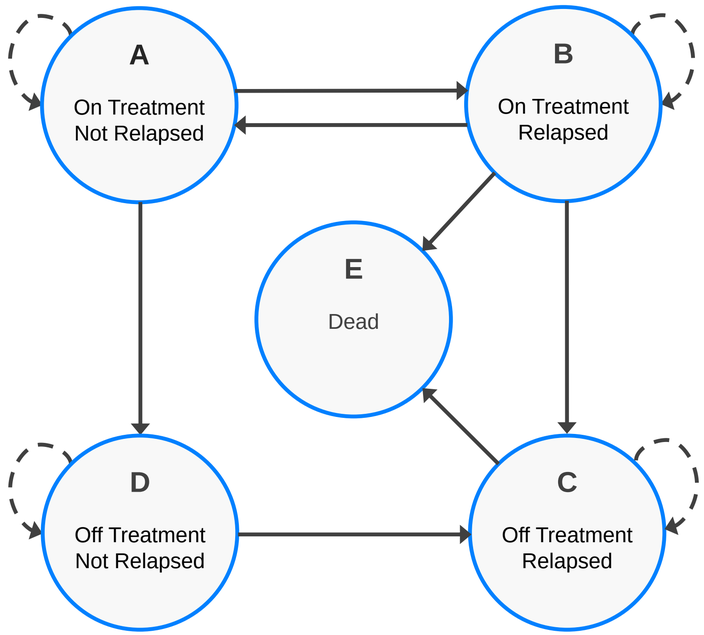
Model Structure and Key Assumptions

- A Markov microsimulation modeled patient progression through OUD health states over 52 weeks (Figure 1).
- SL-BPNx non-adherence was modeled with trends from the literature for medication possession and diversion. CAM non-adherence equated to treatment discontinuation.

Probabilities and Costs

- A-to-B and B-to-A were derived from a patient-level analysis of relapses in the clinical trial.[1] C-to-D and B/C-to-E were from observational studies. A-to-D and B-to-C were from retention reported in the clinical trial, adjusted with retention-correlated factors from observational studies.
- Probabilities and costs of the following events associated with illicit opioid use were based on observational studies:
  - Emergency services, Hospitalizations, Outpatient visits, Infections from intravenous drug use, Neonatal abstinence syndrome, Inpatient and outpatient rehabilitation
- MAT acquisition / administration were not included for either group.
- Transition probabilities and relapse-associated event rates were adjusted according to effects of treatment non-adherence. E.g., non-adherence was associated with increased post-overdose emergency services utilization and an increased post-relapse treatment discontinuation rate.

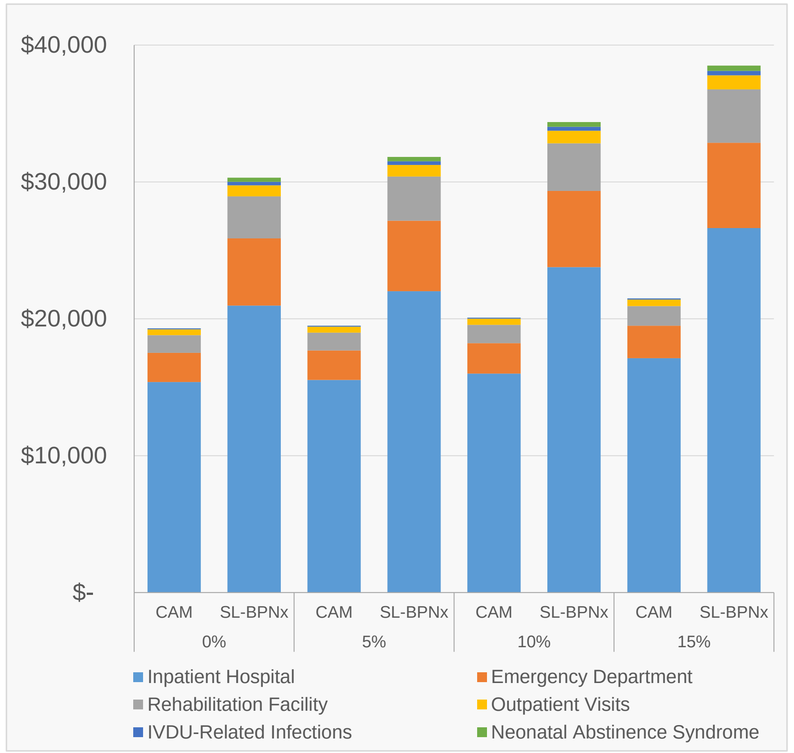
Figure 1. Model Structure



Results

- Under the most conservative assumption (i.e., base case with 0% non-adherence), total estimated relapse-associated costs were $11,005 per patient per year lower in the CAM cohort ($19,307 vs $30,312; Figure 2).
- The same analysis conducted under non-adherence assumptions of 5%, 10%, and 15% produced annual per-patient cost-savings in favor of CAM in the amounts of $12,327; $14,289; and $17,007.
- Findings were most sensitive to the assumed weekly proportion of non-adherent SL-BPN patients, and to assumptions regarding the time-dependency of medication non-adherence.
- Reductions in costs of inpatient hospital stays and emergency room visits were the primary contributors to the cost-savings for CAM.

Figure 2. Relapse-Associated Costs



Conclusions

- CAM's potential to decrease MAT non-adherence may reduce direct medical costs versus SL-BPNx.
- Benefits may be more pronounced against naloxone-free formulations, which are more likely to be misused. Outcomes may also be underestimated due to trial design characteristics may have attenuated differences in retention that may be observed in a real-world setting.
- Findings should be interpreted carefully given their basis on modeled associations; nor can we yet assess the impact of CAM acquisition cost.

This research was supported by Braeburn Pharmaceuticals JAC is a paid consultant to Braeburn Pharmaceuticals. MF previously received consulting fees from Braeburn Pharmaceuticals, but was not compensated for his role in this study. VS is an employee of Braeburn Pharmaceuticals. 1. Braeburn Press Release. 2017May02; 2. Carter JA. AMCP Annual Meeting (2017). Poster F3; 3. Carter JA. ISPOR International Meeting (2017), Poster PMH67; 4. Lavonas EJ. J Subst Abuse Treat. 2014 Jul;47(1):27-34; 5. Carter JA. J Med Econ. 2017 Aug;20(8):893-901.

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