Economic Impact of Flexible-Dose Depot-Injectable Buprenorphine versus Sublingual Buprenorphine/Naloxone to Treat Opioid Addiction in Persons Primarily Abusing Heroin

Michael Frost, MD, FASAM[1], John A Carter, MS[2], Mark Beacker, PharmD[3], Natalie Budilovsky-Kelley, PharmD[3]

[1]Frost Medical Group, PA, USA; [2]EPI-Q, IL, USA; [3]Braeburn Pharmaceuticals, Inc., NJ, USA

Background

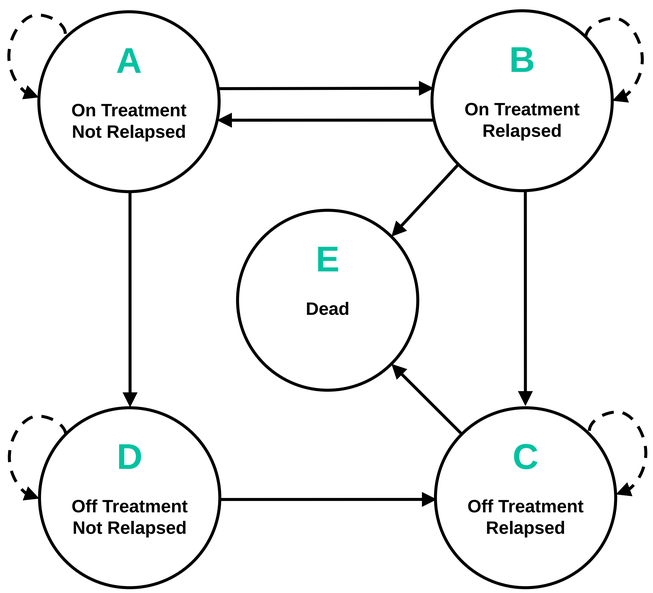
- A recent Phase 3 trial demonstrated the non-inferiority of investigational CAM2038 (CAM) depot weekly and monthly buprenorphine injection versus sublingual buprenorphine+naloxone (SL-BNX) for the treatment of opioid use disorder (OUD).[1]
- In the pivotal 24-week trial, the proportion of responders was higher for CAM versus SL-BNX (17.4% vs. 14.4%; 95% CI -4.0, 9.9; p<0.001). This effect was stronger among patients for whom heroin was the primary drug of abuse (15.8% vs. 4.6%; 95% CI 4.5, 17.9; p=0.001).[1]
- Modeled outcomes suggest that CAM may reduce direct medical costs versus SL-BNX among persons treated for OUD.[2,3,4] However, those analyses pertain to a population that includes both persons primarily abusing prescription opioids and persons primarily abusing heroin.
- The objective of this analysis was to assess the economic impact of CAM versus SL-BNX in persons primarily abusing heroin.

Methods

Model Overview

- A Markov model (**Figure 1**) simulated weekly progression through OUD health states for 52 weeks for cohorts treated with CAM or SL-BNX.

Figure 1. Markov Model of OUD Health States

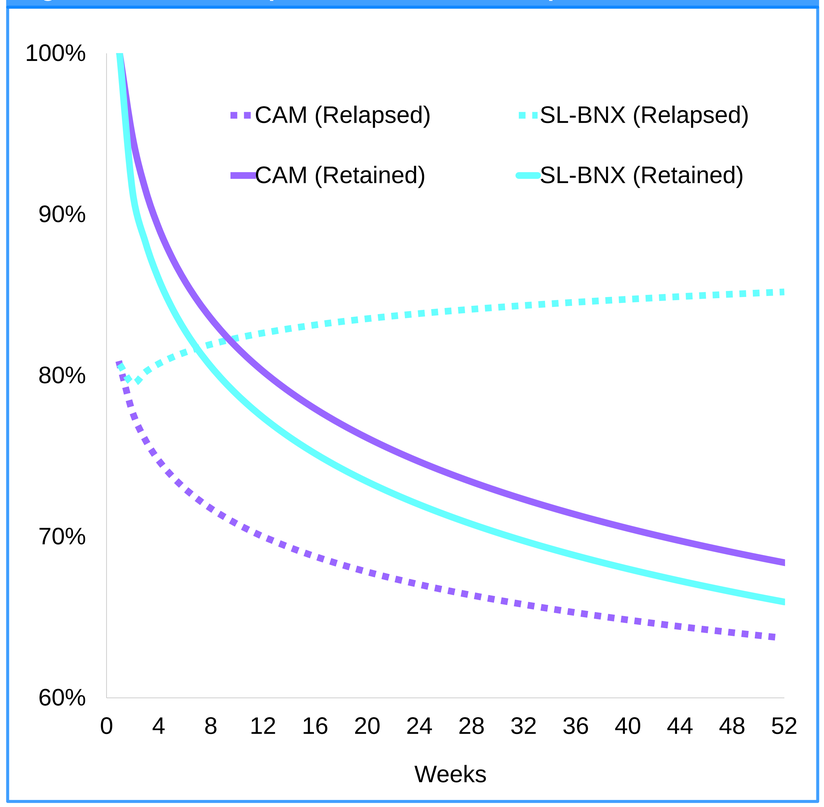


- The model was conducted from a US private payor perspective with cost outcomes expressed in 2017 USD (no discounting).

Inputs

- Relapse and treatment retention rates were derived from a subset analysis of patients who primarily abuse heroin enrolled in the pivotal trial, which were then extrapolated to 52 weeks (**Figure 2**).

Figure 2. Modeled Proportions of Cohorts Relapsed and Retained



- Rates and associated direct medical costs of the following relapse-related sequela were extracted from observational resource utilization studies of primarily heroin abusers who were in or had discontinued maintenance treatment:
  - Emergency services, hospitalizations, acute and chronic infections from intravenous drug use, inpatient and outpatient rehabilitation.
  - Chronic infections included new cases of HIV and hepatitis C, and acute infections included abscess, endocarditis, cellulitis, sepsis.

Outcomes

- Modeled cohorts accumulated direct medical costs associated with relapse, and the primary outcome was the difference in total direct medical costs.
- Drug acquisition and administration costs of CAM and SL-BNX were not included due to the lack of an available price for the former.

Results

- In the modeled outcomes, CAM was associated with a lower relapse rate and higher retention rate.
- These benefits translated into savings (-$14,056, -34%) for CAM versus SL-BNX in relapse-associated direct costs ($27,128 vs. $41,185).
- **Table 1** lists the outcomes by cost category. Cost categories are arranged top to bottom by the magnitude of the cost difference.

Table 1. Comparison of Relapse-Associated Direct Medical Costs

	CAM	SL-BNX	Diff
Total	**$27,128**	**$41,185**	**($14,056)**
Acute Infection	$4,363	$7,570	($3,207)
Inpatient Hospital	$9,286	$12,350	($3,064)
Rehabilitation facility	$2,260	$4,818	($2,558)
Emergency Department	$8,776	$10,763	($1,987)
Outpatient Visits	$1,243	$2,922	($1,679)
Chronic Infection	$1,200	$2,760	($1,560)

- The modeled difference in costs between treatment groups was primarily driven by differences in the rates of acute infection.
- However, in both groups the largest cost contributors were utilization of the emergency department and inpatient hospital stays.
- Outcomes were most sensitive to distributional assumptions employed in the extrapolations of relapse risk and treatment retention.

Conclusions

- Modeled economic benefits of CAM were demonstrated for a hypothetical cohort of patients primarily abusing heroin.
- Reductions in overdose-related costs were the primary driver of these economic benefits, but this analysis demonstrated that a higher proportion of the economic benefit was attributable to reductions in intravenous heroin use (i.e., reduced acute and chronic infections).
- The primary limitations of this analysis include: (1) the need to extrapolate outcomes from the 24-week clinical trial to 52 weeks, and (2) the inability to consider drug acquisition costs for CAM and SL-BNX.

References / Disclosures

1. Braeburn Pharmaceuticals. Data on File. 2. Carter JA. AMCP Annual Meeting (2017). Poster F3. 3. Carter JA. ISPOR International Meeting (2017), Poster PMH67. 4. Carter JA. AMCP Nexus (2017). Poster F6.

This research was supported by Braeburn Pharmaceuticals. MF received consulting fees from Braeburn, but was not compensated for his role in this study. JAC is an employee of EPI-Q, Inc., which received payment from Braeburn Pharmaceuticals to develop, conduct, and report this study. MB and BNK are former and current employees of Braeburn Pharmaceuticals respectively.

Copyright © 2018