Budget Impact Analysis of Weekly and Monthly Subcutaneous Buprenorphine Depot (CAM2038) in US Health Plans

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INTRODUCTION

- Opioid use disorder (OUD) is a chronic disease affecting reward, motivation, and related brain circuitry, often resulting in serious functional impairment[1]
- Evidence-based guidelines recommend medication for OUD (MOUD), in conjunction with counseling and psychosocial support, as the optimal treatment approach[2,3]
- Daily sublingual buprenorphine, a mu-opioid receptor partial agonist, is well established for the treatment of OUD; despite its efficacy, sublingual buprenorphine is associated with limitations [4]
  - Nonadherence to buprenorphine for OUD has significant cost implications[5]
  - As transmucosal formulations are self-administered by patients, concerns exist regarding the risk of diversion[6]
- CAM2038 is an extended-release formulation of buprenorphine for weekly and monthly subcutaneous injection
  - The efficacy and safety of CAM2038 for the treatment of OUD were demonstrated in a 24-week randomized, controlled study[7] and a long-term (48-week) open-label study[8]

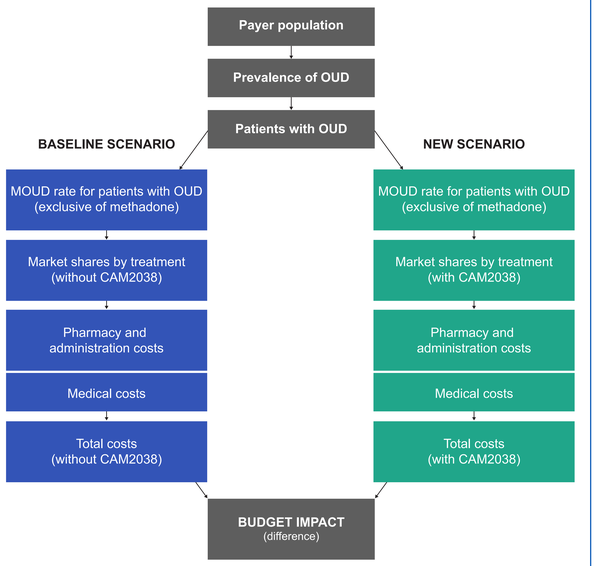
OBJECTIVE

- To estimate the budgetary impact of adding CAM2038 weekly and monthly subcutaneous buprenorphine depot to the formulary for the treatment of patients with OUD

METHODS

- The budgetary impact of CAM2038 was assessed by calculating annual and cumulative healthcare costs for adults with OUD in 2 hypothetical US health plans (private payer, Medicaid) of 1 million members each
  - The target population for the models was adult patients with OUD receiving MOUD in an office-based setting
- The budget impact analysis assessed the differences between a new market (with CAM2038 and increased MOUD utilization) and the current market (without CAM2038 and with current MOUD utilization; **Figure 1; Table 1**)

Figure 1. Budget Impact Model Structure



MOUD = medication for opioid use disorder; OUD = opioid use disorder.

Table 1. Budget Impact Model: Population Inputs

	Private Payer Model					Medicaid Model				
	Current year	Annual change	Year 1	Year 2	Year 3	Current year	Annual change	Year 1	Year 2	Year 3
Heath plan population (n)*	1,000,000	0.7%	1,007,000	1,014,049	1,021,147	1,000,000	0.7%	1,007,000	1,014,049	1,021,147
OUD prevalence	0.71%	10%	0.78%	0.86%	0.95%	3.99%	10%	4.39%	4.83%	5.31%
Patients with OUD receiving MOUD, baseline scenario	35.1%	0%	35.1%	35.1%	35.1%	42.7%	0%	42.7%	42.7%	42.7%
Patients with OUD receiving MOUD, new scenario	35.1%	3%	36.2%	37.2%	38.4%	42.7%	3%	44.0%	45.3%	46.7%
MOUD patients receiving methadone†	10.6%	0%	10.6%	10.6%	10.6%	22.5%	0%	22.5%	22.5%	22.5%

*Based on healthcare claims data from the MarketScan® commercial (July 2013 through June 2017) and MarketScan multi-state Medicaid (July 2014 through June 2016) databases.
†The model populations excluded patients receiving methadone maintenance, which can be given only at certified opioid treatment programs.
MOUD = medication for opioid use disorder; OUD = opioid use disorder.

- Total annual costs (2019 USD) included MOUD treatment (drug and administration) costs and all-cause healthcare costs for adherent and nonadherent patients, and all-cause healthcare costs for untreated persons with OUD (**Table 2**)
  - Indirect costs (eg, lost productivity, criminal justice costs) were not included in the model
- Treatment comparators included Suboxone® (buprenorphine/naloxone sublingual film), generic buprenorphine/naloxone sublingual film, generic buprenorphine/naloxone sublingual tablets, Vivitrol® (naltrexone extended-release injection), and Sublocade® (buprenorphine extended-release injection)

Table 2. Budget Impact Model: Treatment and Cost Inputs

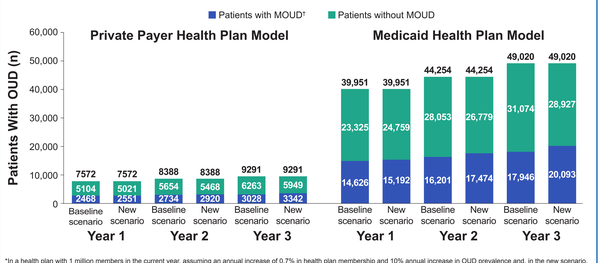
	Buprenorphine ER		Buprenorphine/Naloxone			Naltrexone ER	Buprenorphine ER	Untreated OUD
	CAM2038 Weekly	CAM2038 Monthly	Suboxone® film	Generic film	Generic tablet	Vivitrol®	Sublocade®	
Route of administration	Injection	Injection	Sublingual	Sublingual	Sublingual	Injection	Injection	—
Dosing*								
Maintenance dose	24 mg	96 mg	16 mg†/4 mg	16 mg†/4 mg	16 mg†/4 mg	380 mg	2x300 mg, 100 mg	—
Number of doses/year	52	12	365	365	365	12	12	
Monthly MOUD costs/ patient, 2021 USD								
Drug‡	$1516.67	$1360.00	$546.28	$385.28	$507.74	$1387.54	$1741.95	—
Administration	$80.21	$18.51	$0.00	$0.00	$0.00	$18.51	$18.51	
Market share, baseline scenario (without CAM2038)	0.0%	0.0%	15.3%	63.6%	15.5%	4.6%	1.0%	—
Market share, new scenario (with CAM2038)§								
Year 1	0.5%	0.5%	15.1%	63.0%	15.3%	4.6%	1.0%	—
Year 2	1.0%	1.0%	15.0%	62.3%	15.2%	4.5%	1.0%	
Year 3	2.5%	2.5%	14.5%	60.4%	14.7%	4.4%	1.0%	
Private payer model								
Adherent patients (LOT ≥180 days and MPR ≥80%)‖,¶	79.7%	79.7%	41.3%	41.3%	41.3%	13.6%	66.0%	—
Annual healthcare costs/ patient, 2019 USD								
MOUD drug/ administration	$15,500	$13,381	$3666	$2586	$3408	$6399	$15,207	$0
Medical#	$13,396	$13,396	$19,736	$19,736	$19,736	$24,309	$15,658	$26,150
Total	$28,897	$26,777	$23,402	$22,322	$23,143	$30,707	$30,865	$26,150
Medicaid model								
Adherent patients (LOT ≥180 days and MPR ≥80%)‖,**	79.7%	79.7%	36.8%	36.8%	36.8%	17.5%	66.0%	—
Annual healthcare costs/ patient, 2019 USD								
MOUD drug/ administration	$15,789	$13,630	$3458	$2439	$3214	$6652	$15,406	$0
Medical#	$13,396	$13,396	$20,479	$20,479	$20,479	$23,665	$15,658	$26,150
Total	$29,185	$27,026	$23,937	$22,918	$23,693	$30,317	$31,065	$26,150

*Product dosing was based on a standard maintenance dose, as reported in the product prescribing information.
†One dose is two 8-mg units.
‡Based on wholesale acquisition cost per Red Book as of January 2021.
§The current market shares of the model comparators were obtained from Symphony Health, and the model comparators were assumed to make up 100% of the MOUD market (with shares of buprenorphine monotherapy [not included in the model] redistributed to other model comparators proportionally).
‖Based on healthcare claims data from the MarketScan® commercial (July 2013 through June 2017) and MarketScan multi-state Medicaid (July 2014 through June 2016) databases.
¶Assumes 11.3 prescriptions per year and annual medical costs of $10,045 for adherent patients, and 3.5 prescriptions per year and annual medical costs of $26,554 for nonadherent patients.
#All-cause medical costs were estimated based on patient adherence category using MarketScan data.
**Assumes 11.6 prescriptions per year and annual medical costs of $10,045 for adherent patients, and 3.3 prescriptions per year and annual medical costs of $26,554 for nonadherent patients.
ER = extended release; LOT = length of therapy; MOUD = medication for opioid use disorder; MPR = medication possession ratio; OUD = opioid use disorder.

RESULTS

- Model inputs (eg, plan population, OUD prevalence) were used to estimate the number of patients diagnosed with OUD in the private payer and Medicaid models (**Figure 2**)

Figure 2. Budget Impact Model: Number of Patients With OUD*

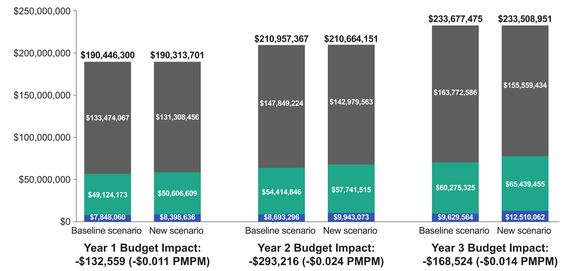


*In a health plan with 1 million members in the current year, assuming an annual increase of 0.7% in health plan membership and 10% annual increase in OUD prevalence and, in the new scenario, an annual increase of 3% in new patients receiving MOUD. †MOUD exclusive of methadone.
MOUD = medication for opioid use disorder; OUD = opioid use disorder.

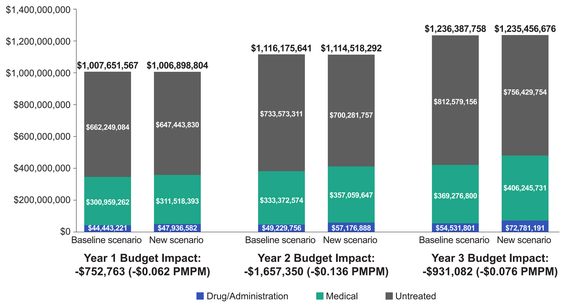
- In the 3-year cumulative health plan model, the new market scenario (with CAM2038 and increased MOUD utilization) showed plan model estimated savings of (**Figure 3**):
  - Private payer: $594,339 ($0.016 per member per month [PMPM])
  - Medicaid: $3,341,194 ($0.092 PMPM)

Figure 3. Budget Impact of Introducing CAM2038 by Year

A. Private Payer Plan



B. Medicaid Plan



PMPM = per member per month.

- One-way sensitivity analyses were conducted to test the sensitivity of the model to variation in the model parameters by varying the individual parameters over a range of ±10% of the base case value (**Table 3**)
- The model results were most sensitive to:
  - The percentages of patients receiving MOUD in the current year for the new and baseline scenarios
  - The medical cost per year for non-adherent and adherent (LOT ≥180 and MPR ≥80) patients
  - The mean number of prescriptions per year for adherent patients

Table 3. One-Way Sensitivity Analysis (±10%, 3-year Cumulative Budget Impact)

	Private payer plan		Medicaid plan	
Sensitivity Analysis	Low input (-10%)	High input (+10%)	Low input (-10%)	High input (+10%)
Patients receiving MOUD (%) – new – current year	$2,279,218	-$3,474,399	$12,763,820	-$19,466,208
Patients receiving MOUD (%) – baseline – current year	-$3,414,639	$2,219,458	-$19,112,089	$12,429,701
Medical cost/year – nonadherent	-$1,259,608	$64,427	-$8,354,918	$1,672,530
Mean Rx/year – LOT ≥180 and MPR ≥80	-$1,004,102	-$191,079	-$5,903,282	-$770,107
Medical cost/year – LOT ≥180 and MPR ≥80	-$932,896	-$262,285	-$5,448,984	-$1,233,405
WAC per package – CAM2038 (weekly) 24 mg	-$782,358	-$412,823	-$4,470,406	-$2,211,982
Patients receiving MOUD (%) – new – annual change (%)	-$424,848	-$771,031	-$2,375,694	-$4,310,589
WAC per package – CAM2038 (weekly) 96 mg	-$763,272	-$431,909	-$4,353,762	-$2,328,626
Adherence – buprenorphine/ naloxone film 8 mg/2 mg	-$479,794	-$715,387	-$2,568,212	-$4,114,176
Mean Rx/year – nonadherent	-$658,839	-$536,342	-$3,748,095	-$2,934,293

LOT = length of therapy; MOUD = medication for opioid use disorder; MPR = medication possession ratio ; WAC = wholesale acquisition cost.

LIMITATIONS

- Budget impact estimates are for 1-million-member hypothetical plans and may not be generalizable to other plans with different patient populations, treatment costs (Unit Rebate Amount), or treatment utilization
- Medical costs are based on data from a retrospective claims analysis
- Indirect costs associated with OUD and any costs related to treatment-emergent adverse effects were not accounted for in this model

CONCLUSIONS

- In this 3-year budget impact model analysis, the introduction of CAM2038 as an OUD treatment resulted in a net overall cost savings for both private and Medicaid payers in a hypothetical plan of 1 million members each with assumed increase in MOUD utilization
- Increased drug and administration costs were offset by reductions in all-cause medical costs
- In this model, accounting for drug and administration and all-cause medical costs, MOUD utilization had the biggest budget impact, such that treating more patients could potentially result in greater cost savings

REFERENCES

1. Strang J, et al. *Nat Rev Dis Primers*. 2020;6(1):3. **2.** Substance Abuse and Mental Health Services Administration. *Medications for Opioid Use Disorder*. Treatment Improvement Protocol (TIP) Series 63. Rockville, MD: Substance Abuse and Mental Health Services Administration; 2020. **3.** Dematteis M, et al. *Expert Opin Pharmacother*. 2017;18(18):1987-1999. **4.** Shulman M, et al. *CNS Drugs*. 2019;33(6):567-580. **5.** Ronquest NA, et al. *Subst Abuse Rehabil*. 2018;9:59-78. **6.** Coe MA, et al. *J Addict Med*. 2019;13(2):93-103. **7.** Lofwall MR, et al. *JAMA Intern Med*. 178(6):764-773. **8.** Frost M, et al. *Addiction*. 2019;114(8):1416-1426.

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DISCLOSURES

NRBK is an employee of Braeburn Inc. MPF reports serving as a consultant for Braeburn Inc., Camarus AB, Knight Therapeutics Inc., Pear Therapeutics, Inc., Pocket Naloxone Corp., and Titan Pharmaceuticals, Inc.; and serving on the speakers' bureau for Indivior PLC.

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