

Budgetary Impact Analysis of Buprenorphine/Naloxone (Suboxone®) in Opioid Maintenance Treatment in Spain

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Background

- Opioid abuse and dependence are amongst the most severe addiction problems worldwide. Substitution treatment is the most widespread and common pharmacotherapeutic approach for heroin dependence.⁽¹⁾
- Methadone has been the mainstay of agonist opioid treatment (AOT) during years.⁽²⁾
- Buprenorphine, a partial μ -opioid receptor agonist and a κ -opioid receptor antagonist, is fast gaining acceptance as a valid and efficacious alternative among addiction specialists and patients,⁽²⁾ due to its pharmacological and clinical actions and its well-established efficacy.⁽³⁾

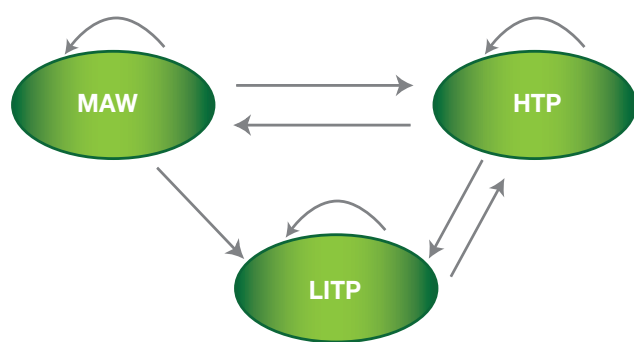
Objective

The objective was to assess the budgetary impact in Spain of the introduction of buprenorphine-naloxone (B/N) combination (Suboxone®) to the therapeutic arsenal of AOT.

Methods

- An interactive budgetary impact analysis model was developed to estimate the economic impact of B/N combination as a maintenance AOT for dependent individuals in the Spanish National Health Care System.
 - A decision tree was designed to describe progress-over-time of patients in AOT. (Figure 1)
 - Simulation of events and outcomes occurring with the therapeutic strategies assessed are represented with as many tree branches as the possible options for the different populations taken into account.
 - For each possible outcome or decision-tree-branch and for each treatment option, the corresponding probabilities of transition were estimated.
- Three target population groups were identified among the total eligible population:
 - Medically assisted withdrawal (MAW) program:** patients undergoing a MAW prior beginning a relapse prevention program, not in AOT.
 - High threshold program (HTP):** patients with no physical or psychological impairment, but with difficulties in remaining abstinent. These patients show good adherence to AOT with methadone and need a high level of supervision.
 - Low-intermediate threshold program (LITP):** patients with physical and/or psychological impairment and with poor adherence to AOT. These patients have less supervision and are poly-substances abusers.
- Two scenarios were compared in the analysis:
 - a situation with 100% of patients treated with methadone
 - an alternative option considering incorporation of B/N combination with annual gradual increases in B/N combination uptakes
- Costs (€, 2010) were obtained from the literature⁽⁴⁾ and from a Spanish healthcare cost database.⁽⁵⁾ (Table 1)
- One-way sensitivity analyses were developed modifying the highest uncertainty parameters: transition probabilities, B/N combination uptakes, initial proportion of patients distribution and resource costs.
- Model Assumptions:
 - Uptakes of B/N combination considered in the model were 10%, 15% and 20% in the 1st, 2nd and 3rd year.
 - It was assumed that all patients in LITP would remain on methadone treatment.
 - Introduction of B/N combination has not resulted in an increase in the number of patients receiving AOT.
 - In the base case of the model, the first year of the simulation begins with no patients on MAW stage, 30% of patients on HTP and 70% on LITP.

Figure 1. Diagram representation of the decision tree



MAW: Medically assisted withdrawal; HTP: High threshold program; LITP: Low-intermediate threshold program

- Annual cost was calculated during a three-year period.
- Inputs for the model were obtained from medical literature.⁽⁴⁾
- Detailed information concerning resource consumption (drug cost, logistics, dispensing, medical, psychiatry and pharmacy supervision, counselling and laboratory test) was obtained from a local expert panel.

Table 1. Unitary cost (€, 2010)

Resource	Cost (€, 2010)
Drugs	
Methadone	531.80 € per methadone kg
Buprenorphine/Naloxone combination (Suboxone®, 8/2 mg, 7 tablets)	2.37€ per tablet (7.5% reduction of ex-factory price required by Health Authorities was applied)
Logistics	
Distribution	0.17€/min
Production	0.49 €/min
Dispensing	
Nurse	0.28 €/min
Supervision	
Drug-pharmacy	0.49 €/min
Medical/clinical	0.49 €/min
Psychological	0.49 €/min
Social worker	0.28 €/min
Psychiatric	0.49 €/min
Monitoring (analytical controls)	3.81 €/test

Results

- According estimations of the Spanish National Program on Drugs, 86,017 patients at year are expected to be in AOT.
- The number of patients to be treated with B/N combination are 2,581; 3,309 and 3,968 in 1st, 2nd and 3rd year, respectively.
- Total budget is €90,059,341; €83,852,812 and €83,098,902 in the 1st, 2nd and 3rd year for the scenario without B/N combination. With B/N combination the total budget would be €90,923,623; €84,422,770 and €83,698,971 in 1st, 2nd and 3rd year of the analyses.
- Detailed results by population target group are shown in Table 2.
- Incremental cost/patient comparing the incorporation of the B/N combination to the scenario only with methadone is €10.58; €6.98 and €7.34 in 1st, 2nd and 3rd year respectively.

Table 2. Budget impact results (€, 2010)

		Scenario without B/N combination			Scenario with B/N combination			Difference (€) with B/N vs. without B/N		
		1 st year	2 nd year	3 rd year	1 st year	2 nd year	3 rd year	1 st year	2 nd year	3 rd year
1 st year	MAW	1,810,603			2,427,960			617,357		
	HTP	29,851,411			29,970,335			118,924		
	LITP	58,397,326			58,525,328			128,002		
2 nd year	MAW	1,797,620			2,537,960			740,340		
	HTP	23,500,556			23,292,336			-208,220		
	LITP	58,554,636			58,592,474			37,838		
3 rd year	MAW	1,834,975			2,774,334			939,359		
	HTP	21,837,621			21,501,141			-336,480		
	LITP	59,426,306			59,423,496			-2,810		

Table 3. Results of one-way sensitivity analyses. Yearly budget impact per patient (€, 2010)

Parameter modified	Value in SA	Scenario without B/N combination			Scenario with B/N combination			Difference (€) with B/N vs. without B/N		
		1 st year	2 nd year	3 rd year	1 st year	2 nd year	3 rd year	1 st year	2 nd year	3 rd year
Transition probabilities	Same values for B/N combination than for methadone	1,102	1,026	1,017	1,116	1,040	1,033	13.7	13.3	16.1
B/N combination uptakes	0.97%; 2.57% and 3.83% for 1 st , 2 nd and 3 rd year	1,102	1,026	1,017	1,104	1,028	1,020	1.3	2.1	2.5
Initial proportion of patient distribution	HTP: 100%	1,477	1,185	1,127	1,523	1,215	1,156	45.8	30.8	28.5
	LITP: 100%	941	958	970	941	961	975	0	2.6	5.2
Resource cost (cost per minute)	+10%	1,211	1,128	1,118	1,219	1,130	1,120	7.8	2.7	2.1
	-10%	993	925	916	1,007	936	929	13.4	11.2	12.5

Conclusion

B/N combination is an efficient alternative to methadone, particularly when considering the favourable clinical aspects associated to this medication. With an additional budget of only €11 per patient, the inclusion of B/N combination into the therapeutic arsenal duplicates the available options for opioid dependent patients.

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