

Buprenorphine–naloxone film yields cost savings in administration time compared with sublingual tablets in Sweden

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Introduction

- Opioid use disorder (OUD) is a chronic, relapsing condition with a significant burden in terms of healthcare service use, drug-related deaths, criminal justice, and lost productivity.^{1–3} OUD presents a significant economic burden to healthcare systems, including hospitalizations, comorbidities, and treatment.^{3,4}
- An estimated 20,000 people in Sweden had OUD in 2017–18.⁵ We estimate that 7000 are currently receiving treatment.
- Buprenorphine–naloxone (BN) is an effective treatment for OUD, but supervised administration is time-consuming and costly^{6,7} and is burdensome for patients and clinics. Regular clinic attendance can be inconvenient and stigmatizing for patients.^{8,9}
- BN mucoadhesive film and BN sublingual (SL) tablets have comparable efficacy but supervised administration is quicker with film (30 seconds vs 3–8 minutes).¹⁰
- In its recent assessment of BN mucoadhesive film, the Swedish Dental and Pharmaceutical Benefits Agency (Tandvårds-och Läkemedelsförmånsverket [TLV]) recognized that the shorter supervision time with film compared with SL tablets could realize cost savings from a payer perspective.¹¹

Objectives

- This analysis explores potential savings with BN film over SL tablets over 2 years, from the perspective of the Swedish healthcare system.

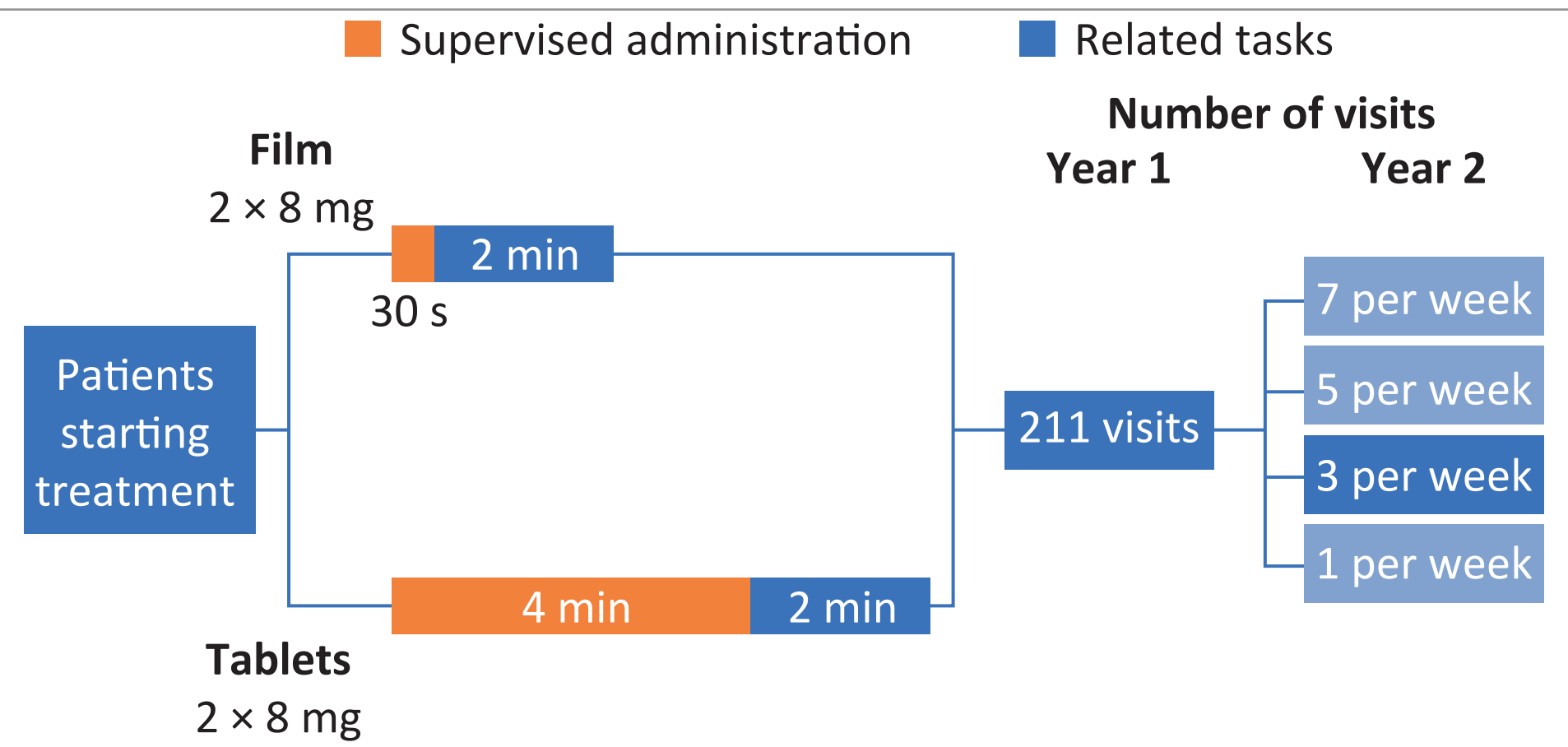
Methods

- Cost minimization and budget impact models were developed in Microsoft® Excel® to compare the acquisition and administration (i.e. staff) costs of Suboxone® BN film and generic BN SL tablets in patients starting treatment at clinics in Sweden.
- The efficacy and safety of the two preparations are similar¹⁰ and therefore are not factored into the models.

Cost minimization analysis

- In the base case, the model assumes that each supervised administration visit involves dedicated observation during film mucoadhesion (30 seconds) or dissolution of the SL tablet (4 minutes) (based on times reported in the comparative clinical trial¹⁰), plus 2 minutes for associated administrative tasks. Patients receive the most common dose of 16 mg.
- Patients are assumed to have 211 supervised administrations in year 1 (daily for the first 3 months, followed by three per week); the number of supervised administrations is varied in year 2.
- The effects of varying the tablet dissolution time and frequency of supervision in year 2 were explored in scenario analyses.
- **Figure 1** illustrates the structure and frequency of supervised administrations used in the model. The assumptions used in the base case are summarized in **Table 1**.

Figure 1. Structure and frequency of supervised administration used in the economic models



The left side of this figure illustrates the structure of supervised administrations, comprising time for observed film mucoadhesion (30 s) or tablet dissolution (4 min), plus directly related administrative tasks (2 min). Tablet dissolution time was varied up to 8 min in scenario analyses. The right side shows the number of visits; in year 2, the frequency was three per week in the base case (darker blue tone) but varied in scenario analyses. Patients are initially stabilized on daily BN SL tablets, with mandatory supervised administration for at least 3 months, after which patients may receive some take-away doses. min, minute; s, second.

Table 1. Assumptions used in the base case

	BN SL tablets	BN film
Daily buprenorphine dose, 16 mg	2 × 8 mg taken together	2 × 8 mg applied simultaneously to different areas of oral mucosa
Administration time	4 min for dissolution ¹⁰	0.5 min for mucoadhesion ¹⁰
Additional time for medicine selection and recordkeeping	2 min per visit	
Cost of supervised administration	50 SEK per min (based on 300 SEK per visit at clinics in Skåne ¹³)	
Duration of visit	6 min	2.5 min
Cost per visit	300 SEK ¹³	125 SEK (pro rata)
Number of supervised administrations in year 1	211*	
Number of supervised administrations in year 2	156 (3 per week)	
Discount in year 2	3% (TLV guidelines) ¹⁴	

*When starting treatment, patients are stabilized on daily SL tablets, mandatorily administered under supervision for at least 3 months, after which patients may receive some take-away doses. The model assumes daily administration for 3 months then three per week. min, minute; SEK, Swedish krona.

Budget impact analysis

- The budget impact analysis explores the impact of BN film uptake by comparing scenarios without the film and in which film replaces generic BN SL tablets, as the most conservative estimate (lower price).
- The structure and frequency of supervised administration visits were the same as in the cost minimization analysis (**Figure 1**) and the same assumptions were used in the base case (**Table 1**).
- Drug acquisition costs (pharmacy purchase price) were sourced from the TLV database.¹² Suboxone and generic BN tablets were considered together and the price of generic BN tablets applied to both as a conservative approach.
- We estimated that 7000 patients are currently receiving treatment of OUD in Sweden. Proportions of patients were estimated from the number treated in 2021. The distribution of treatments used in the base case is shown in (**Table 2**).
- Based on our clinical experience, about one-third of patients are well controlled and do not require supervised administration, so it is assumed that these patients would not switch to film.
- In the base case it was assumed that film would replace 20% of prescriptions for generic BN or Suboxone tablets.
- The scenario analysis explored the budget impact of up to 50% of patients receiving BN tablets switching to film.

Table 2. Treatment distribution used in the base case for the budget impact analysis

Product		Dose	Proportion of patients
Methadone		90 mg daily	30.84
Buprenorphine monotherapy	Generic	16 mg daily	40.15
	Buvidal	Weekly or monthly	4.40
Buprenorphine–naloxone	Suboxone or generic tablets	16 mg daily	21.52
Other treatments			3.08

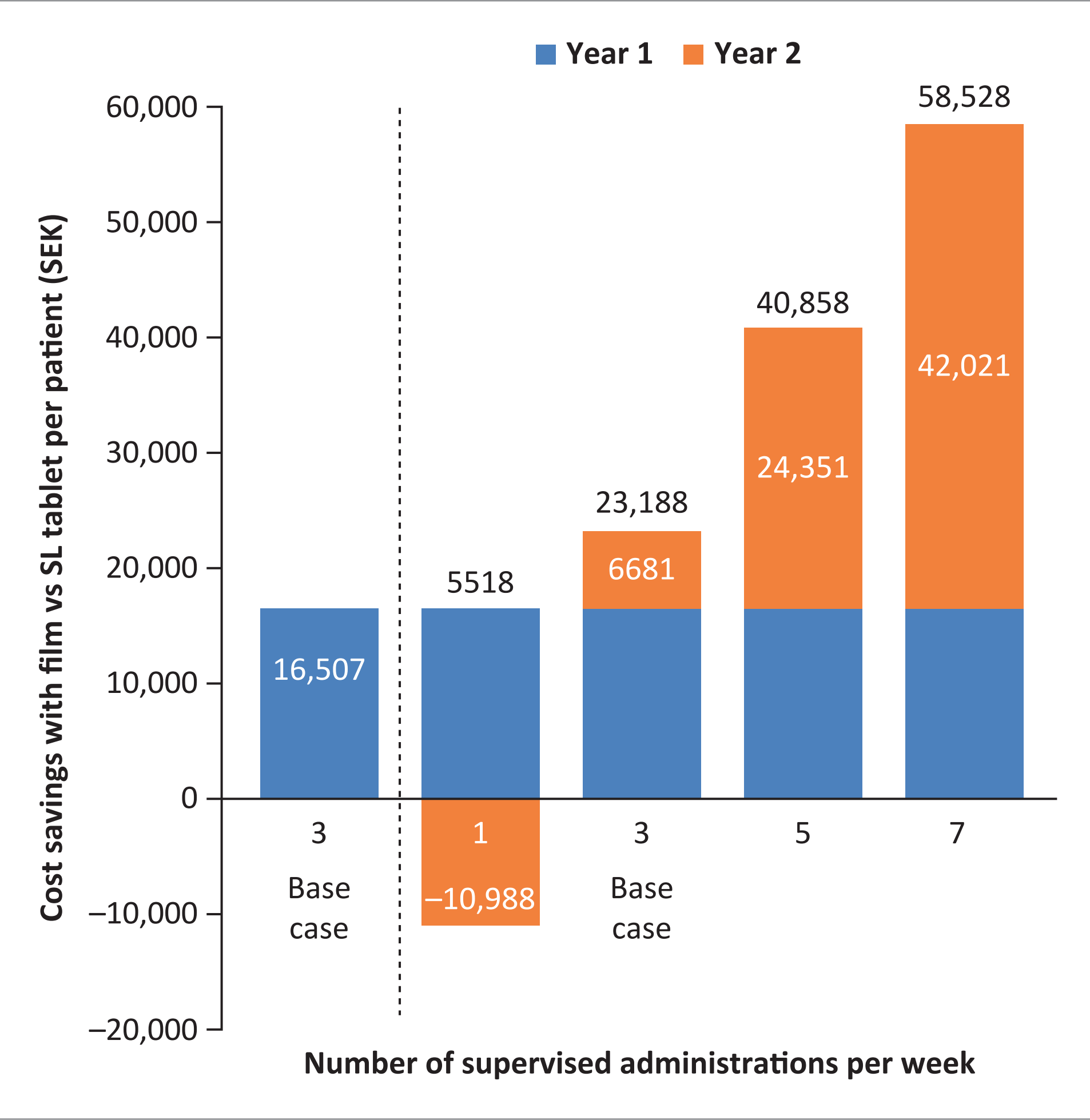
The table shows the proportions of patients receiving each type of treatment in 2021; note that only Suboxone 16 mg tablets are currently reimbursed in Sweden. In the base case, it is assumed that film replaced 20% of prescriptions for generic BN or Suboxone tablets. Higher rates of switching from tablets to film are explored in scenario analyses. Only patients receiving supervised administration are considered.

Results

Cost minimization analysis

- In the base case, film was associated with cost savings over tablets of 16,507 SEK per patient in year 1 and 6681 SEK in year 2, with total savings over 2 years of 23,188 SEK.
- In the scenario analysis exploring the frequency of supervised administration, film was associated with cost savings in all scenarios, despite higher acquisition costs. Savings in the first 2 years ranged from 5518 SEK per patient based on one supervised administration per week (not cost saving until year 2) to 58,528 SEK with daily supervision (**Figure 2**).

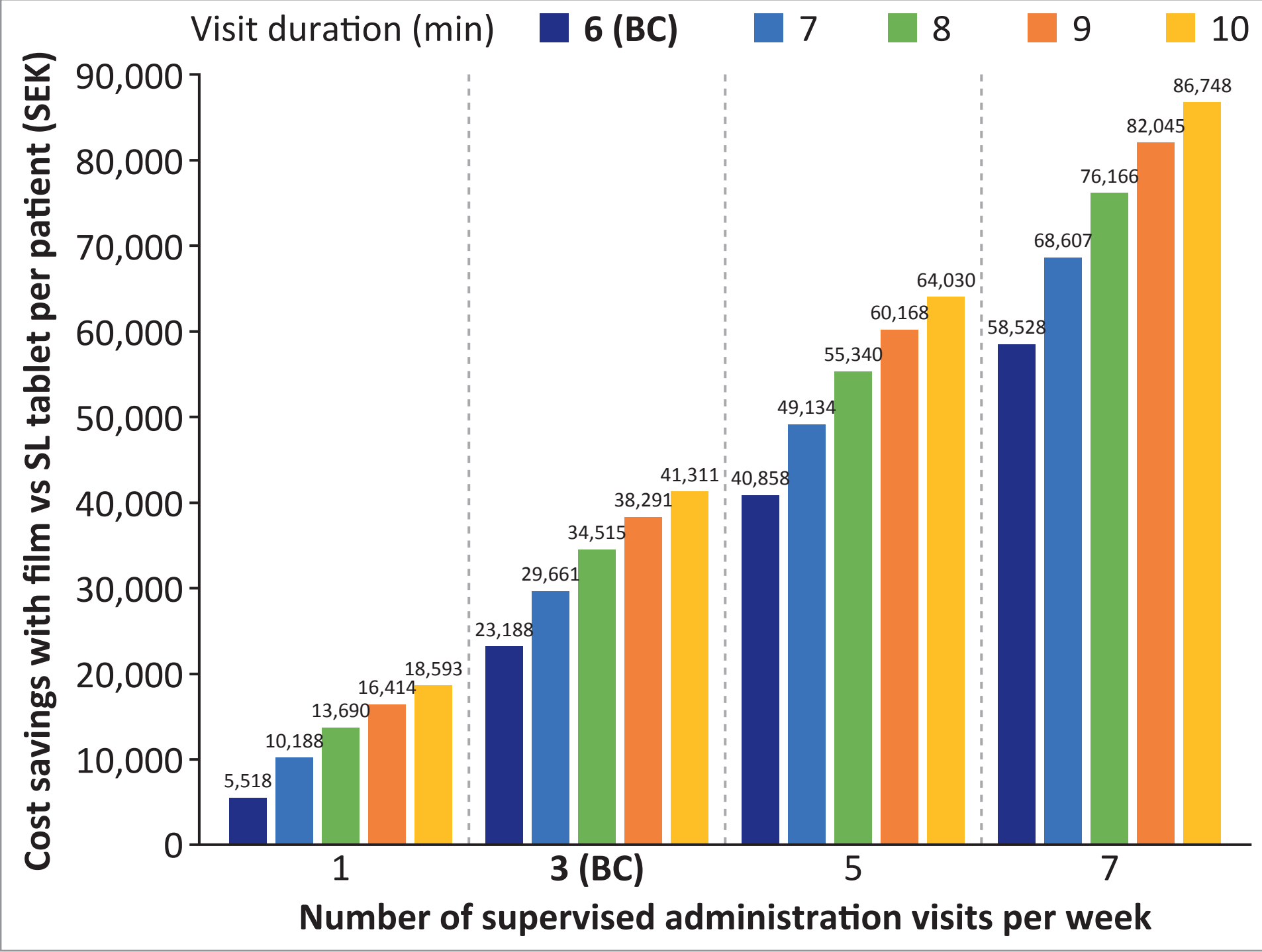
Figure 2. Cost savings with BN film compared with SL tablets over 2 years (cost minimization analysis)



The model assumes 211 supervised administrations in year 1: 3 months’ mandatory daily supervision, followed by three supervisions per week. The frequency of supervised administration was varied in year 2 with three per week assumed in the base case. Visits were assumed to take 3.5 min longer with tablets versus film. Cost savings relate to drug acquisition and administration, in Swedish krona (SEK) per patient; 12 SEK = approximately €1; 11 SEK = approximately 1 USD. Values above the bars are total savings for year 1 + year 2.

- In the scenario analysis exploring the impact of slower tablet dissolution (therefore increasing the duration of the supervision visit), slower tablet dissolution was associated with greater cost savings with film compared with tablets in all scenarios. Based on three supervised administrations per week, cost savings with film were 23,188 SEK for a tablet dissolution time of 4 minutes, increasing to 41,311 SEK with a time of 8 minutes (**Figure 3**).

Figure 3. Cost savings with BN film compared with BN SL tablets when the duration of supervision is increased to accommodate longer tablet dissolution time (cost minimization analysis)

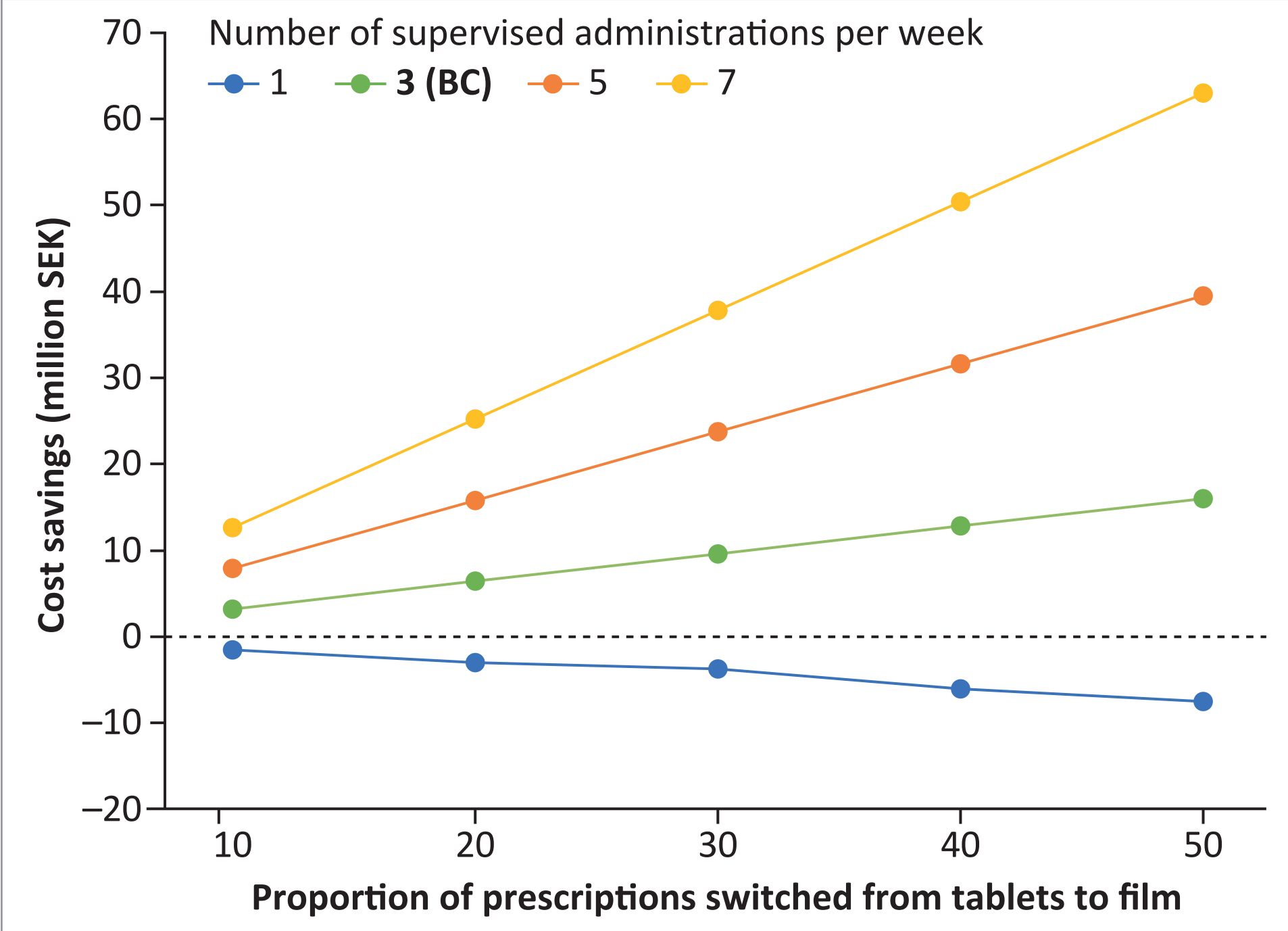


The model assumes 211 supervised administrations in Y1 (3 months’ mandatory daily supervision, followed by three per week). The frequency of supervised administration was varied in Y2 with three per week assumed in the base case (BC). The duration of each visit for administration of tablets was assumed to be 6 minutes (min) in the base case (4 min for dissolution; 2 min for administrative tasks); this was varied in the scenario analysis to allow for slower dissolution (up to 8 min, giving a total visit duration of 10 min). Cost savings relate to drug acquisition and administration, in Swedish krona (SEK) per patient; 12 SEK = approximately €1; 11 SEK = approximately 1 USD.

Budget impact analysis

- In the base case (three administrations per week; 20% of patients switched to film), film was associated with cost savings of 6.41 million SEK in the first 2 years (**Figure 4**).
- In the scenario analysis in which the rate of switching from film to tablets was varied, cost savings ranged from 3.20 million SEK with 10% switch (three supervisions per week) to 16.01 million SEK with 50% switch.
- In the scenario analysis in which the number of supervised administrations per week was varied, 20% switch from tablets to film was associated with cost savings ranging from 12.61 million SEK in the base case (three supervised administrations per week) to 63.04 million SEK with daily supervision (seven per week). Once weekly supervision was not cost saving with film.

Figure 4. Budget impact analysis showing the effect of varying the frequency of supervised administration in year 2 on cost savings when BN film replaces BN SL tablets



Patients receive daily treatment as take-home allowance, with supervised administration of 1, 3, 5, or 7 times (x) per week in year 2 (Y2). Negative values indicate that tablets are cost saving vs film. BC, base case. 12 SEK = approximately €1; 11 SEK = approximately 1 USD.

Strengths and weakness

These relatively simple analyses focus on a small but important difference in the supervision time between BN film and SL tablets; while such models are necessarily based on assumptions, scenario analyses demonstrate that the findings are robust. The models took the perspective of the Swedish health service and would need to be adapted to other healthcare systems.

Conclusions

- This economic analysis supports the TLV’s conclusion that shorter administration time with BN film compared with SL tablets is cost saving from a payer perspective for patients requiring supervised intake three or more times a week.
- The budget impact analysis confirmed substantial potential savings even with low proportions of patients switching from tablets to film.
- Importantly, time savings will free up staff time and allow more patients to be treated per clinic.
- The predictable supervision time with BN film can help clinics to run more efficiently and improve patient satisfaction with treatment.

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