

## BUDGET IMPACT MODEL

Budget impact of patient self-monitored warfarin treatment compared to standard of care

The logo for elisa, featuring the word "elisa" in a blue, cursive script font.

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## INTRODUCTION

The aim of the budget impact analysis is to demonstrate yearly budget impact of alternative anticoagulation management options in patients with atrial fibrillation. The alternative treatment options include warfarin monitored in a healthcare center as current standard of care (SoC) with a possibility to include direct anticoagulants (DOACs) compared to warfarin treatment monitored (PST) or managed (PSM) by patient at home. The distribution of patients between warfarin and DOAC treatments can also be altered to fit different scenarios. The results may be analysed by health care district, ERVA-area or Finland in total. Non-direct health care cost may be included to account for traveling costs to INR-tests in warfarin management. The analysis is based on published price information, publications and expert statements.

## TREATMENT COST

Treatment cost was calculated based on published data, medicine wholesale cost in Finland and expert estimates of healthcare professional working hours in different care settings and phases. One nurse responsible for anticoagulation treatment in Hämeenlinna and in Kokkola was interviewed. Average dose of warfarin was estimated to be 5 mg per day (Antikoagulaatiohoidon käsikirja). Nurse and doctor cost for the employer was calculated with municipal salaries with the employer cost and index taken into consideration. Travel method was calculated to be even between public transportation, private car and taxi (33,3%). Costs of different treatment related phases and sources of the cost have been specified in tables 1-3.

TABLE 1. DRUG UNIT AND TITRATION RELATED COST.

Drug cost	#	Source
Cost per mg	0,02	Marevan 5mg 100pack
Warfarin cost per month €	3,09	
DOAC cost per month €	75,03	Average of dabigatran, rivaroxaban, edoxaban, apixaban standard dose
<b>Titration related costs</b>		
Nurse cost (€/min)	0,43	Kuntatalous 2017
Doc cost (€/min)	0,91	Kuntatalous 2017

TABLE 2. SoC, PST AND PSM TREATMENT-OPTION RELATED WORKING HOURS, NUMBER OF LABORATORY TESTS REQUIRED AND REMOTE MONITORING LEASING COST.

<b>SoC</b>		
Nurse min/visit	7,5	Assumption by expert nurse
Doc min/visit	1	Assumption by expert nurse
Number of tests / month	1,16	Aver. Holvitie et al 2014; Leskelä R-L et al. 2013
<b>PST</b>		
Nurse min/visit	5	Assumption by expert nurse
Doc min/visit	0	Assumption by expert nurse
Number of tests / month	1,16	Assumed same as SoC
<b>PSM</b>		
Nurse min/visit	0	Assumption
Doc min/visit	0	Assumption
Number of tests / month	1,155	Assumed same as SoC
<b>Remote monitoring device cost/month €</b>	40	
<b>Laboratory related resource use</b>		
<b>INR cost / test</b>	3,8	EPSHP 2018
<b>Lab cost / visit</b>	4	EPSHP 2018

TABLE 3. TRAVEL RELATED UNIT COSTS AND AVERAGE DISTANCE TO THE NEAREST PRIMARY HEALTHCARE UNIT IN FINLAND.

<b>Travel</b>		
Travel (km) - roundtrip	7,6	Tilastokeskus 2018
Bus €/one-way ticket	2,2	HSL 2019
Taxi €/km	1	Taxi Helsinki 2019
Taxi starting cost	3,9	Taxi Helsinki 2019
Private car €/km	0,43	Veronmaksajien keskusliitto 2019

Treatment cost per patient and all patients yearly are calculated in tables 4 and 5. Patient count is calculated from the number of different patients getting prescriptions of warfarin or DOACs (Kelasto 2017). Since the budget impact model is restricted to atrial fibrillation patients, the percentage of all warfarin and DOAC patients in this model was 60,2 % (Virjo et al. 2010).

TABLE 4. YEARLY COST PER PATIENT

	SoC (warfarin)	PST	PSM	SoC (warfarin / DOAC)
<b>Medication</b>	37,08 €	37,08 €	37,08 €	304,69 €
<b>Healthcare professional</b>	57,31 €	29,80 €	0,00 €	57,31 €
<b>Laboratory</b>	108,11 €	0,00 €	0,00 €	108,11 €
<b>Remote monitoring leasing cost</b>	0,00 €	480,00 €	480,00 €	0,00 €
<b>Travel</b>	92,22 €	0,00 €	0,00 €	92,22 €
<b>Direct healthcare cost</b>	202,50 €	546,88 €	517,08 €	470,10 €
<b>Direct and non-direct healthcare cost</b>	294,72 €	546,88 €	517,08 €	562,32 €

TABLE 5. YEARLY TOTAL COST ALL PATIENTS (2017).

	SoC (warfarin)	PST	PSM	SoC (warfarin / DOAC)
<b>Medication</b>	1 389 997 €	1 389 981 €	1 389 981 €	16 553 004 €
<b>Healthcare professional</b>	2 148 389 €	2 045 221 €	1 933 505 €	2 148 389 €
<b>Laboratory</b>	4 052 584 €	3 647 240 €	3 647 240 €	4 052 584 €
<b>Remote monitoring leasing cost</b>	0 €	1 799 520 €	1 799 520 €	0 €
<b>Travel</b>	3 456 960 €	3 111 191 €	3 111 191 €	3 456 960 €
<b>Direct healthcare cost</b>	7 590 971 €	8 881 962 €	8 770 245 €	22 753 978 €
<b>Direct and non-direct healthcare cost</b>	11 047 931 €	11 993 152 €	11 881 436 €	26 210 938 €

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