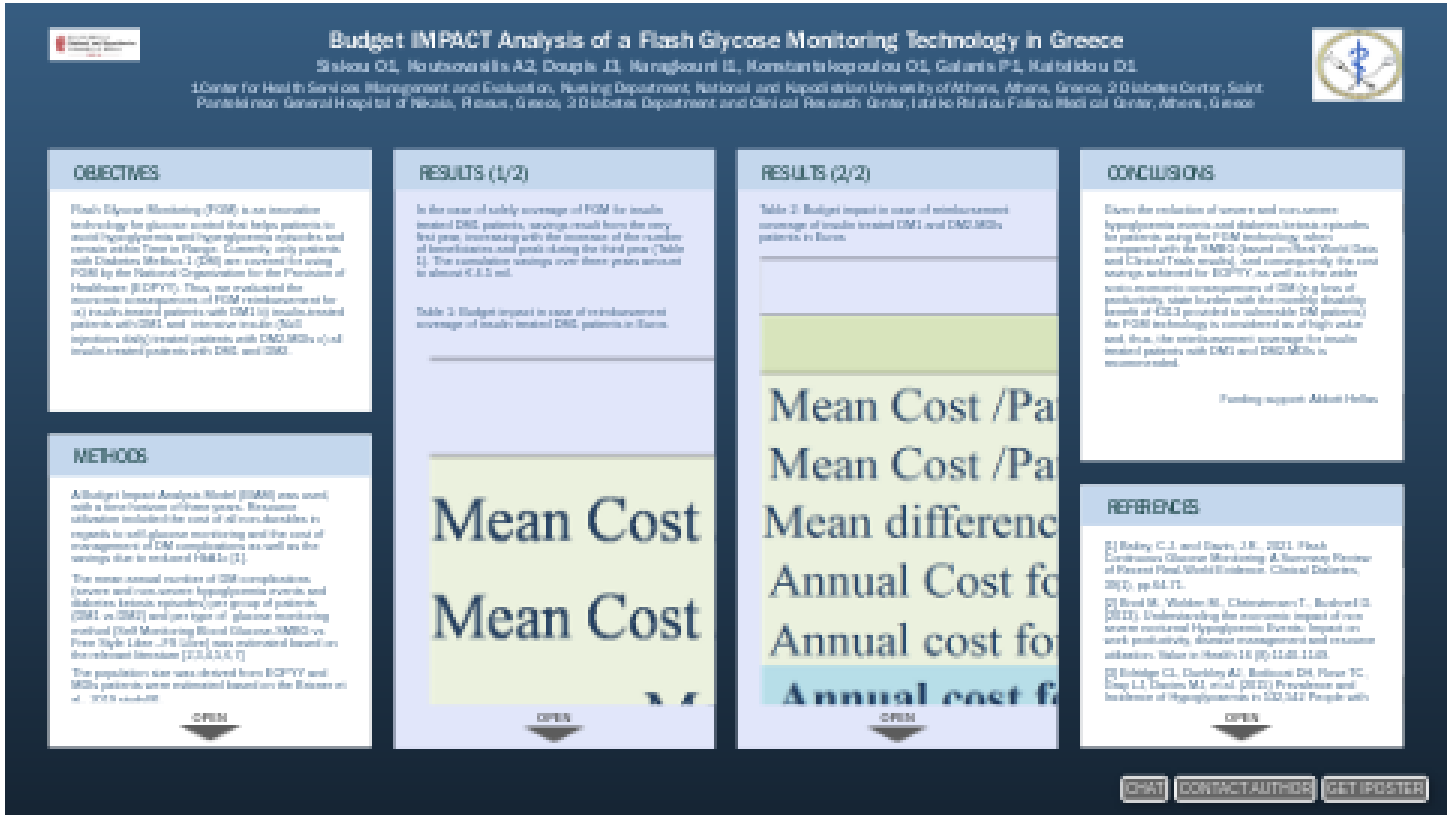
Budget IMPACT Analysis of a Flash Glycose Monitoring Technology in Greece



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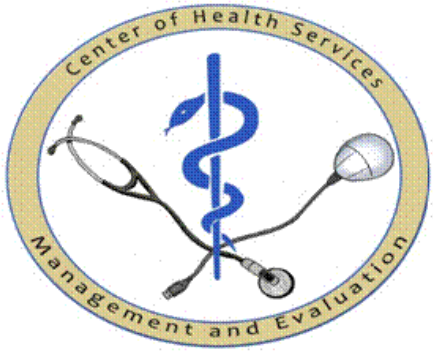

PRESENTED AT:

OBJECTIVES

Flash Glycose Monitoring (FGM) is an innovative technology for glucose control that helps patients to avoid hypoglycemia and hyperglycemia episodes and remain within Time in Range. Currently, only patients with Diabetes Mellitus 1 (DM) are covered for using FGM by the National Organization for the Provision of Healthcare (EOPYY). Thus, we evaluated the economic consequences of FGM reimbursement for :a) insulin-treated patients with DM1 b) insulin-treated patients with DM1 and intensive insulin (N≥3 injections daily) treated patients with DM2-MDIs c) all insulin-treated patients with DM1 and DM2.

METHODS

A Budget Impact Analysis Model (BIAM) was used, with a time horizon of three years. Resource utilization included the cost of all non-durables in regards to self-glucose monitoring and the cost of management of DM complications as well as the savings due to reduced HbA1c [1].

The mean annual number of DM complications (severe and non-severe hypoglycemia events and diabetes ketosis episodes) per group of patients (DM1 vs DM2) and per type of glucose monitoring method (Self Monitoring Blood Glucose-SMBG vs Free Style Libre –FS Libre) was estimated based on the relevant literature [2,3,4,5,6,7]

The population size was derived from EOPYY and MDIs patients were estimated based on the Brixner et al., 2019 study[8].

Analyses were conducted from the EOPYY perspective based on national reimbursed prices and DRGs tariffs, taking into consideration a novel reimbursement model of progressive volume-based price deduction for sensor.

Our estimates are considered conservative as we have not calculated the cost of Emergency Departments visits and the additional benefit to the health system from limited hospital admissions due to severe episodes of hypoglycemia and hyperglycemia during the COVID-19 pandemic (avoidance of PCR-tests, decongestion of hospitals).

RESULTS (1/2)

In the case of solely coverage of FGM for insulin treated DM1 patients, savings result from the very first year, increasing with the increase of the number of beneficiaries and peak during the third year (Table 1). The cumulative savings over three years amount to almost € 4.5 mil.

Table 1: Budget impact in case of reimbursement coverage of insulin treated DM1 patients in Euros

	Base Year	1st Year	2d Year	3rd Year
Mean Cost /Patient /Year SMBG	2,413	2,413	2,413	2,413
Mean Cost /Patient /Year FS Libre	2,305	2,270	2,270	2,270
Mean difference (SMBG-FS Libre)/Year	108	143	143	143
Annual Cost for all patients in SMBG	44,419,121	34,765,938	24,630,096	15,845,700
Annual cost for all patients in FS Libre	23,052,358	31,784,702	41,320,112	49,584,135
Total annual cost for DM1 patients treated with insulin	**67,471,479**	**66,550,640**	**65,950,208**	**65,429,834**
Difference from base year		***-920,839***	***-1,521,271***	***-2,041,645***
% Difference from base year		***-1.4%***	***-2.3%***	***-3.0%***

Moreover, in the case of simultaneous coverage of FGM for both DM1 and DM2-MDIs patients, savings result from the second year (Table 2) and the cumulative savings over three years amount to almost € 0.53 mil.

On the other hand, in the case of simultaneous coverage of FGM for all insulin treated DM1 and DM2 patients, extra cost result from the first year fluctuating from €1.3 to €1.4 mil. annually (Table 3). However, this additional burden for EOPYY is considered to be offset by the improved clinical outcomes and quality of life of both patients and caregivers from the use of FGM technology.

RESULTS (2/2)

Table 2: Budget impact in case of reimbursement coverage of insulin treated DM1 and DM2-MDIs patients in Euros

	Base Year	1st Year	2d Year	3rd Year
Insulin treated patients with DM1				
Mean Cost /Patient /Year SMBG	2,413	2,413	2,413	2,413
Mean Cost /Patient /Year FS Libre	2,081	2,046	2,046	2,046
Mean difference (SMBG-FS Libre)/Year	332	367	367	367
Annual Cost for all patients in SMBG	44,419,121	34,765,938	24,630,096	15,845,700
Annual cost for all patients in FS Libre	20,808,558	28,643,382	37,236,396	44,683,676
Annual cost for DM1 patients treated with insulin	**65,227,679**	**63,409,320**	**61,866,492**	**60,529,375**
Difference from base year		-1,818,359	-3,361,187	-4,698,304
% Difference from base year		-2,8%	-5,2%	-7,2%
DM2-MDIs patients				
Mean Cost /Patient /Year SMBG	1,152	1,152	1,152	1,152
Mean Cost /Patient /Year FS Libre	1,565	1,529	1,529	1,529
Mean difference (SMBG-FS Libre)/Year	-412	-376	-376	-376
Annual Cost for all patients in SMBG	139,320,814	133,185,237	129,094,852	127,049,660
Annual cost for all patients in FS Libre	0	8,139,508	13,565,846	16,279,015
Annual cost for DM1 patients treated with insulin	**139,320,814**	**141,324,745**	**142,660,698**	**143,328,675**
Difference from base year		2,003,930	3,339,884	4,007,861
% Difference from base year		1,4%	2,4%	2,9%
Insulin treated patients with DM1 & DM2-MDIs patients				
Total Annual Cost for DM1 & DM2-MDIs patients	***204,548,493***	***204,734,064***	***204,527,190***	***203,858,050***
Difference from base year		***185,570***	***-21,303***	***-690,443***
% Difference from base year		***0,09%***	***-0,01%***	***-0,34%***

Table 3:Budget impact in case of reimbursement coverage of insulin treated DM1 and DM2 patients in Euros

	Base Year	1st Year	2d Year	3rd Year
Insulin treated patients with DM1				
Mean Cost /Patient /Year SMBG	2,413	2,413	2,413	2,413
Mean Cost /Patient /Year FS Libre	1,993	1,958	1,958	1,958
Mean difference (SMBG-FS Libre)/Year	421	456	456	456
Annual Cost for all patients in SMBG	44,422,020	34,768,207	24,631,703	15,846,734
Annual cost for all patients in FS Libre	19,925,370	27,406,917	35,628,993	42,754,791
Annual cost for DM1 patients treated with insulin	**64,347,389**	**62,175,124**	**60,260,696**	**58,601,525**
Difference from base year		-2,172,265	-4,086,693	-5,745,864
% Difference from base year		-3,4%	-6,4%	-8,9%
Insulin treated patients with DM2				
Mean Cost /Patient /Year SMBG	1,137	1,137	1,137	1,137
Mean Cost /Patient /Year FS Libre	1,474	1,438	1,438	1,438
Mean difference (SMBG-FS Libre)/Year	-336	-300	-300	-300
Annual Cost for all patients in SMBG	138,114,033	124,272,810	117,337,288	110,431,586
Annual cost for all patients in FS Libre	0	17,427,944	26,149,496	34,855,888
Annual cost for DM1 patients treated with insulin	**138,114,033**	**141,700,754**	**143,486,784**	**145,287,475**
Difference from base year		3,586,721	5,372,751	7,173,442
% Difference from base year		2,6%	3,8%	5,2%
Insulin treated patients with DM1 & DM2				
Total Annual Cost for DM1 & DM2 patients	***202,461,422***	***203,875,878***	***203,747,480***	***203,888,999***
Difference from base year		***1,414,456***	***1,286,057***	***1,427,577***
% Difference from base year		***0,70%***	***0,64%***	***0,71%***

CONCLUSIONS

Given the reduction of severe and non-severe hypoglycemia events and diabetes ketosis episodes for patients using the FGM technology, when compared with the SMBG (based on Real World Data and Clinical Trials results), and consequently, the cost savings achieved for EOPYY, as well as the wider socio-economic consequences of DM (e.g loss of productivity, state burden with the monthly disability benefit of €313 provided to vulnerable DM patients) the FGM technology is considered as of high value and, thus, the reimbursement coverage for insulin treated patients with DM1 and DM2-MDIs is recommended.

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