



# The financial burden of T2DM on the public health system of Greece. Using Big Data From GREECE

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## INTRODUCTION & AIM

Type 2 Diabetes Mellitus (T2DM) is a non-communicable chronic disease with continuously growing prevalence. The financial burden on the public health system is a serious economic problem.

The aim of this study is to examine the financial burden of T2DM on the Greek Public Health System, before and during the pandemic of COVID-19.

## METHOD

Data for T2DM Patients from the Register of Diabetic Patients of the National Organization of Health Care Provision (Unique National Insurance Numbers) were examined, for the years 2019 and 2020. The analysis focused on gender, age groups (0-14, 15-24, 25-64, 65-74 & 75+) and prefecture (NUTS 3 level) variation in Greece. Financial data were collected on the cost of medication, non-durable devices and visits to specialists. Furthermore, DM-related hospitalizations based on the Diagnosis-Related Group's – DRG's, were examined. Hospitalizations were grouped according to the complications as Microvascular, Macrovascular and Directly-related to DM complications. Total cost for T2DM and T1DM patients was calculated.

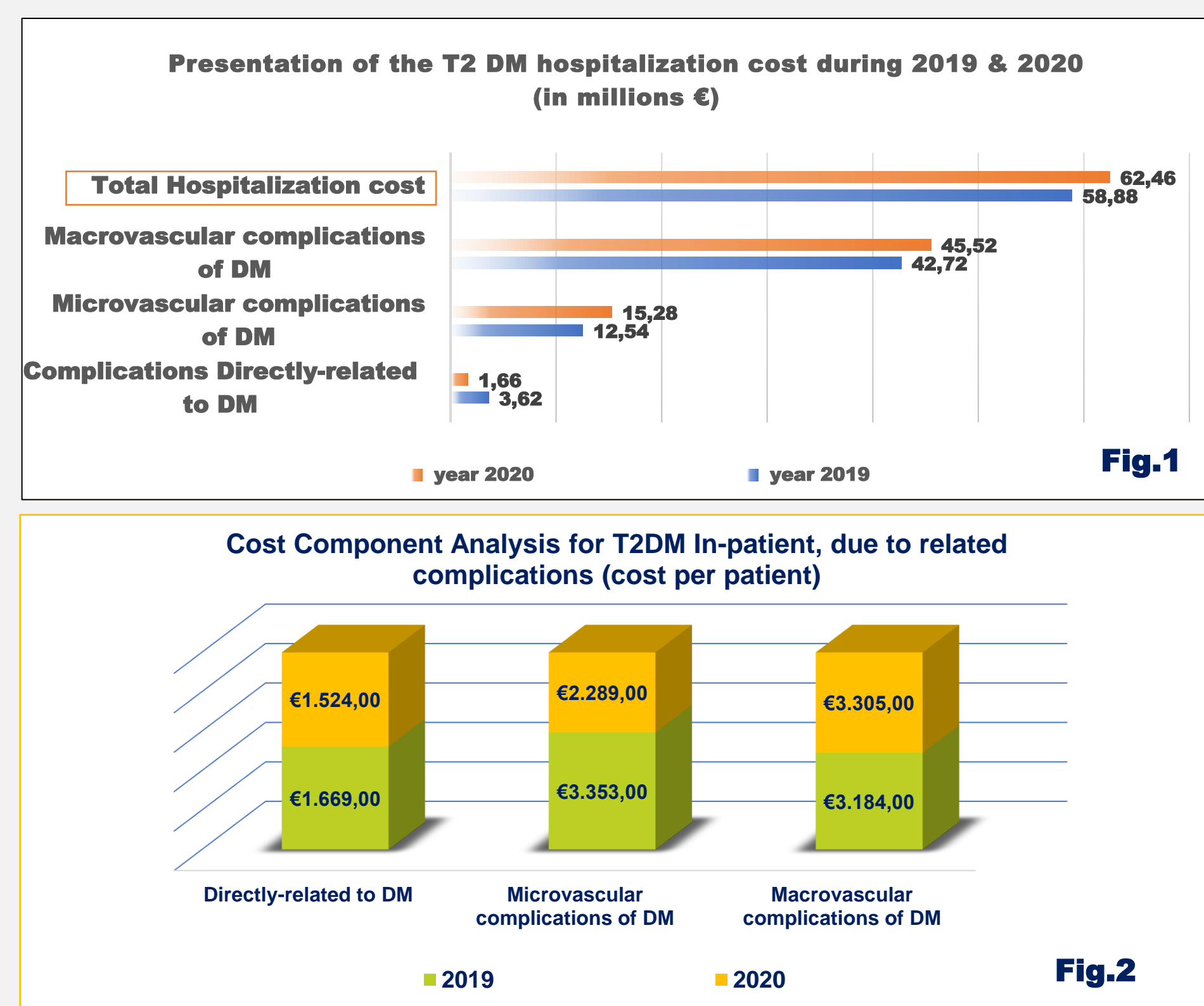
## RESULTS

### Prevalence

- The prevalence of DM in Greece was 5.3% and 6,34% for the years 2019 and 2020, respectively, with an increase of 20,29%.
- 94% of DM patients suffer from T2DM.
- No difference was found between the prevalence of DM on men and women, for both periods.

### In-patient Cost

- The number of DM-related hospitalizations decreased during 2020 by 2,86%.
- For T2DM, the number of hospitalizations decreased by 5.26%.
- Regarding the cost of hospitalization for both types of DM, there was an increase of 6.81%.
- The total hospitalization cost was calculated at 58,88 million € for 2019 and 62,46 million € for 2020, increased by 6,09% (**Figure 1**).
- The in-patient cost of T2DM contains the hospitalization cost of (a) Directly-related to DM complications, (b) Microvascular complications and (c) Macrovascular complications. The highest cost was found on hospitalizations for macrovascular complications ( 42,72 and 45,52 million € for 2019 and 2020, respectively) (**Figure 1**)
- The average *cost per person* for hospitalizations was found at 3.047,00 € for 2019 and at 2.900,00 € for 2020 with a decrease of 4.82% (**Table 2**).
- The highest cost per in-patient was found on microvascular complications 3.353,00€ for 2019 and on macrovascular complications 3.305,00€ for 2020 (**Figure 2**)



### Out-patient Cost

- The cost for T2DM out-patients contains the cost of (a) visits to specialists, of (b) non-durable devices, of (c) Insulin and of (d) antidiabetic-drugs.
- The total cost of out-patients was calculated at 392,44 and 444,07 million € for 2019 and 2020, respectively, with an increase of 13,16%.
- The average *cost per out-patient* was calculated at 726,28 € and 677,57 € for 2019 and 2020 respectively with a decrease of 6,71% (**Table 2**)
- The highest cost for out-patient was calculated for Antidiabetic-drugs, at 454,25 € and 439,02 € for 2019 and 2020, respectively, with a decrease of 3,35%.
- The highest decrease was observed in the cost of non-durable devices, 20,28% (**Table 1, Figure 3**)

Table 1

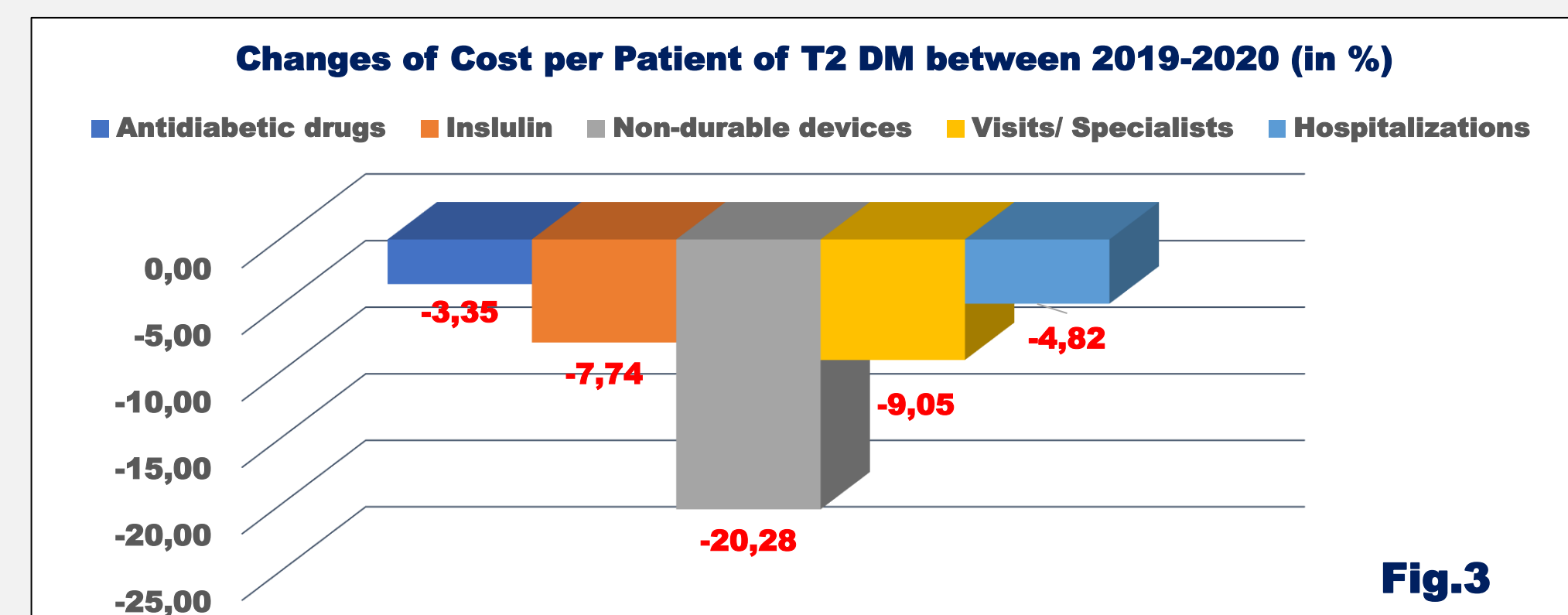
T2 DM - Average cost per out-patient	2019	2020	Difference (%)
Visits to Specialists (a)	18,57 €	16,89 €	-9,07
Non-durable devices (b)	97,11 €	77,42 €	-20,28
Insulin (c)	156,35 €	144,25 €	-7,74
Antidiabetic drugs (d)	454,25 €	439,02 €	-3,35

### Total Cost

The average DM *cost per patient* that burdened the Public Health System was calculated at 3.773,28 € and 3.577,57 € for 2019 and 2020, respectively, with a decrease of 5,19% for patients with T2DM while no difference was observed for patients with T1DM (**Table 2**)

Table 2

Average cost per patient for T2 DM	2019	2020	Difference (%)
Average cost for Out-Patient (a+b+c+d)	726,28 €	677,57 €	-6,71
Average cost for In-Patient	3.047,00 €	2.900,00 €	-4,82
Average cost per patient	3.773,28 €	3.577,57 €	-5,19



## CONCLUSIONS

COVID-19 pandemic appears to have a catalytic negative effect on the population of Greece with increased prevalence of DM. Although the prevalence of T2DM increased over 20%, the cost per patient decreased. Implementation of restrictive measures to reduce the pandemic, the closure of many clinics as well as the limitation of appointments in diabetic clinics and certified diabetes centers may have been one of the factors for reducing the number of diabetics hospitalized and the cost per in and outpatients.

## ACKNOWLEDGEMENT

The authors would like to thank National Organization for Health Care Services Provision (EOPYY) for its determinant contribution to prosecution of the present presentation which is consisted of data providing, as well as the general encouragement of this research effort

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