

Background

- The prevalence of diabetes is high and rising. Official epidemiological data suggest that 3.8 million individuals in France (5.6% of total population) were treated pharmacologically for diabetes in 2023 (vs 4.6% in 2012), mainly for T2.
- The large number of individuals living with T2D in France, together with the multiple complications that can be associated with the disease, results in a substantial economic burden.
- Type 2 diabetes mellitus (T2DM) management in France has advanced over the past decade through novel technologies and treatments.
- This study aims to update T2DM's economic burden in France.

Methods

- This retrospective cross-sectional study analysed a representative sample of T2DM adults in France using the ESND claims database (Echantillon National des Données de Santé), which is a 2% representative sample of about 99% of the total population.¹
- Adults with diabetes were identified in 2021 and 2022 based on antidiabetic drug reimbursement, long-term disease, or hospital diagnoses (ICD-10 codes). Patients with T2DM were secondarily identified using a classification algorithm.
- A control group of non-diabetes patients (1:3 ratio) was matched using a propensity score including age, sex, geography, health coverage, social deprivation index, and diabetes unrelated cancer presence (2017-2021).
- Direct healthcare costs were estimated including reimbursement and out-of-pocket health expenditures (Euros 2022).
- Comparative cost analysis was performed on the entire T2DM population according to treatment line.
- Results were compared to similar data previously generated in 2013.²

Results

- The mean age of the cases was 68.4 years (SD 13.0), with 54.8% being men; these characteristics were similar to those observed in 2013.
- Cost analysis included 80,127 T2DM adults and 237,607 matched individuals without diabetes.
- Annual medical expenditures were €6,614 per T2DM adults (€6,506 in 2013), versus €3,797 (€3,668 in 2013) for controls, representing a 1.74-fold higher cost for people with T2DM. (Figure 1)
- Annual cost difference between groups was €2,817 per individual, mainly driven by hospitalizations (+€864), medication (+€802), and nursing care (+€448). (Figure 2)
- The annual cost increase between groups for medical device was +€352. (Figure 2)
- Annual per capita costs were lowest for T2DM individuals on glucose-lowering medications (€5,053) and highest for those undergoing intensive insulin treatment (€13,913). (Figure 3)

Figure 1: Per capita annual cost of T2DM cases & controls

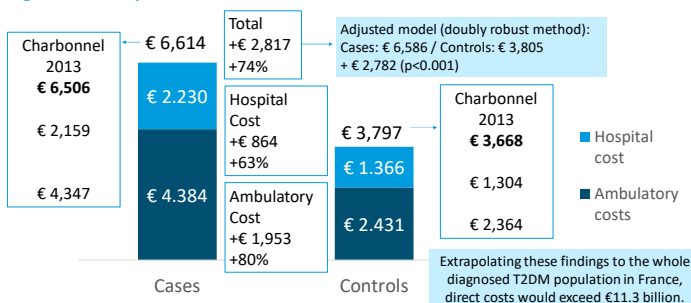


Figure 2: Per capita annual ambulatory care cost of T2DM cases and controls

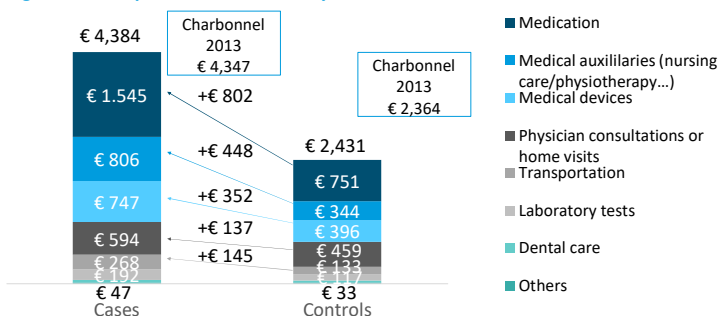
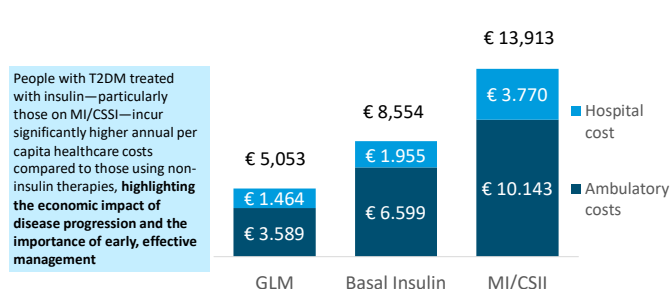


Figure 3: Per capita annual costs of T2DM cases (2022) according to the treatment scheme (patients with same treatment regimen throughout the year)

	GLM N = 44,671	Basal Insulin N = 4,577	MI/CSII N = 3,852
Ambulatory costs	€ 3,589	€ 6,599	€ 10,143
Medication	€ 1,393	€ 2,605	€ 3,229
Medical auxiliaries (nursing care/physiotherapy...)	€ 463	€ 1,571	€ 2,391
Medical devices	€ 559	€ 1,043	€ 2,573
Physician consultations or home visits	€ 587	€ 645	€ 741
Transportation	€ 172	€ 303	€ 666
Dental care	€ 197	€ 172	€ 199
Laboratory tests	€ 181	€ 205	€ 265
Others	€ 37	€ 55	€ 79
Hospital costs	€ 1,464	€ 1,955	€ 3,770
2022 Total costs	€ 5,053	€ 8,554	€ 13,913



People with T2DM treated with insulin—particularly those on MI/CSII—incur significantly higher annual per capita healthcare costs compared to those using non-insulin therapies, highlighting the economic impact of disease progression and the importance of early, effective management

Study Limitations

- Patient identification relied on excluding type 1 diabetes rather than confirming type 2 diabetes through genetic or clinical markers. This approach may misclassify complex cases like MODY, though the impact is likely minimal due to the predominance of T2DM.
- The analysis used 2022 data, which does not reflect the 2024 HAS guideline updates or the more recent approval of FreeStyle Libre 2 system for T2DM patients on basal insulin.
- Regarding the costs of medications, the database uses public prices of them and the net prices of non-generic medications are not documented, which involves an overestimation of the associated real costs.

Conclusion

- The cost of treating patients with T2D is almost double that of controls without diabetes.
- Charbonnel et al. found that the costs of T2D per patient per year had increased by 30% between 2007 and 2013². By contrast, costs were essentially stable in euro terms between 2013 and 2022.
- The rise in total direct costs related to T2DM management reflects the increasing prevalence of the disease, while highlighting the relative effectiveness of healthcare cost containment policies in France.
- There is a pressing need to address the aging of the T2D population, and the challenges this presents for appropriate care
- New diabetes technologies, like CGM, and new diabetes treatments should contribute to reducing the economic burden of the disease, potentially leading to a reduction in costly complications and therefore, addressing key cost drivers such as hospitalizations.

Abbreviations

SD, standard deviation.

Acknowledgements

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References

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