# Economic Impact of Direct Costs Associated with Stroke in Patients with Type 2 Diabetes from the Perspective of the Social Security and Private Healthcare Providers in Argentina

# EE240

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**Prevalence of 2% in individuals over 40 years old[1]**

In Argentina, there are approximately 365,000 people who have suffered a stroke.

Incidence of 87/100,000 inhabitants.[2]

**55.000 cases/year**

22.6% occur in people with diabetes.

**4th leading cause of death[3]**

Surpassed by oncological causes when all tumors are considered together.

**1st cause** of disability
**2nd cause** of dementia

**Nearly half of all stroke survivors** require permanent or temporary care. [4,5]

**Most expensive** complication in T2D

**Significant economic burden on the healthcare system**

## Aim

- Stroke constitutes a major comorbidity in type 2 diabetes (T2D), contributing substantially to treatment cost. There is a shortage of information about costs in Argentina. This study provides payers with relevant data for evidence-based decision making.

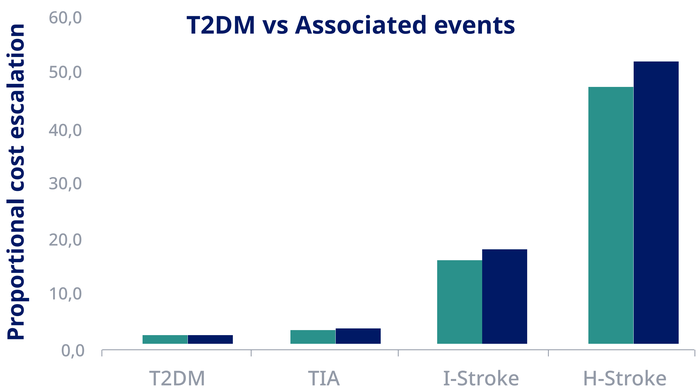
## Methods

- This research estimated direct medical costs of annual treatment in an average patient with uncomplicated T2D, and the incremental cost of T2D associated events; focused on the economic impact of ischemic and hemorrhagic stroke (IS / HS), from the perspective of the social security and private healthcare providers in Argentina.
- Cost estimation followed the micro-costing method and unit costs were obtained from the IQVIA Argentina Unit Cost Base. The patient journey and resources usage rate were validated by interviews and a Delphi panel comprised of experts in the field.
- The acquisition cost of the medications was calculated based on the retail prices from the Kairos Argentina database.
The gathered data were tabulated in MS Excel, with estimates of minimum, maximum, and average values for the social security and private subsectors. All costs were expressed in Argentine pesos as of August 2022 (1 US dollar = 132.85 pesos).

## Key results

- The estimated economic burden of uncomplicated T2D for annual treatment and patient follow-up was: USD 1,869.31 in the social security sector and USD 1,903.75 in the private sector, being medication 83% of total disease cost. Developing IS multiplies by 17 times and HS up to 50 times the uncomplicated T2D healthcare costs (graphic 1)

### Graphic 1: T2DM annual cost vs associated neurovascular events

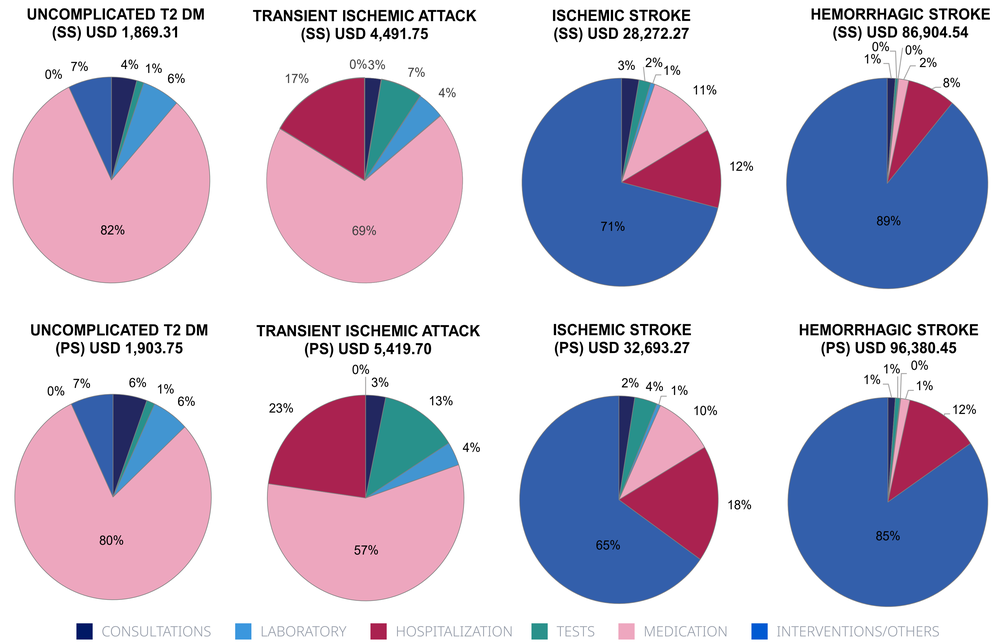



| | T2DM | TIA | I-Stroke | H-Stroke |
|---|---|---|---|---|
| Social Security | 1,0 | 2,3 | 15,0 | 46,4 |
| Private Sector | 1,0 | 2,7 | 17,1 | 50,5 |

Note: T2DM serves as the baseline cost (value=1), allowing comparison of the relative expense of treating each event against managing diabetes alone.

- Interventions in the acute (cranioplasty in hemorrhagic stroke and thrombectomy in ischemic stroke) and chronic (neurological rehabilitation) stages represented the components associated with higher costs (graphic 2).
- In both stroke scenarios, medication represents only 1 to 10% of total expenditure, due to the increasing relevance of hospitalization and rehabilitation costs which involves 90%.

### Graphic 2: Cost distribution in uncomplicated T2DM, TIA, ischemic and hemorrhagic stroke




**Conclusion:**
**Stroke is a frequent and the most expensive T2D related complication. Preventing, or at least reducing the risks of costly complications in T2D patients would represent an economic relief that healthcare payers should consider in their decision making, to ensure the provision of quality care and the long-term sustainability of the health system.**

**References:** **(1)** SF Ameriso, MM Gomez- Schneider, MA Hawkes et al, Prevalence of stroke in Argentina: A door-to-door population-based study (EstEPA). Int J Stroke. 2021 Apr;16(3):280-287; **(2)** SF Ameriso , MJ Alet , VA Pujol-Lereis , et al. Incidence and case-fatality rate of stroke in General Villegas, Buenos Aires, Argentina. The EstEPA population study. J Stroke Cerebrovasc Dis. 2023 May;32(5):107058 **(3)** https://bancos.salud.gob.ar/recurso/estadisticas-vitales-informacion-basica-argentina-año-2021; **(4)** Crichton SL, Bray BD, McKevitt C et Al (2016) Patient outcomes up to 15 years after stroke: survival, disability, quality of life, cognition and mental health. J Neurol Neurosurg Psychiatry 87:1091–1098 **(5)** Opara JA, Jaracz K. Quality of life of post-stroke patients and their caregivers. J Med Life. 2010 Jul-Sep;3(3):216-20.

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