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# Economic Impact of TAVI related Stroke

Disabling Stroke Cost Analysis  
with and without Cerebral Embolic  
Protection



## TAVI-related stroke apart from its devastating clinical impact would also add a considerable economic burden to healthcare systems, patients & society

### Health and social care costs

### Non-healthcare costs

#### HOSPITAL CARE

- Stroke Unit/ Neurology
- Length of Stay
- Day cases
- Inpatient care



28%

#### OTHER COSTS

- Primary care
- Outpatient care
- Emergency care
- Pharmaceuticals



17%

#### SOCIAL CARE

- Nursing homes
- Residential care



8%

€60 B

10%



#### PRODUCTIVITY LOSS DUE TO DISABILITY

- Work absence
- Disability

10%



#### PRODUCTIVITY LOSS DUE TO DEATH

- Work loss due to early mortality

27%



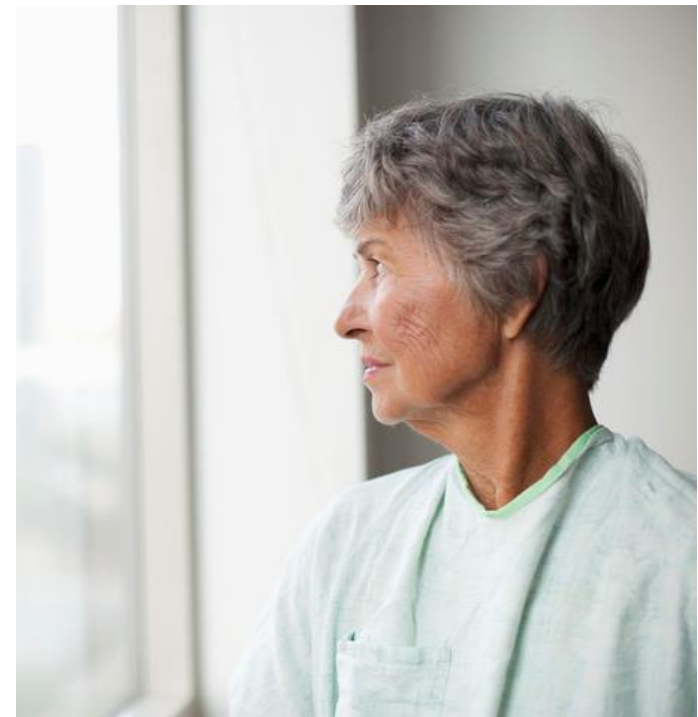
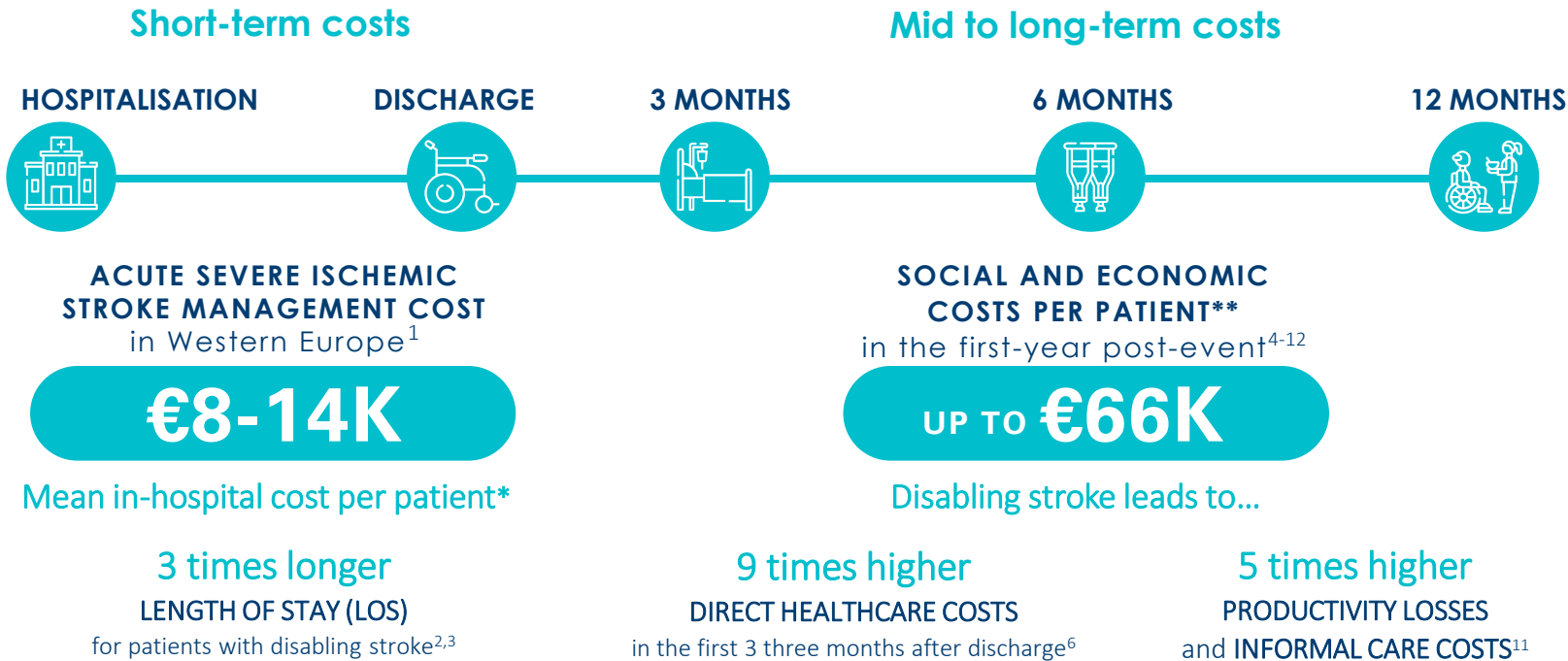
#### INFORMAL CARE

- Informal, unpaid caregivers



# Impact from short to long term

## Significant Increase in Acute and Long-Term Disabling Stroke Costs



\***Index hospitalization** includes the cost of drugs, imaging and laboratory exams, bed, staff, medical procedures, consultation visits, inpatient rehabilitation.

\*\***Direct healthcare costs** following discharge include the costs of rehabilitation, outpatient visits, institutionalization costs and drugs. **Direct non-healthcare costs** include social services (residence in nursing home or other healthcare centers/domiciliary care), other non-healthcare costs such as adapted medical transport and physical adaptations, **informal care** (long-term care provided by unpaid family members, or an informal caregiver). **Productivity losses:** societal costs associated with reduced work productivity, incapacity for work, occupational disability, premature death.

1. Wilson et al. Eur Stroke J. 2017 Mar;2(1):3-12; DRG tariffs associated with Acute disabling stroke management in EU Big5. 2. Caro et al. Stroke. 2000 Mar;31(3):582-590. 3. Jørgensen et al. Stroke. 1997 Jun;28(6):1138-41. 4. Grieve et al. Stroke. 2001 Jul;32(7):1684-91. 5. Baeten et al. Cost Effectiveness and Resource Allocation : C/E 8 (2010): 21 - 21. 6. Fattore et al. BMC Neurol 12, 137 (2012). 7. <https://www.nice.org.uk/guidance/ng196/evidence/g2-anticoagulant-therapy-health-economics-analysis-pdf-9081923443>. 8. Spieler et al. Cerebrovasc Dis. 2004;17(2-3):134-42. 9. de Andrés-Nogales F, et al. European Stroke Journal 2017, 2:3, 272-284. 10. Alvarez-Sabin, et al. Eur J Health Econ 18, 449-458 (2017). 11. Barral et al. European Journal of Neurology, 2020, 28(2):548-557. 12. Willers et al. Plos one, 2017, 12(4):e0174861. Costs displayed in Euro adjusted to 2023 using purchasing power parity with Germany as the target currency. All calculations done using CCEMG –EPPI-Centre Cost Converter.10, <http://epi.ioe.ac.uk/costconversion/Default.aspx>.



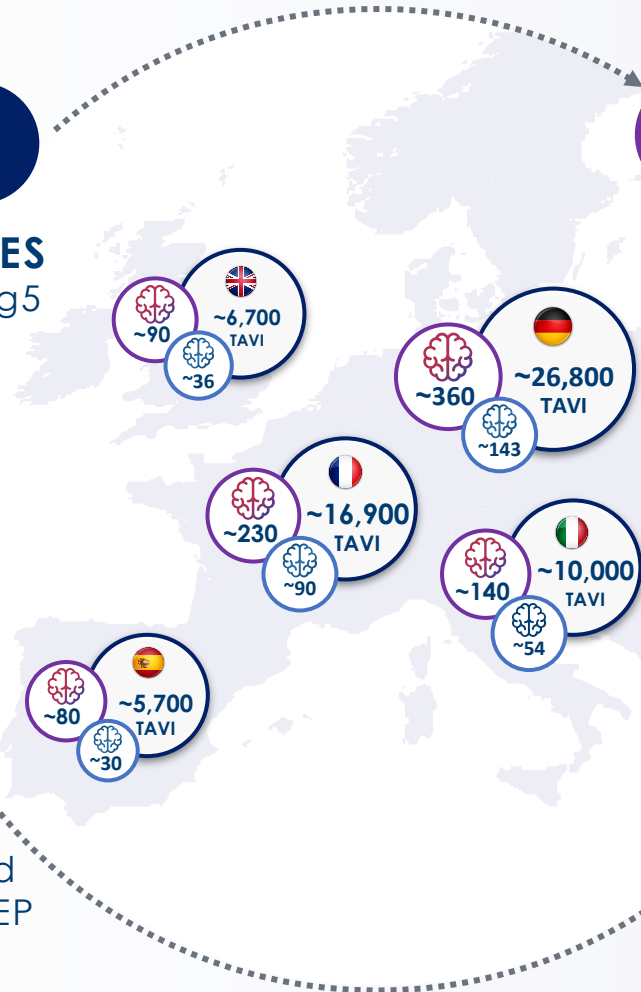
# Benefits of CEP can be considerable

For EU Big5 in 2021

 DISABLING STROKES WITHOUT CEP  
 DISABLING STROKES WITH CEP

MORE THAN **66 K**

**TAVI PROCEDURES**  
Performed in EU Big5 in 2021



**~900**

**DISABLING STROKES AFTER TAVI**  
Without CEP

OVER **€30 M**

**HEALTHCARE AND SOCIAL COSTS AVOIDED**

Only in the **first-year** Post event if patients had been benefitting from CEP

**+500**

**DISABLING STROKES AVOIDED\***  
If SENTINEL CPS had been used in TAVI patients

**15 YEARS AFTER EXPERIENCING A STROKE**  
Over 60% of survivors are still living with disability<sup>1</sup>

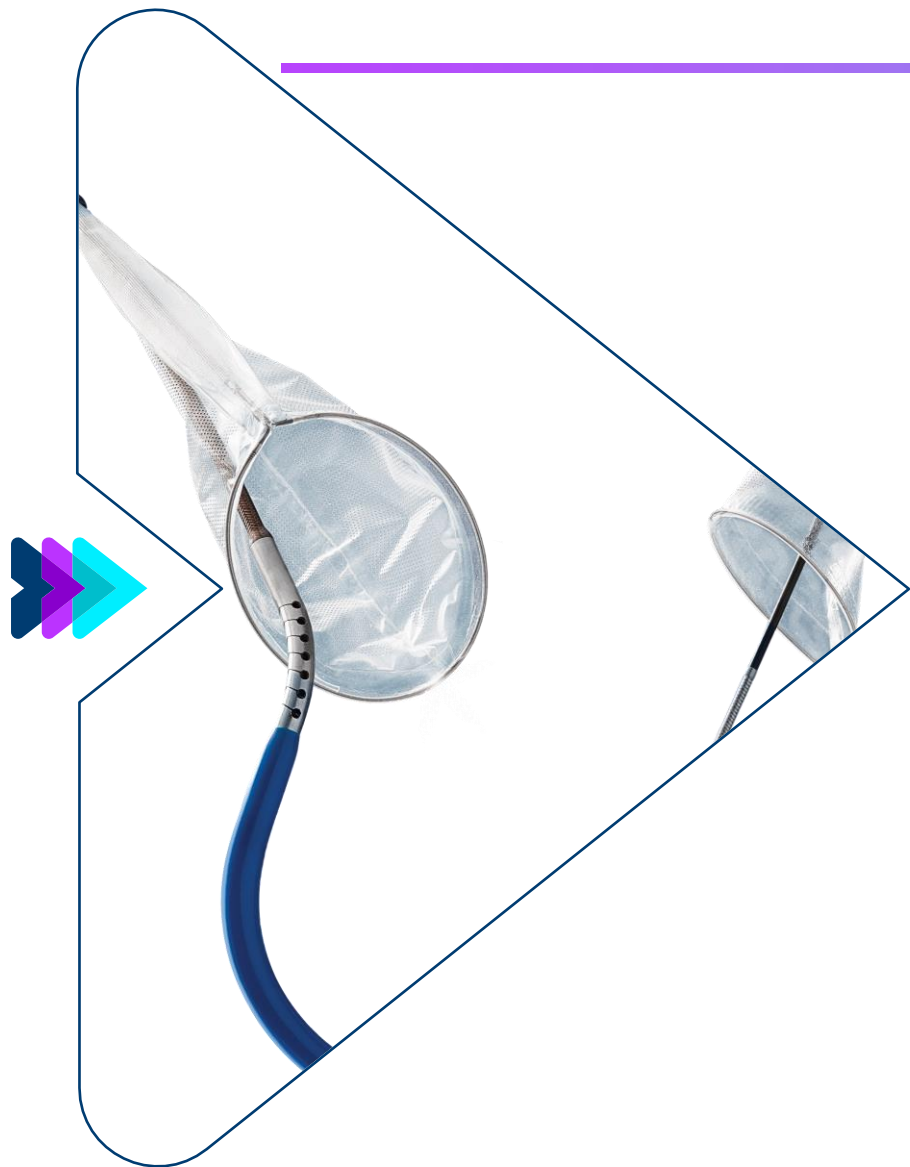
Estimated n. of stroke events (TAVI with CEP vs. TAVI without CEP) based on Kapadia, et al. N Engl J Med 2022; 387:1253-1263 DOI: 10.1056/NEJMoa2204961. \*Significant 60% relative risk reduction in disabling stroke observed in PROTECTED TAVR trial.

1. Crichton SL, et al. Patient outcomes up to 15 years after stroke: survival, disability, quality of life, cognition and mental health. Journal of Neurology, Neurosurgery & Psychiatry 2016;87:1091-1098.

**Benefits of TAVI with CEP**  
in EU Big 5



**SELECT THE COUNTRY FLAGS TO LEARN MORE ABOUT THE DISABLING STROKE COSTS**  
TAVI without CEP vs. TAVI with CEP



## Benefits of CEP in France





# Burden of Stroke in France

In France, the **Economic Burden of stroke is Significant for the Healthcare system, Patients and Society.**

## Health and social care costs

## Non-healthcare costs

### HOSPITAL CARE

- Stroke Unit/ Neurology
- Length of Stay
- Day cases
- Inpatient care



### OTHER COSTS

- Primary care
- Outpatient care
- Emergency care
- Pharmaceuticals



### SOCIAL CARE

- Nursing homes
- Residential care



€5.6 B

9%



### PRODUCTIVITY LOSS DUE TO DISABILITY

- Work absence
- Disability

22%



### PRODUCTIVITY LOSS DUE TO DEATH

- Work loss due to early mortality

23%



### INFORMAL CARE

- Informal, unpaid caregivers



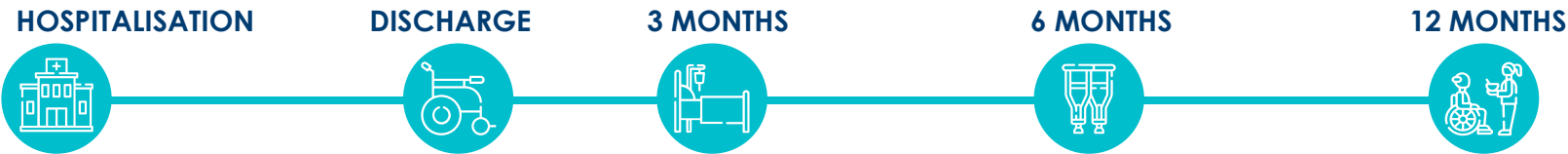


# Impact from short to long term

## Significant Increase in Acute and Long-Term Disabling Stroke Costs

### Short-term costs

### Mid to long-term costs



ACUTE SEVERE ISCHEMIC STROKE MANAGEMENT COST in France<sup>1</sup>

SOCIAL AND ECONOMIC COSTS PER PATIENT\*\* in the first-year post-event<sup>1,2</sup>

€11,000

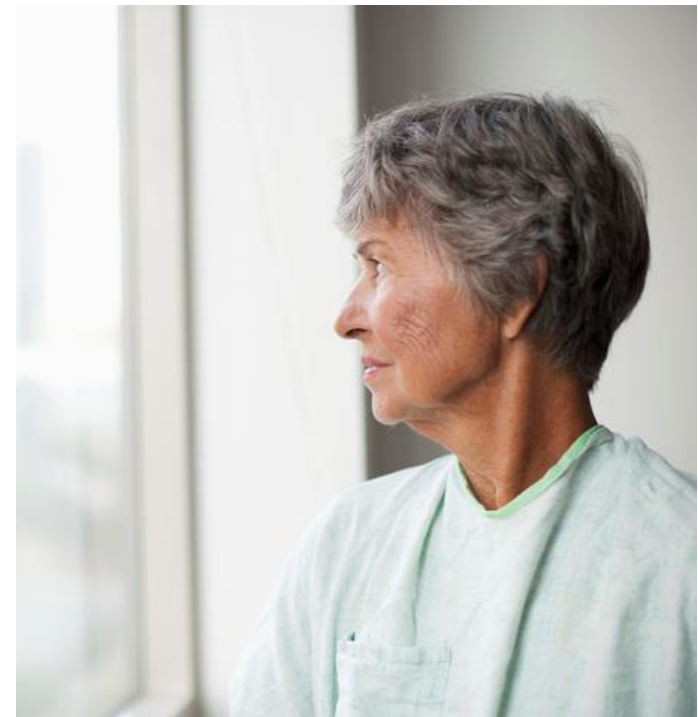
UP TO €66K

Mean in-hospital cost per patient\*

Disabling stroke leads to...

- MEDICAL CONSULTATION
- DIAGNOSTIC EXAMINATIONS
- PHARMACOLOGICAL THERAPIES
- 18.5 days HOSPITAL STAY<sup>2</sup>

- REHABILITATION
- DRUGS AND THERAPIES
- HOME CARE
- OTHER COSTS



\*Index hospitalization includes the cost of drugs, imaging and laboratory exams, bed, staff, medical procedures, consultation visits, inpatient rehabilitation.

\*\*Direct healthcare costs following discharge include the costs of rehabilitation, outpatient visits, institutionalization costs and drugs. Direct non-healthcare costs include social services (residence in nursing home or other healthcare centers/domiciliary care), other non-healthcare costs such as adapted medical transport and physical adaptations, informal care (long-term care provided by unpaid family members, or an informal caregiver). Productivity losses: societal costs associated with reduced work productivity, incapacity for work, occupational disability, premature death.

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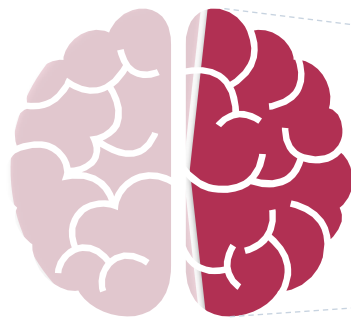
# Clinical Benefits of SENTINEL CPS



**~16,900**  
**TAVI PATIENTS**  
In France in 2021

## What happens in patients receiving TAVI without CEP?

What are the clinical outcomes?



● DISABLING STROKE  
● NON-DISABLING STROKE

**47%**  
DISABLING STROKES

**~ 485**  
**ALL STROKE EVENTS**



What are the benefits of CEP?

## What happens in patients receiving TAVI with CEP?

What are the clinical benefits?



● DISABLING STROKE  
● NON-DISABLING STROKE

**24%**  
DISABLING STROKES

**~ 380**  
**ALL STROKE EVENTS**

Activity data: French Interventional Group - GACI

Estimated n. of stroke events (TAVI with CEP vs. TAVI without CEP) based on Kapadia, et al. N Engl J Med 2022; 387:1253-1263 DOI: 10.1056/NEJMoa2204961. All-stroke rates: TAVR + CEP arm (2.3%) vs the TAVR only arm (2.9%).

\*Significant 60% relative risk reduction in disabling stroke observed in the TAVR + CEP arm (0.5%) vs the TAVR only arm (1.3%).





# Economic Benefits of SENTINEL CPS



**~16,900**  
**TAVI PATIENTS**  
In France in 2021

## What happens in patients receiving TAVI without CEP?

What are the clinical outcomes?



**~ 230**

DISABLING STROKES  
after TAVI

What is the economic impact?



**€ 17.5 M**

ECONOMIC BURDEN  
OF DISABLING STROKE  
in the first-year post-event



of which...

**~ € 2.5 M**

ACUTE SEVERE ISCHEMIC  
STROKE MANAGEMENT COST  
Mean in-hospital cost

What are the benefits of CEP?

## What happens in patients receiving TAVI with CEP?



**- 140**

DISABLING STROKES AVOIDED  
after TAVI



**- € 10.5 M**

COSTS AVOIDED  
FOR HEALTHCARE SYSTEM AND SOCIETY  
only in the first-year post-event



of which...

**- € 1.5 K**

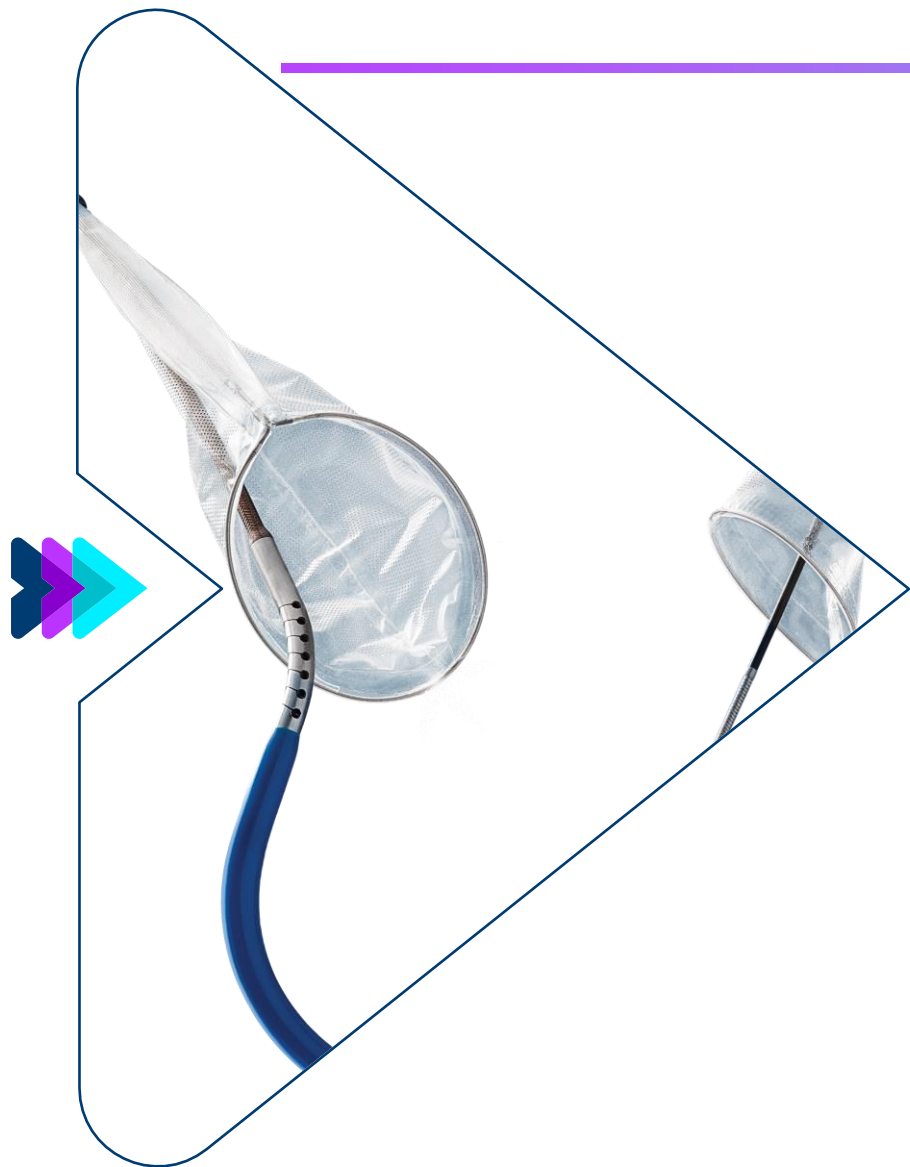
ACUTE STROKE MANAGEMENT  
COSTS AVOIDED  
in the first-year post-event

Activity data: French Interventional Group - GACI

Clinical outcomes based on Kapadia, et al. N Engl J Med 2022; 387:1253-1263 DOI: 10.1056/NEJMoa2204961.

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## Benefits of CEP in Germany



In Germany, the **Economic Burden of stroke is Significant for the Healthcare system, Patients and Society.**

## Health and social care costs

## Non-healthcare costs

### HOSPITAL CARE

- Stroke Unit/ Neurology
- Length of Stay
- Day cases
- Inpatient care

### OTHER COSTS

- Primary care
- Outpatient care
- Emergency care
- Pharmaceuticals

### SOCIAL CARE

- Nursing homes
- Residential care



37%



5%



15%

€17.5 B

8%



7%



28%



### PRODUCTIVITY LOSS DUE TO DEATH

- Work loss due to early mortality

### PRODUCTIVITY LOSS DUE TO DISABILITY

- Work absence
- Disability

### INFORMAL CARE

- Informal, unpaid caregivers





# Impact from short to long term

## Significant Increase in Acute and Long-Term Disabling Stroke Costs

### Short-term costs

HOSPITALISATION



DISCHARGE



3 MONTHS



### Mid to long-term costs

6 MONTHS



12 MONTHS



ACUTE SEVERE ISCHEMIC STROKE MANAGEMENT COST in Germany<sup>1</sup>

€9,000

Mean in-hospital cost per patient\*



MEDICAL CONSULTATION



DIAGNOSTIC EXAMINATIONS



PHARMACOLOGICAL THERAPIES



HOSPITAL STAY<sup>2</sup>

SOCIAL AND ECONOMIC COSTS PER PATIENT\*\* in the first-year post-event<sup>1-3</sup>

UP TO €46K

Disabling stroke leads to...



REHABILITATION



DRUGS AND THERAPIES



HOME CARE



OTHER COSTS



\*Index hospitalization includes the cost of drugs, imaging and laboratory exams, bed, staff, medical procedures, consultation visits, inpatient rehabilitation.

\*\*Direct healthcare costs following discharge include the costs of rehabilitation, outpatient visits, institutionalization costs and drugs. Direct non-healthcare costs include social services (residence in nursing home or other healthcare centers/domiciliary care), other non-healthcare costs such as adapted medical transport and physical adaptations, informal care (long-term care provided by unpaid family members, or an informal caregiver). Productivity losses: societal costs associated with reduced work productivity, incapacity for work, occupational disability, premature death.

1. Kolominsky-Rabas PL, et al. Stroke. 2006;37:1179-1183. 2. Albrecht D, et al. European journal of ageing 2016; 13(1), 49-61. 3. Rossnagel K, et al. European journal of neurology 2005; 12(11), 862-868. Costs adjusted to 2023.





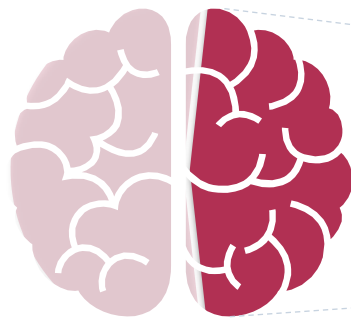
# Clinical Benefits of SENTINEL CPS



**~26,800**  
**TAVI PATIENTS**  
In Germany in 2021

## What happens in patients receiving TAVI without CEP?

What are the clinical outcomes?



● DISABLING STROKE  
● NON-DISABLING STROKE

**47%**  
DISABLING STROKES

**~ 770**  
**ALL STROKE EVENTS**



What are the benefits of CEP?

## What happens in patients receiving TAVI with CEP?

What are the clinical benefits?



● DISABLING STROKE  
● NON-DISABLING STROKE

**24%**  
DISABLING STROKES

**~ 600**  
**ALL STROKE EVENTS**

Activity data: Federal Bureau of Statistics (DESTATIS).

Estimated n. of stroke events (TAVI with CEP vs. TAVI without CEP) based on Kapadia, et al. N Engl J Med 2022; 387:1253-1263 DOI: 10.1056/NEJMoa2204961. All-stroke rates: TAVR + CEP arm (2.3%) vs the TAVR only arm (2.9%).

\*Significant 60% relative risk reduction in disabling stroke observed in the TAVR + CEP arm (0.5%) vs the TAVR only arm (1.3%).





# Economic Benefits of SENTINEL CPS



**~26,800**  
**TAVI PATIENTS**  
In Germany in 2021

## What happens in patients receiving TAVI without CEP?

What are the clinical outcomes?



**~ 360**  
DISABLING STROKES  
after TAVI

What is the economic impact?



**€ 19.8 M**  
ECONOMIC BURDEN  
OF DISABLING STROKE  
in the first-year post-event



of which...  
**~ € 3.2 M**  
ACUTE SEVERE ISCHEMIC  
STROKE MANAGEMENT COST  
Mean in-hospital cost

What are the benefits of CEP?



**- 217**  
DISABLING STROKES AVOIDED  
after TAVI



**- € 11.9 M**  
COSTS AVOIDED  
FOR HEALTHCARE SYSTEM AND SOCIETY  
only in the first-year post-event

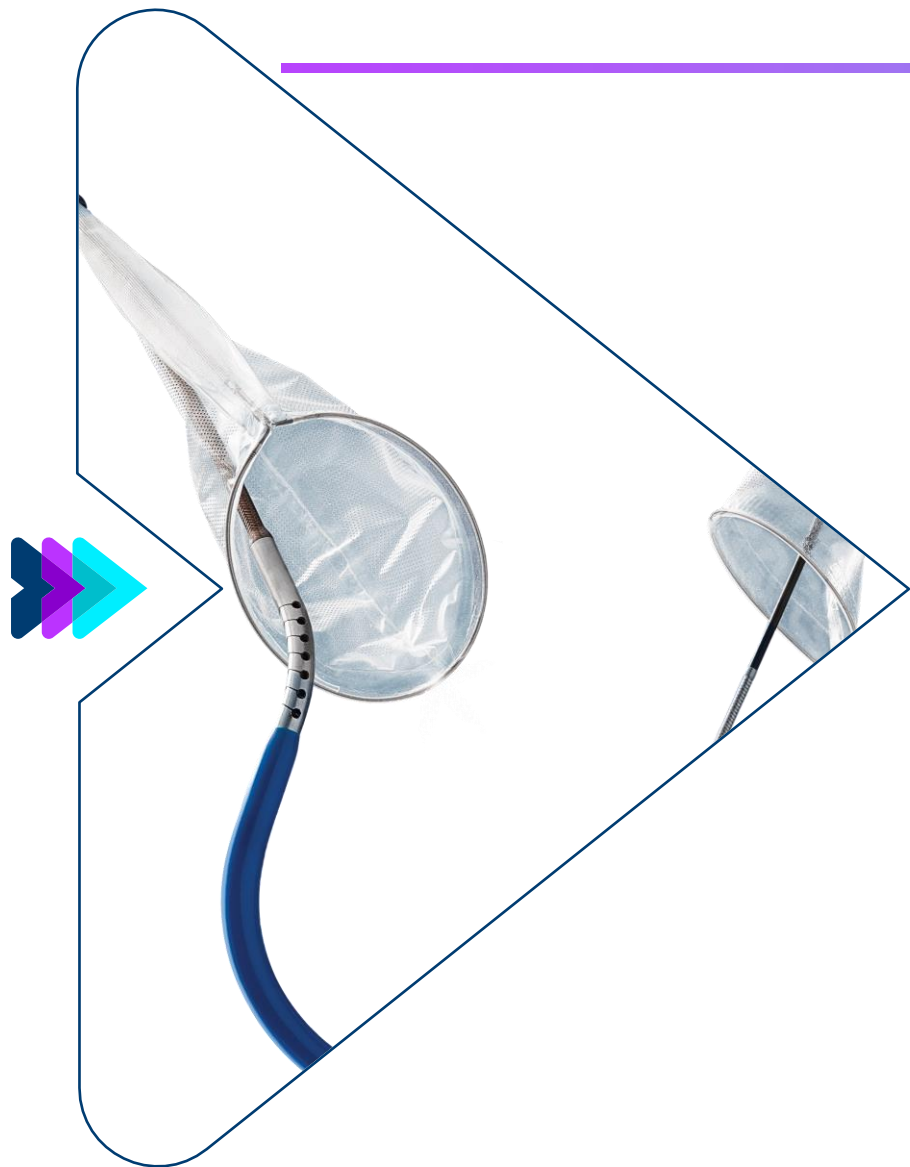


of which...  
**- € 1.9 K**  
ACUTE STROKE MANAGEMENT  
COSTS AVOIDED  
in the first-year post-event

Activity data: Federal Bureau of Statistics (DESTATIS).

Clinical outcomes based on Kapadia, et al. N Engl J Med 2022; 387:1253-1263 DOI: 10.1056/NEJMoa2204961. Economic outcomes based on: Kolominsky-Rabas PL, et al. Stroke. 2006, 37:1179-1183; Albrecht D, et al. European journal of ageing 2016, 13(1), 49-61; Rossnagel K, et al. European journal of neurology 2005, 12(11), 862-868 (costs adjusted to 2023).





## Benefits of CEP in Italy







# Burden of Stroke in Italy

In Italy, the **Economic Burden** of stroke is **Significant** for the Healthcare system, Patients and Society.

## Health and social care costs

## Non-healthcare costs

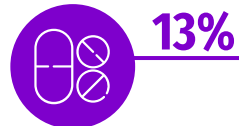
### HOSPITAL CARE

- Stroke Unit/ Neurology
- Length of Stay
- Day cases
- Inpatient care



### OTHER COSTS

- Primary care
- Outpatient care
- Emergency care
- Pharmaceuticals



### SOCIAL CARE

- Nursing homes
- Residential care



€6.8 B

7%



### PRODUCTIVITY LOSS DUE TO DISABILITY

- Work absence
- Disability

8%



### PRODUCTIVITY LOSS DUE TO DEATH

- Work loss due to early mortality

35%



### INFORMAL CARE

- Informal, unpaid caregivers





# Impact from short to long term

## Significant Increase in Acute and Long-Term Disabling Stroke Costs

### Short-term costs

HOSPITALISATION



DISCHARGE



3 MONTHS



### Mid to long-term costs

6 MONTHS



12 MONTHS



ACUTE SEVERE ISCHEMIC STROKE MANAGEMENT COST in Italy<sup>1</sup>

€7,800

Mean in-hospital cost per patient\*



MEDICAL CONSULTATION



DIAGNOSTIC EXAMINATIONS



PHARMACOLOGICAL THERAPIES



13.5 days HOSPITAL STAY<sup>2</sup>

SOCIAL AND ECONOMIC COSTS PER PATIENT\*\* in the first-year post-event<sup>1</sup>

UP TO €16K

Disabling stroke leads to...



REHABILITATION



DRUGS AND THERAPIES



HOME CARE



OTHER COSTS



\*Index hospitalization includes the cost of drugs, imaging and laboratory exams, bed, staff, medical procedures, consultation visits, inpatient rehabilitation.

\*\*Direct healthcare costs following discharge include the costs of rehabilitation, outpatient visits, institutionalization costs and drugs. Direct non-healthcare costs include social services (residence in nursing home or other healthcare centers/domiciliary care), other non-healthcare costs such as adapted medical transport and physical adaptations, informal care (long-term care provided by unpaid family members, or an informal caregiver). Productivity losses: societal costs associated with reduced work productivity, incapacity for work, occupational disability, premature death.

1. Fattore G, et al., BMC Neurology 2012, 12:137 (adjusted to 2023).





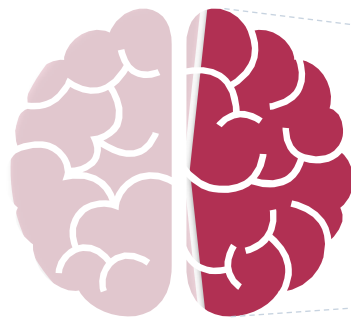
# Clinical Benefits of SENTINEL CPS



**~10,000**  
**TAVI PATIENTS**  
in Italy in 2021

## What happens in patients receiving TAVI without CEP?

What are the clinical outcomes?



● DISABLING STROKE  
● NON-DISABLING STROKE

**47%**

DISABLING STROKES

**~ 300**

**ALL STROKE EVENTS**

What are the benefits of CEP?

## What happens in patients receiving TAVI with CEP?

What are the clinical benefits?



● DISABLING STROKE  
● NON-DISABLING STROKE

**24%**

DISABLING STROKES

**~ 230**

**ALL STROKE EVENTS**

Activity data: Italian Society of Interventional Cardiology (GISE) , 2022.

Estimated n. of stroke events (TAVI with CEP vs. TAVI without CEP) based on Kapadia, et al. N Engl J Med 2022; 387:1253-1263 DOI: 10.1056/NEJMoa2204961. All-stroke rates: TAVR + CEP arm (2.3%) vs the TAVR only arm (2.9%).

\*Significant 60% relative risk reduction in disabling stroke observed in the TAVR + CEP arm (0.5%) vs the TAVR only arm (1.3%).





# Economic Benefits of SENTINEL CPS



**~10,000**  
**TAVI PATIENTS**  
in Italy in 2021

## What happens in patients receiving TAVI without CEP?

What are the clinical outcomes?



**~ 140**

DISABLING STROKES  
after TAVI

What is the economic impact?



**€ 3.1 M**

ECONOMIC BURDEN  
OF DISABLING STROKE  
in the first-year post-event



**~ € 1.1 M**

ACUTE SEVERE ISCHEMIC  
STROKE MANAGEMENT COST  
Mean in-hospital cost

of which...

What are the benefits of CEP?



**- 86**

DISABLING STROKES AVOIDED  
after TAVI



**- € 1.9 M**

COSTS AVOIDED  
FOR THE SSN\* AND SOCIETY  
only in the first-year post-event

of which...



**- € 630 K**

ACUTE STROKE MANAGEMENT  
COSTS AVOIDED  
in the first-year post-event

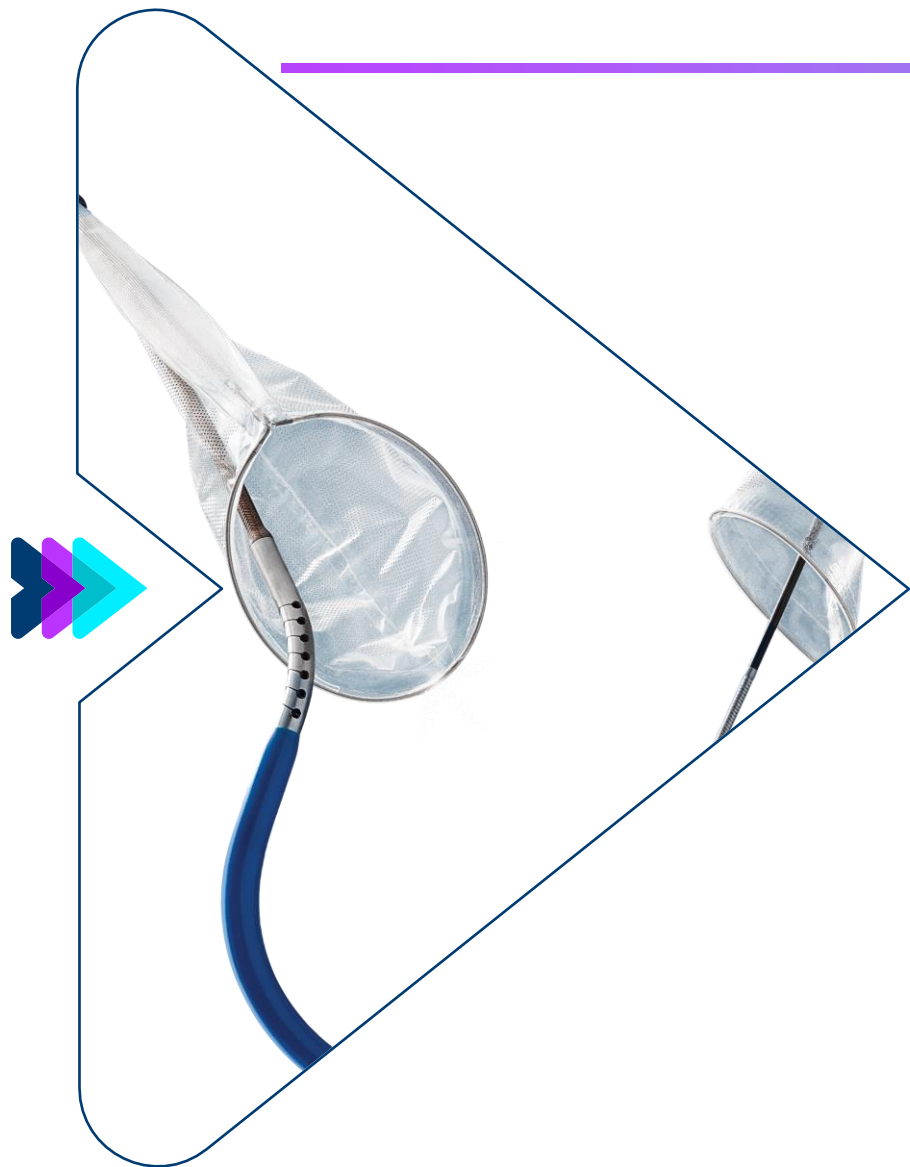
Activity data: Italian Society of Interventional Cardiology (GISE) , 2022. \*\*SSN is Servizio Sanitario Nazionale, Italy's national health service.

Clinical outcomes based on Kapadia, et al. N Engl J Med 2022; 387:1253-1263 DOI: 10.1056/NEJMoa2204961.

Economic outcomes based on Fattore G, et al., BMC Neurology 2012, 12:137 (costs adjusted to 2023).

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## Benefits of CEP in Spain





# Burden of Stroke in Spain

In Spain, the **Economic Burden of stroke is Significant for the Healthcare system, Patients and Society.**

## Health and social care costs

## Non-healthcare costs

### HOSPITAL CARE

- Stroke Unit/ Neurology
- Length of Stay
- Day cases
- Inpatient care



17%

### OTHER COSTS

- Primary care
- Outpatient care
- Emergency care
- Pharmaceuticals



28%

### SOCIAL CARE

- Nursing homes
- Residential care



4%

€3.4 B

11%



### PRODUCTIVITY LOSS DUE TO DISABILITY

- Work absence
- Disability

8%



### PRODUCTIVITY LOSS DUE TO DEATH

- Work loss due to early mortality

33%



### INFORMAL CARE

- Informal, unpaid caregivers

The picture shows the breakdown of Societal costs of stroke posed by stroke to Spain in 2017. Ramon Luengo-Fernandez et al., European Stroke Journal 2020, Vol. 5(1) 17–25.





# Impact from short to long term

## Significant Increase in Acute and Long-Term Disabling Stroke Costs

### Short-term costs

HOSPITALISATION



DISCHARGE



3 MONTHS



### Mid to long-term costs

6 MONTHS



12 MONTHS



ACUTE SEVERE ISCHEMIC STROKE MANAGEMENT COST in Spain<sup>1</sup>

€9,500

Mean in-hospital cost per patient\*



MEDICAL CONSULTATION



DIAGNOSTIC EXAMINATIONS



PHARMACOLOGICAL THERAPIES



10.5 days HOSPITAL STAY<sup>2</sup>

SOCIAL AND ECONOMIC COSTS PER PATIENT\*\* in the first-year post-event<sup>1-3</sup>

UP TO €50K

Disabling stroke leads to...



REHABILITATION



DRUGS AND THERAPIES



HOME CARE



OTHER COSTS



\*Index hospitalization includes the cost of drugs, imaging and laboratory exams, bed, staff, medical procedures, consultation visits, inpatient rehabilitation.

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Costs adjusted to 2023.





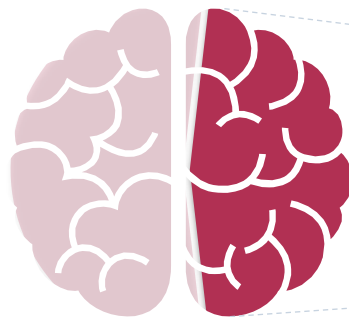
# Clinical Benefits of SENTINEL CPS



**~5,700**  
**TAVI PATIENTS**  
in Spain in 2021

## What happens in patients receiving TAVI without CEP?

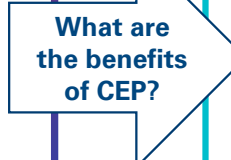
What are the clinical outcomes?



● DISABLING STROKE  
● NON-DISABLING STROKE

**47%**  
DISABLING STROKES

**~ 165**  
Strokes after TAVI



What are the benefits of CEP?

## What happens in patients receiving TAVI with CEP?

What are the clinical benefits?



● DISABLING STROKE  
● NON-DISABLING STROKE

**24%**  
DISABLING STROKES

**~ 130**  
ALL STROKE EVENTS

Activity data: Spanish Cardiac Catheterization and Coronary Intervention Registry 2022.

Estimated n. of stroke events (TAVI with CEP vs. TAVI without CEP) based on Kapadia, et al. N Engl J Med 2022; 387:1253-1263 DOI: 10.1056/NEJMoa2204961. All-stroke rates: TAVR + CEP arm (2.3%) vs the TAVR only arm (2.9%).

\*Significant 60% relative risk reduction in disabling stroke observed in the TAVR + CEP arm (0.5%) vs the TAVR only arm (1.3%).







# Economic Benefits of SENTINEL CPS



**~5,700**  
**TAVI PATIENTS**  
in Spain in 2021

## What happens in patients receiving TAVI without CEP?

What are the clinical outcomes?



**~ 80**  
DISABLING STROKES  
after TAVI

What is the economic impact?



**€ 4.6 M**  
ECONOMIC BURDEN  
OF DISABLING STROKE  
in the first-year post-event



of which...

**~ € 730 K**  
ACUTE SEVERE ISCHEMIC  
STROKE MANAGEMENT COST  
Mean in-hospital cost

What are the benefits of CEP?

## What happens in patients receiving TAVI with CEP?



**- 50**  
DISABLING STROKES AVOIDED  
after TAVI



**- € 2.8 M**  
COSTS AVOIDED  
FOR HEALTHCARE SYSTEM AND SOCIETY  
only in the first-year post-event



of which...

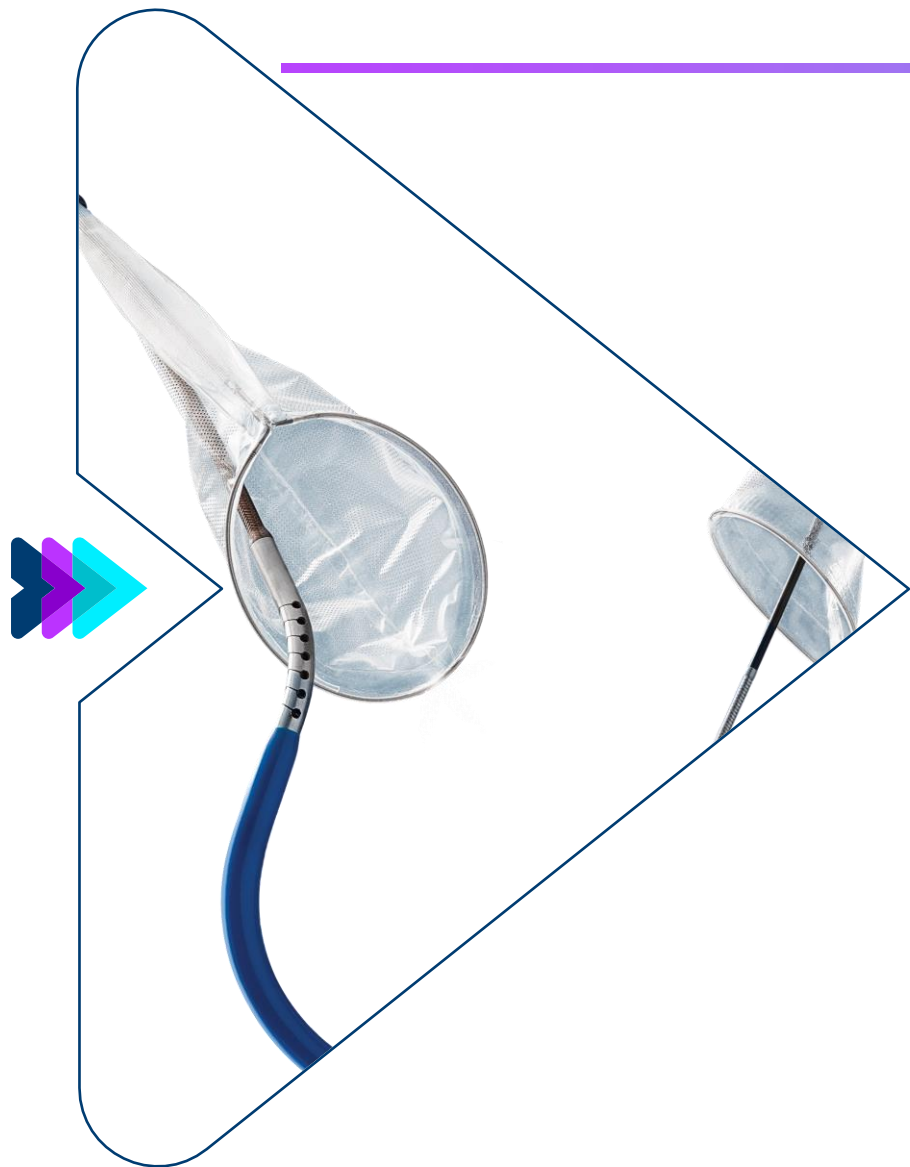
**- € 440 K**  
ACUTE STROKE MANAGEMENT  
COSTS AVOIDED  
in the first-year post-event

Activity data: Spanish Cardiac Catheterization and Coronary Intervention Registry 2022.  
Clinical outcomes based on Kapadia, et al. N Engl J Med 2022; 387:1253-1263 DOI: 10.1056/NEJMoa2204961.

Economic outcomes based on: de Andrés-Nogales F, et al. European Stroke Journal 2017, 2:3, 272-284; Jose Alvarez-Sabin et al. Eur J Health Econ. 2017,18(4):449-58; Alvarez-Sabin J, et al. Eur J Health Econ 2017; 18, 449-458 (costs adjusted to 2023).

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## Benefits of CEP in the UK





# Burden of Stroke in the UK

In the UK, the **Economic Burden of stroke is Significant for the Healthcare system, Patients and Society.**

## Health and social care costs

## Non-healthcare costs

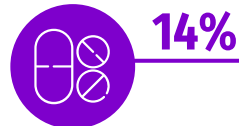
### HOSPITAL CARE

- Stroke Unit/ Neurology
- Length of Stay
- Day cases
- Inpatient care



### OTHER COSTS

- Primary care
- Outpatient care
- Emergency care
- Pharmaceuticals



### SOCIAL CARE

- Nursing homes
- Residential care



€7.4 B

14%



### PRODUCTIVITY LOSS DUE TO DISABILITY

- Work absence
- Disability

14%



### PRODUCTIVITY LOSS DUE TO DEATH

- Work loss due to early mortality

25%



### INFORMAL CARE

- Informal, unpaid caregivers



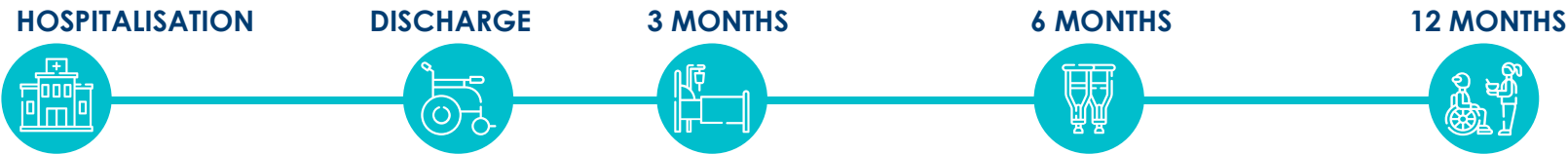


# Impact from short to long term

## Significant Increase in Acute and Long-Term Disabling Stroke Costs

### Short-term costs

### Mid to long-term costs



ACUTE SEVERE ISCHEMIC STROKE MANAGEMENT COST in the UK<sup>1</sup>

SOCIAL AND ECONOMIC COSTS PER PATIENT\*\* in the first-year post-event<sup>2</sup>

€14,000

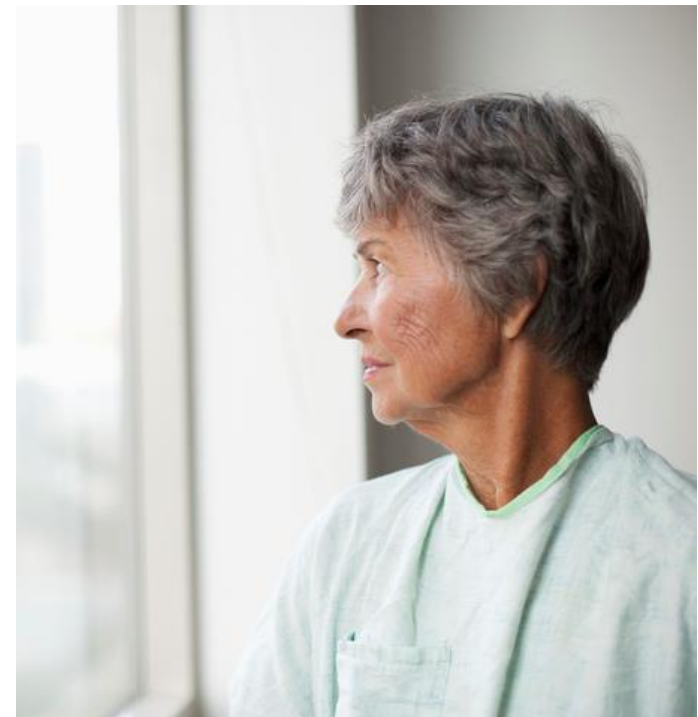
UP TO €57K

Mean in-hospital cost per patient\*

Disabling stroke leads to...

- MEDICAL CONSULTATION
- DIAGNOSTIC EXAMINATIONS
- PHARMACOLOGICAL THERAPIES
- HOSPITAL STAY

- REHABILITATION
- DRUGS AND THERAPIES
- HOME CARE
- OTHER COSTS



\*Index hospitalization includes the cost of drugs, imaging and laboratory exams, bed, staff, medical procedures, consultation visits, inpatient rehabilitation.

\*\*Direct healthcare costs following discharge include the costs of rehabilitation, outpatient visits, institutionalization costs and drugs. Direct non-healthcare costs include social services (residence in nursing home or other healthcare centers/domiciliary care), other non-healthcare costs such as adapted medical transport and physical adaptations, informal care (long-term care provided by unpaid family members, or an informal caregiver). Productivity losses: societal costs associated with reduced work productivity, incapacity for work, occupational disability, premature death.

1. Updated HRGs for stroke. 2. Patel A, et al. Age and ageing 2020, 49(2), 270-276. Costs adjusted to 2023.





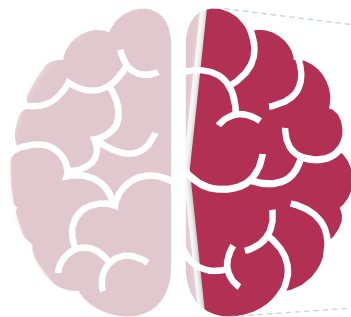
# Clinical Benefits of SENTINEL CPS



**~6,700**  
**TAVI PATIENTS**  
In the UK in 2021

## What happens in patients receiving TAVI without CEP?

What are the clinical outcomes?



● DISABLING STROKE  
● NON-DISABLING STROKE

**47%**  
DISABLING STROKES

**~ 190**  
**ALL STROKE EVENTS**



What are the benefits of CEP?

## What happens in patients receiving TAVI with CEP?

What are the clinical benefits?



● DISABLING STROKE  
● NON-DISABLING STROKE

**24%**  
DISABLING STROKES

**~ 150**  
**ALL STROKE EVENTS**

Activity data: The British Cardiovascular Intervention Society (BCIS)

Estimated n. of stroke events (TAVI with CEP vs. TAVI without CEP) based on Kapadia, et al. N Engl J Med 2022; 387:1253-1263 DOI: 10.1056/NEJMoa2204961. All-stroke rates: TAVR + CEP arm (2.3%) vs the TAVR only arm (2.9%).

\*Significant 60% relative risk reduction in disabling stroke observed in the TAVR + CEP arm (0.5%) vs the TAVR only arm (1.3%).





# Economic Benefits of SENTINEL CPS



**~6,700**  
**TAVI PATIENTS**  
In the UK in 2021

## What happens in patients receiving TAVI without CEP?

What are the clinical outcomes?



**~ 90**  
DISABLING STROKES  
after TAVI

What is the economic impact?



**€ 6.3 M**  
ECONOMIC BURDEN  
OF DISABLING STROKE  
in the first-year post-event



of which...

**~ € 1.3 M**  
ACUTE SEVERE ISCHEMIC  
STROKE MANAGEMENT COST  
Mean in-hospital cost

What are the benefits of CEP?

## What happens in patients receiving TAVI with CEP?



**- 54**  
DISABLING STROKES AVOIDED  
after TAVI



**- € 3.8 M**  
COSTS AVOIDED  
FOR THE NHS AND SOCIETY  
only in the first-year post-event



of which...

**- € 760 K**  
ACUTE STROKE MANAGEMENT  
COSTS AVOIDED  
in the first-year post-event

Activity data: The British Cardiovascular Intervention Society (BCIS)  
Clinical outcomes based on Kapadia, et al. N Engl J Med 2022; 387:1253-1263 DOI: 10.1056/NEJMoa2204961.  
Economic outcomes based on Patel A, et al. Age and ageing 2020, 49(2), 270-276 (costs adjusted to 2023).





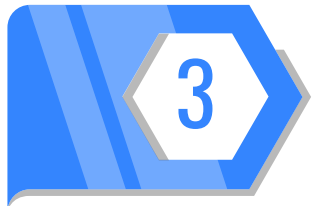
# Why protect TAVI patients from Stroke?



**Stroke is a severe and devastating event for the patient**  
with a huge impact in terms of clinical outcomes and quality of life.



**Stroke has a direct impact on healthcare systems resulting in high costs**  
and is also considered a public health problem due to serious disabilities,  
functional limitations and compromised quality of life.



**The impact of stroke on people's lives represents an important challenge for society**  
In addition to being a sudden event, stroke affects both the individual and families.