



# Projected Incidence and Economic Burden of Stroke in China, 2022-2050

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## 1. Background

- Stroke remains a leading cause of morbidity, disability, mortality, and economic burden worldwide.
- China bears a substantial share of the global stroke burden and is experiencing rapid population aging.
- Although future stroke incidence has been studied, forward-looking estimates of stroke-related costs in China remain limited.
- Estimating future incidence and costs is important for prevention planning, hospital capacity, and long-term financing.

## 2. Objective



To project age- and sex-specific incidence and annual costs of ischemic stroke (IS), intracerebral hemorrhage (ICH), and subarachnoid hemorrhage (SAH) in China from 2022 to 2050.

## 3. Methods



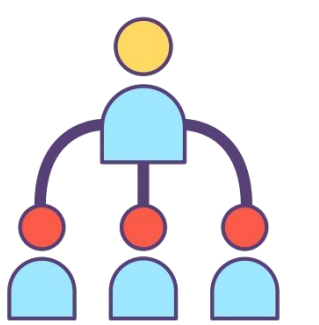
Baseline incidence data were obtained from the Global Burden of Disease (GBD) 2021 study.



Age- and sex-specific incidence trends from 1990-2021 were summarized using average annual percent change (AAPC).



Incidence from 2022-2050 was projected using an exponential growth model and combined with China-specific population projections.



A deterministic expected-value decision-tree model estimated 12-month hospitalization costs, direct medical costs, and societal costs.



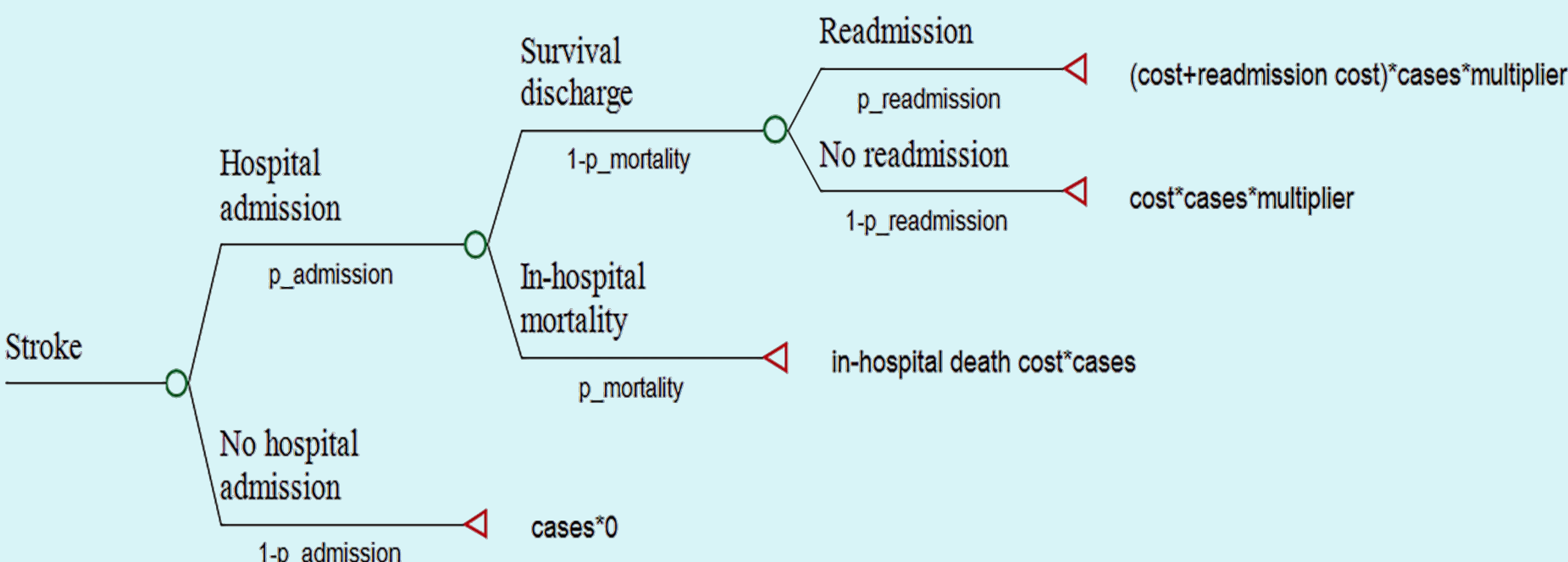
One-way sensitivity analyses were conducted to assess uncertainty in epidemiologic and cost parameters.

### Incidence Projection Model

$$IR_t = IR_{2021} \times (1 + AAPC)^{t-2021}$$

$IR_t$ , incidence rate in year  $t$ ;  $IR_{2021}$ , incidence rate in 2021;  $AAPC$ , average annual percent change;  $n$ , number of years from 2021 to year  $t$ .

### Decision-Tree Model Structure



## 4. Key Results



**Total incident strokes:**  
4.35 million<sub>(2022)</sub>→9.59 million<sub>(2050)</sub>



**Hospitalization costs:**  
\$46.1 billion<sub>(2022)</sub>→\$91.2 billion<sub>(2050)</sub>

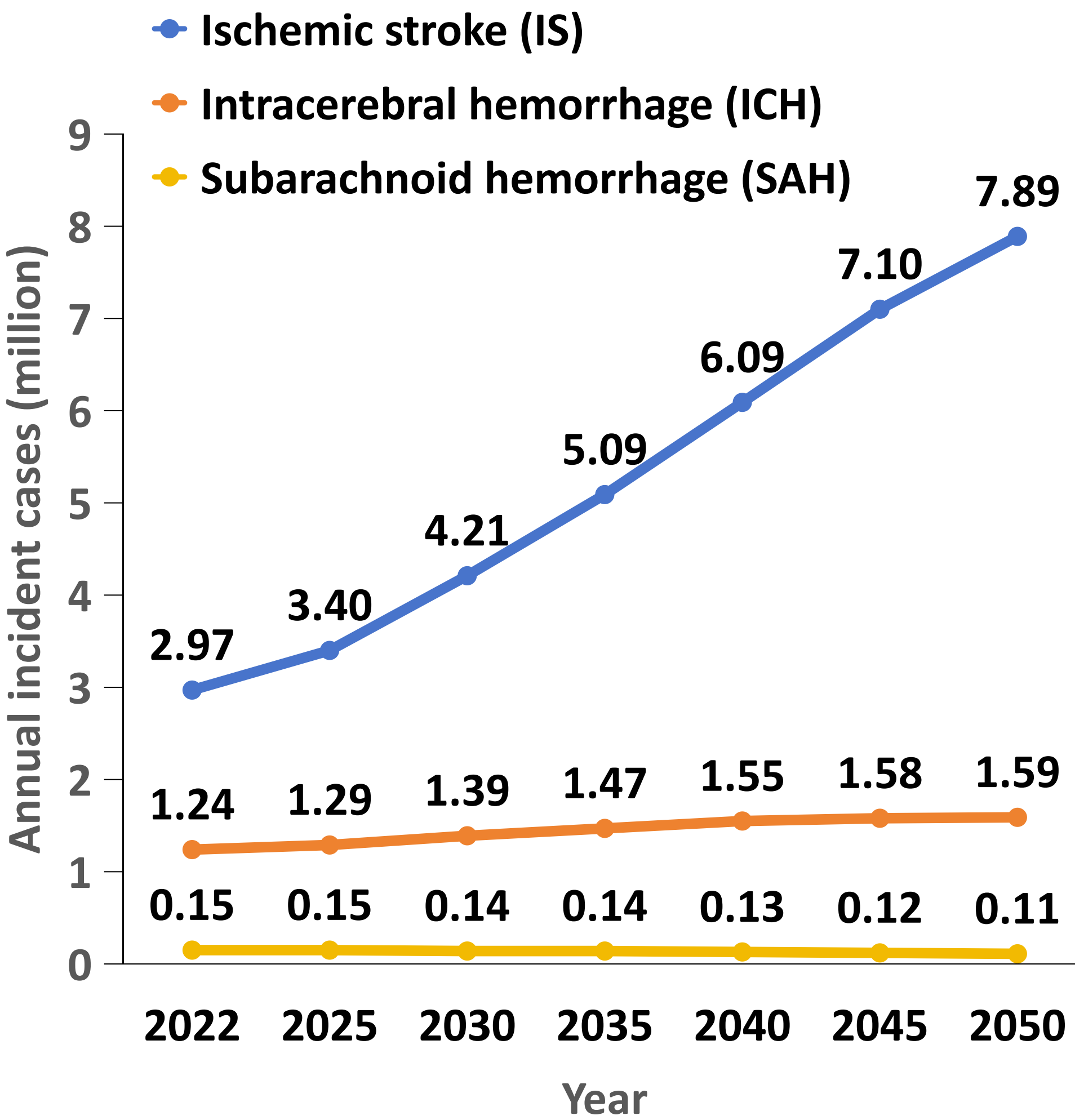


**Direct medical costs:**  
\$67.6 billion<sub>(2022)</sub>→\$133.9 billion<sub>(2050)</sub>



**Societal costs:**  
\$145.6 billion<sub>(2022)</sub>→\$288.4 billion<sub>(2050)</sub>

### Projected Annual Stroke Incidence in China

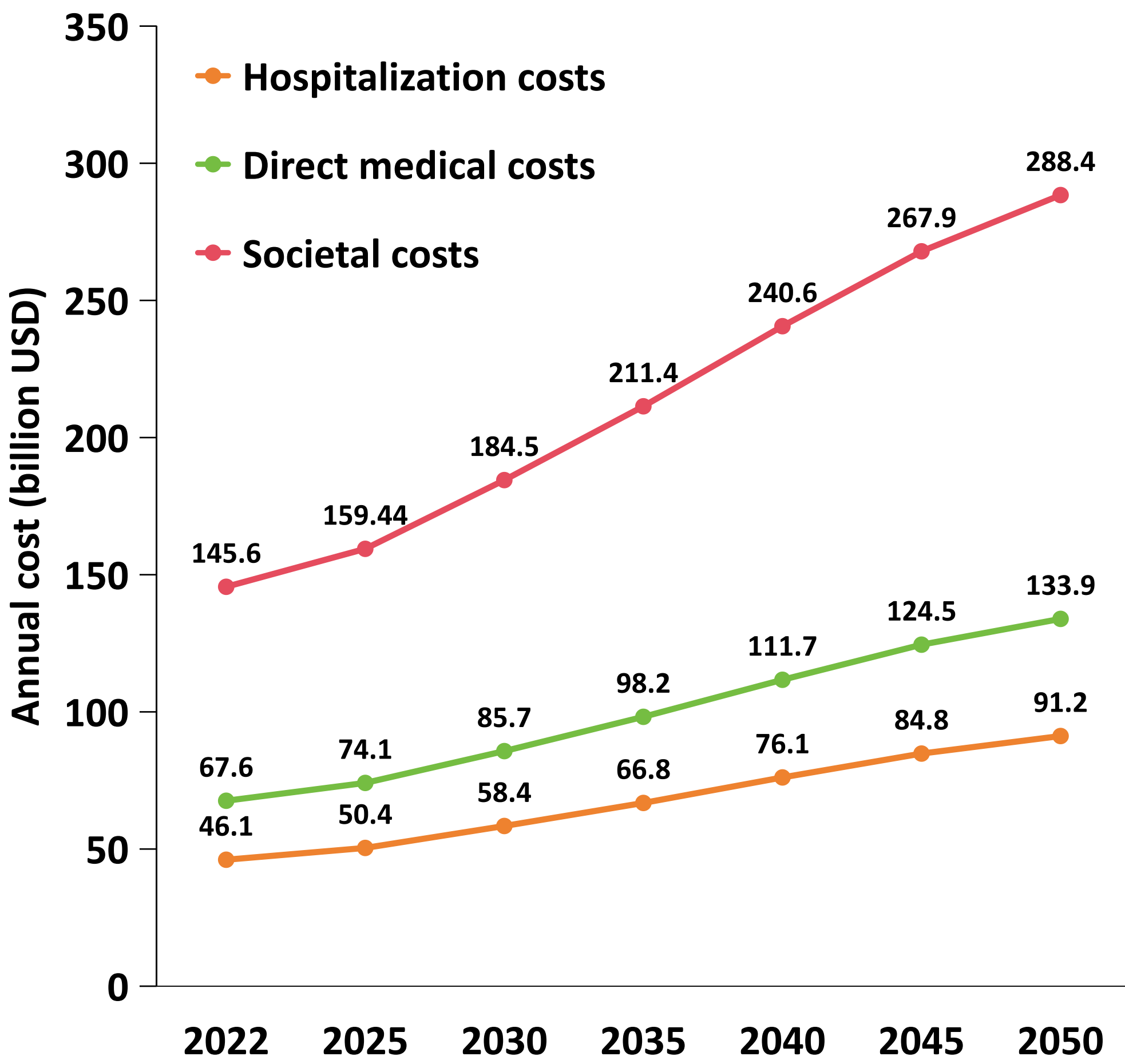


Ischemic stroke is the major driver of growth in future stroke incidence.

- Total annual incident strokes are projected to more than double between 2022 and 2050.
- By 2050, projected incident cases reach 7.89 million for IS, 1.59 million for ICH, and 0.11 million for SAH.
- The increase is driven primarily by ischemic stroke.
- The projected increase in three stroke subtypes is concentrated in the 80–84 years and 85+ elderly subgroups.

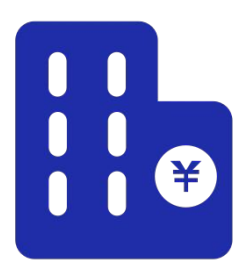
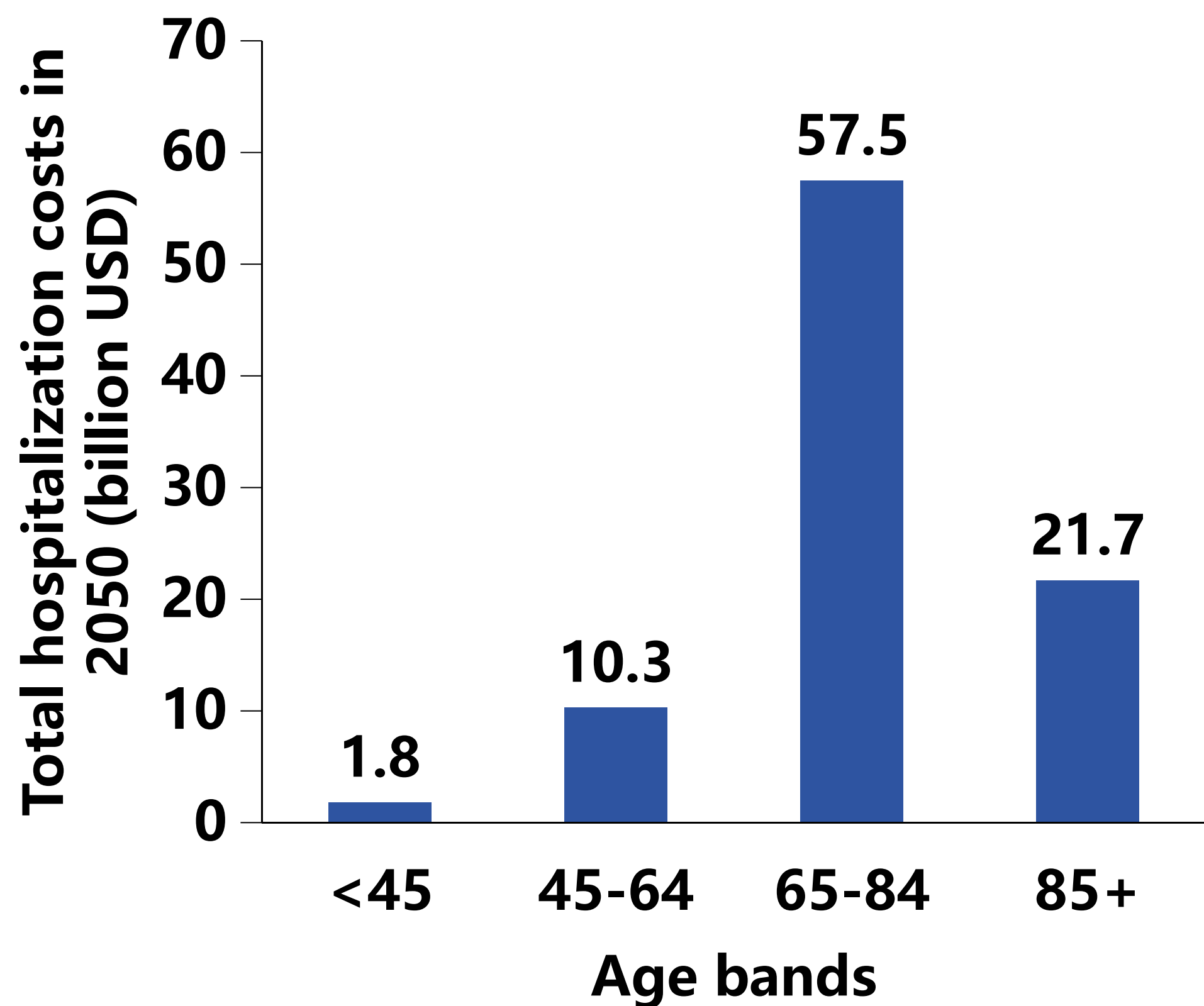
## 5. Economic Burden

### Projected Annual Stroke Costs in China



Stroke costs are projected to rise steeply across all cost perspectives.

### Projected Hospitalization Costs by Age Band in 2050



Costs will be increasingly concentrated among older adults, especially those aged ≥65 years.

- Projected annual hospitalization costs nearly doubled from \$46.1 to \$91.2 billion; direct medical costs rose from \$67.6 to \$133.9 billion, and societal costs from \$145.6 to \$288.4 billion.
- In 2050, male stroke costs are projected to be approximately 1.3 times those for females.
- Sensitivity analysis showed total annual hospitalization costs ranging from \$39.9B-\$62.3B in 2022 and \$65.0B-\$123.6B in 2050.

## 6. Conclusion



- Stroke incidence and costs in China are projected to increase substantially through 2050.
- The future burden is driven mainly by ischemic stroke and population aging.
- These findings support targeted prevention, capacity planning for older adults, and long-term financing strategies

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