

RIKSSTROKE

QUALITY OF THE SWEDISH STROKE CARE 2018



A BRIEF SUMMARY OF DATA FOR THE FULL YEAR 2018



RIKSSTROKE
The Swedish Stroke Register

A BRIEF SUMMARY OF DATA FOR THE FULL YEAR 2018

TIA

Number of recordings and coverage

- During 2018 there were **8 593 TIA events** registered at 68 out of 72 hospitals that register TIA.
- For the first time **coverage** was calculated for TIA and reached 82 % in 2018.
- From the number of registered TIA's in Riksstroke, the **total number** of patients with TIA in Sweden 2018 can be approximated to 10 000.
- The ratio between the number of TIA's and ischemic stroke is about 1:2.

Demographics, risk factors, type of care and length of stay

- Slightly more men than women were registered. The **mean age** was 74 years (72 among men and 75 among women), about one year younger than patients with stroke.
- Sixty per cent of the patients with TIA had **high blood pressure**, 21 % **atrial fibrillation**, 18 % **diabetes** and 10 % were **smokers**.
- Eighty-seven per cent of the TIA patients sought health care at the emergency room as a first instance, 11 % at primary care and 2 % at some other health care facility.
- Forty-six per cent of the registered TIA patients arrived at the hospital within three hours from onset and 91 % within 24 hours. More than half (52 %) of the patients **arrived by ambulance**.
- Eighty per cent of the TIA patients were directly admitted to a stroke unit. The median length of stay was three days.

Diagnostics

- Practically all patients had a **CT scan examination**, while 14 % had an **MRI scan**. The most common vascular examination method was **ultra-sonography** (48 %), followed by **CT angiography** (34 %) and **MR angiography** (2 %). There was an increasing trend for the use of CT angiography.
- For cardiac arrhythmia detection, 72 % of the patients without known atrial fibrillation had a long-term follow-up with long term **ECG recording**. Further 14 % had a planned long term recording after discharge.

Secondary prevention

- Eighty-nine per cent of TIA patients, all ages, with atrial fibrillation were prescribed **oral anticoagulants** at discharge. This is a continuous increase compared to previous years, especially among the elderly patients. There was no significant geographical variation in receiving the treatment.
- **Antihypertensive medicine** was prescribed for 72 % of the patients (unchanged compared to 2016) and 84 % with statins, which is an increase with 2 %. There was still a considerable regional variation in usage.
- More than half of the smokers (54 %) received **advice about smoking cessation** and 57 % of those with a driver's license received **advice about driving after stroke**. Information about smoking cessation and/or driving was missing for every fourth to sixth TIA patient.
- Almost all TIA-patients, 92 %, had a planned **follow-up visit** at the hospital or in primary care.

STROKE

Number of registrations and coverage

- During 2018 there were **21 124 stroke events** registered in Riksstroke, which is 92 stroke events less compared to 2017. The slightly declining trend in registered stroke events during the past years continues although not as evident as between the previous two last years (*figure 1*). Recurrent strokes have further decreased and is now 21 %, which is the lowest proportion in the history of Riksstroke.
- The **coverage** was 89 %, unchanged from previous year.

Demography, risk factors, type of care and length of stay

- **Mean age** and the distribution in terms of gender was unchanged compared to previous years. Slightly more men than women had a stroke and the mean age was 75 years old (73 years among men and 78 years among women).
- Eighty-four per cent were **fully conscious at arrival**. The registration of severity with NIHSS is the same as previous year, 56 %. There was a considerable variation in proportion of NIHSS registrations among the hospitals.
- Sixty-four per cent of the stroke patients had **high blood pressure**, 29 % **atrial fibrillation**, 23 % **diabetes** and 14 % were **smokers**.
- Thirteen per cent of all stroke events were **intracerebral hemorrhages**. Among these, the proportion related to anticoagulant treatment has gradually increased during the past few years (in line with an increased usage of the treatment overall) and is now 25 % (*figure 2*). Reversal of anticoagulation was given to 68 % of the patients with anticoagulant-related intracerebral hemorrhage.

- A third of the stroke patients arrived at hospital within three hours from onset and 36 % arrived as a thrombolysis/thrombectomy alarm.
- The proportion of acute stroke patients receiving **care at a stroke unit** at some point during their hospital stay was continuously high, 92 % (*figure 3*). The variation between the hospitals is small.
- Still many of the stroke patients, 20 %, receives treatment at an observation- or other care unit other than a stroke unit during the first critical day (*figure 4*).
- The **median length of stay** at hospital was 7 days. There was a considerable variation in length of stay between the hospitals; a partial explanation could be various usage of **early supported discharge with stroke rehabilitation at home**.

Diagnosics

- The use of computer tomography for **diagnostic imaging** was at a satisfactory level at all hospitals.
- The average usage of **MRI** examinations of the brain was 28 % with large variations between hospitals.
- CT-angiography in association to the initial computer tomography was made for 37 % of the patients with ischemic stroke, with great variation between hospitals.
- For patients with ischemic stroke, **CT-angiography** was the most common method for vascular examination (44 %), followed by **ultra-sonography** (34 %) and **MR-angiography** (3 %). The usage of CT-angiography is increasing.
- The proportion of patients with ischemic stroke examined with **long-term ECG** with the purpose to discover atrial fibrillation was 78 % but varied between the hospitals.
- **Swallowing assessment** was performed in 88 % of the stroke patients.

Reperfusion therapy (to restore the blood flow with thrombolysis and thrombectomy)

- The proportion of patients who received **reperfusion therapy** continued to increase and was 17 % in 2017 (*figure 5*). A third of the treated patients were 80 years or older.
- The differences in the proportion of patients who received **thrombolysis** between the hospitals declined, but the treatment still seems under-used at several of the hospitals.
- The time from arrival at hospital to the start of thrombolysis treatment (door-to-needle time) has decreased compared to 2017 and is now 37 minutes. There are still large variations between the hospitals.
- The number of **thrombectomies** (mechanical removal of a clot in arteries in the brain using a catheter) has further increased in 2018. This is related to the new strong evidence for the treatment. 847 treatments were carried out in 2018 (compared to 645 treatments in 2017), of which the majority were carried out in three regions: Stockholm, Västra Götaland and

Södra Sjukvårdsregionen. The implementation was very low in the other regions. Usage of the treatment corresponds to 5 % of all ischemic strokes.

- There were in total 2 640 contacts with hospitals with a thrombectomy center from other hospitals. A third of these resulted in a thrombectomy treatment.

Neurosurgical operation performed for patients with intracerebral hemorrhages

- Seven per cent of patients with intracerebral hemorrhages received **neurosurgical operation**.

Physical therapy and occupational therapy

- About 85 % of the patients were evaluated by a **physical therapist or occupational therapist**, about half of them within 24 hours after arrival at the hospital.

Speech therapist

- Two out of five of the patients had their speech- or swallow function evaluated by a **speech therapist** during the hospital stay.

Secondary prevention

- Data on information about **smoking cessation** is missing in every third patient and the efforts to encourage patients to not smoke seems to be inadequate at many hospitals. Half of the smokers received information about smoking cessation.
- The proportion of patients with an embolic stroke (a combination of atrial fibrillation and ischemic stroke) that receives secondary prevention with **oral anticoagulants** continue to increase and is now 79 % (*figure 6*). Six out of seven of the patients had a prescription with one of the new anticoagulants (NOAC's) at discharge.
- The proportion of patients with **antihypertensive medicine** at discharge remains on a high level with relatively small variation between the hospitals.
- The use of **statins** after an ischemic stroke increased further during 2018 and is now given to four out of five patients. The variation between the hospitals were large.

Driving

- For patients with a driver's license a majority had received **information about driving** after stroke. Data was missing for 21 % of the patients, a small improvement compared to the previous year.

Accommodation after discharge and planned rehabilitation

- 77 % returned to their own home after discharge while 22 % were discharged to a special accommodation.
- **Early supported discharge with rehabilitation at home** from a multidisciplinary team associated to the stroke unit was planned for 15 % of the patients who were discharged to their own home. There were large variations in the proportion with rehabilitation at home and in a hospital-based day rehabilitation clinic (*figure 7*).

- Eighty-four per cent of the stroke patients had a planned **follow-up visit** at hospital or in primary care.

3-MONTH FOLLOW-UP

Follow-up

- Out of the 21 124 stroke events in 2018, 82 % answered a **follow-up** survey or were deceased at 3 months after their stroke.
- The proportion of patients followed up 3 months after stroke decreased in 2018 compared to 2017, as well as the proportion of hospitals reaching high and moderate target levels.

Survival

- Seventeen per cent of the patients were **deceased within 90 days** after their stroke and 31 % were **deceased or ADL dependent** at follow up 3 months after stroke.
- The proportion of deceased and deceased or ADL-dependent varied significantly between the hospitals, but the differences were small between the regions after statistical adjustment for age, sex and consciousness level.

Function

- The proportion of patients who are **dependent in ADL 3 months after stroke** has further decreased (with 1 % compared to the previous year), and a slow decreasing trend has been seen over a 10-year period (*figure 8*).
- Patient characteristics can partly explain the differences in proportion of ADL-dependent patients between the hospitals but there are still considerable differences between the hospitals even after statistical adjustment. These differences might be affected by transportation between hospitals for thrombolysis and thrombectomy in the acute phase.

Accommodation

- Three months after stroke, 66 % of the patients lived in their own home without community service, 20 % in their own home with community service, 12 % in assisted living and 2 % in some other living facility.

Hospital achievements

- The proportion of patients who were satisfied or very satisfied with the **rehabilitation during the hospital stay** (among those who received rehabilitation) were high (91 %) for the whole nation, with a moderate variation between the counties/regions. The proportion of patients who were satisfied or very satisfied with the **rehabilitation after hospitalization** were a bit lower, 85 %.
- The proportion who stated that they had received **rehabilitation at home** (early supported discharge) had increased, from 30 % to 33 % compared to previous year. There are still large variations across regions.

- More than 60 % of the stroke patients with self-reported speech problems had seen a **speech therapist** for evaluation or treatment. The variations between the counties/regions were large.
- The proportion of stroke patients who quit **smoking** are unchanged at 45 %. Nearly half the patients reported to have received advice on smoke cessation.
- Patient compliance in **blood pressure lowering drug therapy** seems to be at a very high level.

Symptoms and quality of life

- Seventy-seven per cent of the patients reported their **general health** to be very good or good 3 months after stroke, with moderate variation between the hospitals.
- Thirty-one per cent stated that they had gone back to the life and activities as before their stroke, 36 % per cent answered “yes, but not quite like before” and 33 % answered “no”.
- Fatigue, depression, pain, speech difficulties and memory difficulties are common after a stroke. About a third of the patients had three or more of these symptoms (*figure 9*).

Acute care satisfaction

- Most of the stroke patients were satisfied with the acute care, and the differences in satisfaction between the hospitals were moderate.

Need of support

- Fifty-eight per cent of the patients were satisfied with the support from the hospitals and the municipality after discharge, this proportion is the same as previous year. The proportion who were **satisfied with the support** varied substantially between the hospitals, and more than half of the hospitals did not reach moderate target level.
- Three months after stroke, more than half of the stroke patients who lived at home stated that they were **fully or partly dependent of the help from a relative** (this proportion is unchanged compared to previous year). Even among the patients living in a nursing home, the proportion in need of help from a relative was very high.

Figures

Number of stroke events in Riksstroke 1994-2018

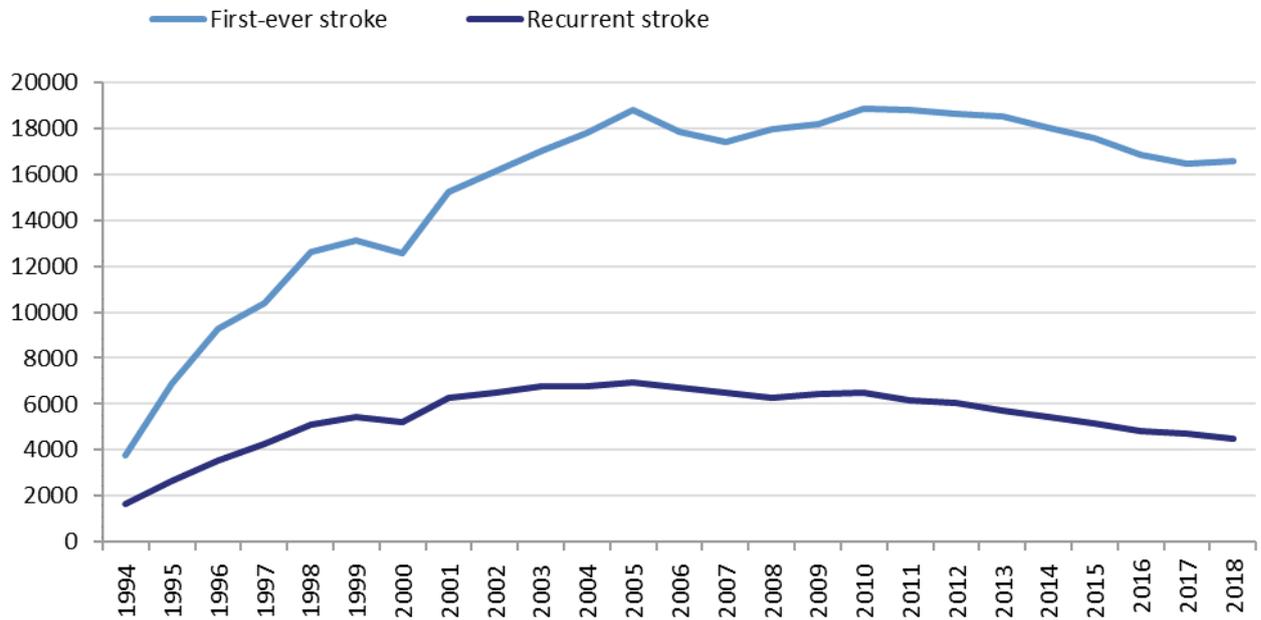


Figure 1. Cumulative number of stroke events registered in Riksstroke from 1994 to 2018. Separate lines for first-time events and recurrent stroke events.

Anticoagulants at admission among intracerebral hemorrhages

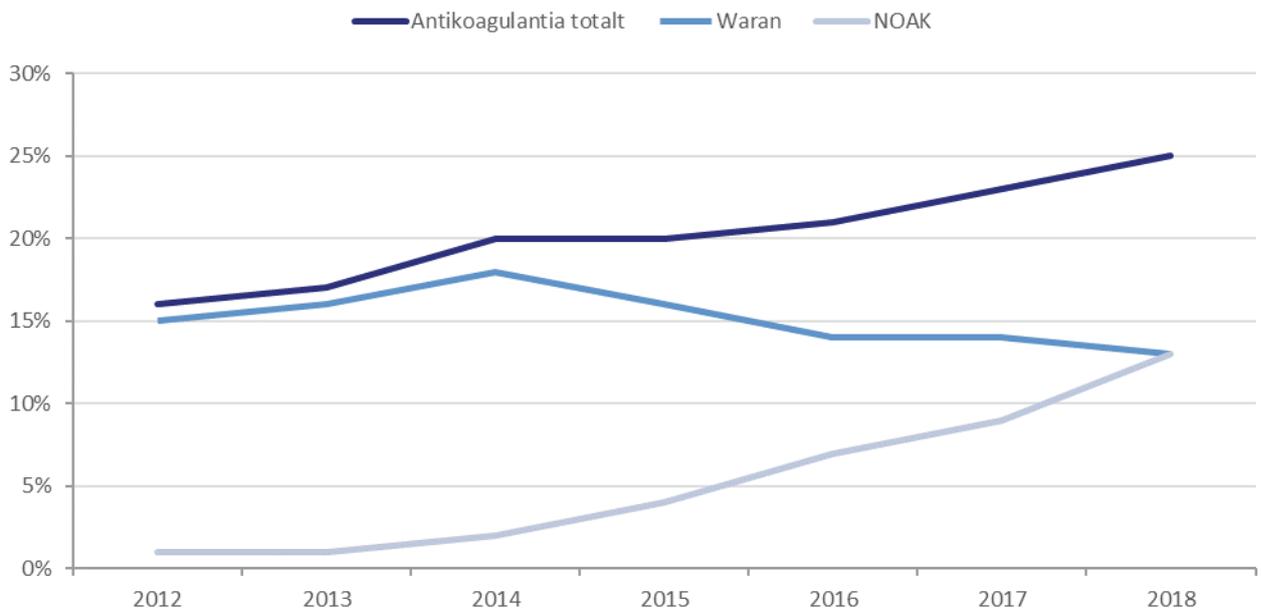


Figure 2. The proportion of patients with anticoagulant treatment at admission among intracerebral hemorrhages, 2012-2018.

Care at a stroke unit, intensive care unit or department of Neurosurgery (at some period during the acute phase)

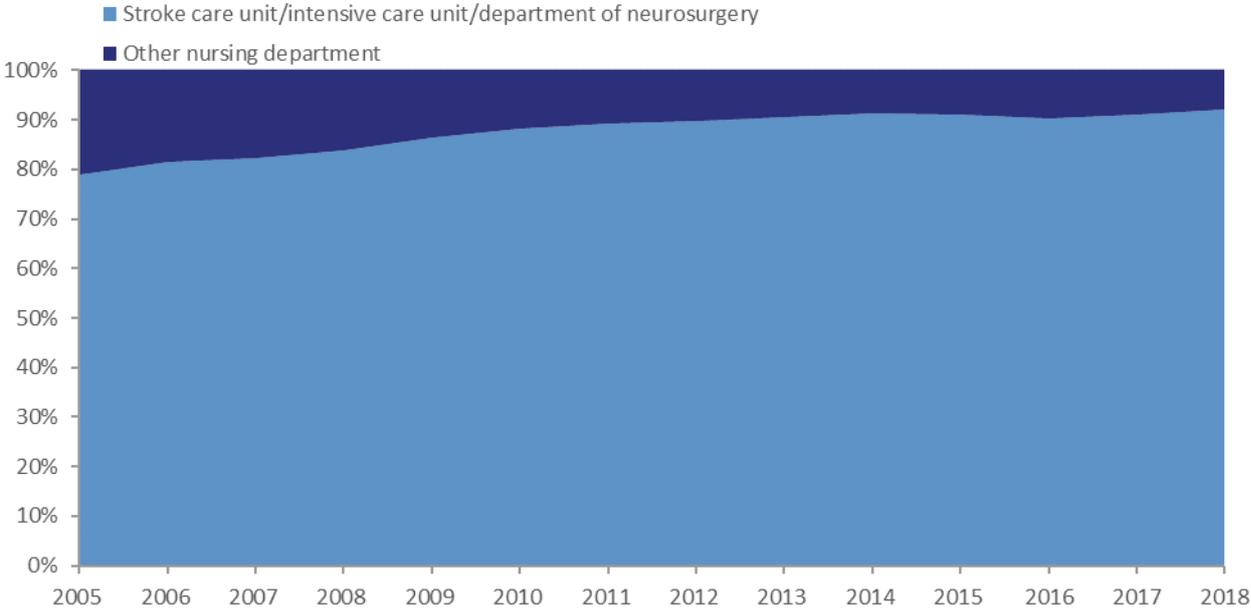


Figure 3. The proportion (%) of patients with acute stroke receiving care at a stroke unit/intensive care unit/department of neurosurgery and other nursing department, 2005-2018.

Direct admission to stroke unit (as first level of care)

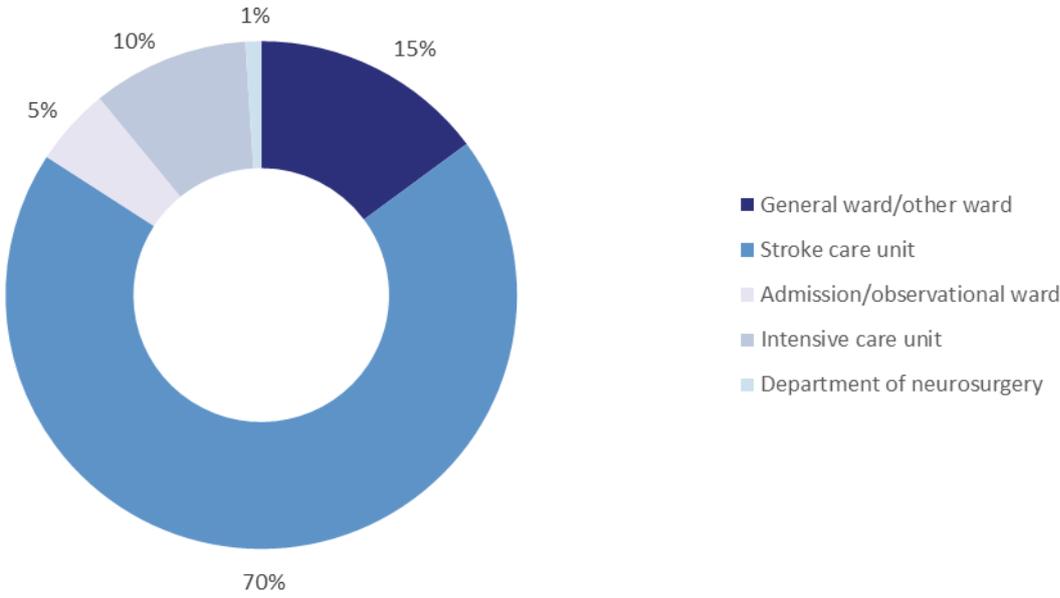


Figure 4. Proportion (%) of acute stroke patients directly admitted to stroke unit, intensive care unit, department of neurosurgery or other type of ward, 2018.

Reperfusion therapy

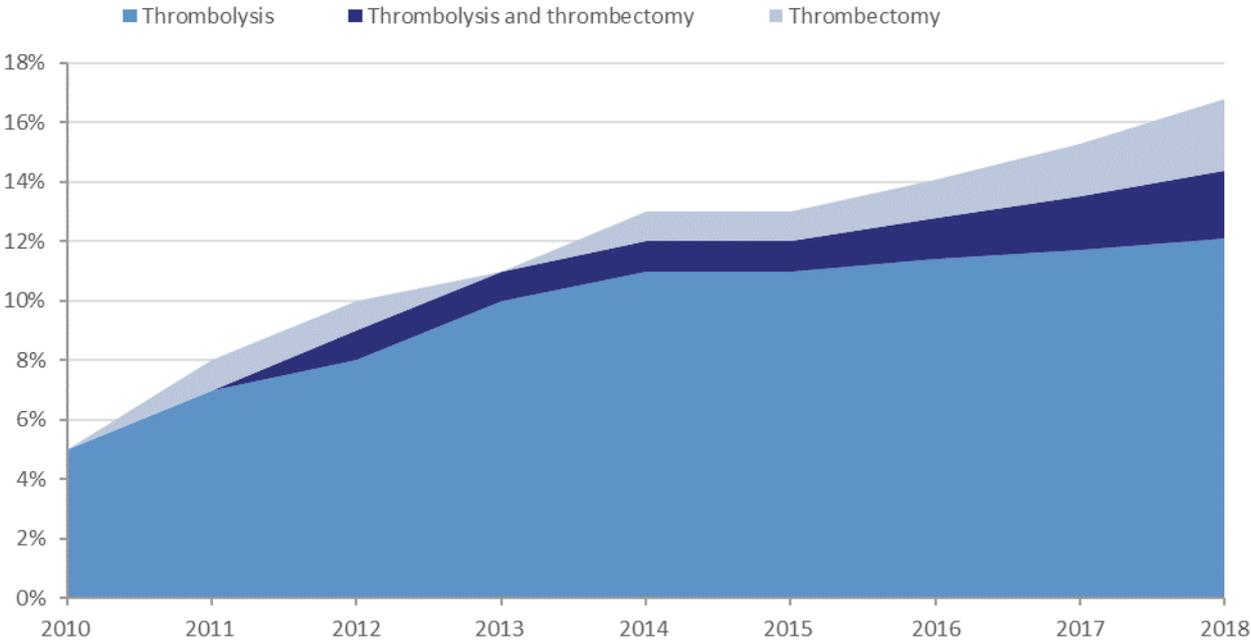


Figure 5. The proportion (%) of patients with ischemic stroke receiving reperfusion therapy, 2010-2018.

Anticoagulants among patients with ischemic stroke and atrial fibrillation

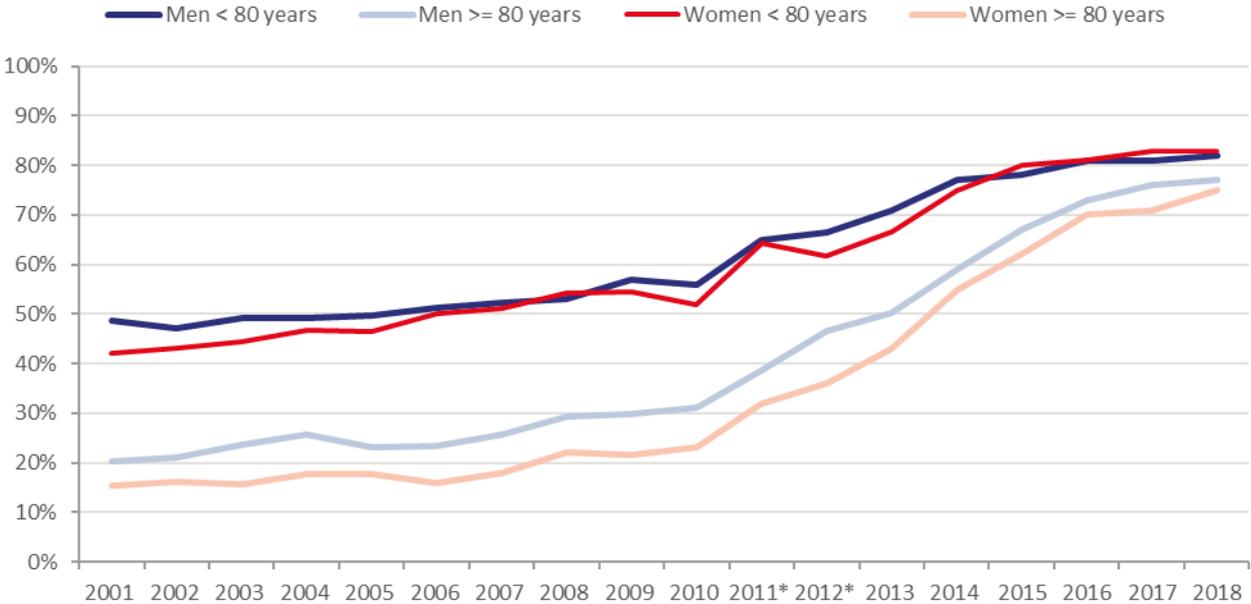


Figure 6. Proportion (%) of patients with ischemic stroke and atrial fibrillation who were prescribed anticoagulant treatment at discharge, 2001-2018.

Planned rehabilitation among patients discharged to their own home

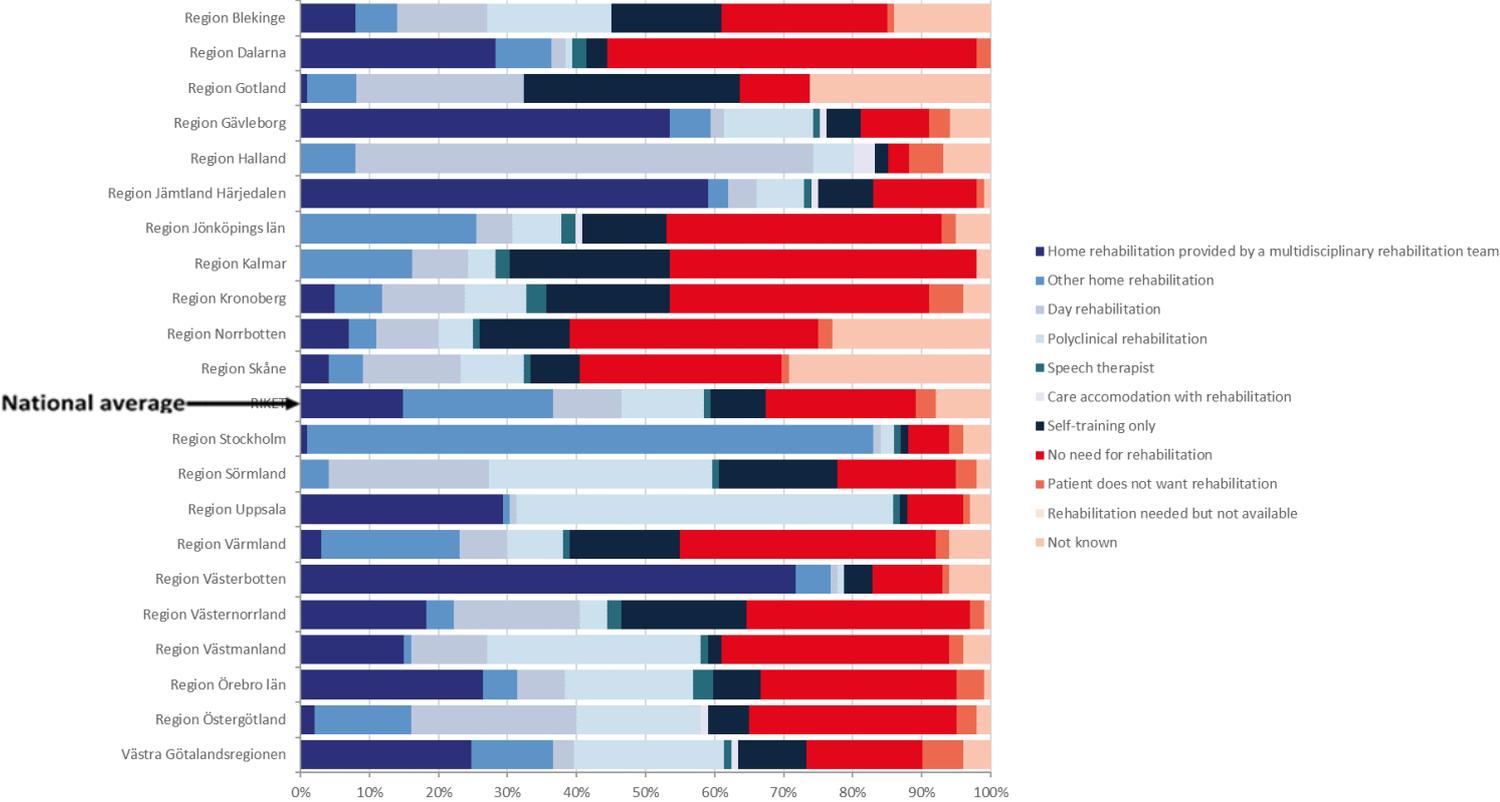


Figure 7. The proportion (%) of patients with planned rehabilitation among those discharged to their own home, by county 2018.

ADL-dependency 3 months after stroke

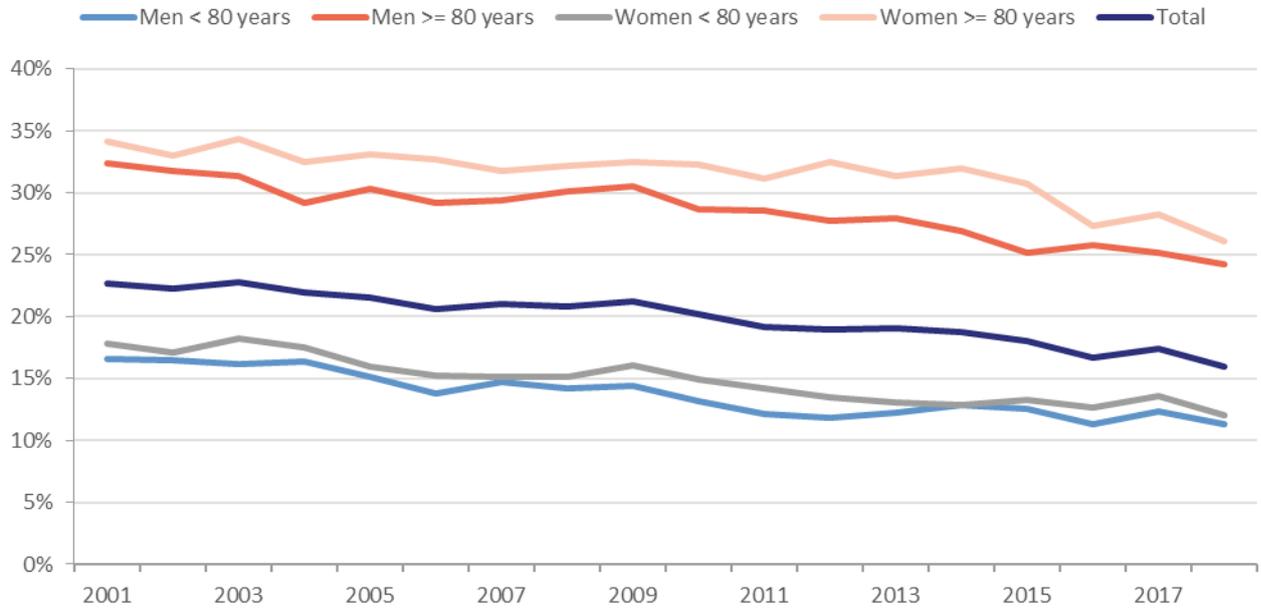


Figure 8. The proportion (%) of patients who were ADL-dependent three months after stroke, 2001-2018. Patients who already were ADL-dependent before their stroke are excluded from the calculations.

Number of difficulties 3 months after stroke

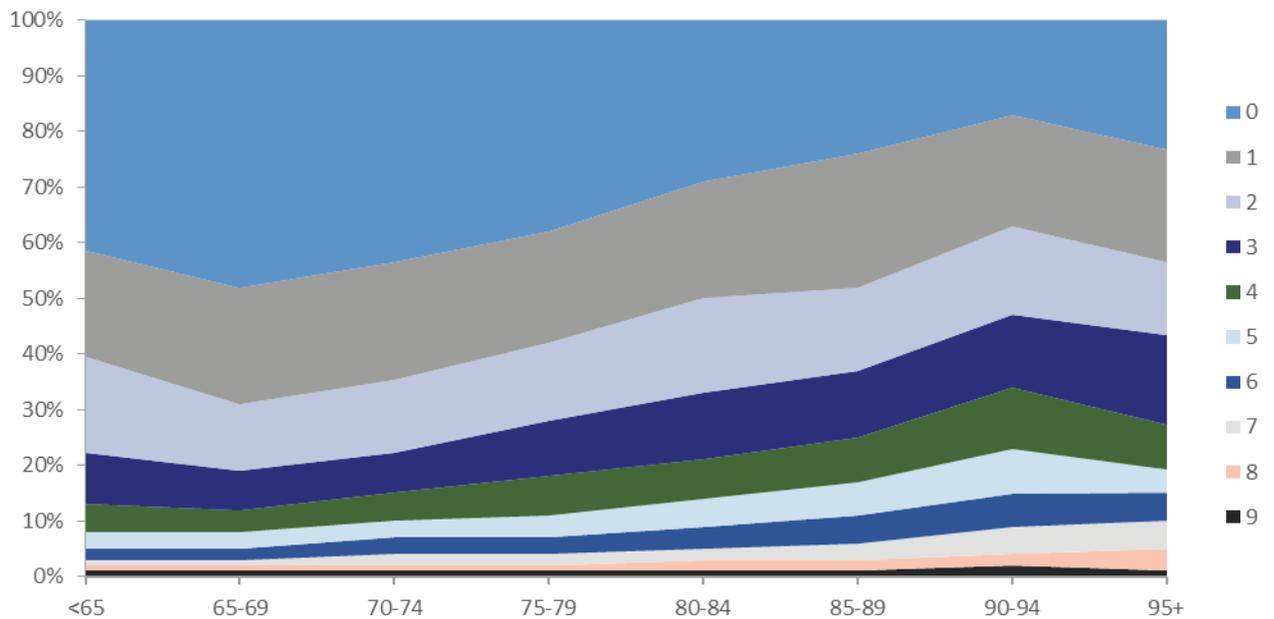


Figure 9. Number of difficulties 3 months after stroke divided into different age groups, 2018.