



Time trends in quality of acute stroke care in Germany 2003-2012: the German Stroke Registers Study Group

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Background: Analyses of variations in appropriate stroke care over time are scarce. We analyzed adherence to evidence-based quality indicators over a time period from 2003-2012 in Germany

Methods: Data were derived from 9 regional acute stroke care registers collaborating within the German Registers Study Group (ADSR). Temporal changes in evidence-based quality indicators in appropriate patients (antithrombotic therapy, vascular imaging, anticoagulant therapy, brain imaging, early physiotherapy therapy, speech and language therapy, thrombolytic therapy) for which comparable information was available over a 10-year time period were assessed. Logistic regression models were performed to estimate time trends.

Results: Between 2003 and 2012 (without 2006), individual data from about 500,000 patients treated in more than 150 hospitals with continuous documentation of quality indicators were documented.

A continuous increase in adherence to predefined quality indicators was seen for all indicators. In some indicators a constant increase across the whole study period was observed: anticoagulant therapy, and speech and language therapy. In other indicators, an initial increase was followed by a stable plateau of high-level adherence (thrombolytic therapy, vascular imaging, antithrombotic therapy, brain imaging, physiotherapy).

Table : Quality of care over time in hospitals documenting continuously between 2003-2012*

Quality indicator	2003	2004	2005	2007	2008	2009	2010	2011	2012	p for trend
<u>Antithrombotic therapy</u> in patients with IS/TIA and without anticoagulation-anytime during hospital stay; %	90.7	92.8	92.2	95.6	96.4	97.2	97.2	96.9	97.0	<.0001
<u>Vascular imaging</u> in patients with IS or TIA; %	74.2	75.0	76.1	89.1	91.9	93.7	94.0	94.9	94.7	<.0001
<u>Anticoagulant therapy</u> in IS/TIA patients with atrial fibrillation and mRS 0-3 at discharge; %	53.9	50.0	47.5	59.9	63.3	65.3	68.9	72.7	77.2	<.0001
<u>Brain imaging</u> in stroke suspicious patients; %	95.0	95.5	96.2	98.6	98.9	98.9	99.4	99.4	99.5	<.0001
<u>Physiotherapy</u> in stroke patients with paresis and mRS 3-5 or BI ≥ 70 and length of stay ≥ 1 day; comatose patients excluded; %	86.1	86.9	89.1	95.8	96.8	97.4	97.9	98.0	98.6	<.0001
<u>Speech and language therapy</u> in stroke patients with aphasia or dysarthria and length of stay ≥ 1 day; comatose patients excluded; %	50.5	55.1	61.3	81.1	86.7	89.6	92.8	93.7	94.6	<.0001
<u>Intravenous thrombolytic therapy</u> in eligible patients: admitted within 3 hours, age 18-80 years; patients with intraarterial lysis excluded; %	14.7	20.4	24.0	28.1	31.1	33.8	35.1	33.9	34.8	<.0001

*Only hospitals participating continuously were included; IS ischemic stroke; TIA transient ischemic attack; mRS modified Rankin Scale; BI barthel index

Conclusion: An increasing quality of stroke care defined by standardized quality indicators was observed over time in Germany. In some indicators, high level of adherence might indicate that best practice is already reached.

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