

Certification of stroke centre and stroke units in Switzerland

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Abstract

In Switzerland, since 2011, a mandatory certification system for stroke units (SUs) and stroke centres has been successfully implemented. Detailed criteria for stroke centres and SUs focusing on leadership, specialized staff, infrastructure, diagnostic procedures, treatment procedures, monitoring, education, research and key data have been defined by the Swiss Federation of Clinical Neurosocieties Swiss Stroke Committee mainly based on recommendations of the Swiss Stroke Society and European Stroke Organisation. During the certifications procedures, a very close and fruitful cooperation between stroke centres and SUs and other hospitals in regional networks could be observed. Improvement in the infrastructure and the quality of stroke care has been achieved during the last years.

Keywords

Acute stroke, stroke team, stroke centre, stroke unit, certification, emergency medicine, stroke research, stroke prevention

Background

The Helsingborg Declaration 2006 on European stroke strategies stated that organized stroke unit (SU) care is the backbone of care for all stroke patients. This statement was based on growing evidence from various studies that SU care significantly reduced mortality and long-term disability in stroke victims.^{1,2}

Mobile stroke teams consist of multidisciplinary specialized teams caring for stroke patients on different wards. SUs consist of a dedicated unit with specially trained staff, providing multidisciplinary team care and having procedures for diagnostic evaluation, acute monitoring, treatment, early mobilization and rehabilitation. Stroke centres also called comprehensive stroke centres have a dedicated SU and meet standards to treat the most complex stroke patients including endovascular treatment and vascular neurosurgery with 24/7 availability of all specialists and facilities. A recent Cochrane Review concluded that stroke patients who receive organized inpatient care in an SU are more likely to be alive, independent and living at home 1 year after the stroke. The benefits were most apparent in units based in a discrete ward.¹

In Switzerland, the first thrombolysis has been performed in Bern in 1992, and already in the early 90s, several

university hospitals and large cantonal hospitals started to create multidisciplinary stroke teams to improve stroke care. Dedicated SUs were created first in Geneva, Lucerne and Lugano and subsequently in all university hospitals and several cantonal hospitals including Aarau and St Gallen.

In 2011, a multidisciplinary working group of the Swiss Stroke Society led by Prof. Philippe Lyrer defined guidelines for SUs and stroke centre in Switzerland.³

In 2012, the Swiss Federation of Clinical Neurosocieties (SFCNS) received the mandate to coordinate the certification of stroke centres and SUs in Switzerland from the Swiss Conference of the Cantonal Ministers of Public Health, that

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is, the Schweizerische Gesundheitsdirektorenkonferenz (GDK). This mandate is based on the decisions of the GDK and its Decision Board Highly Specialized Medicine (HSM) Services and Scientific Committee HSM.⁴

According to the GDK decision, stroke care in Switzerland should be reorganized into professional networks established by dedicated stroke centres and SUs. The GDK decided that these stroke centres and SUs have to be certified to assure the quality of care. In addition, it has been decided that endovascular treatment of acute ischemic stroke, decompressive craniectomy in stroke patients and acute revascularization of carotid stenosis are highly specialized interventions that should be performed in stroke centres (http://www.gdk-cds.ch/fileadmin/docs/public/gdk/themen/hsm/hsm_spitalliste/bb_dc_stroke_praez_20110520_def_d.pdf).

Certification criteria

In 2012, the SFCNS under the guidance of its president Prof. Claudio Bassetti formed the SFCNS Swiss Stroke Committee, integrating delegates from various clinical neurosocieties, intensive care and general internal medicine led by Prof. Marcel Arnold. In addition, a certification committee consisting of five members (two neurologists, one neuroradiologist, one neurosurgeon and one representative of neurorehabilitation) was created.

Recommendations for stroke centre and stroke unit criteria have been elaborated by a working group of the Swiss Stroke Society,³ mainly based on European Stroke Organisation (ESO) criteria⁵ and the report of the scientific board of HSM of the Swiss Conference of the Cantonal Ministers of Public Health.

In 2012, the SFNCS certification committee defined detailed criteria for stroke centres and SUs focusing on leadership, specialized staff, infrastructure, diagnostic procedures, treatment procedures and monitoring, educations, research and key data (minimal number of patients and monitored and non-monitored beds). These criteria are described in details on the website of the SFCNS (<http://www.sfcns.ch/index.php/Stroke.html>). Key data including clinical outcome after 3 months have to be entered in the web-based Swiss Stroke Registry.⁶

Certification procedure

In Switzerland, certification audits take a day. During the audit, compliance with quality criteria for stroke centres and SUs are checked on-site by three auditors (one leading auditor from SanaCert Suisse and two peers (stroke experts from other SUs or centres in Switzerland) by local inspection and questioning of the staff. All auditors appointed by the SFCNS have to complete a training with SanaCert Suisse in Bern. In order to guarantee the highest possible auditing standards, this course needs to be repeated regularly. Other factors that are taken into account at the audit

are detailed written documents on staff, leadership, infrastructure, diagnostic and therapeutic procedures and key data. The major part of these documents has to be submitted before the audit. The assessment of the audit is communicated at the on-site final meeting. Based on the written report by the leading auditors and the certification commission's application, the SFCNS stroke committee takes a final decision whether certification will be granted or not.

Diagnosis-related groups are used to classify stroke patients for reimbursement of hospital costs. The classification system considers the complexity of stroke care resulting in higher reimbursement for patients treated in stroke centres.

According to the recommendations of the Swiss Academy of Medical Sciences, it is necessary to undergo recertification every 3 years. Recertification has to be applied for at the SFCNS office 6 months prior to the expiration of the first certificate and takes half a day (as opposed to 1 day at the first certification).

Certification in other countries

In Germany, SU have been certified for more than a decade by the German Stroke Society and the German Stroke Aid Foundation. Since 2009, certification is provided by the LGA InterCert of the Technical Surveillance Society of Rhineland.⁷

In the United States, certification is provided through a partnership between the American Heart Association/American Stroke Association and the Joint Commission the nation's largest independent healthcare evaluation body (http://www.heart.org/HEARTORG/Professional/HospitalAccreditationCertification/ComprehensiveStrokeCenterCertification/Comprehensive-Stroke-Center-certification_UCM_455446_SubHomePage.jsp).

In 2017, the ESO has been started an online certification procedure for European SUs and stroke centres based on a consensus paper.⁵

Looking backward and forward

The setting of organized and specialized SUs and stroke centres for complex and highly specialized cases has been an urgent need for stroke patients. Management of stroke needs a multidisciplinary and multimodal team approach. For this reason, the mandate for certification of SUs and centres was given to the SFCNS representing the most important clinical neurosocieties.⁸

To date, 10 stroke centres and 14 SUs could be successfully certified. Figure 1 shows that the majority of Swiss regions are now covered by an SU or a stroke centre. During the certifications procedures, a very close and fruitful cooperation could be observed between stroke centres and SUs and other hospitals in regional networks. Improvement in the infrastructure and the quality of patient care has been achieved during the last years in nearly all SUs and



Figure 1. Overview of stroke centres and SUs in Switzerland (<http://www.neurovasc.ch/index.php/strokeunits.html>). SU: stroke unit.

stroke centres. Standard operating procedures, local, national and European guidelines have been established and have continuously to be adapted considering new scientific evidence. By means of the improvement in the infrastructure and networks and because the overwhelming new evidence of the benefit of endovascular treatment of large anterior circulation stroke, the number of patients treated with stent retrievers by specialized neuroradiologists could be substantially increased in many stroke centres. For example, in Bern, the number of acute endovascular interventions could be increased from 149 in 2013 to 266 in 2016. Education of therapists, nurses and physicians has been improved in the vast majority of SUs and stroke centres. In addition, national and international stroke research networks could be strengthened, for example, by building working groups and committees in the Swiss Stroke Society and the ESO. However, further efforts are needed to optimize the stroke care chain and regional networks.

Certification criteria have to be adapted taking into account the rapid evolution and progress of stroke management and will be revised by the working group of the Swiss Stroke Society and the SFCNS certification committee in 2017 with support of Swiss Neurological Society and other societies involved in stroke care.

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References

1. Stroke Unit Trialists' Collaboration. Organised inpatient (stroke unit) care for stroke. *Cochrane Database Syst Rev* 2013; 9: CD000197. DOI: 10.1002/14651858.CD000197.pub3.
2. Sun Y, Paulus D, Eyssen M, et al. A systematic review and meta-analysis of acute stroke unit care: What's beyond the statistical significance? *BMC Med Res Methodol* 2013; 13: 132.
3. Lyrer P, Michel P, Arnold M, et al. Schweizerische Hirnschlaggesellschaft: Stroke Units und Stroke Centers in der Schweiz: Richtlinien und Anforderungsprofil. *Schweiz Med Forum* 2012; 12: 918–922.
4. Bassetti C, Arnold M and von Below G. Zertifizierung von Stroke Centers und Stroke Units in der Schweiz. *Schweizerische Ärztezeitung* 2012; 93: 19.
5. Ringelstein EB, Chamorro A, Kaste M, et al. European Stroke Organisation recommendations to establish a stroke unit and stroke center. *Stroke* 2013; 44: 828–840.
6. Bonati L, Baumgartner RW and Bonvin C. Das Schweizerische Hirnschlagregister (Swiss Stroke Registry). Ein Werkzeug für die Qualitätssicherung und Forschung. *Schweiz Med Forum* 2016; 16: 168–169.
7. Nabavi DG, Ringelstein EB, Faiss J, et al. Regional and national stroke units in Germany: amended certification criteria. *Nervenarzt* 2012; 83: 1039–1529.
8. Bassetti C, Merlo A, Steinlin M, et al. Eine starke Allianz der klinischen Neurodisziplinen. *Schweizerische Ärztezeitung*. 2013; 94: 23.