Credentialing Approaches for Interventional Stroke Management

Stephan Duda
Disclosure

Speaker name:
...........S. Duda...........................................................

I have the following potential conflicts of interest to report:

- Consulting
- Employment in industry
- Stockholder of a healthcare company
- Owner of a healthcare company
- Other(s)

☒ I do not have any potential conflict of interest
Interventional Stroke Management
Today means Mechanical Thrombectomy (MT)
MT – Expected Case Load

(31/100,000 per year)

USA

- 100,000 / yr needing 2000 physicians

EU

- 230,000 / yr needing 4600 physicians
Why Credentialing?

1. The lack of credentials will impact reimbursement
2. MT needs a supported environment
3. Experience drives results (even if the brain does not move....)
   - ICA occlusions
   - Difficult aortic arch morphology
Concepts for MT – Country Wise

<table>
<thead>
<tr>
<th>Country</th>
<th>Specialty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>neuro/radiologists</td>
</tr>
<tr>
<td>Italy</td>
<td>neuro/radiologists</td>
</tr>
<tr>
<td>Czech Rep.</td>
<td>cardiologists</td>
</tr>
<tr>
<td>USA</td>
<td>neurosurgeons/INR</td>
</tr>
<tr>
<td>UK</td>
<td>neuro/radiologists</td>
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</table>
MT Credentialing in Germany


EDITORIAL

Interventional Stroke Treatment in Germany is a Joint Effort Between Neuro- and General Interventional Radiologists

Ansgar Berlis\textsuperscript{1} · Werner Weber\textsuperscript{2}

MT certification open for IR in Germany
MT Credentialing in Germany

Radiology Board + optional Neuroradiology Board

5 yrs + 3 yrs.

**Module E (MT) requires:**

- 100 interventions, with a min. of
  - 10 extracranial procedures
  - 30 intracranial thrombectomies
- 30 related CME points
- Oral and written exam

Further: 50 interventions per year
Data from German QA Registry (DeGIR)
German Neurovascular Network: Requirements

1. Supraregional stroke unit
2. > 1000 strokes / yr.
3. Three MT capable physicians
4. > 75 MT / yr.
5. Radiologists on-site 24/7
IRs allowed to be MT-trained by INRs

1. Phase 1 training under direct supervision
2. Phase 2 training under indirect supervision
3. Phase 3 independent practice.

Approved by the RCR’s Clinical Radiology Faculty Board November 2017
BSNR training guidance for mechanical thrombectomy

Dr. R. Lenthall, Dr. N. McConachie, Prof. P. White, Dr. A. Clifton, Dr. C. Rowland-Hill, UK Neurointerventional Group and British Society of Neuroradiologists
<table>
<thead>
<tr>
<th>Institution</th>
<th>Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIR</td>
<td>200 selective angiograms of which 50 should be cervico-cerebral. 30 procedures using microcatheters and micro guidewires. 5 stroke lysis cases under the (remote) supervision of a proctor who has performed at least 10 cases.</td>
</tr>
<tr>
<td>AAN, AANS/CNS, SNIS, SVIN</td>
<td>1 year of INR fellowship with the full range of INR procedures</td>
</tr>
<tr>
<td>AAN, AANS/CNS, SNIS, SVIN</td>
<td>100 cerebral angiograms. 30 intracranial microcatheter navigations. 10 mentored stroke therapies*</td>
</tr>
<tr>
<td>UKNG / BSNR</td>
<td>30 MT procedures</td>
</tr>
</tbody>
</table>
## BSNR Training Guidance – Skill Maintenance

<table>
<thead>
<tr>
<th>Institution</th>
<th>Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>RANZCR</td>
<td>25 selective supra-aortic angiograms / year</td>
</tr>
<tr>
<td>RCR</td>
<td>15 carotid stent procedures/ year</td>
</tr>
<tr>
<td>UEMS</td>
<td>Practicing INR &gt;80% of time and meeting CME/CPD requirements</td>
</tr>
<tr>
<td>ANZSNR / ANZAN / NSA</td>
<td>100 INR cases / 3 years</td>
</tr>
<tr>
<td>BSNR/RCR</td>
<td>40 intracranial vascular procedures / year</td>
</tr>
</tbody>
</table>

BSNR: R Lenthall, N McConachie, P White, A Clifton, C Rowland-Hill, March 2016
Incidence of Ischemic Stroke Eligible for Endovascular Therapy, by County (0.22% of total population) and Neurointerventionalist Coverage (70 mile radius around facilities with 3 or more NIs)

Hospitals with IA Ability

A

Hospitals with IA Ability: 1-2 Neurointerventionalists

B

Hospitals with IA Ability: ≥ 3 Neurointerventionalists

C

Hospitals with IA Ability: Geographical Distribution in USA

D
Society of Interventional Radiology
Medicare Analysis for MT

5914 claims:
- 37% „diagnostic“ radiologists
- 27% neurosurgeons
- 20% neurologists
- 16% „interventional“ radiologists
995 Physicians in Total

842 (85%) billed for 10 or fewer procedures

For the 153 (15%) physicians who performed more than 10 procedures, the median number of procedures still was only 15
Stroke Center Stratification

- Comprehensive Stroke Center (CSC) Certification
- Thrombectomy-Capable Stroke Center (TSC) Certification
- Primary Stroke Center (PSC) Certification
- Acute Stroke Ready Hospital (ASRH) Certification
Joint Commission (USA)

1. Independent, not-for-profit organization
2. Accredits more than 21,000 health care organizations and programs in the USA
3. Founded 1951
4. Based in Illinois

https://www.jointcommission.org
Stroke Certification

https://www.jointcommission.org

Certification for Thrombectomy-Capable Stroke Centers

The Joint Commission in collaboration with the American Heart Association/American Stroke Association is offering a new advanced stroke certification for Thrombectomy-Capable Stroke Centers (TSC) in response to the need to identify hospitals that meet rigorous standards for performing endovascular thrombectomy (EVT).

Why Get Certified as a TSC?

- Recent studies have shown the efficacy of mechanical thrombectomy for large vessel occlusive ischemic strokes
- For the best patient outcomes, it is important to have a diverse network of stroke-certified hospitals, so patients can get to the right location as soon as possible

Stroke Brochure

https://www.jointcommission.org
Thrombectomy Capable Stroke Center (TSC)

- Acute stroke team available 24/7
- Neurologist* accessible 24/7 via in person or telemedicine
- Designated stroke beds
- Sufficient diagnostic services
- Ability to provide IV thrombolytics

Minimum number of 15/30 MT (1 or 2 yrs), Feb 2018
CAST Requirements

Minimum number of 15/30 MT (1 or 2 yrs) based on Committee on Advanced Subspecialty Training (CAST), requiring also aneurysm & AVF treatments
Training and Volume Requirements for Individual Physicians in Stroke Certification Suspended

Effective Jan. 1, 2019

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TSC - Minimum MT Number Suspended

Most stroke interventionalists in USA do not meet CAST criteria.

Countries with no physician meeting CAST criteria.

8 centers in RCT w/o neuroradiology training and identical results (but accredited in their respective countries).
Future of MT Credentialing

Multisociety Consensus Quality Improvement Revised Consensus Statement for Endovascular Therapy of Acute Ischemic Stroke

From the American Association of Neurological Surgeons (AANS), American Society of Neuroradiology (ASNR), Cardiovascular and Interventional Radiology Society of Europe (CIRSE), Canadian Interventional Radiology Association (CIRA), Congress of Neurological Surgeons (CNS), European Society of Minimally Invasive Neurological Therapy (ESMINT), European Society of Neuroradiology (ESNR), European Stroke Organization (ESO), Society for Cardiovascular Angiography and Interventions (SCAI), Society of Interventional Radiology (SIR), Society of NeuroInterventional Surgery (SNIS), and World Stroke Organization (WSO)

Benchmarks for Accreditation of Stroke Intervention Programs

Basis for next endotrials
(STAIR IX = Stroke Treatment Academic Industry Roundtable)
Indications for Endovascular Treatment

- Metric 1: At least 90% of patients who meet the institution selection criteria (indications/contraindications) should be treated with endovascular therapy.

Data Collection

- Metric 2: 100% of patients have the required minimum process and outcomes data entered into an institutional or national database, trial, or registry.

Key Time Intervals

Door to imaging

- Metric 3: 75% of patients being evaluated for revascularization should have imaging initiated within 30 minutes from time of arrival. At the best of centers with high volumes and an established resource infrastructure, this is expected to be achieved in 12 minutes.

Imaging to puncture

- Metric 4: 75% of patients treated with endovascular therapy should have an imaging-to-puncture time of 110 minutes or less. At the best of centers with high volumes and an established resource infrastructure, this is expected to be achieved in 50 minutes or less.

- Metric 5: For patients transferred from another site and in whom imaging is not repeated, 75% of patients being treated should have a door-to-puncture time of 80 minutes or less.

Puncture to revascularization

- Metric 6: In 70% of patients, mTICI score ≥2b should be reached ideally within 60 minutes of arterial puncture.

Outcome Metrics

Recanalization/reperfusion

- Metric 7: The mTICI scale should be the primary scale used to assess angiographic reperfusion.

- Metric 8: At least 70% of patients should have an mTICI score ≥2b/3 (>50% reperfusion) for all clot locations.

Postprocedure CT/MR Imaging

- Metric 9: At least 90% of patients should have a brain CT or MR imaging within 36 hours of the end of the procedure.

SICH

- Metric 10: 100% of cases with SICH are reviewed.

- Metric 11: No more than 10% of treated patients should develop SICH.

Embolization of new territory

- Metric 12: No more than 10% of patients should have embolization of new territory.

Death within 72 hours of treatment

- Metric 13: 100% of cases of death within 72 hours of the end of the procedure are reviewed.

Clinical Outcomes

- Metric 14: All treated patients have a documented NIHSS score at discharge. Attempts are made to contact and document a follow-up mRS score at 90 days (evaluated in person or via telephone) on all treated patients. At least 90% of treated patients have a documented 90-day mRS score.

- Metric 15: Of all treated patients, at least 30% are independent (ie, mRS score 0–2) at 90 days after treatment.
How to Increase the Number of TSC

Open MT for IR

+/-

Open MT for other Disciplines
The Role of Interventional Radiologists in Acute Ischemic Stroke Interventions: A Joint Position Statement from the Society of Interventional Radiology, the Cardiovascular and Interventional Radiology Society of Europe, and the Interventional Radiology Society of Australasia

David Sacks, MD, Hans van Overhagen, MD, PhD, EBIR, Wim H. van Zwan, MD, PhD, Martin G. Radvany, MD, M. Victoria Marx, MD, Robert A. Morgan, MRCP, FRCR, EBIR, John Ioannis Vrazas, MBBS, FRANZCR, EBIR, FACPhl (Hon), and Gerard S. Goh, MBBS, FRANZCR, EBIR

J Vasc Interv Radiol 2018; 1:1–3

https://doi.org/10.1016/j.jvir.2018.09.035
IR Concept

Results from individual hospital case series of EVT performed by interventional radiologists have demonstrated outcomes comparable to those of international trials (39–44). At present, there are no publications including the Highly Effective Reperfusion Evaluated in Multiple Endovascular Stroke Trials (HERMES) data that show different outcomes associated with interventional radiologists compared with neuro-interventionists (4,45).

J Vasc Interv Radiol 2018; ■:1–3

https://doi.org/10.1016/j.jvir.2018.09.035
1. Residency training (radiology, neurology, neurosurgery)
2. > 1 yr. training
3. No minimum number of MT

Training Guidelines for Endovascular Ischemic Stroke Intervention: An International multi-society consensus document

Neurological Concept

Rethinking Training and Distribution of Vascular Neurology Interventionists in the Era of Thrombectomy

James C. Grotta, MD; Patrick Lyden, MD; Thomas Brott, MD

Plea for new players and new angio suites (VN = Vascular Neurologist)

(Stroke. 2017;48:2313-2317. DOI: 10.1161/STROKEAHA.116.016416.)
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Cardiological Concept

CAUTION!
CARDIOLOGISTS MAY BE CLOSER THAN THEY APPEAR
MT – Worldwide Perspective

Editorial

Endovascular Thrombectomy and Stroke Physicians
Equity, Access, and Standards

Stephen M. Davis, MD, FRACP; Bruce C.V. Campbell, PhD, FRACP; Geoffrey A. Donnan, MD, FRACP

1. Worldwide problem
2. First world discussion (turf war)
3. ICT must be made readily accessible in developing countries as well