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Standards of Training in Vascular Neurology, Interventional Management of Stroke and Neuroendovascular Surgery for the Middle East and North Africa region

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Abstract

There is a dearth of standardized training in the Middle East and North African region within the field of stroke medicine and neurointerventional surgery. The Middle East and North Africa Stroke and Interventional Neurotherapies Organization (MENA- SINO). has formally outlined the training requirements and program structure required to train practitioners locally within the region. A more Flexible pathways to accommodate both need and quality assurance were included. Three tracks of Training were outlined; where track 1 was outlined to deliver the requirement for vascular neurology training, track 2 to fulfill the required standards for straining in Stroke neurointervention while track 3 was outlined to cover the standards to create neuroendovascular surgery training program.

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INTRODUCTION

In September 2021 the Middle East and North Africa Stroke and Interventional Neurotherapies Organization (MENA-SINO) Board approved the fellowship training requirements and subsequent certification for three subspecialties of vascularneurology (VN), Interventional stroke management (ISM) and Neuro endovascularsurgery (NES). These various certifications have been developed in recognition of the growing need for physicians with cognitive and technical capabilities to manage the increasing burden of cerebrovascular conditions within the Middle East and NorthAfrica (MENA) region.[1,2] Historically physicians have obtained training in Europe or North America and returned to the region to practice. MENASINO has recognized the need to developlocal training programs based on internationally recognized standards[3-5] to help bridge the gap of supply and demand for physicians with training in cerebrovascular conditions. MENA-SINO Education and Training Committee (METC) has developed 3 training pathway criteria that can be completed independently or in a concurrent fashion for these 3 subspecialties. Details of the requirements for each training program have been published online on the MENA SINO website.[6] Upon completion of these training requirements candidates will be eligible to take a certification examination by MENA-SINO in each subspecialty. In addition to training requirements and certification of individual physicians, this document also highlights the requirements for accreditation by MENA-SINO for each training program. The METC will continue to oversee accreditation of training programs and certification of their graduates. The 3 training pathways or tracks are discussed separately in this document.

TRACK 1: FELLOWSHIP TRAINING IN VASCULAR NEUROLOGY

VN is an area of medicine in which selected neurological disorders involving the central nervous system, due to ischemic or haemorrhagic events or neurovascular disorders, are assessed, monitored, treated, and prevented using a combination of clinical evaluation, imaging, interventional techniques, and medications. Track 1 will be a one-year fellowship in the field of VN and after successful completion of this training program and passing its certification examination, the trainee will be awarded a MENA-SINO Diploma in VN.

Sponsoring program requirements

The program will be at a MENA-SINO accredited centre that has a multidisciplinary team of stroke neurologists, neurointerventionalists, radiologists, neurosurgeons and neurointensivists that manage stroke patients. Appointment of a program director will need to be approved by the graduate medical education department of the sponsoring institution and METC. The program director will be required to have subspecialty training and certification within the field of vascular neurology awarded either by their own country or internationally recognized body or on the basis of an METC approved experience certificate of an established practice within the respective field.

Fellow Eligibility

Eligible candidates would have to have successfully completed prior postgraduate training and training within the fields of neurology, neurosurgery, neuroradiology or internal medicine as recognized in their respective countries.

Certification

Candidates that have successfully completed a fellowship program from a MENA-SINO accredited centre will be eligible to apply for the certification exam. Examinations will consist of a written exam followed by an oral exam that will need to be passed successfully in a consecutive fashion in order to confer certification.

Maintenance of certification

Once certified in VN physicians would have to maintain their certification by having an active license and practice in the field of VN with annual commitment of 8 CME credits per year relevant to the subspecialty.

TRACK 2: FELLOWSHIP TRAINING IN INTERVENTIONAL STROKE MANAGEMENT

ISM pertains to the endovascular/interventional treatment of acute ischemic stroke focusing on revascularization of Large vessel occlusions (LVO) with mechanical thrombectomy (MT). The Track 2 training pathway in ISM will provide trainee physicians with the cognitive and technical skills required for the medical and neuro interventional management of patients with stroke.

Trainees will be assigned to a MENA-SINO accredited centre where they will learn from a multidisciplinary team of stroke neurologists, neurointerventionalists, radiologists, neurosurgeons and neurointensivists in a structured fashion on how to manage acute ischemic stroke patients while providing optimized care.

The training will cover vascular neurology, diagnostic neuroangiography and the endovascular treatment of acute ischemic stroke.

Sponsoring Program requirements

Training will be carried out at a MENA-SINO accredited training site that is also approved by the local institutional graduate medical education committee. The program director will require subspecialty training and/or certification in neuroendovascular procedures with focus on ISM that is recognized by national or international accrediting body that is acceptable to the METC. A minimum of 2 physicians practicing ISM will be required at the facility along with the necessary suitably equipped Neuroangiography unit, dedicated stroke unit and/or intensive care unit that manages patients with stroke. The presence of a multidisciplinary team with expertise in vascular neurology, neurosurgery, neuroradiology and neurocritical care will have to be demonstrable at the training site on a 24/7 basis.

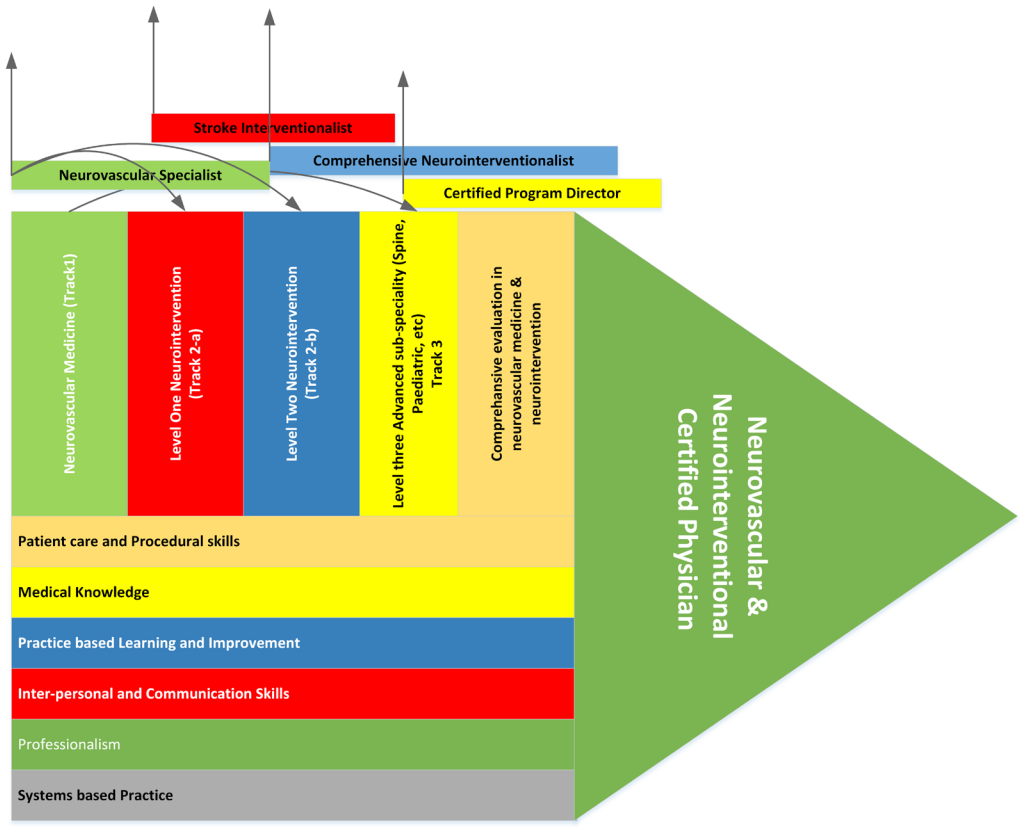


FIGURE 1: Roadmap Chart for MENA-SIJNO fellowship program.

For the purpose of this training, the program will have to show case volumes of at least 100 diagnostic cerebral angiograms per year, 50 MT procedures per year and at least 20 procedures of extra/intra-cranial angioplasty with or without stenting per year. If the program is unable to provide these minimal case volumes, then it may partner with additional sites after METC approval to fulfil these requirements in order to maintain their accreditation.

Fellow eligibility

Physicians must have completed successful training from an accredited program from the respective country in radiology, neurology or neurosurgery. They should have documented training in the diagnosis and management of acute stroke as well as the interpretation of pertinent diagnostic neuroimaging modalities.

Neurologists: must have at least 1-year experience in the field of Vascular Neurology and/or Neurocritical Care that needs to be declared by recommendation letters or can have successfully completed the MENA-SINO Vascular Neurology Track 1 training.

Neurosurgeons: must have at least 1-year experience in the field of Vascular Neurosurgery that needs to be declared by recommendation letters, procedural logs and/or certification.

Radiologists: must have at least 1-year experience in the field of Diagnostic Neuroradiology that needs to be declared by recommendation letters and/or certification.

Curriculum

The complete training standards and curriculum details are available online.[6] The curriculum will focus both on cognitive expertise as well as technical skills related to ISM. With respect to procedural volumes at the end of the training period trainees will have to submit procedural logs to the METC confirming completion of the following:

1. Successful Interpretation of 200 diagnostic cerebral angiograms inclusive of
2. Performance and interpretation of 100 diagnostic cerebral angiograms.
3. Performance of 50 MTs.
4. Performance of 20 extracranial / intracranial angioplasty and stenting procedures for stroke prevention.

If the trainee is unable to complete these required numbers, the training duration may be extended or additional procedures may be carried out at a second site after approval by the METC.

Certification

Candidates that have successfully completed a fellowship program from a MENA-SINO accredited centre will be eligible to apply for the certification exam.

Examinations will consist of a written exam followed by an oral exam that will need to be passed successfully in a consecutive fashion in order to confer certification and be awarded the MENA-SINO Diploma in ISM.

Maintenance of certification

Once certified in ISM, physicians would have to maintain their certification by having an active license and practice in the field of ISM with annual commitment of 8 CME credits per year relevant to the subspecialty.

TRACK 3: FELLOWSHIP TRAINING IN NEUROENDOVASCULAR SURGERY

NES is the medical subspecialty that employs the endovascular use of minimally invasive catheters to treats vascular disorders of the central nervous system and head and neck region.

The track 3 training pathway in NES is a 2 year program that will provide trainee physicians with the cognitive and technical skills required for the neurointerventional management of patients with vascular disorders of the central nervous system and head and neck region. The first year of the program will overlap with Track 2 ISM curriculum. Trainees will be assigned to a MENA-SINO accredited centre where they will learn from a multidisciplinary team of stroke neurologists, neurointerventionalists, radiologists, neurosurgeons and neurointensivists in a structured fashion on how to manage these patients while providing optimized care. This course will cover vascular neurology, diagnostic neuroangiography and neurointerventional therapies. After successful completion of this diploma, physicians will be proficient in the diagnosis, medical management and endovascular treatment of these patients.

Sponsoring program requirements

Training will be carried out at a MENA-SINO accredited training site that is also approved by the local institutional graduate medical education committee. The program director will require subspecialty training and/or certification in Neuroendovascular procedures with focus on ISM that is recognized by national or international accrediting body that is acceptable to the METC. A minimum of 2 physicians practicing ISM will be required at the facility along with the necessary suitably equipped Neuroangiography unit, dedicated stroke unit and or intensive care unit that manages patients with stroke. The presence of a multidisciplinary team with expertise in vascular neurology, neurosurgery, neuroradiology and neurocritical care will have to be demonstrable at the training site on a 24/7 basis. For the purpose of this training, the program will have to show case volumes of at least 100 diagnostic cerebral angiograms per year, 50 MT procedures per year, 50 intracranial embolization procedures of aneurysms and vascular malformations per year, 20 extra/intra-cranial angioplasty with or without stenting per year, 10 intracranial infusions per year, 10 extracranial embolization's per year and 5 spinal angiograms per year. If the program is unable to provide these minimal case volumes, then it may partner with additional sites after METC approval to fulfill these requirements in order to maintain their accreditation.

Fellow Eligibility

Physicians must have completed successful training from an accredited program from the respective country in radiology, neurology or neurosurgery. They should have documented training in the diagnosis and management of acute stroke as well as the interpretation of pertinent diagnostic neuroimaging modalities.

Neurologists: must have at least 1-year experience in the field of Vascular Neurology and/or Neurocritical Care that needs to be declared by recommendation letters or can have successfully completed the MENA-SINO Vascular Neurology Track 1 training.

Neurosurgeons: must have at least 1-year experience in the field of Vascular Neurosurgery that needs to be declared by recommendation letters, procedural logs and or certification.

Radiologists: must have at least 1-year experience in the field of Diagnostic Neuroradiology that needs to be declared by recommendation letters and or certification. Furthermore, any physician who has previously completed Track 2 ISM would be eligible to enrol in a second year of training to complete the NES training for an additional year either at the same site or another training site.

Curriculum

The complete training standards and curriculum details are available online6. The curriculum will focus both on cognitive expertise as well as technical skills related to NES. With respect to procedural volumes at the end of the training period trainees will have to submit procedural logs to the METC which will be inclusive of the procedural log carried out during the first year ISM component. The procedural log will need to confirm completion of the following:

1. Each trainee must have participated in a minimum of 200 NES procedures, out of which in at least half of the procedures, the trainee was the principal operator. The diversity of these procedures should include endovascular treatment of aneurysms, acute ischemic stroke, extracranial and intracranial angioplasty/stenting, embolization of brain arteriovenous malformation and Dural arteriovenous fistulas, and Head and neck embolization.
2. This should include at least 50 embolization procedures and 50 revascularization (thrombectomy, angioplasty, stenting) procedures.
3. Hands on flow model and bench experience with the various neurovascular products prior to becoming a principal operator will be mandatory.

Certification

Candidates that have successfully completed a fellowship program from a MENA-SINO accredited centre will be eligible to apply for the certification exam. Examinations will consist of a written exam followed by an oral exam that will need to be passed successfully in a consecutive fashion

in order to confer certification and be awarded the MENA-SINO Diploma in NES.

Maintenance of certification

Once certified in NES, physicians would have to maintain their certification by having an active license and practice in the field of NES with annual commitment of 8 CME credits per year relevant to the subspecialty.

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