Coil occlusion of aneurysms

Background

Coil occlusion is a minimally invasive procedure designed as an alternative method for treating brain aneurysms. Cerebral aneurysms develop as a large bulge in an intracranial artery as a result of weakness in the blood vessel wall. The aneurysm can cause compression of adjacent structures or bleeding in the brain from acute rupture. Ruptured brain aneurysms can result in what is called subarachnoid hemorrhage, which may lead to stroke or death. Most brain aneurysms go unnoticed because there are very few symptoms, although an unruptured aneurysm may cause headaches, blurred vision, changes in speech, or neck pain.

Surgical clipping is one way to treat an aneurysm that is large enough to cause pain and other symptoms. In this procedure, the surgeon opens the patient’s skull, identifies the aneurysm, and places a small clip around the base, cutting off blood flow and decreasing pressure. Whether this surgery is possible depends on the location and size of the aneurysm, as well as the patient’s medical condition.

Coil occlusion is a less invasive option for treating an aneurysm. A five-millimeter incision is made in the groin area near the femoral artery, and the physician threads a thin tube through the blood vessels and positions it near the aneurysm. The physician moves soft metal coils through the tube and into the aneurysm. A low electrical current is then applied to the coils. The detachable coils fill the aneurysm, isolating it from the flow of blood and relieving pressure by blocking off the neck of the aneurysm to restore normal blood flow.

Because it is a minimally invasive procedure, coil occlusion gives patients an opportunity for a complete recovery. The entire procedure usually takes three to four hours with the patient under general anesthesia. Patients are usually required to stay in the hospital for 48 hours for observation.

The American Board of Neurological Surgery (ABNS) offers options for primary certification for initial candidates and maintenance of certification for continued education. The American Osteopathic Board of Neurology and Psychiatry (AOBNP) offers certification for neurologists who have completed three years of training at an American Osteopathic Association (AOA)–accredited facility and passed written, oral, and clinical examinations.

Involved specialties

Endovascular surgical neuroradiologists, neurosurgeons, vascular and interventional radiologists, and neuroradiologists
Positions of specialty boards

ABNS

The ABNS exists to advance the science, practice, and standards of neurological surgery. A neurosurgeon that holds a primary certification from the ABNS has completed an approved educational training program, along with written and oral examinations. Neurosurgeons who participate in the maintenance of certification program have participated in initiatives to enhance their skills and knowledge base.

The first year of neurology training is known as fundamental clinical skills, an internship, or postgraduate year one. Frequently, this is a general surgery internship, usually under the direction of a neurosurgical residency program director. This training should be done prior to a neurosurgical residency, but must be completed before the beginning of the third year of residency. This year of training must include no less than six months of surgical disciplines other than neurosurgery, and the remaining six months may include up to three months of neurosurgery and three months of neurology.

For residents entering after July 1, 2009:
➤ Neurosurgical training should be 72 months long, including postgraduate year one, as a full-time resident at an ABNS-recognized program
➤ Postgraduate year one must include at least three months of fundamental clinical skills and up to six months of neurosurgery, which count towards the 42 months
➤ At least 42 months must be devoted to core clinical neurosurgery with progressive responsibilities culminating in 12 months at the most senior level
➤ The remaining undesignated 24 months may be devoted to the basic or clinical neurosciences including neuropathology, neuroradiology, and research
➤ Residency training cannot be obtained during repeated short intervals in a number of institutions

The primary examination is designed to evaluate the candidate’s knowledge in the field. Applicants must also submit a list of all inpatients for whom the candidate was the responsible physician or surgeon, plus all outpatient operations, during the preceding twelve consecutive months of practice. Cases done during a fellowship cannot be used and a minimum of 100 procedures are required.

Once all the application data has been approved by the ABNS directors, candidates take an oral examination. The examination covers the following topics:
➤ Neurosurgery—intracranial and vascular diseases
➤ Neurosurgery—spinal
➤ Other—critical care and fundamental clinical skills, functional and stereotactic neurosurgery, pain, pediatric and congenital disorders, peripheral nerve and plexus, and concerns highlighted by the reviewer of the candidate’s practice data
➤ Neurosurgical neurology
Examinations focus on clinical problem solving where candidates explain how they would treat or manage a patient based on the information provided. A candidate who fails the first examination may retake it after one year and no later than three years. A candidate who fails the oral examination twice is no longer tracking toward certification and must repass the primary examination before reapplying for an oral examination.

The maintenance of certification (MOC) program is a 10-year certification process designed to foster lifelong learning and support continuing education in neurosurgery. Each 10-year MOC consists of three three-year mini-cycles plus a 10th year. Program participation requires an ABNS certification and a current, valid, unrestricted license to practice medicine.

MOC is composed of four components.
➤ Evidence of professional standing (verification of hospital privileges and state licensure)
➤ Evidence of commitment to lifelong learning and periodic self-assessment (earn at least 150 continuing medical education [CME] credits in each three-year cycle, 60 of which must be category I neurosurgery)
➤ Evidence of cognitive expertise (pass the ABNS cognitive exam)
➤ Evidence of evaluation of performance in practice (select a key case and complete modules on past patients with that neurosurgical problem)

**AOBNP**

To be eligible for certification from the AOBNP, the candidate must meet the following requirements:
➤ Graduate from an AOA-accredited college of osteopathic medicine
➤ Have licensure in the state or territory where he or she practices
➤ Show evidence that he or she has conformed to the AOA code of ethics
➤ Must have been a member of the AOA for two years immediately prior to the date of certification
➤ Complete an AOA-approved internship
➤ Complete three years of AOA-approved training in neurology
➤ Pass written, oral, and clinical examinations

**ABR**

The American Board of Radiology (ABR) grants subspecialty certification in neuroradiology. Applicants for a certificate in neuroradiology must fulfill the following requirements:
➤ Be certified in diagnostic radiology by the ABR.
➤ Successfully complete one year of fellowship training (after residency) in a neuroradiology program accredited by the Accreditation Council for Graduate Medical Education (ACGME). This must be documented by a letter from the program director.
Complete one year of practice or additional approved training. One-third of that year should be spent in neuroradiology. This must be verified by a letter from the chief of service or the department chair.

➤ Provide evidence of current state medical license with expiration date.
➤ Pass an oral examination.

Diplomates may also attain certification through an alternate pathway without doing a fellowship if they are on the neuroradiology faculty of an ACGME-accredited institution. They must have been on the subspecialty faculty at a single institution for two consecutive years with at least a .75 FTE in that discipline, or for three consecutive years with at least a .50 FTE in that discipline.

The ABR also offers specialty certification in vascular and interventional neuroradiology. Applicants must fulfill the following requirements:
➤ Successfully complete one year of fellowship training (after residency) in a vascular and neurointerventional radiology program accredited by the ACGME. This must be documented by a letter from the program director.
➤ Complete one year of practice or additional approved training. One-third of that year should be spent in vascular and interventional radiology.
➤ Provide procedure logs from fellowship and practice year.
➤ Provide evidence of current state medical license.

Diplomates may also attain certification through an alternate pathway without doing a fellowship if they are on the vascular and interventional radiology faculty of an ACGME-accredited institution. They must have been on the subspecialty faculty at a single institution for two consecutive years with at least a .75 FTE in that discipline, or for three consecutive years with at least a .50 FTE in that discipline.

**AOBR**

The American Osteopathic Board of Radiology (AOBR) offers a certificate of added qualifications in the subspecialties of neuroradiology and vascular and interventional radiology. The oral examination is offered annually to diplomates who are already certified with the AOBR in radiology or diagnostic radiology. To qualify for subspecialty certification, the applicant must:
➤ Complete one year of formal concentrated study approved by the AOA in the specific area of examination
➤ Have American Osteopathic College of Radiology approval of all completed training
➤ Verify state licensure where he or she practices
➤ Conform to the standards set forth in the Code of Ethics of the AOA
➤ Be in good standing with the AOA or the Canadian Osteopathic Association for the two years immediately prior to the date of certification
Positions of societies, academies, colleges, and associations

**SNIS**

The Society for NeuroInterventional Surgery (SNIS), formerly the American Society of Interventional and Therapeutic Neuroradiology (ASITN), is a non-profit organization with the goal of providing a high level of care with the advancement of neurointerventional surgery. SNIS draws its members from interventional neuroradiology, endovascular neurosurgery, and interventional neurology.

To become a senior member, individuals must satisfy the following requirements:

➤ One year subspecialty training in interventional neuroradiology, endovascular neurosurgery or interventional neurology under the direction of a SNIS senior member

➤ Direct involvement in a minimum of 100 neurointerventional procedures as evidenced by a letter from the program director

➤ Two letters of reference from senior members of SNIS

➤ Board certification or eligibility from the American Board of Medical Specialties

➤ Spend a minimum of 50% of their professional time in the practice of neurointervention

SNIS has published clinical standards that help define principles of practice that aim to produce consistent-quality care. These clinical standards serve as guidelines rather than rules for establishing competencies for surgeons and physicians. At this time, SNIS does not include specific privileging criteria for coil occlusion of aneurysms for the neurosurgeon that would perform the procedure.

**ASN/SVIN**

The American Society of Neuroimaging (ASN) and the Society of Vascular and Interventional Neurology (SVIN) published *Qualification Requirements for Performing Neurointerventional Procedures* in 2008, which includes guidelines for credentialing neurosurgeons on specific procedures. Part of those recommendations addressed endovascular treatment of intracranial aneurysms.

The guidelines point to the International Subarachnoid Aneurysm Trial as the best reference for privileging interventionalists for this procedure. Based on the data from that study, ASN/SVIN recommends that physicians who receive credentials for endovascular treatments should have performed at least 30 procedures.

“There is some evidence that a smaller number of procedures may provide adequate experience to achieve low rates of periprocedural stroke and death in patients with unruptured aneurysms who are at low risk for such events,”
the document reads, “However, since most practitioners will treat patients with ruptured intracranial aneurysms, a higher level of experience is recommended. This specific requirement is in addition to meeting the training period and overall case volume requirements set by ACGME for endovascular surgical neuroradiology fellowship education as specified earlier.”

**The Neurovascular Coalition Writing Group**

The Neurovascular Coalition Writing Group was formed by the American Association of Neurological Surgeons (AANS), the ASITN, the American Society of Neuroradiology, the Congress of Neurological Surgeons (CNS), the AANS/CNS Cerebrovascular Section, and the Society of Interventional Radiology. Together they published *Training, Competency, and Credentialing Standards for Diagnostic Cervicocerebral Angiography, Carotid Stenting, and Cerebrovascular Intervention* in 2004, which outlines training and procedural requirements for a variety of neurointerventional procedures. The societies published the following training recommendations:

- Neurologists should receive formal training and experience in both cognitive and technical aspects of neurosciences. In addition to procedural technical experience requirements, the group states that formal cognitive neuroscience training is required in an approved program in radiology, neuroradiology, neurosurgery, neurology, and/or vascular neurology for any practitioner performing cervical carotid interventional therapy.

- Neurovascular conditions require “interpretive skills not conferred by casual training and experience. Therefore, limited credentialing for limited procedures with limited training is unacceptable.” All societies recommend a total of 100 diagnostic cervicocerebral angiograms before postgraduate training in cervicocerebral interventional procedures.

- All collaborating neuroscience societies specifically endorse the principles of the ACGME and the training programs in endovascular surgical neuroradiology, vascular neurology, and neuroradiology.

**ACGME**

The ACGME publishes *Program Requirements for Graduate Medical Education in Endovascular Surgical Neuroradiology*. For this subspecialty, each fellow must successfully complete an ACGME-accredited specialty program and/or meet criteria specified by the review committee. A preliminary year of neuroradiology may be performed in the same institution as the endovascular surgical neuroradiology fellowship, or in another institution with ACGME-accredited residencies in radiology, neuroradiology, neurosurgery, and neurology.

Fellows entering from radiology should meet the following requirements:

- Completion of an ACGME-accredited residency in diagnostic radiology
- Completion of an ACGME-accredited fellowship or subspecialty residency in neuroradiology
Coil occlusion of aneurysms

Procedure 64

- Performance and interpretation of a minimum of 100 supervised diagnostic neuroangiograms
- Completion of six months of training in neurologic surgery, vascular neurology, and neurointensive care; obtain proficiency in outpatient evaluation and care of pre-and post-procedure endovascular patients; and manage patients in the neurointensive care environment

Fellows entering from neurosurgery should meet the following requirements:
- Completion of an ACGME-accredited residency in neurological surgery
- Completion of a preparatory year of neuroradiology training, which may occur during the neurological surgery residency and should include:
  - A course in basic radiographic skills, including radiation physics, radiation biology, and radiation protection; and the pharmacology of radiographic contrast materials
  - Performance and interpretation of a minimum of 100 supervised diagnostic neuroangiograms
  - The use of needles, catheters, guide wires, and angiographic devices and materials
  - Recognition and management of complication of angiographic procedures
  - Understanding the fundamentals of noninvasive neurovascular imaging studies, including CT/CTA, MR/MRA, and sonography of neurovascular disease

Fellows entering from neurology should meet the following requirements:
- Completion of an ACGME-accredited residency in neurology
- Completion of an ACGME-accredited one-year vascular/stroke neurology program with at least three months of neurointensive care
- Three months of clinical experience within an ACGME-accredited neurological surgery program
- Completion of a preparatory year of neuroradiology training that includes the same training requirements set forth for fellows with a neurosurgery background

At the conclusion of the fellowship, the participant will be able to demonstrate the following skill sets and competencies, as set forth by the ACGME:
- Provide appropriate, compassionate patient care. Direct interactions will be supervised by endovascular surgical neuroradiologists.
- Participate in, perform, and analyze a wide variety of procedures, including aneurysms; arteriovenous malformation; atherosclerotic disease of the cervical vessels; occlusive vascular disease and acute infarction; intracranial neoplasms; vascular anomalies of the head and neck; neoplasms of the head and neck; vascular anomalies of the spine; neoplasms of the spine; and traumatic vascular lesions of the central nervous system, head, neck, and spine.
- Perform a minimum of 100 therapeutic endovascular procedures, including experience in invasive functional testing.
Coil occlusion of aneurysms

Procedure 64

➤ Participate in didactic and clinical experiences that provide a wide variety of endovascular surgical neuroradiology therapy training. This includes daily rounds with faculty members where patient management decisions are made.

➤ Undergo at least 12 continuous months in endovascular surgical neuroradiology during which the fellow performs:
   – Preliminary clinical diagnostic studies
   – Diagnostic and therapeutic endovascular surgical neuroradiology procedures
   – General procedure reports
   – Short-term and long-term post-procedure care

➤ Complete didactic training in the following areas:
   – Anatomical and physiologic basic knowledge, and arterial and venous angiographic anatomy of the brain, spine, spinal cord, and head and neck
   – Related bony and soft tissue anatomy and physiology
   – Pharmacology of the central nervous system and vasculature and relevant brain physiology
   – Embolic, sclerosing, ablative, and bone stabilization agents
   – Technical aspects of endovascular surgical neuroradiology

➤ Demonstrate knowledge of the classification, clinical presentation, imaging appearance, natural history, epidemiology, hemodynamic, and physiologic basis for disease and treatment, indications and techniques for treatment, contraindications for treatment, treatment alternatives, combined therapies, risks of treatment, and complication management for a range of neurological diseases.

Additionally, ACGME requires that fellows develop skills to systematically analyze quality improvement data and use scientific studies in relation to patient care. Fellows should also be evaluated on interpersonal and communication skills with patients and families, adherence to ethical standards, and their ability to use other healthcare system resources to enhance patient care.

ACGME also publishes Program Requirements for Graduate Medical Education in Neuroradiology, which includes some requirements for endovascular procedures. According to the requirements, neuroradiologists must:

➤ Perform 50 catheter-based angiographic procedures (participation in at least 5 intracranial microcatheter procedures is highly recommended).

➤ Perform 50 image-guided invasive procedures (CT, MR, or fluoroscopically guided).

➤ Perform 250 noninvasive (CT and/or MR) angiograms.

➤ Perform noninvasive imaging studies related to the brain, head, neck, organs of special sense, skull base, and spine. These should include CT, MRI, noninvasive (MR/CT) angiography, nuclear medicine studies (including SPECT and PET), and radiography.
Coil occlusion of aneurysms

Procedure 64

- Perform and interpret all noninvasive imaging studies of the brain, spine, neck, organs of special sense, and vascular supply to these regions, including new and evolving imaging technologies.
- Should have formal didactic instruction in the indications, limitations, risks, alternatives, and appropriate utilization of neuroradiologic imaging and interventional procedures.

Lastly, ACGME publishes *Requirements for Graduate Medical Education in Vascular and Interventional Radiology*, which requires the following:
- Fellows must be provided with instruction in the use of needles, catheters, guide wires, balloons, stents, and other interventional devices, and must be directly supervised and given graduated responsibility in the performance of procedures as competence increases
- A thorough understanding of the clinical indications, risks, interpretation, and limitations of vascular and interventional procedures is essential to the practice of vascular and interventional radiology
- Fellows must have the opportunity to carry out clinical pre-procedure evaluation of patients, interpretation of diagnostic studies, consultation with clinicians on other services, and performance of vascular and interventional procedures under close graded responsibility and supervision

**AOA**

The AOA publishes *Basic Standards for Fellowship Training in Neuroradiology, Pediatric Radiology, and Vascular Interventional Radiology.*

Regarding neuroradiology, fellows must have a yearly average of 2,200 radiologic examinations of all types. Each trainee must participate in:
- A minimum of 1,500 CT examinations
- A minimum of 1,500 MRI examinations
- A minimum of 50 image-guided procedures
- A minimum of 50 angiograph procedures
- 250 noninvasive (CT and/or MR) angiograms
- At least five intracranial microcatheter procedures (highly recommended)

Regarding training for vascular interventional radiology fellows, the training program must consist of a minimum of one year of concentrated study in which the trainee shall participate in a minimum of 500 procedures. The curriculum must focus on the choice, methods, and techniques of angiographic and interventional radiologic procedures as they relate to:
- Anatomy of the organ systems
- Physiology of human structure
- Pharmacology of contrast agents and drugs
- Pathophysiology of organ systems
Coil occlusion of aneurysms

Procedure 64

➤ Radiation physics and radiation biology
➤ General physics and equipment design
➤ Radiation safety precautions
➤ Treatment of adverse reactions and complications
➤ Acute cardiac life support certification

The AOA also states that training must provide:
➤ Instruction in the use of needles, catheters, and guide wires as well as an understanding of the physical properties and physiologic responses of all short- and long-term implantable devices as they pertain to interventional radiology
➤ Instruction in the clinical aspects of patient assessment, clinical indications, risks, and limitations of vascular and interventional procedures
➤ Understanding of physiologic monitoring devices and their interpretations as well as proper interpretation of noninvasive tests as they pertain to vascular and interventional radiology
➤ Understanding of the administrative and monitoring of conscious sedation

The AOA also publishes Basic Standards for Residency Training in Surgery and the Surgical Subspecialties. The AOA says that each neurological surgery resident must document, by program completion, supervised participation of a minimum of 400 major neurosurgical procedures, 200 of which must be cranial and must represent a well-balanced spectrum of neurological surgery in both adults and children. This spectrum should include craniotomies for trauma, neoplasms, aneurysms, and vascular malformations; extracranial carotid artery surgery; trans-sphenoidal and stereotaxic surgery (including radiosurgery); pain management; and spinal procedures of a sufficient number and variety using modern techniques.

Positions of subject matter experts

Cameron G. McDougall, MD, FRCSC
Phoenix, AZ

Despite the ACGME requirements for endovascular surgical neuroradiology, there still needs to be more oversight regarding the specific procedure for coil occlusion of aneurysms, says Cameron G. McDougall, MD, FRCSC, chief of endovascular neurosurgery at the Barrow Neurological Institute in Phoenix, and first past president of the SNIS.

Currently there are very few fellowships that are certified by the ACGME; the majority of fellowships loosely follow the ACGME’s certification guidelines, but they are not accredited.

“Currently, the sad reality is that there are some unapproved fellowships where people really get very little experience,” McDougall says.
The lack of board certification for coil occlusion of aneurysms is another controversy that prevents fellows and surgeons from attaining and maintaining appropriate competencies, McDougall says. When there isn’t one authority that is recognized and that all boards can agree with, then people credential practitioners differently.

Most physicians who perform this procedure come from a neurology background, stemming from three separate pathways of general neurology, neurosurgery, and neuroradiology. To perform coil occlusion of aneurysms at the Barrow Institute, physicians are required to have ACGME or equivalent training, which translates to two years for neurosurgeons and three years for both neuroradiologists and neurologists.

As far as maintaining competence, there are no guidelines that specify a particular number for this procedure, but McDougall recommends performing 20–30 procedures on an annual basis. “Partly because it’s a fairly rapidly changing field with new technologies, and if you’re not doing enough to sort of fairly evaluate the new technologies, it’s kind of hard to be current and competent,” he says.

The SNIS is trying to develop a specific board that would provide more oversight for this realm of neurosurgery, McDougall says. To qualify, a new board would have to demonstrate a specific body of knowledge that is distinct from other specialties. In the long term, the society’s goal is to have everyone who is doing coil occlusion of aneurysms achieve board certification.

“I think the hazard for hospitals is just someone comes in and they are fellowship trained and some of the fellowships are not good at all,” McDougall says. “People have very little experience; they are kind of exploited as glorified cheap labor. I think it’s a problem that’s likely to become worse before it gets better simply because of the way the numbers are expanding.”

Arthur Day, MD
Houston, TX

One of the main considerations with credentialing and privileging practitioners in this field is the fact that physicians come from a variety of backgrounds, whether it’s neurology, radiology, or neurosurgery. It’s important to recognize the specialized training that each background requires in order to become competent in coil occlusions, says Arthur Day, MD, neurosurgeon and vice chair and director of clinical education in neurosurgery at The University of Texas Medical School in Houston.

“It’s just a matter of ending up in the same place since we start from so many different directions,” Day says. “Neurosurgeons, because they have more training, they can take a year or more during their training and subspecialize during that time.”
According to ACGME guidelines, fellows should complete a minimum of 100 diagnostic radiograms, which should be the norm for most programs, Day says. Still, credentialing programs should determine whether 100 procedures is enough to prove initial competency.

“One hundred is thought to give the general population competency,” Day says. “A guy who is really good may be competent in 30, but each individual has to be measured. We have a certain number as a general guideline, but we’re trained to competence, we’re not trained to some number. If you do 100 of them badly, then you’re still not trained.”

Equipment manufacturers also offer courses at national and local meetings in order to attain competency with the technology. “There is an interface between the industry maker and the delivery system, but we have to try and keep that at arm’s length so we stay unbiased in our analysis of the technology,” Day notes.

**Positions of accreditation bodies**

**CMS**

CMS has no formal position concerning the delineation of privileges for coil occlusion of aneurysms. However, the CMS Conditions of Participation (CoP) define a requirement for a criteria-based privileging process in §482.22(c)(6) stating, “The bylaws must include criteria for determining the privileges to be granted to individual practitioners and a procedure for applying the criteria to individuals requesting privileges.”

§482.12(a)(6) states, “The governing body must assure that the medical staff bylaws describe the privileging process. The process articulated in the bylaws, rules or regulations must include criteria for determining the privileges that may be granted to individual practitioners and a procedure for applying the criteria to individual practitioners that considers:

- Individual character
- Individual competence
- Individual training
- Individual experience
- Individual judgment

The governing body must ensure that the hospital’s bylaws governing medical staff membership or the granting of privileges apply equally to all practitioners in each professional category of practitioners.”

Specific privileges must reflect activities that the majority of practitioners in that category can perform competently and that the hospital can support. Privileges
are not granted for tasks, procedures, or activities that are not conducted within the hospital, regardless of the practitioner’s ability to perform them.

Each practitioner must be individually evaluated for requested privileges. It cannot be assumed that every practitioner can perform every task, activity, or privilege specific to a specialty, nor can it be assumed that the practitioner should be automatically granted the full range of privileges. The individual practitioner’s ability to perform each task, activity, or privilege must be individually assessed.

CMS also requires that the organization have a process to ensure that practitioners granted privileges are working within the scope of those privileges.

CMS’ CoPs include the need for a periodic appraisal of practitioners appointed to the medical staff/granted medical staff privileges (§482.22[a][1]). In the absence of a state law that establishes a time frame for the periodic appraisal, CMS recommends that an appraisal be conducted at least every 24 months. The purpose of the periodic appraisal is to determine whether clinical privileges or membership should be continued, discontinued, revised, or otherwise changed.

**The Joint Commission**

The Joint Commission has no formal position concerning the delineation of privileges for coil occlusion of aneurysms. However, in its Comprehensive Accreditation Manual for Hospitals, The Joint Commission states, “The hospital collects information regarding each practitioner’s current license status, training, experience, competence, and ability to perform the requested privilege” (MS.06.01.03).

In the introduction for MS.06.01.03, The Joint Commission states that there must be a reliable and consistent system in place to process applications and verify credentials. The organized medical staff must then review and evaluate the data collected. The resultant privilege recommendations to the governing body are based on the assessment of the data.

The Joint Commission introduces MS.06.01.05 by stating, “The organized medical staff is responsible for planning and implementing a privileging process.” It goes on to state that this process typically includes:

- Developing and approving a procedures list
- Processing the application
- Evaluating applicant-specific information
- Submitting recommendations to the governing body for applicant-specific delineated privileges
- Notifying the applicant, relevant personnel, and, as required by law, external entities of the privileging decision
- Monitoring the use of privileges and quality-of-care issues
Coil occlusion of aneurysms

MS.06.01.05 further states, “The decision to grant or deny a privilege(s) and/or to renew an existing privilege(s) is an objective, evidence-based process.”

The EPs for standard MS.06.01.05 include several requirements as follows:

➤ The need for all licensed independent practitioners who provide care, treatment, and services to have a current license, certification, or registration, as required by law and regulation
➤ Established criteria as recommended by the organized medical staff and approved by the governing body with specific evaluation of current licensure and/or certification, specific relevant training, evidence of physical ability, professional practice review data from the applicant’s current organization, peer and/or faculty recommendation, and a review of the practitioner’s performance within the hospital (for renewal of privileges)
➤ Consistent application of criteria
➤ A clearly defined (documented) procedure for processing clinical privilege requests that is approved by the organized medical staff
➤ Documentation and confirmation of the applicant’s statement that no health problems exist that would affect his or her ability to perform privileges requested
➤ A query of the NPDB for initial privileges, renewal of privileges, and when a new privilege is requested
➤ Written peer recommendations that address the practitioner’s current medical/clinical knowledge, technical and clinical skills, clinical judgment, interpersonal skills, communication skills, and professionalism
➤ A list of specific challenges or concerns that the organized medical staff must evaluate prior to recommending privileges (MS.06.01.05, EP 9)
➤ A process to determine whether there is sufficient clinical performance information to make a decision related to privileges
➤ A decision (action) on the completed application for privileges that occurs within the time period specified in the organization’s medical staff bylaws
➤ Information regarding any changes to practitioners’ clinical privileges, updated as they occur

The Joint Commission further states, “The organized medical staff reviews and analyzes information regarding each requesting practitioner’s current licensure status, training, experience, current competence, and ability to perform the requested privilege” (MS.06.01.07).

In the EPs for standard MS.06.01.07, The Joint Commission states that the information review and analysis process is clearly defined and that the decision process must be timely. The organization, based on recommendations by the organized medical staff and approval by the governing body, develops criteria that will be considered in the decision to grant, limit, or deny a request for privileges. The criteria must be consistently applied and directly relate to the quality of care, treatment, and services. Ultimately, the governing body or
Coil occlusion of aneurysms

The delegated governing body has the final authority for granting, renewing, or denying clinical privileges. Privileges may not be granted for a period beyond two years.

Criteria that determine a practitioner’s ability to provide patient care, treatment, and services within the scope of the privilege(s) requested are consistently evaluated.

The Joint Commission further states, “Ongoing professional practice evaluation information is factored into the decision to maintain existing privilege(s), to revise existing privileges, or to revoke an existing privilege prior to or at the time of renewal” (MS.08.01.03).

In the EPs for MS.08.01.03, The Joint Commission says there is a clearly defined process facilitating the evaluation of each practitioner’s professional practice, in which the type of information collected is determined by individual departments and approved by the organized medical staff. Information resulting from the ongoing professional practice evaluation is used to determine whether to continue, limit, or revoke any existing privilege.

**HFAP**

The Healthcare Facilities Accreditation Program (HFAP) has no formal position concerning the delineation of privileges for coil occlusion of aneurysms. The bylaws must include the criteria for determining the privileges to be granted to the individual practitioners and the procedure for applying the criteria to individuals requesting privileges (03.01.09). Privileges are granted based on the medical staff’s review of an individual practitioner’s qualifications and its recommendation regarding that individual practitioner to the governing body.

It is also required that the organization have a process to ensure that practitioners granted privileges are working within the scope of those privileges.

Privileges must be granted within the capabilities of the facility. For example, if an organization is not capable of performing open-heart surgery, no physician should be granted that privilege.

In the explanation for standard 03.01.13 related to membership selection criteria, HFAP states, “Basic criteria listed in the bylaws, or the credentials manual, include the items listed in this standard. (Emphasis is placed on training and competence in the requested privileges.)”

The bylaws also define the mechanisms by which the clinical departments, if applicable, or the medical staff as a whole establish criteria for specific privilege delineation.
Periodic appraisals of the suitability for membership and clinical privileges is required to determine whether the individual practitioner’s clinical privileges should be approved, continued, discontinued, revised, or otherwise changed (03.00.04). The appraisals are to be conducted at least every 24 months.

The medical staff is accountable to the governing body for the quality of medical care provided, and quality assessment and performance improvement (03.02.01) information must be used in the process of evaluating and acting on re-privileging and reappointment requests from members and other credentialed staff.

**DNV**

DNV has no formal position concerning the delineation of privileges for coil occlusion of aneurysms. MS.12 Standard Requirement (SR) #1 states, “The medical staff bylaws shall include criteria for determining the privileges to be granted to individual practitioners and a procedure for applying the criteria to those individuals that request privileges.”

The governing body shall ensure that under no circumstances is medical staff membership or professional privileges in the organization dependent solely upon certification, fellowship, or membership in a specialty body or society.

Regarding the Medical Staff Standards related to Clinical Privileges (MS.12), DNV requires specific provisions within the medical staff bylaws for:

- The consideration of automatic suspension of clinical privileges in the following circumstances: revocation/restriction of licensure; revocation, suspension, or probation of a DEA license; failure to maintain professional liability insurance as specified; and noncompliance with written medical record delinquency/deficiency requirements
- Immediate and automatic suspension of clinical privileges due to the termination or revocation of the practitioner’s Medicare/Medicaid status
- Fair hearing and appeal

The Interpretive Guidelines also state that core privileges for general surgery and surgical subspecialties are acceptable as long as the core is properly defined.

DNV also requires a mechanism (outlined in the bylaws) to ensure that all individuals provide services only within the scope of privileges granted (MS.12, SR.4).

Clinical privileges (and appointments or reappointments) are for a period as defined by state law or, if permitted by state law, not to exceed three years (MS.12, SR.2).
Individual practitioner performance data must be measured, utilized, and evaluated as a part of the decision-making for appointment and reappointment. Although not specifically stated, this would apply to the individual practitioner’s respective delineation of privilege requests.

**CRC draft criteria**

The following draft criteria are intended to serve solely as a starting point for the development of an institution’s policy regarding coil occlusion of aneurysms.

**Minimum threshold criteria for requesting privileges in coil occlusion of aneurysms**

**Basic education:** MD or DO

**Minimum formal training:** Successful completion of an ACGME- or AOA-accredited residency training program in neurological surgery, neuroradiology, endovascular surgical neuroradiology, or vascular interventional radiology, or completion of a hands-on CME course. Following this training, a neurointerventionalist with experience in this procedure should proctor at least 50 of the applicant’s initial procedures for coil occlusion of aneurysms.

**Required current experience:** Demonstrated current competence and evidence of the performance of at least 20 procedures for coil occlusion of aneurysms in the past 12 months or completion of training in the past 12 months.

**References**

If the applicant is recently trained, a letter of reference should come from the director of the applicant’s training program. Alternatively, a letter of reference may come from the applicable department chair and/or clinical service chief at the facility where the applicant most recently practiced.

**Reappointment**

Reappointment should be based on unbiased, objective results of care according to a hospital’s quality assurance mechanism.

Physicians should demonstrate current competence and evidence of the performance of at least 40 procedures for coil occlusion of aneurysms in the past 24 months based on results of ongoing professional practice evaluation and outcomes. In addition, continuing education related to coil occlusion of aneurysms should be required.
Coil occlusion of aneurysms

For more information

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Website: www.acgme.org

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Saint Paul, MN 55116
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Website: www.aan.com

American Association for Neurological Surgeons
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Telephone: 847/378-0500 or 888/566-AANS
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Website: www.aans.org

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6550 Fannin Street, Suite 2139
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American Board of Radiology
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Tucson, AZ 85711
Telephone: 520/790-2900
Website: www.theabr.org

American Osteopathic Association
1090 Vermont Avenue NW, Suite 500
Washington, DC 20005-4949
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Fax: 202/544-3525
Website: www.osteopathic.org
Coil occlusion of aneurysms

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**American Society of Neuroimaging**
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**American Society of Neuroradiology**
2210 Midwest Road, Suite 207  
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Fax: 630/574-0661  
Website: www.asnr.org

**Centers for Medicare & Medicaid Services**
7500 Security Boulevard  
Baltimore, MD 21244  
Telephone: 877/267-2323 or 410/786-3000 (local)  
Website: www.cms.gov

**Congress of Neurological Surgeons**
10 North Martingale Road, Suite 190  
Schaumburg, IL 60173  
Telephone: 847/240-2500 or 877/517-1CNS (toll-free)  
Fax: 847/240-0804  
E-mail: info@1CNS.org  
Website: www.cns.org

**Det Norske Veritas**
400 Techne Center Drive, Suite 350  
Milford, OH 45150  
Telephone: 866/523-6842  
Website: www.dnvaccreditation.org
Coil occlusion of aneurysms

Healthcare Facilities Accreditation Program
142 E. Ontario Street
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The Joint Commission
One Renaissance Boulevard
Oakbrook Terrace, IL 60181
Telephone: 630/792-5000
Fax: 630/792-5005
Website: www.jointcommission.org

Society for Interventional Radiology
3975 Fair Ridge Drive, Suite 400 North
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Website: www.sirweb.org

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Society of Vascular and Interventional Neurology
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Coil occlusion of aneurysms

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