The Role of the Nurse Practitioner in Interventional Radiology

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ABBREVIATIONS

E & M = evaluation and management, NP = nurse practitioner

Interventional radiology (IR) has been expanded over the past decade to include an outpatient-based clinical practice as well as inpatient practice. This fundamental change in workload and the demands of longer term care and expanded clinical services has necessitated an examination of IR resources and practice strategies. Interventional radiologists have assumed a more pronounced and responsible role in managing the care of patients before, during, and after their procedures. Concurrently, the scope of interventions provided and performed by IR has expanded, with an increasing demand for these minimally invasive procedures. These two factors have challenged IR practices to manage the procedural workload while supporting the increasing demands of an outpatient or hospital-based clinical practice. This robust growth, coupled with difficulty in filling IR fellowship positions, has resulted in a shortage of properly trained IR physicians.

The modern IR practice closely resembles a clinical practice, providing a full spectrum of care associated with minimally invasive procedures. Patients commonly are seen in an ambulatory care setting before procedures for a thorough evaluation to determine the most appropriate care for them. Similarly, IR is often consulted by other services to evaluate inpatients for services. Establishing and maintaining an outpatient practice and providing appropriate evaluation and management (E & M) services is an important component for IR practices and requires an infrastructure that is not inherent to radiology (1). In addition, the human resource requirements to provide these services typically fall outside a traditional radiology practice.

These challenges of clinical practice have prompted interventional radiologists to partner with allied health professionals to meet the needs of growing and increasingly complex practices (2). These professionals include, but are not limited to, nurse practitioners (NPs), physician assistants, and radiology practitioner assistants. Each professional has different training and education, potential scope of practice, and ability to bill for services (3). These differences are regulated in the United States by both the state and the institution in which such professionals practice and by the physicians with whom they work on a daily basis. This article outlines the potential role of the NP in an IR practice.

NURSE PRACTITIONERS

NPs are experienced registered nurses who have pursued advanced education and clinical training. The typical curriculum in an NP program includes advanced pharmacology, advanced pathophysiology, advanced physical assessment, advanced diagnostic and clinical reasoning, and nursing theory (4). Philosophically, NP education also focuses on promoting wellness rather than focusing only on illness.

The NP student must choose a specialty area within the overall curriculum. These areas focus education on different age categories or populations and include adult NP, pediatric NP, family NP, psychiatric NP, and geriatric NP. Most NPs have a master's degree in nursing, although some pursue doctoral degrees. NPs are licensed by their state board of nursing, but they are independent practitioners working under their own license. They are taught to use scientific process and national standards of care as a framework for managing patients.

As of 2008, there were > 138,000 practicing NPs in the United States (5). There are > 325 NP programs in the United States graduating > 9,000 NPs each year. The original program, developed in Colorado in the mid-1960s

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in response to underserved regions, trained public health care nurses to become pediatric NPs. The role was initially developed to be an expansion of the nursing role but quickly evolved into a much larger role in the delivery of health care. NPs are authorized to practice in all states and the District of Columbia; a license to practice is granted by the state.

Although known primarily for their prominent role in primary care settings, NPs also function in various other health care settings, including hospitals, outpatient facilities, long-term care, home care, and specialty medicine and surgery practices (6,7). A common perception in the medical community is that NP expertise is only in the clinic setting, but NPs are also frequently employed in the procedural arena. Depending on the practice setting, they routinely perform skin and endometrial biopsies, insert intrauterine devices, set simple fractures and apply casts, insert drainage catheters, and suture. Some NPs are credentialed as NP surgical first assistants. The needs of a particular practice and the aptitude and technical skill of a particular NP contribute to defining the procedural role in an IR practice.

PRACTICE ISSUES

Scope of Practice

Services provided by NPs vary widely but may include nearly all the diagnostic and therapeutic services provided by physicians. NPs are trained to take medical histories and perform complete physical examinations. They can diagnose and treat many acute and chronic problems and provide education and counseling for patients and families (services welcomed by consumers and often overlooked in daily practice). Finally, NPs can independently write admission and discharge orders, make hospital rounds, and write maintenance and follow-up orders (2). The specifics and limitations vary among states and institutions. Comprehensive listings of current NP privileges organized by state are publically available (8). However, because the regulatory climate is frequently changing, the authors recommend that NPs and IR practices check often with their state board of nursing for updated information.

NPs may play several roles in an IR practice. First, revenue may be generated when the NP makes hospital rounds or sees outpatients in the office. This service, billed as E & M, is an area of potential revenue that in the past has been ignored in many IR practices (1). E & M revenue may support an entire salary for an NP, independent of procedural billing. In the hospital, the NP may provide follow-up care for hospitalized patients with drainage tubes, patients being followed after procedures (eg, transjugular intrahepatic portosystemic shunt placement, uterine artery embolization, interventional oncology procedure) and begin consultations on new referrals (eg, patients with gastrointestinal bleeding, patients with deep venous thrombosis requiring filter placement, patients referred to establish vascular access, or patients with urgent peripheral vascular disease problems) (9,10). In the hospital consultant role, NPs can perform a physical examination, obtain laboratory and diagnostic testing results, and discuss cases with referral sources before consulting with their collaborating IR physician to establish a treatment plan. In the office setting, NPs may see patients in follow-up for a wide variety of IR procedures. The NP also often is the first contact with new patients, beginning the consultation, collecting data, and establishing a treatment plan (2). Finally, NPs are experts at patient and family education and can serve as a key communication link within an IR practice for patients and other caregivers.

Although NPs can see new patients on their own, some insurance companies require physicians to provide initial consultation services. However, key components of an initial visit (including history, physical examination, and initial assessment and plan) can be initiated and documented by the NP. Finally, NPs are often involved in local, state, and national NP organizations and have an extensive network of professional contacts, particularly within primary care communities. This network can serve as a valuable source of referrals into an IR practice.

At the core of an IR practice are the minimally invasive, image-guided procedures, which NPs can perform or assist with by providing a wide variety of other services. The NP must be adequately trained to perform these procedures and must be credentialed by each institution in which the NP performs them. Although specific NP credentialing pathways are uncommon, many institutions follow the physician credentialing and privileging pathway (2). Specific thresholds for maintenance of clinical competence and acquisition of clinical skills should be maintained within the practice and credentialing institution's guidelines. The limitations on the ability of NPs to perform procedures in a hospital setting are regulated by several factors in addition to individual proficiency and include hospital credentialing policies, state board of nursing regulations, and specific guidelines on invasive procedures. These factors must be explored by the practice before NPs can be allowed to assume procedural roles.

After state and institution-based regulations are addressed, NPs may function as the primary operator on some procedures, and they may function as an assistant to an IR physician on more complex procedures. In IR practices employing NPs, the NP commonly plays a significant role in the areas of vascular access and drainages. In many IR practices, as NPs have gained experience in image-guided procedures, their role has expanded to include routine catheter changes, tube injections, lumbar punctures, biopsies, and other interventional procedures.

Fluoroscopy

The use of ionizing radiation by NPs during image-guided procedures is regulated by individual states. In some states, NPs are restricted from directly applying

fluoroscopy ("stepping on the pedal"), although they can order a fluoroscopic examination to be performed. Although this regulation varies from state to state, in general radiology technologists (working under the direct supervision of a physician) may assist the NP in obtaining images during a procedure. The local working environment and state regulations dictate the feasibility of NPs taking on procedural responsibilities in fluoroscopically guided procedures.

Billing

The NP obtains his or her own provider number from the practice Medicare carrier. To obtain a provider number, the NP must have at least a master's degree and be certified by a professional nursing certification corporation. NPs can either bill Medicare directly under their own provider number or reassign their billing rights to their employer or other contracting entities. Services are currently reimbursed at 85% of the amount shown on the participating physician fee schedule. If the patient is seen by both the NP and the physician, the prevailing physician rate is typically billed. In the inpatient setting, the NP employed by a radiology practice has no limitations on the level of *Current Procedural Terminology* (CPT) codes billed as long as the visit meets the E & M requirements for billing level. Although the reimbursement rate for NPs is lower than the rate for physicians, NP services allow the attending physician to devote more of his or her time to more complex procedures and consultations. The NP could be making hospital rounds or performing minor procedures (eg, central catheter insertion, paracentesis, thoracentesis), while the physician is performing more complex angiography or embolization. Although Medicare determines reimbursement for services, it does not define the NP scope of practice.

Other third-party payers often follow Medicare guidelines in reimbursing for NP services. Their payment schedules vary and should be accounted for in a practice's business plan.

Medicare's "Incident to" billing is permitted for stable patients in outpatient settings not attached to an inpatient facility. In "incident to" billing, the physician rate may be billed (100%). To bill at this rate, the following criteria must be met:

- The patient must not have new problems or need new services.
- The services must be provided under direct physician supervision (ie, the physician must be immediately available on site).
- The services must be performed by an employee of the supervising physician, group, or physician's employer.
- The physician must initiate the course of treatment of which the NP services are a part.
- The physician must perform subsequent services of sufficient frequency to reflect the physician's continuing active participation in managing the course of treatment.

Each practice site should bill either "Incident to" or under the NP's own provider number but not both. Billing under both categories increases the chances of an audit.

Practice Protocols

Some states require NP-originated practice protocols, which are guidelines that outline the clinical care of a patient and that are used to guide assessment and planning in typical cases. Components of a practice protocol include assessment, physical examination, diagnosis, differential diagnosis, laboratory and imaging work-up, treatment options, and indications for referral for consultation. Practice protocols are employer specific, and may be applied across practice settings. In states where required, practice protocols for individual NPs are kept on file and must be accessible should a practice be audited. Examples of practice protocols are publically available (11). At the present time, guidelines for practice protocols specific to IR do not exist; protocols, if required, must be generated by the practice. Resources such as the Society of Interventional Radiology Clinical Associate Committee may provide forums for protocol sharing among IR NPs.

Prescriptive Authority

NPs have prescriptive authority in all 50 states and the District of Columbia and do not require a physician cosignature on their prescriptions. In most states, NPs are permitted to prescribe level II–V medications. Some states require a separate practice agreement specifying circumstances for prescribing controlled substances. Similar to physicians, to prescribe controlled substances, the NP must first register with the Drug Enforcement Administration (DEA) and obtain a DEA number. As with most regulations for NPs, the extent of prescriptive authority is regulated by individual states.

Collaborative Practice Agreements

Collaborative practice agreements are contracts between an NP and the employing practice, which address scope of practice, evaluation of clinical outcomes, and resolution of clinical conflicts. This collaborative practice agreement differs from direct supervision, which is generally not a requirement for NP practice. Although the clinical realities of IR practice mean that NPs and physicians are often working in close physical proximity, they sometimes may be working at different practice sites. This approach is effective and allowable as long as patients are directed appropriately and requirements for billing are followed, exemplifying the need for a collaborative practice agreement. Examples of collaborative practice agreements can be found on the Internet.

CERTIFICATION

At least 47 states require national certification as part of NP licensure. Certification agencies include the American Nurses

Credentialing Center (ANCC); the American Academy of Nurse Practitioners (AANP); the National Certification Corporation for the Obstetric, Gynecologic and Neonatal Nursing Specialties (NCC); and the National Certification Board of Pediatric Nurse Practitioners and Nurses (NCBPNP/N). Most IR NPs are certified by the ANCC or the AANP and are typically certified as an acute care NP, adult NP, or family NP. There is currently no certification specifically for NPs in radiology or IR. Maintenance of certification is accomplished with retesting or a combination of continuing education units, preceptorship of graduate students, or professional activities such as research or professional publication or both.

In conclusion, as licensed independent practitioners with advanced clinical skills and education, NPs have a long history of promoting excellent clinical outcomes and enhancing patient satisfaction with their care. NPs can serve as a "bridge" for referral sources and consumers across practice sites and within the community. In addition, by virtue of their ability to generate revenue in clinical management activities, perform procedures, and maximize physicians' availability for complex cases, NPs bring significant potential added value to an IR practice.

For the interested reader, a list of resources for further information regarding NPs is presented in **Appendix A**.

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APPENDIX A. RESOURCES FOR FURTHER INFORMATION REGARDING NURSE PRACTITIONERS

American College of Nurse Practitioners
Wilson Boulevard, Suite 509
Arlington, VA 22209
202-659-2190
www.acnpweb.org

American Nurses Credentialing Center
8515 Georgia Avenue, Suite 400
Silver Spring, MD 20910-3492
800-284-2378
www.nursecredentialing.org

American Academy of Nurse Practitioners
National Administrative Office
PO Box 12846
Austin, TX 78711
512-442-4262
www.npfinder.com

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