

Radiologic Imaging Content in Family Nurse Practitioner Programs: A Needs Assessment

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ABSTRACT

Our purpose was to assess radiologic imaging content in family nurse practitioner (FNP) curricula and FNP perspectives concerning practice needs. Anonymous, 5-item, Web-based surveys were distributed to FNP program directors (n = 21) that included items concerned FNP radiologic imaging needs in primary care. Anonymous 13-item Web-based surveys were distributed to practicing FNPs (n = 289 responses). Items assessed FNP confidence regarding radiologic imaging practice guidelines. Program directors reported radiologic imaging curricular content as critical for practice. FNPs reported radiologic imaging education was insufficient; 25% reported receiving none. Addressing FNP practice needs by enhancing FNP radiologic imaging curricula will facilitate FNP confidence and competence.

Keywords: primary care, radiologic imaging

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INTRODUCTION

Diagnostic radiography is an integral part of the evaluation and management of acute and chronic illnesses presenting in family practice setting.¹ Autonomously and in collaboration with health care professionals, nurse practitioners provide a full range of primary, acute, and specialty health care services. These services include ordering, performing, and interpreting diagnostic testing, including x-rays.² Radiologic imaging is essential content for family nurse practitioner (FNP) programs to meet expectations for safe care within primary care-based settings.

It is important to assess radiologic imaging content included in FNP programs. An assessment of current FNP curricula with regard to inclusion of radiologic imaging content provides a basis for curriculum revisions. Needs assessment, including FNP perspectives regarding radiologic imaging education, received during FNP programs and current practice needs will provide recommendations for improvement of FNP curricula. Enhancement of FNP knowledge will improve primary care-based skills for competent and safe patient care.

BACKGROUND

A systematic literature review including Medline/PubMed, CINAHL, and Google Scholar databases,

utilizing the terms *Family Nurse Practitioner, imaging education, imaging training, advanced practice nursing, radiology ordering, radiology education, and radiologic curricula* identified a paucity of research concerning radiologic imaging and FNP education and practice. More research is clearly needed in this topic area.

Nurse practitioner competency in radiologic imaging ordering and interpretation requires increasingly complex decision-making skills. According to Hawkins et al,³ nurse practitioners have recently garnered substantial attention in the academic literature. They suggest the impact of nurse practitioners on patient safety and radiology ordering and interpretation warrants a review and critique of referral patterns and utilization of imaging resources.³

Nordeck et al⁴ indicated advances in technology place a limit on the amount of work that can be performed by radiologists without compromising quality. They investigated the educational preparation of nurse practitioners and found “nurse practitioners receive no formal radiology-specific training.” According to Scheibmeir et al,⁵ practice requirements for nurse practitioners currently involve advanced procedural skills, such as x-rays. The 2012 National Sample Survey of Nurse Practitioners revealed that within the nurse practitioner workforce,

75% reported they order, perform, and interpret x-rays and other diagnostic studies. However, graduates of nurse practitioner programs describe gaps between procedural content in their educational programs and the frequency of use of those procedures in primary care settings.

The literature is scant, with only a few studies suggesting gaps exist for nurse practitioners in their educational preparation for procedural skills and diagnostics within the primary care setting.⁶ Nurse practitioners educated in acute care have curriculum requirements that include education on invasive procedures, so it is possible that the education-practice gap is narrower for acute care nurse practitioners who practice in hospital settings.⁷ Opportunities exist for nurse practitioner educators to improve congruence between perceived importance and amount of time spent on educational activities within nurse practitioner curriculums.⁵

Logsdon and Gleason⁸ evaluated perceived knowledge and educational preparedness of advanced practice nurses concerning radiologic imaging, including an awareness and utilization of the American College of Radiology Appropriateness Criteria (ACR-AC). Previous studies identified a need for further education in radiologic imaging for medical students, residents, and hospitalists; however, little to no research has been done to assess such knowledge and educational preparedness among advanced practice nurses. Advanced practice nurses indicated additional imaging education would be beneficial. This finding emphasizes the importance of incorporating more radiologic imaging information into advanced practice education, potentially leading to a reduction in overall costs and improvement in competence and knowledge of appropriate imaging utilization.⁸

According to Hughes et al,⁹ physician assistants and nurse practitioners order diagnostic imaging more frequently than primary care physicians, across all patient groups and imaging services. They concluded that while alleviating primary care shortages, the increased cost at a population level from over-ordering would have ramifications for patients.

The emergence of nurse practitioners across medical specialties to meet the increasing demand for

health care has changed the delivery of primary care. As primary care nurse practitioners assume greater responsibility in primary care, they require the ability to order, perform, supervise, and interpret laboratory and imaging studies.¹⁰ They may interact with radiology in capacities such as reviewing imaging findings and discussing recommendations with patients. Despite these responsibilities in primary care, there are no formal education requirements for nurse practitioner programs. Importantly, the National Organization of Nurse Practitioner Faculties (NONPF) provides suggested curriculum content.¹¹ However, radiology education appears to be program-dependent and variable.¹²

PURPOSE

We assessed radiologic imaging content in FNP curricula and FNP perspectives concerning practice needs. FNP perceptions of personal knowledge, competence, and confidence in radiographic ordering and interpretation will provide information for enhancement of radiologic imaging curricula, thereby strengthening primary care skills for delivery of competent, safe practice.

METHODS

Anonymous 5-item Web-based surveys were distributed via email to 21 FNP program directors in Texas that included questions regarding importance and need for radiologic imaging in primary care and inclusion of specific radiologic imaging content. A separate 13-item Web-based survey was distributed via email to over 1,000 FNPs practicing in Texas. Survey items included assessment of confidence in interpretation and use of quality guidelines for radiologic imaging in practice. An open-ended question assessed radiologic imaging content in FNP programs.

Survey questions developed by the authors were reviewed for content validity by practicing FNPs. Questions formatted using Qualtrics, an electronic survey software, were distributed to practicing FNPs to assess clarity and ease of administration before dissemination via the survey link. Institutional Review Board approval was obtained.

A listing of FNP programs in Texas ($n = 21$) was compiled using information from the American

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