

Preparing Nurse Practitioners to Provide Orthopedic Primary Care

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ABSTRACT

Musculoskeletal disorders are among the most costly and debilitating chronic medical conditions, comprising up to 60% of outpatient office visits. Although access to orthopedic care is diminishing, studies reveal that primary care physicians are inadequately prepared to manage musculoskeletal problems. A recently piloted orthopedic fellowship program revealed that nurse practitioners also lack adequate preparation to manage musculoskeletal problems in primary care, but their skills and confidence improve with focused musculoskeletal training. More research is needed to assess knowledge gaps in the wider nurse practitioner population and to develop strategies for increasing musculoskeletal training at the graduate and postgraduate levels.

Keywords: musculoskeletal education and training; nurse practitioner knowledge, confidence, and competence in musculoskeletal care; nurse practitioner orthopedic fellowship; nurse practitioner orthopedic residency; nurse practitioner program musculoskeletal content; orthopedic primary care

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With full implementation of the 2010 Patient Protection and Affordable Care Act,¹ approximately 30 million uninsured Americans are expected to be enrolled in some form of health insurance program starting in 2014.² At the same time, according to the Association of American Medical Colleges (AAMC), there is a projected shortage of approximately 45,000 primary care physicians (PCPs) anticipated by 2020.³ Access to specialty care providers, such as orthopedists, is expected to be an even greater challenge.⁴ The literature reveals that in the face of a growing demand for musculoskeletal care in an aging population, PCPs lack adequate preparation to confidently and competently manage common orthopedic conditions in primary care settings.⁵⁻⁷

Because nurse practitioners (NPs) are increasingly called on to ensure access to primary care, the question of how well they are prepared to manage common orthopedic conditions becomes increasingly significant. An extensive search of the literature for information about the knowledge, confidence, and competence of NPs in managing musculoskeletal conditions turned up virtually no published reports. However, a recent small study of 8 primary care NPs participating in a pilot orthopedic fellowship program

indicated that, like our physician colleagues, NPs appear to lack the knowledge and skills to confidently manage common musculoskeletal conditions in primary care settings. On the positive side, the study results also indicated that NPs may benefit substantially from focused musculoskeletal education and training.

BURDEN OF ORTHOPEDIC DISEASE

In remarks made at the Royal College of Nursing's annual conference in September 2013, Dr Peter Kay, director of Musculoskeletal Medicine for Britain's National Health Service, speculated on the reasons that musculoskeletal education is often overlooked throughout the world. "We don't save lives," he said. "We just make them worth living." Although the vast majority of orthopedic conditions are not life threatening, the impact of orthopedic disease is enormous, affecting almost every individual at some point in their life and accounting for a disproportionate share of disability and health care spending.⁸ According to Healthy People 2020, nonsurgical chronic conditions, such as arthritis, osteoporosis, chronic back pain, and repetitive stress injuries, are among the most costly and debilitating of the chronic musculoskeletal conditions.⁹ By some

estimates, these disorders comprise from 20%–60% of primary care office visits and overall health care expenditures.^{8,10} This number is expected to increase in the coming decades because of the aging of the baby boom generation, the increased incidence of osteoporosis/fragility fractures, and the impact of the obesity epidemic on increased rates of osteoarthritis.¹¹

The US Bone and Joint Initiative recently summarized key data related to disability and health care costs associated with chronic musculoskeletal conditions.⁸ Among the statistics they cite, the following are likely to have a significant impact on primary care providers, including NPs: (1) 1 in 2 adults reported a chronic musculoskeletal condition in 2008, nearly twice the rate of reported chronic circulatory (heart) or respiratory conditions; (2) more than 30% of Americans require medical care because of a musculoskeletal disease; (3) back pain accounted for more than 45 million health care visits in 2007; (4) arthritis accounted for 50.3 million ambulatory care visits and 1.2 million hospitalizations in 2006; (5) musculoskeletal injuries accounted for more than 61 million health care visits in 2006, 61% of all injury treatment visits; and (6) 1 in 2 women and 1 in 4 men over the age of 50 will have an osteoporosis-related fracture in his or her remaining lifetime. Hip fractures are associated with chronic pain, reduced mobility, and increasing dependence, with a 20% mortality rate in the first 12 months.⁸

ACCESS TO ORTHOPEDIC CARE

As the demand for orthopedic services increases, the American Association of Orthopaedic Surgeons expects its members to retire at rates far outpacing their replacement. Cutbacks in orthopedic residencies and the tendency for residents to gravitate to subspecialties contribute to the growing gap between supply and demand for nonoperative musculoskeletal care.¹² At the same time, several studies concluded that after completing medical school, internal medicine and family practice residents are insufficiently prepared to manage chronic, stable, nonsurgical musculoskeletal problems in primary care settings without additional orthopedic training.^{5–7}

In response to the anticipated gaps between supply and demand in California, the Specialty Care Initiative convened by Kaiser Permanente and the California Health Care Foundation suggested that training primary care providers to deliver some aspects of specialty care could be a viable strategy for improving access.¹³ Notably, the use of the term *primary care providers* in the group's recommendation implies no distinction between physicians, NPs, and physician assistants (PAs) in implementing this strategy.¹³

Specifically, the Specialty Care Initiative report noted that over the past 15 years, the role of NPs and PAs has expanded into several areas of specialty care, including orthopedics.¹³ In addition to performing basic orthopedic examinations, managing chronic/stable musculoskeletal conditions, and assisting in surgery, NPs in orthopedic practices bring unique skills in education and care coordination to the patient care team. This frees up surgeons to see more critical cases and leads to streamlined access, improved clinical outcomes, and higher satisfaction for all patients.¹³

These findings raise the question of whether properly prepared NPs could be managing stable chronic musculoskeletal conditions and injuries in primary care settings as well as specialty practices as a means of increasing access and decreasing costs of care.

ORTHOPEDIC NP TRAINING

Interestingly, Dower and Christian¹³ reported that although orthopedic specialty practices are more likely to employ PAs than NPs, the only reason given for this disparity is “tradition.” The question of how PAs are prepared to provide orthopedic care is certainly one worth investigating, but it is beyond the scope of this report.

There is only 1 orthopedic NP training program in the United States, which was established at Duke University in 2010.¹⁴ Most of the NPs currently practicing in orthopedic specialty clinics have received their training on the job through physician mentoring.¹³ A thorough search of peer-reviewed literature for information regarding the quantity and/or quality of musculoskeletal content in established primary care NP curriculums in the US

yielded no published studies or surveys. Anecdotal evidence gathered from conversations with practicing NPs revealed that most had limited exposure to musculoskeletal content and that few feel confident about competently assessing and managing musculoskeletal conditions. In an informal conversation, 1 nursing school dean indicated that the limited time spent on musculoskeletal content was directly proportional to the limited number of musculoskeletal questions on NP certification examinations.

A PILOT STUDY

In an effort to begin inquiry into identifying gaps in NPs' preparation and ability to provide musculoskeletal care, 8 primary care NPs participating in a recently piloted orthopedic fellowship program were surveyed about the musculoskeletal content in their master's-level NP programs. Five of the 8 participants estimated that the total time devoted to instruction on musculoskeletal conditions and examination techniques comprised fewer than 10 hours. The other 3 participants estimated fewer than 15 hours of musculoskeletal content in their NP programs.

Before participation in the orthopedic fellowship, none (0%) of the 8 NPs in the pilot study were able to pass a basic test of orthopedic knowledge. After participation in the orthopedic fellowship program, 5 (62%) of the 8 NPs achieved a passing grade of 70% or higher.

The test used in the pilot study was originally developed to assess the orthopedic knowledge of PCPs. In several different studies of PCPs taking this test, pass rates ranged from 22% to 36%.⁵⁻⁷ The results indicated significant gaps in physicians' ability to provide musculoskeletal care and demonstrated a need for improvement of the musculoskeletal curriculum in medical schools.

The small number of NPs participating in the orthopedic fellowship pilot study precludes generalization of the results, and the pass rate indicates room for improvement of the fellowship program curriculum. Nevertheless, in light of the fact that musculoskeletal problems comprise from 20% to 60% of primary care visits, these preliminary findings clearly indicate a need for further investigation into the

current state of NP musculoskeletal education and the best ways to improve it.

MUSCULOSKELETAL CURRICULUM RECOMMENDATIONS

In response to strong evidence of gaps in the orthopedic knowledge of PCPs, the AAMC issued a report setting forth the skills, attitudes, and knowledge to be mastered by all physicians, along with strategies for curriculum development, implementation, and evaluation.¹⁵ Those recommendations, along with the National Association of Orthopaedic Nurses' *Core Curriculum for Orthopaedic Nursing*¹⁶ and the American Association of Colleges of Nursing's *Essentials of Doctoral Education for Advanced Nursing Practice*, provide substantial guidance for the development of a curriculum aimed at increasing NPs' knowledge and confidence in providing musculoskeletal care.^{17,18}

EDUCATIONAL APPROACHES

Although the AAMC, the National Association of Orthopaedic Nurses, and the American Association of Colleges of Nursing offer guidance on curriculum, Patricia Benner's "novice to expert" theory might provide a theoretical framework for increasing NPs' orthopedic knowledge, confidence, and competence.¹⁹ Benner's stepwise progression from "novice to expert" provides a model for the gradual integration of knowledge and skill acquisition over the course of an orthopedic residency/fellowship.

As described by Instone and Palmer,¹¹ providing an orthopedic residency in a clinically focused DNP program might be 1 option for NPs seeking orthopedic expertise at the advanced practice level. Providing the same curriculum as an elective in conjunction with master's-level NP coursework or as a post-master's certificate program could be attractive alternatives. In either case, the goal would be to prepare NPs to provide care for common chronic musculoskeletal problems and stable injuries in either primary or specialty care settings, thus improving access to care for patients and reducing the burden on orthopedic surgeons.

CONCLUSION

With the ranks of orthopedic physicians decreasing and the incidence of chronic musculoskeletal

conditions on the rise, effective management of these problems in primary care settings may become an increasingly important strategy for preserving access to care while reducing costs and preventing the escalation of debilitating symptoms. To effectively manage these conditions, NPs must be able to distinguish acute presentations of nonurgent musculoskeletal problems from true orthopedic emergencies and to know when and how to appropriately refer patients to orthopedic specialists. The literature currently reveals little information regarding the musculoskeletal content of NP programs or NPs' ability to provide basic musculoskeletal care.

Although statistically insignificant, the results of a recent pilot study clearly indicate the need for broader assessment of NP knowledge, competence, and confidence, as well as evaluation of the current musculoskeletal content of NP curriculums. Work also needs to be done on honing a curriculum and developing evidence-based best practices for improving NP musculoskeletal knowledge and skills. Ideally, this should involve a multidisciplinary approach, including exploration of educational objectives and strategies used in medical schools and PA training programs, as well as nursing schools.

Ultimately, the development of an effective orthopedic primary care fellowship could serve as a template for other specialties, allowing some NPs to become medical home specialists managing chronic stable cardiovascular, gastrointestinal, or dermatologic conditions in primary care settings.

The authors welcome contact from colleagues interested in participating in continuing research about NP musculoskeletal education and how to improve it. [JNP](mailto:jnp@jacksonortho.com)

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