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INVOLVEMENT OF ADVANCED PRACTICE NURSE IN THE MANAGEMENT OF GERIATRIC CONDITIONS: EXAMPLES FROM DIFFERENT COUNTRIES

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Abstract: The increasing demand for healthcare services is placing great strain on healthcare systems throughout the world. Although the older population is increasing worldwide, there is a marked deficit in the number of persons trained in geriatrics. It is now recognized that early detection and treatment of geriatric conditions (e.g., frailty, sarcopenia, falls, anorexia of aging, and cognitive decline) will delay or avert the development of disability. At the same time, recent years have seen an increased interest and use of advanced practice nurses (APN). Models of best practices of supervision and collaboration have been promulgated by many organizations. APN's roles and scope of practice have been expanded in many countries and the quality and cost-effectiveness of healthcare systems have improved. Nevertheless, in older people, evidence of advanced practice roles remains scattered, and there is little synthesis of evidence, and therefore it is not easy to visualize the different practice models and their components. The aim of this paper is to explain the need for advanced practice nurses to manage geriatric conditions.

Key words: Advanced practice nurse, geriatric conditions, older people, public health, prevention.

Introduction

With the rapid increase in the aging population over the first half of this century and a paucity of geriatricians worldwide, there is a major need to enhance the availability of the Advanced Practice Nurse (APN) to recognize and manage geriatric syndromes (1–3). Advanced practice nursing has an expanding presence worldwide. Older people with multiple chronic conditions and functionality problems are a frequent target population for these services. The aim of this paper is to explain the need for advanced practice roles to manage geriatric conditions.

Defining Advanced Practice Nurse

The term "Advanced Practice Nurse" (APN) encompasses the Nurse Practitioner (NP), Certified Registered Nurse Anesthetist (CRNA), Clinical Nurse Specialist (CNS), and Nurse Midwife (NM) (4). The International Council of Nurses proposed the following broad definition of APN: *"A Nurse Practitioner/Advanced Practice Nurse (APN) is a registered nurse who has acquired the expert knowledge base, complex decision-making skills and clinical competencies for expanded practice, the characteristics of which are shaped by the context and/or country in which s/he is credentialed to practice. A Master's degree is recommended for entry level"* (5).

Nurse practitioners (NPs) tend to practice in primary care and provide a set of services that might otherwise be performed by doctors (e.g., being the first contact for people with minor illness, providing routine follow-up of patients with chronic conditions, prescribing drugs or ordering tests). To a large extent, this involves a substitution of tasks from doctors to nurses, with the main aim being to reduce demands on doctors' time, improve access to care and possibly also reduce costs. On the other hand, clinical nurse specialists (CNSs) tend to work in hospitals, where their responsibilities include providing leadership and education for staff nurses to promote high standards of quality of care and patient safety. Their main aim is quality improvement.

Development of Advanced Practice Nurse across countries

Some countries, including the United States, the United Kingdom and Canada, have been experimenting and implementing new APN roles for many decades. In the United States, the introduction of NPs, responsible for delivering a wide range of services with a high level of autonomy, dates back to the mid-1960s. Advanced practice nursing in the United States really began in the 1940s with the roles of nurse midwives and nurse anesthetists and then psychiatric nursing in 1954. This expanded to the advanced practice nurses in pediatrics, family and adult medicine in 1965 as created by Henry Silver, a physician, and Loretta Ford. This was done to increase access to health care providers in rural areas. Initially training was non-degree certificate programs led by physicians. During the mid1970s to early 1980s a master's degree was required and ultimately insurers recognized the role and reimbursed advanced practice nurses independently for their

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services (6). In Australia the first NP was endorsed in 2000 and new NP standards guide practice and endorsement (7,8). Since 2009, NPs are licensed under the Health Practitioner Regulation National Law Act in Australia (9). However, the NP service model in Australia is currently still under development and evaluation of the NP role is needed to demonstrate the value and shape of such a role in practice (8). The majority of new NP projects focus on specialization including mental health (8, 10) and oncology (11). In other countries, the development of APN roles is still in its infancy, although some countries such as France have recently launched a series of pilot projects to test new models of teamwork between doctors and nurses in primary care and chronic disease management. There are 1,694 Certified Nurse Specialists in Japan, making about 0.15% out of approximately 1.1 million registered nurses (12). Japan introduced NPs in 2010 and in a pilot program in nursing homes, nurse practitioner care resulted in improved health status and decreased hospitalization (13).

The number of nurses in advanced practice roles still represents a small proportion of all nurses even in those countries that have the longest experience in using them. In the United States, NPs and CNSs represented respectively 6.8% (205,000) (14) and 2.5% (78,000) of the total number of registered nurses (3,131,003 in January 2016) (15). In Canada, they accounted for a much smaller share, NPs only representing 0.6% and CNSs 0.9% of all registered nurses in 2008, although their numbers have increased in recent years. On the other hand, after more than a decade, in Australia the number of NPs (1,585) is relatively small (16). In China, APNs were only introduced in recent years. The Outline of Development Plan for Nursing in China (2011-2015) issued by the Ministry of Health articulated a plan to develop different specialties of nursing (17), In Hong Kong, a special administrative region of China where the development of APNs started in 1994 (18), there are 2700 APNs (19) – approximately 7.8% out of the total number of registered nurses in the city. A historically matched controlled study found that patients under the care of nurse consultants in Hong Kong had favorable health and service outcomes than those who were not (20). APNs in Hong Kong, similar to many Asian countries such as Japan and the Philippines, do not have formal legislative status like that of a registered nurse. The title of an APN, however, is regulated in Singapore and can only be used by individuals certified by the Singapore Nursing Board. Among 24,530 registered nurses in 2014 in Singapore, less than 1% are APNs (21). Since 2000, NPs, but not CNSs, are licensed in Taiwan (22).

Overview of Advanced Practice Nurse's features

APN roles can be distinguished from basic practice through their level of specialization, advancement, and role expansion (23). They usually integrate research, training, practice, and management (24). They tend to develop a high degree of professional autonomy, with their own caseload of patients, advanced skills for health status assessment and decision-making or diagnostic reasoning. Moreover, they are able to act as consultants for different health professionals (25). Leadership, professional autonomy, and working in multidisciplinary teams are key to effective performance of the APN role (23). A collaborative approach between APNs with physicians and other health care professionals leads to higher quality of care and better health care systems (26).

All of these previous features contribute to the integration of additional skills and responsibilities, which seem to be essential for APNs' autonomy (23). An evidence-based literature review aimed to examine the provider and patient's satisfaction associated with APN case management in acute and community care settings (27). This review resulted in the extraction of variables that could define their role in a holistic, comprehensive and complete way. Those variables are prescriber provider satisfaction, autonomy, multidisciplinary collaboration, patient satisfaction, nurse case management's effect on staff nurses, professional status, job stress, and role conflict.

Manley (28) developed a model of the APN role that is centered on the skills and competencies that the APN should develop for their performance. Those skills are classified into three groups. Firstly, the academic grade to access to this role (which usually is master or PhD), an extensive client-based practice, and a certification of expertise in practice. Secondly, defined sub-roles as expert practitioner, educator and consultant. Finally, the skills and competencies previously mentioned were put in place as a change agent, a collaborator, a clinical leader, a role model and a patient advocate.

The Role of Advanced Practice Nurses in Geriatrics

Older population is increasing worldwide and is about to triple from 2010 (524 million people) to 1.5 billion in 2050. Importantly, over this time period the aging population will increase by 250% in less developed countries, compared to 71% in developed countries. Persons older than 70 years are liable to spend 8 years (11.5% of their life span) living with disabilities. The cost of health care is 3 to 5 times greater in persons older than 65 years, and in persons with disability it is about 2 to 5 times higher than the cost for non-disabled older persons. Further, in occidental countries the number of geriatricians is declining and this decline is expected to continue. This decline is even more dramatic when placed in the context of the rapidly developing older population.

Older adults experience multimorbidity, make up the majority of all hospital admissions and health services utilization, experience polypharmacy, and reduced personal autonomy. Additional factors complicating care are aging physiology living alone or lack of family support, or risk of falling, among others (29). In this sense, APNs are in an ideal position to cover many of the demands of care of this population group (29–31). Moreover, several models of APN

delivery of services for older people have been developed in a wide variety of health contexts (32, 33), such as transitional care (34), case management (35) or to specifically address geriatric syndromes such as congestive heart failure or urinary incontinence (36, 37), aimed to improve quality of life, reduce hospital admissions, address behavioral symptoms associated with dementia (38), and to work with those with limited supports and financial (39). Results of some studies have shown that there have been improvements in health status, behavior and patient satisfaction in residential care settings (40, 41).

Prevention, screening, assessment and interventions

APNs, like all primary care providers, play a critical role in prevention of geriatric conditions, beginning with risk assessment and screening for older patients. APNs in primary care have the opportunity to build significant patient trust over the course of a provider-patient relationship that spans many years. This enhanced trust places primary care APNs in the unique position to partner with older adults and their families to address modifiable health risk behaviors and promote self-management strategies (42). The responsibility of regular prevention and screening is well suited to APNs because this is consistent with their training, which emphasizes wellness promotion (43, 44). Nurse practitioners, for example have been involved in providing the Welcome to Medicare and Annual Wellness Visits that are an available service for older adults under Medicare (45, 46).

Numerous lifestyle factors influence health adverse outcomes, including tobacco use, obesity, physical inactivity, and poor nutrition (47). While older adults and providers may believe that behavior change in old age is either unimportant or impossible (48), older adults who practice healthy behaviors are more likely to live independently and incur fewer health related costs (49). APNs play an important role in the assessment of nutritional habits or physical activity as part of regular health maintenance and can decrease an individual's disability risk through providing assistance with healthy aging advice (50). APNs establish a long-term relationship with patients and family caregivers, giving them the opportunity to evaluate the effectiveness of changes in patients' health status.

APNs play a role in adhering to evidence-based geriatric conditions screening in older adults, including frailty, sarcopenia, anorexia of aging, falls, depression, and cognitive dysfunction (51). Furthermore, APNs can be a part of public health measures that attempt to correct the disparities in screening that exist among individuals who lack health insurance or have inadequate coverage (52).

It is now recognized that early recognition of geriatric conditions and appropriate intervention will reduce functional decline and decrease hospitalization and institutionalization. Interventions including exercise and nutrition have been shown to reverse the physical frailty phenotype and sarcopenia (53–56). Similarly, exercise can reduce falls (57). Vision impairment from cataracts, entirely treatable, can contribute to falls with or without fractures. There are a number of treatable causes of anorexia of aging and weight loss that coupled with nutritional supplementation can prevent the deleterious effects of weight loss (58,59). Finally, there are reversible causes of cognitive impairment and interventions to delay cognitive decline (60). APNs can identify and implement these interventions. APNs are also able to follow an established plan of care.

Impact of Advanced Practice Nurse in management of geriatric conditions

The literature has consistently shown that APNs in nursing homes improve resident outcomes (61–65), but no single best practice model has been identified. The earliest research in this area was based on the EverCare approach, in which NPs provided primary care to residents in long term care settings. The purpose of this work was to manage acute problems in the facility, addressed advanced directives and reduce hospitalizations, (66, 67). The EverCare model demonstrated a reduction in emergency department use and acute hospitalizations, an APN best practice might then focus on developing enhanced communication skills and taking on some case management and coordination activities (68).

Most of the studies of NPs might want to be consistent (66–70). APNs or NPS have been conducted in managed care organizations. In those studies, including those of EverCare (66–68), the focus was on whether having NPs as part of the primary care team reduced emergency department visits, hospitalizations, and costs while maintaining resident outcomes similar to that achieved by physicians. Even in other managed care studies (71–74), the extent to which NPs incorporated practices focused on reducing geriatric syndromes such as urinary incontinence, falls, pressure ulcers, and weight loss was not clear. However, the fact that residents had improved functional status when NPs provided care suggests that there may have been attempts to address these issues.

In long-term care, NPs as primary providers have been shown to improve the management of chronic care conditions, maintain or improve functional status, decrease hospitalizations, spend more time in the facility, and make more average visits per month than physicians (75) . NPs have also been associated with cost reductions to both the health care system and to facilities, as well as with reduced resident mortality and improved satisfaction of families, residents, staff, and physicians (71, 76–79).

In primary care, according to a systematic review (11 RCT and 23 observational studies), APNs increased patient satisfaction, increased the length of consultation and performed more investigations than GPs and no differences were found in health outcomes or prescriptions (80). APNs contribute to increased access to care, liberate GP time and offer care on an appropriate level (81, 82). A Cochrane review of the

substitution of GPs with APNs in primary care (4253 articles were screened, 25 included) concluded that appropriately trained nurses are able to provide equally high quality care and good health outcomes for patients (83).

There also appears to be a role for APNs in the area of care transitions. A study identified several problems for patients who were transferred to the emergency department and back to the nursing home (84). The extensive research on APN management of transitions of older adults between hospital and home could easily apply to nursing homes. For example, APNs have been noted to facilitate a reduction in adverse events, re-hospitalization rates, and costs to the health care system for older adults who are transitioning from acute to long term care (85,86).

Examples of APN's involvement

In Saint Louis, Missouri, USA (Patricia Abele)

APNs play a key role in providing geriatric care in the outpatient setting, nursing homes and hospital care. In doing this, they work with a collaborating physician.

A specific role for APNs has been developed in carrying out the Medicare Wellness Visit both in the outpatient and nursing home sites in Saint Louis (46). They have also played a major role in increasing the numbers of older persons with high quality advance care planning (87). An important component in those areas has been the use of the Rapid Geriatric Assessment (RGA) (88) which includes the simple screens for frailty (FRAIL) (89), sarcopenia (SARC-F) (90,91), anorexia (SNAQ) (92) and cognition (Rapid Cognition Screen) (93). All of these screens have been validated in multiple continents (94,95). The RGA also inquiries about whether the person has an advance directive. The Annual Wellness Visit is a visit paid for separately by the United States to develop a prevention program for older persons. The APNs are also playing a major role in educating physicians and other health care professionals in the use of the Annual Wellness Visit and the RGA and how to use the RGA for screening in the community.

In Toulouse, France (Christine Lagourdette)

In France, Geriatric Day Hospital structures for assessment of Frailty and prevention of disability (GDHFs) are structures which are specifically aimed to support the comprehensive and multidisciplinary geriatric assessment. However, as GDHFs are necessarily linked to hospital centers, these structures may be combined with other kinds of nearby geriatric devices accessible to everyone for less complicated cases. In this context, another care model has been developed in 2015 in the Toulouse area: implementing in primary care an APN trained in geriatric assessment (96,97).

Patients ≥ 70 years in one of the following situations are referred by their general practitioners (GPs) to geriatric assessment by the APN: 1) GP's clinical impression of frailty (slow gait speed, weaknesses, a weight loss, exhaustion or a low physical activity level) 2) patients with self-reported memory complaints. The assessments take place in the GP offices.

The assessment includes: sociodemographic (including living arrangements), anthropometric, clinical information (medical/surgical history, current treatments) and, questionnaires/tests in order to assess the cognitive, physical, nutritional and, mood functions.

At the end of the assessment, the APN provides the GP with all the results of the tests performed. The APN proposes with the GP an orientation and a personalized plan of care and prevention. The patients are followed by phone every 6 months and assessed each year.

To date, about 500 patients has been assessed by one nurse in 14 GPs' office.

In Baltimore, Maryland, USA (Barbara Resnick)

Providing care across all settings is increasing common for APNs working with older adults. APNs for example, work in primary care settings seeing patients in the office as well as doing nursing home and assisted living visits or working in a continuing care retirement community.

Primary care addresses both acute visits and health promotion through the Annual Wellness Visit as well as planning and providing immunizations, exercise programs and education around appropriate health screening, nutritional intake etc.

In the long-term care setting, visits can likewise address acute problems as well as regulatory visits which include every other visit (every 60 days) required by Medicare. There are different models of hiring including having the APN hired by the physician practice that sees patients in the office setting as well as the long-term care facility; hiring by the long-term care facility (including the Continuing Care Retirement Community) or independent practices.

The scope of practice for APNs in the United States varies by state regulations and so, for example, in some states APNs can complete Advanced Directives with older individuals while in others this role is delegated to physicians only. Scope of practice, however, continues to be expanded across the states to best meet the needs of a growing aging population.

In Saint Louis area, Missouri, USA (Marilyn Rantz)

In 2012, the Missouri Quality Initiative (MOQI) was funded by the Centers for Medicare & Medicaid Services (CMS) Innovations Center and Medicare-Medicaid Coordination Office as a part of a national demonstration, Initiative to Reduce Avoidable Hospitalizations Among Nursing Facility Residents. The CMS funded 7 sites for 4 years across the United States with the purpose for each site to test the effectiveness of evidence-based clinical and educational interventions in reducing potentially avoidable hospitalizations for long-stay residents—an important aspect of improving care and quality of life.

The MOQI team recruited 16 nursing homes in the St Louis

regional area, an area of the country with high re-hospitalization rates. Key components of MOQI include advanced practice registered nurses (APRNs) working full-time within each home with an interdisciplinary MOQI intervention team to support each APRN and nursing home in the initiative. Other key components include implementing INTERACT II (Interventions to Reduce Acute Care Transfers) processes and tools (98), an emphasis on end-of-life care (99), and health information technology (HIT) (100). In 2016, MOQI reduced hospitalizations of all-causes by 33% and potentially avoidable one by 48%, the most positive outcome results of seven national sites in the CMS Demonstration. This reduced total Medicare expenses per person $1376, saving 33% of the costs of all-cause hospitalizations and 40% of potentially avoidable hospitalizations (101). From a quality of care perspective, 6 of 8 quality measures (QMs) had more improved trajectories over the study duration than a matched comparison group (pressure ulcers, urinary tract infections, indwelling catheters, activities of daily living, weight loss, and antipsychotic medication use). Two did not (falls and restraints). All 8 individual QM average differences were tested with nonparametric tests to examine for change in the desired direction between the 2 groups during the study. The activities of daily living QM was statistically significant (p=.02) and the catheter QM (p=.05) for the APRN intervention homes as compared to the comparison group; the others were not significantly different between groups (102). The result that activities of daily living QM was improved is similar to the result of the Evercare evaluations that found improved functional status (71–74), discussed earlier.

Phase 2 of the MOQI is now underway in the 16 nursing homes in the St. Louis area and 24 more in the same area and some other areas of the state. The MOQI team is working on ways to help other nursing homes in Missouri and other states implement the successful program. APRN legislation is also under consideration in Missouri to help nursing home residents access APRN services across the state, too. Minor changes in the US Code of Federal Regulation (CFR 483.40) would enable rapid spread of use of APRNs across the country so that nursing homes could benefit from what has been learned in MOQI (103).

In Hong Kong (Claudia Kam Yuk Lai)

Over the years, APNs (nurse specialists and nurse consultants) play an increasingly important role in Hong Kong (104). It is no less true in geriatrics and psychogeriatrics as elderly care is by nature, multidisciplinary. The Hospital Authority of Hong Kong (105) oversees and organizes all public hospitals and out-patient services into seven health service clusters based on geographic locations. Although each cluster may have relatively comparable level of resources based on population and service needs, the practice of APNs may vary in different clusters, depending on the management philosophy, priorities, expertise available and team dynamics of each cluster.

To give an example, the role functions of APNs in memory clinics or geriatric day hospitals vary across clusters and different hospitals within the same cluster. The APNs may be responsible for service enhancement (e.g., strategic planning, refinement of care protocols), conducting patient assessments, training and supervising registered nurses to assure care standards, or providing consultations to nurses who work in these clinics and day hospitals. The Montreal Cognitive Assessment – 5 minutes protocol (106) is adopted for use nowadays in screening and assessment. Yet, cognitive assessment is often referred to, and being regarded as, the domain of occupational therapy.

To date, there is limited published evaluation on APN practice outcomes although it has also been found to have achieved some favorable outcomes (20). The ambiguity in role functions, although allowed flexibility in how the APNs conducted their practice, remain a challenge to future development (107).

In China (Chen Quian)

In China, APN development was in recent years, and call it clinical nursing specialist.

In 2011, mainland China and Hong Kong conducted joint clinical nurse specialist training. Since 2012, under the organization of nursing associations in various provinces, the training of geriatric nurses' specialist has been carried out independently. At present, geriatric nurses' specialist are divided into the following three categories according to their different responsibilities.

The first category is experts (deputy director of the nurse and above, usually the geriatric ward work for more than 20 years, with a nursing master degree or above). He / she is a counseling specialist in the multidisciplinary team, to assist establishment of links between hospitals, nursing homes or community health agencies. The expert undertakes the consultation of geriatric care problems and difficult nursing problems outside the hospital, to explore the innovation and quality improvement of the elderly care system, and to guide nurses to use clinical practice guidance.

The second category is clinical nursing specialist (charge nurse, usually geriatric nursing work for more than 12 years, undergraduate and above). He / she leading geriatric nursing team in the ward; organizing geriatric nursing work guidelines; formulating and reviewing geriatric nursing standards, nursing quality evaluation standards, etc. Nursing specialist participate in multidisciplinary rounds, care the critically ill patients, discuss difficult cases, analyze the patient's nursing problems, formulate nursing plans, and guide the implementation of lower-level nurses. To organize and participate in the consultation of multidisciplinary team in the hospital, the comprehensiveness assess such as self-care ability, balance function, cognitive function, depression and anxiety, social and family resources (Chinese hospitals are currently without social workers); implementation of evidence-based nursing

in elderly care, solve the difficult care problems of elderly patients; guidance of clinical nurses, to ensure the quality of geriatric nursing; setting up geriatric nursing clinic, carrying out comprehensive evaluation, making patient care plan, evaluating nursing effect, guiding and providing geriatric specialist nursing , health consultation for patients, family members, staff and public; provide care guidance for elderly patients and their family caregivers, so as to reduce the readmission rate of the elderly; participate in department nursing quality and effect evaluation.

The third category is ordinary geriatric nursing specialist (geriatric ward clinical work for three years and above, access to geriatric nurse certificate). He / she engaged in clinical nursing work for the elderly, including the comprehensive evaluation, formulation and implementation of care plan, the evaluation of the effect and the updating of the nursing plan; Patient health education and discharge guidance, and telephone follow-up; assisting senior clinical nursing specialist to providing information and advice to other specialist caregivers in the field of geriatric nursing, improving the quality of care for elderly patients.

In Australia (Wendy Moyle)

Currently only a small number of NPs work in aged care services with the majority working in residential aged care facilities (RACFs). The NPs are employed by approved providers to provide care to older adults living in the RACFs. While some NPs are located in one facility others work across a number of facilities. Some of the NPs provide specialized care in geriatric disorders such as dementia or palliative care. The NPs provide care co-ordination, they perform complex assessments of older adults, diagnose and prescribe medicines, and where necessary they initiate referral of patients to other health practitioners for further investigations. The main benefits of NPs in RACFs are reported to be improved care, reduced hospitalization, improved chronic disease management and palliative care (108). All of these result in economic efficiencies. Importantly the opportunity for timely diagnosis and treatment reduces the chances of deterioration of the patient.

Conclusion

This review shows significant support for APNs in a variety of roles. APNs are showing expertise in providing care and also in early recognition and management of frailty and other geriatric syndromes. The addition of the APN to manage these geriatric conditions is an extraordinarily positive one and APNs enhance the quality of care. Most importantly, they greatly increase the level of communication with physicians. However, there remains a need to fine-tune the models of APN practice that exist at present. Moreover, there is a need to develop more wide-ranging research to continue to demonstrate the added value of APNs.

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