African Journal of Emergency Medicine (2014) 4, 43–49

African Federation for Emergency Medicine

African Journal of Emergency Medicine

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Advanced practice registered nurses: Addressing emerging needs in emergency care

Infirmiers diplômés d'Etat à la pratique avancée en soins d'urgence

Rachel L. DiFazio [a,*], **Judith Vessey** [b]

[a] *Department of Orthopaedics, Boston Children's Hospital, Boston, MA, United States*
[b] *Boston College, William F. Connell School of Nursing, Chestnut Hill, MA, United States*

Received 16 December 2012; revised 1 April 2013; accepted 30 April 2013; available online 5 July 2013

An advanced practice registered nurse (APRN) is a registered nurse with advanced specialized clinical knowledge and skills to provide healthcare to diverse populations. The role of the APRN is emerging worldwide to improve access to, quality, and cost-effective healthcare services. APRNs with expanded capabilities are now working in a variety of healthcare settings including emergency centres. This paper will provide a brief overview of APRN roles in the United States followed by a discussion of how APRNs can meet the healthcare needs of patients seeking emergency care. An example from a paediatric specialty practice will demonstrate how the APRN role can be implemented in the emergency centre. Finally, implications for initiating APRNs in emergency care across Africa will be addressed.

Un infirmier diplômé d'Etat à la pratique avancée (APRN) est un infirmier diplômé d'Etat disposant de connaissances et compétences spécialisées approfondies lui permettant d'administrer des soins de santé à des populations diverses. Le rôle de l'APRN se développe dans le monde entier afin d'améliorer l'accès à des services de soins de santé rentables ainsi que leur qualité. Les APRN disposant de vastes capacités travaillent maintenant dans divers contextes de soins de santé, notamment dans des centres d'urgence. Ce document fournira un aperçu des rôles des APRN aux Etats-Unis, puis une discussion sur la façon dont les APRN peuvent répondre aux besoins de soins de santé des patients cherchant des soins d'urgence. Un exemple d'un cabinet pédiatrique montrera la façon dont le rôle de l'APRN peut être mis en œuvre dans un centre d'urgence. Enfin, les implications de l'initiation des APRN en soins d'urgence en Afrique seront traitées.

African relevance

- APRNs have been shown to improve healthcare delivery and health outcomes.
- APRN roles are flexible and can be tailored to a country's workforce needs.
- Careful advance planning helps ensure that APRNs can work to their fullest capacity.
- Much can be learned by looking at the US model when planning APRN programmes.

Introduction

Emergency nursing is defined by the Emergency Nurses Society of South Africa as "(a) specialty in which nurses care for patients in emergency or critical phase of their illness or injury, focusing on the level of severity and time-critical interventions."[1] This definition universally captures the important role that nurses play in emergency settings. To more fully address growing demands for emergency care, nurses are receiving advanced training and being credentialed as advanced practice registered nurses (APRNs).

Today, the role of the APRN is emerging worldwide to improve access to, quality, and cost-effective healthcare services for diverse populations. APRNs with expanded capabilities function in a variety of settings; ambulatory, emergency, and inpatient setting. They are well positioned to alleviate manpower shortages while providing care to seriously, acutely ill patients as well as those presenting with non-urgent conditions whose only access to care is through the emergency centre (EC). In order to provide context for a discussion of APRN roles in emergency care, initially a brief overview of APRN roles in the United States (US) will be presented. This will be followed by a discussion of how APRNs address emergent patient care needs with an exemplar from a paediatric specialty practice. Finally, implications for advancing the role of APRNs in Africa are discussed.

Development of the role of advanced practice registered nurse

An APRN is a registered nurse with advanced specialized clinical knowledge and skills to provide healthcare;[2] specific requirements of this role are found in Table 1. The term

* **Correspondence to Rachel L. DiFazio**. Rachel.difazio@childrens.harvard.edu
Peer review under responsibility of African Federation for Emergency Medicine.

Production and hosting by Elsevier

http://dx.doi.org/10.1016/j.afjem.2013.04.008

Table 1 Criteria for advanced practice registered nurses.

- Completion of an accredited graduate-level education programme preparing him/her for one of the four recognized APRN roles—nurse practitioner, clinical nurse specialist, nurse midwife, or nurse anaesthetist.
- Skills upon graduation build on the competencies of registered nurses and demonstrate,
  - A greater depth and breadth of knowledge, a greater synthesis of data
  - Increased complexity of skills and interventions needed to provide direct care to patients. This includes the responsibility and accountability for health promotion and/or maintenance as well as the assessment, diagnosis, management of patient problem, and the use and prescription of pharmacologic and non-pharmacologic interventions.
  - Understanding of population-focused competencies
  - Greater role autonomy
- Successfully passing a national certification examination for a designated course upon graduation and maintains continued competence as evidenced by recertification.
- Licensed by one of the 50 states in the United States to practice as an APRN in one of the four aforementioned roles: certified registered nurse anaesthetist (CRNA), certified nurse-midwife (CNM), clinical nurse specialist (CNS), or certified nurse practitioner (CNP).

[a] Adapted from: The APRN Joint Dialogue Group Report, July 7, 2008 (www.apna.org/files/public/JointDialogueReport.doc).

APRN refers to four separate types of nurse clinicians who function in advanced practice roles. These include nurse anaesthetist, nurse midwife, clinical nurse specialist (CNS), and nurse practitioner (NP). Each of these four roles, despite having very different origins now function similarly, diagnosing and managing patient conditions, performing procedures, and prescribing medications.

The first two APRN roles to emerge in the US were nurse anaesthetists and nurse midwives. In the late 19th century, the nurse anaesthetist role was created to reduce anaesthesia related mortality. The need for nurse anaesthetists became increasingly acute during World Wars I and II. Since the advent of the American Association of Nurse Anaesthetists in 1931, continued strides in educational and certification requirements have been made.[3]

Nurse midwifery followed a similar path. In the early 1920s, the practice of nurse midwifery was introduced to the United States to address the needs of poor women in the rural areas in Kentucky; nurse midwifery schools began a decade later. By the 1950s, numerous educational programmes began. The American College of Nurse Midwives, their professional organization, was established in 1955 and currently oversees all related professional practice issues.

The next APRN role that was created was that of the CNS in 1954 when psychiatric nurses were given advanced training. Over the next several decades, additional CNS educational programmes emerged and nurses obtained advance education in specific clinical areas such as medical-surgical, paediatric, and women's healthcare. The CNS's role includes providing direct clinical care for complex patients, modelling clinical expertise for professionally younger nurses, promoting interdisciplinary collaboration, and advancing evidence-based practice.[4]

The fourth advanced practice role to emerge was that of the NP in 1965. Initially created in a response to the growing need for primary healthcare providers to care for underserved children, the first training programme for NPs in the US was initiated by Drs. Ford (a nurse) and Silver (a physician). This programme was based on a ''nursing model focused on the promotion of health in daily living, growth and development for children in families as well as prevention of disease and disability.''[5] Graduate degree NP programmes have been developed for numerous specialties and a role has evolved to provide primary or acute care for different populations. Specialties include family NPs, adult NPs, paediatric NPs, and women's health NPs trained to work in primary care as well as acute care paediatric and adult NPs.

Today in the US, there are many educational pathway variations to become an APRN (see Fig. 1). For all specialties, a Masters degree in a specific APRN programme is the first step towards eligibility for practice. To better provide efficacious care in an increasingly complex healthcare system, however, many university APRN programmes are transitioning to the doctor of nursing practice (DNP) credential.[6] This transformational change in nursing education is underway; timelines for change varying across the APRN professional organizations. For example, the American Association of Nurse Anaesthetists is the first professional organization to mandate a DNP as the entry level degree for professional practice for new graduates beginning in 2025.[7] Upon completing a credentialed master's or DNP programme, graduates may then sit for their respective professional certification exam and be eligible for state licensure as APRNs.

APRN educational programmes contain the same core components—didactic coursework and clinical mentorship—regardless of specialty. Didactic coursework is divided into three broad areas. The first area are core courses including nursing theory, research and evidence-based practice, role responsibilities, pharmacology, pathophysiology, and health assessment. The second area is specific to the specialty. An adult NP programme, for example, contains courses specific to health promotion, diagnosing and managing acute and chronic problems (e.g., diabetes mellitus, hypertension, and osteoarthritis) commonly experienced by that population. Depending on the plan of study, a third area of coursework

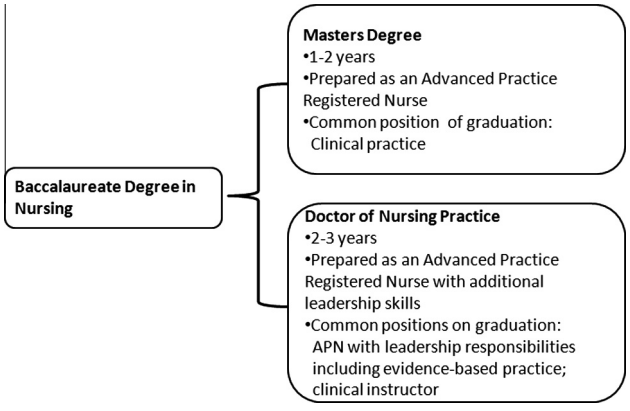


Figure 1 Common educational pathways for advanced practice registered nurses.

that provides information about a more specialized population such as geriatrics may be included. In addition to coursework all APRN education has a formalized mentorship experience, also called an internship,[8] in the clinical arena. Students are paired with experienced APRNs or physicians who provide direct mentorship, helping their mentees teach health promotion, develop assessment and diagnostic skills and learn specialty-specific procedures. Explicit learning objectives guide these clinical experiences. The quality of clinical placements is essential to the graduates' competence.

In the US, APRN practice is state-regulated. Although practice standards are more similar than different across the 50 states, there is some variation from state to state. These variations may include the APRN scope of practice, title, certification requirements, and amount of formal physician collaboration that is required. For example, NPs can prescribe in all 50 states, however the type of medications that they can prescribe and the degree of physician oversight varies among the different states.

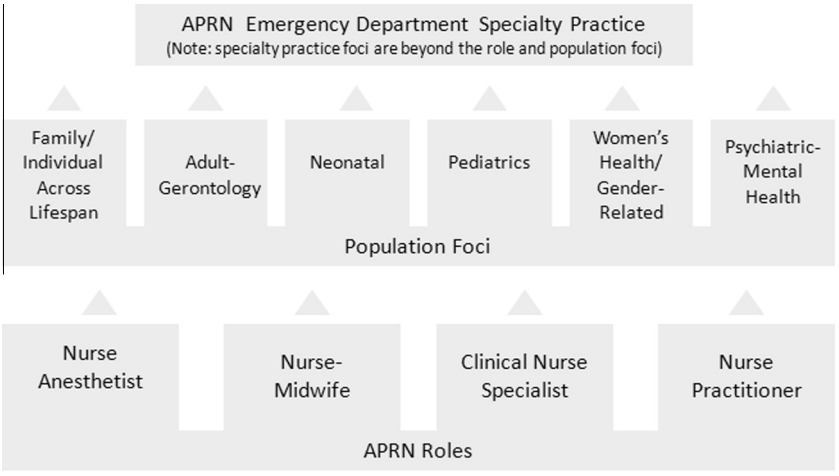
In an attempt to promote uniformity for APRN practice, activities to align licensure, accreditation, certification and education (LACE) are currently underway. The APRN Consensus Workgroup, comprised of 48 professional nursing organizations and the National Council of State Boards of Nursing APRN Advisory Committee has developed a *Consensus Model for APRN Regulation*: *Licensure, Accreditation, Certification, and Education*.[9] This initiative describes a regulatory model that combines the four primary APRN roles along with specific population foci (Fig. 2). This model allows specialties to provide in-depth education for specific clinical practice situations, such as emergency care. These standards promote standardization while allowing APRNs to become more autonomous as they practice to the full extent of their education and licensure.

APRN practices vary even more widely in terms of educational preparation, titling, and scope of practice across the world. The APRN role is a contemporary issue for the International Council of Nurses (ICN) as it strives to better position nursing to address global healthcare needs.[10] The ICN defines an APRN as "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 level degree is recommended for entry level."[11] The ICN further recommends a formal system of licensure, registration, certification, and credentialing.

Emergency nurses society of South Africa (and not medical)

In the US, the role of the APRN in emergency care initially emerged in the 1970s from the increased need for healthcare providers to deliver care to patients with non-urgent problems who presented to rural EDs.[12,13] The role has now evolved and APRNs are now working in diverse emergency care settings including complex trauma centres in a variety of countries.[14] The Emergency Nurses Association defines an APRN as "a registered nurse who has completed a graduate degree in a specialty area of nursing and has a direct and/or indirect clinical practice in the specialty area."[15] Beyond the necessary educational preparation needed to be an APRN, many of these individuals have additional training specific to emergency care such as completing short courses on specific procedures and becoming qualified in advanced resuscitation. This extra training is akin to the third level of preparation denoted by the Emergency Medical Society of South Africa, specifically those registered/professional nurses that have advanced emergency nursing skills with an additional emergency nursing qualification.[1]

APRNs from any of the four primary roles can be involved in emergency nursing. In the US, it is usually CNSs or NPs who practice in formal emergency settings such as ECs.[16] Nurse anaesthetists and nurse midwives may serve as consultants to EC staff. Nurse anaesthetists may assist with airway management if called upon for patients that the EC physicians find particularly difficult to intubate. Nurse midwifery practice in the US is restricted to providing gynaecological and pregnancy care to healthy women with uncomplicated conditions. There is no specific role for nurse midwives in providing



Adapted from: *Consensus Model for APRN Regulation Frequently Asked Questions*, American Nurses Credentialing C (n.d.)

Figure 2 APRN consensus model.

Table 2 Overview of the APRN role by type, governance, and educational preparation.

APRN Role	Primary Professional Organizations	Minimal Educational Preparation	Emergency Care Function
1. Certified Nurse Midwives	American College of Nurse Midwiveshttp://www.midwife.org/	• MS in Nursing or MSN from a CNM accredited programme[*]	• Consultant role for women in active labour
2. Certified Registered Nurse Anaesthetists	American Association of Nurse Anaesthetistshttp://www.aana.com/Pages/default.aspx	• MS in Nursing or MSN from an AANA accredited programme • DNP required by 2025	• Consultant role for airway management
3. Clinical Nurse Specialists	National Association of Clinical Nurse Specialistshttp://www.nacns.org/	• MS in Nursing or MSN from accredited programme	• Direct care and care coordination for complex or vulnerable populations • Patient teaching, coaching • Staff education • Systems leadership and interdisciplinary collaborations • Research and evidence-based practice
4. Nurse Practitioners	National Organization of Nurse Practitioner Facultieshttp://www.nonpf.com/	• MS in Nursing or MSN from accredited programme; certain specialties (e.g., paediatrics) have additional accreditations	• Patient assessment and management of emergent and urgent conditions • Professional role responsibilities (e.g., supervision, collaboration, disaster response) • Procedures specific to: • Airway and circulation (n = 5) • Skin and wound care (n = 10) • HEENT (n = 6) • Chest and abdomen (n = 2) • Neck, back, and spine (n = 2) • Gynaecology, GU, and rectal (n = 5) • Extremity (n = 8) • Other (n = 3)

[a] One programme in the US does not require nursing; graduates have limited practice opportunities.

emergency care, but depending on the setting, they may provide consultation services for women presenting in active labour.

Currently, specific standards for APRNs practicing in ECs remain fluid. As a starting point, all APRNs in emergency care must possess core knowledge and be able to demonstrate skills of emergency nurses as described in the *Emergency Nursing Core Curriculum*[17] and *Emergency Nursing Procedures*,[18] In addition, 83 specific clinical and role competencies have been designated by EC nurse experts as necessary for entry-level practice in ECs.[19] These primarily focus on using an evidence-based approach to conducting triage, performing diagnostic and management skills for a wide variety of emergent and urgent clinical conditions, providing patient education and family support, prescribing required medications, and assisting with resuscitation efforts.

The document, *Competencies for Clinical Nurse Specialists in Emergency Care*, serves as a template for the practice parameters of CNSs.[20] This document builds on the core competencies promulgated by the National Association of Clinical Nurse Specialists.[21] Key practice areas are listed in Table 2.

The *Competencies for Nurse Practitioners in Emergency Care*[22] and the *Emergency Nursing Scope and Standards of Practice*[23] provide further guidance for NPs. Endorsed by the Emergency Nurses Association in 2008 and 2011 respectively, these documents seek to standardize NP practice in ECs by describing the 60 core competencies regarding the knowledge, skills, and judgment and attitudes, required to work in the emergency care setting. When compared to CNSs, greater attention is paid to NPs' roles in ordering laboratory and radiographic tests, interpreting their findings, and performing a wide variety of procedures required by patients presenting in the EC. Key role components are highlighted in Table 2.

In order to explicate the role further, a brief case study is presented by a paediatric NP with expertise in orthopaedics, employed by a major regional children's hospital.

A case presentation: developing the role for a paediatric nurse practitioner in emergency care

Boston Children' Hospital, located in Massachusetts, US, has very busy paediatric emergency level I trauma centres in the US, caring for over 50,000 patients each year. Boston Children's Hospital provides the highest level of trauma care to patients with 24-h in-house coverage by surgeons and anaesthesiologists. With the need to maintain a high level of trauma care, the EC needed to explore ways to improve efficiency in caring for other patients with minor injuries or illnesses.

Serving such a large volume of patients can lead to long wait times for children with non-life threatening emergencies. Additional wait times can occur for patients and their families when specialty consults are necessary. Such was the case for orthopaedics, when orthopaedists were frequently caring for more acutely ill children on the inpatient units or performing surgery. This problem was addressed by assigning NPs to the EC. Their role is to be immediately available to provide initial consults, perform assessments, seek radiologic imaging and laboratory tests, and provide patient/family education. Depending on the diagnosis, they then treat the patient for simple conditions or triage the patient to be seen by an orthopaedic surgeon and schedule the patient for surgery, or refer the patient to the outpatient clinic for follow up care.

At the inception of this role, the need for clinical guidelines and algorithms of care were developed by the orthopaedic surgeons and the NPs. Education of the EC physicians and other EC personnel helped assure that they were comfortable with NPs diagnosing common problems, and following treatment algorithms. All NPs completed competencies in cast application, brace use, suture/staple removal, and X-ray and laboratory interpretation. Hospital policies were amended to support this practice change. By implementing this role, the wait time for children with simple fractures decreased significantly while upholding clinical quality. The care of children with more critical orthopaedic problems also is more efficient as the NP serves as the initial consult and helps coordinate the patient's care.

The following clinical example will illustrate the role of the NP in emergency care. A 7 year old presents to the EC with complaints of wrist pain after falling off of his bicycle. He is evaluated by the EC physician who believes that the child has sustained a wrist fracture. The paediatric NP from the Department of Orthopaedics is consulted. She obtains a history, examines the child and orders radiographic imaging. X-rays revealed a non-displaced distal radius fracture. The child is placed into a short arm cast by the NP. Cast care is reviewed with the patient and his parents. The parents are also given a prescription for pain medication; its use and side effects are reviewed. A follow up appointment in the orthopaedic clinic is scheduled. The following morning one of the NPs calls the family at home to assess the child's condition, reinforce the treatment plan, remind the family of the follow up appointment, and answer any of the family's questions.

Quality of care

As illustrated above, the implementation of the NP role in the EC aids in improving the throughput of patients while maintaining quality. For example, research conducted in Australia, Canada, Ireland, the United Kingdom, and the United States all affirm that patients are highly satisfied when receiving care from a NP in the EC.[24–30] Patients appreciated the decreased wait times and positive significant differences were noted in NPs' communication and teaching abilities when compared to their physician colleagues.[8,26,31] In addition to caring for patients and families with less acute issues, NPs serving as first responders at specialty receiving hospitals have significantly decreased EC stays for trauma transfers from other facilities by rapidly assessing patients, initiating treatment, and admitting people in a timely manner.[32] Lastly, when employed in local community settings, NPs providing emergency care have prevented the unnecessary patient transfer to geographically distant major medical centres by being able to provide more comprehensive care on site.[32]

The stability provided by NPs furthers the quality of care provided. NPs repeatedly perform similar assessments, tasks, and procedures using evidence-based protocols drafted by the entire emergency medical team, thus becoming highly competent. For example, research supports that NPs may surpass their physician colleagues in having better radiology-diagnostic skill and pain assessment practices.[28] This is most likely to be true in teaching hospitals where busy ECs are often staffed by rotating junior physicians. NPs also help to advance teamwork, maintain consistent standards of care, and serve as a source for training new medical clinicians.[27]

Developing the role for APRNS in the emergency centre

To date, most of the activity and research of the roles APRNS play in improving emergency care has focused on NPs. Depending on the site, the benefits of employing APRNs with other backgrounds can be readily imagined. CNSs would be particularly useful in settings where a high percentage of patients required education for acute exacerbations of chronic conditions. Nurse anaesthetists, on the other hand, could play key supportive roles in trauma centres while nurse midwives would be instrumental in providing emergency care.[33] Whether NPs or other APRNs are employed in EC settings is primarily a matter of local preference.

For APRN roles to be successful in providing emergency care, the scope of the APRN responsibilities, level of accountability, and supporting regulations need to be carefully explicated a priori along with inter-professional staff, both within the healthcare system and with cohorts of referring physicians.[31,34–37] As with any emerging role, the ability to work within the current regulatory framework while advocating for supportive, necessary policy changes cannot be overstated.

A potential new role for Africa

Throughout Africa, emergency care is often uneven or unavailable and may result in unnecessary morbidity and mortality. Many countries throughout Africa recognize the lack of integrated emergency care as a significant public health need and are seeking to improve their infrastructures to address this concern. For example, Malawi, Mozambique, Sierra Leone, and South Africa, have national efforts to improve transportation, communication, and triage. Fully integrated efforts, however, remain lacking.[38]

Nurses often are the only professionals available to care for individuals requiring emergency care in many communities across Africa. Frequently, they need to practice beyond their scope of education or credentialing.[39,40] Creating educational pathways to prepare APRNs with specific emphasis on emergency care would help alleviate this need. The development of APRN roles in the US, Australia, and other nations can provide guidance as countries across Africa consider moving forward in developing advanced roles in emergency nursing. Although in the US the emphasis has been on utilizing NPs in the EC setting, more creative and broader approaches to using APRNs across settings may be adopted.

The emergency nurses society of South Africa (ENSSA), working with their professional medical colleagues and Ministries of Health, is well-positioned to champion the APRN role. Current ENSSA activities designed to advance professionalism of nursing by delineating specific educational and clinical practice standards of emergency care are foundational to such activities.[40] Three levels of practice in emergency nursing – basic, intermediate, and advanced – are currently endorsed. A fourth level, specific to APRN practice, is an obvious expansion of this model. Working with those current graduate nursing programmes specializing in advanced clinical practice in Africa, ENSSA could help establish pedagogical and clinical criteria needed for APRNs providing emergency care. Such work could be used by individual countries' Ministries of Health to establish initial and post-registration regulations for nursing as has been the case in Malawi.[41]

Further guidance is available from the World Health Organization. Specific attention need to be placed on identified core components of emergency care including providing care in community settings, during transport to hospitals, and in hospital ECs.[33] Specific educational competences need to address the challenges posed by various countries' geographic, transportation, and healthcare infrastructures. The World Health Organization also provides guidelines for the deployment of APRNs in the advent of large scale natural or manmade disasters.[42] Health Ministries should consider these guidelines when developing criteria regarding staff response to emergency situations.

Summary

Numerous lessons can be learned by countries contemplating the development of the APRN role. The four types of APRNS in the US—nurse anaesthetists, nurse midwives, CNSs, and NPs- were created to address emerging societal healthcare needs at different points in time leading to disparities in educational standards, credentialing, and scope of practice. This fragmentation is only now being resolved through the concerted efforts of all parties. For countries planning to initiate the APRN role, ideally decisions would be made a priori around didactic and clinical preparation, scope of practice, and licensure using information from the 'lessons learned' from countries worldwide. The international community can further help advance the successful implementation of APRNs by working towards universal standardization in titling, education, regulation, and clinical practice expectations for better role clarity and comprehension. This must be done in such a way that allows for flexibility of individual countries and societies to address their specific healthcare needs such as emergency care.

Although APRNs are involved in providing emergency care to patients and communities across the globe, the path has not been easy. When initiating new APRN programmes, there is an opportunity to fully integrate pedagogies specific to emergency care in the curricula. Additionally, emergency care must be included in the scope of practice statements and as part of all regulatory activity. Such an approach will help ensure that APRNs are well-positioned to advance emergency care in the communities in which they practice.

Conflicts of interest

The authors declare no conflict of interest.

Author contribution

Rachel DiFazio and Judith Vessey have both made substantive contributions to the conception, drafting, revising and final approval of the manuscript.

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