

Review

An overview of the outcomes and impact of specialist and advanced nursing and midwifery practice, on quality of care, cost and access to services: A narrative review[☆]



Mary Casey^{a,*}, Laserina O'Connor^a, Andrew Cashin^b, Rita Smith^a, Denise O'Brien^a, Emma Nicholson^a, Denise O'Leary^a, Gerard Fealy^a, Martin McNamara^a, Mary Ellen Glasgow^c, Diarmuid Stokes^d, Claire Egan^e

^a UCD School of Nursing, Midwifery and Health Systems, University College Dublin, Belfield, Dublin 4, Ireland

^b Southern Cross University, Military Road, East Lismore, NSW 2480, Australia

^c Duquesne University, 600 Forbes Avenue, Fisher Hall 540B, Pittsburgh, PA 15282, United States

^d UCD Library, University College Dublin, Belfield, Dublin 4, Ireland

^e St Vincent's University Hospital, Elm Park, Dublin 4, Ireland

ARTICLE INFO

Keywords:

Systematic rapid review

Advanced nursing and midwifery practice

PICO framework

Synthesis

ABSTRACT

Objectives: This paper presents the results of a systematic rapid review and narrative synthesis of the literature of the outcomes and impact of specialist and advanced nursing and midwifery practice regarding quality of care, cost and access to services.

Design: A rapid review was undertaken of the relevant national and international literature, regulatory and policy documents relating to the establishment and definition of nurses' and midwives' specialist and advanced practice roles.

Data Sources: A search of the Cumulative Index to the Nursing and Allied Health Literature (CINAHL), PubMed (MEDLINE) was undertaken from 2012 to 2015. The study also included primary data collection on the perceived impact of specialist and advanced practice nursing and midwifery roles and enablers and barriers to these roles using semi-structured interviews. These are not included in this paper.

Review Method: To facilitate a systematic approach to searching the literature, the PICO framework, was adapted.

Results: The database search yielded 437 articles relevant to the analysis of specialist and advanced practice in relation to quality care, cost and access to services with additional articles added in a manual review of reference lists. In the final review a total of 86 articles were included as they fulfilled the eligibility criteria.

Conclusion: The evidence presented in the 86 articles indicates that nursing and midwifery practitioners continue to be under-utilised despite the evidence that greater reliance on advanced nurse practitioners could improve accessibility of primary care services while also saving on cost. Results point to continued difficulties associated with accurate measurement of the impact of these roles on patient outcomes. This review demonstrates that there is a need for robust measurement of the impact of these roles on patient outcomes.

According to Begley et al. (2010) there should be more of the clinically based roles of advanced nurse practitioner (ANP) and advanced midwifery practitioner (AMP). The slow rate of integration and utilization of these roles in healthcare constitutes an untapped healthcare resource (Gosby, 2013). Integration of the roles is further

complicated by the lack of a universal definition of what constitutes the role, which causes confusion among the public and other professions as to what specialist practice is and what delineates specialist from advanced practice (Pulcini et al., 2010; Cronenwett et al., 2011). A lack of clarity is also evident with regard to the boundaries of practice, levels of

[☆] There are no conflicts of interest.

This research was funded by the Department of Health.

* Corresponding author.

E-mail addresses: Mary.Casey@ucd.ie (M. Casey), laserina.oconnor@ucd.ie (L. O'Connor), Andrew.cashin@scu.edu.au (A. Cashin), rita.smith@ucd.ie (R. Smith), denise.obrien@ucd.ie (D. O'Brien), Emma.Nicholson@ucd.ie (E. Nicholson), denise.oleary@ucd.ie (D. O'Leary), gerard.fealy@ucd.ie (G. Fealy), martin.mcnamara@ucd.ie (M. McNamara), Glasgow@duq.edu (M.E. Glasgow), diarmuid.stokes@ucd.ie (D. Stokes), claire.egan@ucdconnect.ie (C. Egan).

<http://dx.doi.org/10.1016/j.nedt.2017.06.004>

Received 22 December 2016; Received in revised form 19 May 2017; Accepted 7 June 2017
0260-6917/ © 2017 Elsevier Ltd. All rights reserved.

practice, clinical autonomy and preparation for ANP/AMP or clinical nurse specialist (CNS) and clinical midwifery specialist (CMS) roles (McDonnell et al., 2008; Daly and Carnwell, 2003).

Critical features of specialist nursing and midwifery roles are: clinical focus, patient/client advocate, education and training, audit and research, and consultancy (National Council for the Professional Development of Nursing and Midwifery (NCNM) 2004). The titles of ANP and AMP have become synonymous with an understanding of nurses and midwives practicing at a higher level than that of registered nurses and midwives. Advanced nursing and midwifery practitioners are clinical leaders (Hamric and Hanson, 2003; Furlong and Smith, 2005) and are committed to the dissemination of evidence-based knowledge and instruction of others in the clinical area (Ervin, 2005). Advanced practice is being built on the foundation of general nursing and is embedded in the Australian Standards for practice (Cashin et al., 2015) and also includes related research, management and leadership theories and skills to encourage a collegiate, multidisciplinary approach to care (Hamric, 2014).

Despite a broad understanding of the domains of specialist and advanced practice, a myriad of terms to describe advanced practice roles were evident in the literature review. Based on a global sample of 30 jurisdictions, Heale and Buckley (2015) identified a general lack of understanding of the advanced practice nursing (APN) role and disparities in the advanced practice nursing roles between healthcare settings. For instance, since 2011 the term specialist nursing role is no longer used in the US, due to the increased confusion and variance in these roles. On balance, advanced practice nurses in the UK and USA included Clinical Nurse Specialists and Advanced Nurse Practitioners (Jokiniemi et al., 2012; Karnick, 2011) whereas in Australia, Nurse Practitioners are the only regulated advanced role (see Australian Nursing and Midwifery Accreditation Council (ANMAC) 2015). As suggested by Hamric et al. (2014), there have been very many forays into conceptualising advanced practice nursing with minimal attempts to conduct research or test conceptual models and little cross-communications among stakeholders until very recently. Based on the literature, it would appear that a distinguishing factor between specialist and advanced practitioners is the degree of decision making and accountability rather than the complexity of the tasks undertaken, where ANPs can take self-referrals and referrals from other health professionals, exercise greater autonomous decision-making, resulting in improved case management processes (Begley et al., 2014). Generally, nurses and midwives are willing to expand their scope of practice to improve patient care (Casey et al., 2015). Ultimately, however, the role is determined by the nurse's educational preparation, skills, knowledge and also by the level of experience in the clinical area (International Council of Nurses, 2013).

1. Aim

This review aims to critically appraise and synthesise the existing evidence on the impact of specialist and advanced nursing and midwifery practice on quality of care, cost, outcomes and access to services.

2. Review Methods

An initial preliminary search of PubMed (MEDLINE) and the Cumulative Index to the Nursing and Allied Health Literature (CINAHL) was undertaken to identify key words, subject headings and alternate terminology in relation to each area. This was followed by a comprehensive search of these two databases. The study was commissioned by the Irish Department of Health and had to be undertaken in two months due to policy decision-making timelines, as a result no methodological filters are applied and therefore the search included the descriptive, discursive and empirical literature (see Table 1 overview of the research activities following the establishment of the purpose of the study).

The review was limited to readily available literature in English and

as information on specialist and advanced nursing and midwifery practice is continually developing, the electronic search was limited to studies conducted in the previous three years (2012–2015) in order to focus on the most recent developments.

The 'PICO' framework, a framework commonly used in evidence based medicine and nursing (Yensen, 2013), was adapted and used to structure the key words used in the search strategy. 'P' in the PICO framework can refer to patient, population or problem. In this study 'P' referred to specialist and advanced nurses and midwives. 'I' refers to an intervention (see Table 2 where key words are outlined). 'C' refers to comparison or control group, which was not used in this study. 'O' refers to outcome and included terms such as impact and cost.

Given the focus of the review was to deepen understanding of the topic, a narrative synthesis was considered to be the most suitable review method (Mays et al., 2005) and provided an integrated interpretation of the topic area (Popay et al., 2006). The data abstraction table was used to construct data synthesis and the formation of the narrative was an iterative process that included discussions between reviewers and re-reading of the most significant data as well as discussions with an expert panel who provided feedback on the process and outputs.

2.1. Quality Assessment, Data Abstraction and Data Synthesis

While the search strategy, retrieval, analysis and synthesis of the included documents were robust and systematic because the review included qualitative, quantitative and mixed methods studies, as well as systematic review and policy reports, it was not possible to compare and categorise the data and to synthesise the results. Using a checklist as a tool to help assess quality in a review process is a common approach (Zeng et al., 2015), as is tabulating data in the data abstraction step, as presenting data in this way provides an assessable means of exploring relationships between studies (Popay et al., 2006). Accordingly, a table was created by adapting and combining the framework for 'Strengthening the Reporting of Observational studies in Epidemiology' (STROBE) (Vandenbroucke et al., 2007) checklist and McMaster University Occupational Therapy Evidence-Based Practice Research Group (Letts et al., 2007) matrix. The reviewers used the table to abstract data by describing items such as the purpose, methods, results, rigour and limitations of each paper to conduct a limited assessment of quality.

3. Findings

The search yielded 437 articles relevant to the research question. An additional 44 papers were added as a result of a manual review of the reference lists of the most pertinent reports, policies and articles on dimensions of the roles. The number of articles was reduced in the screening step to 156 and a total of 86 papers met the inclusion criteria and were reviewed for the analysis of specialist and advanced practice roles in relation to quality care, cost and access to care. As the findings emerged they were regularly presented and discussed with the research team. This dialogue helped to clarify issues as they arose and enabled decisions to be confirmed about final selection and assisted the interpretation (Fig. 1).

The emergent themes identified in the narrative analysis of the evidence were:

1. Outcomes and impact of practice in relation to quality of care – three main areas constituted most of the evidence from literature – namely acute and chronic care with limited focus on specific patient groups such as older person care, midwifery care and children's nursing.
2. Outcomes and impact of practice in relation to cost.
3. Outcomes and impact of practice in relation to access to services.

Table 1
Overview of the rapid review methodology.

Stage	Activities
Undertake a literature search	Initially, a subject librarian was consulted and a key word search strategy was undertaken. The research team and an expert panel discussed the literature search strategy and agreed the search criteria. Search strategies were designed with broad eligibility criteria to source the maximum amount of literature relating to the topic area
Screen the literature	The screening question 'is this paper related to specialist and advanced nursing and/or midwifery practice' in relation to 'outcomes and impact of specialist and advanced nursing and midwifery practice' in relation to 'quality of care, cost and access to services' was used to ensure that relevant papers were reviewed. Two team members working together conducted title and abstract screening. Papers related to the research questions were assigned to a team member for full text screening.
Assess the quality of included studies and undertake data abstraction	Two team members conducted data abstraction and quality appraisal concurrently. One person reviewed data related to the research question.
Undertake data synthesis	The same member conducted data synthesis resulting in a narrative synthesis of the topic. The full team and expert panel were consulted during the process and provided feedback.

Table 2
PICO search terms used in the review of the literature.

Question	PICO	Search Terms
Analysis of outcomes and impact of specialist and advanced nursing and midwifery practice in relation to quality of care, cost and access to services.	P I O	<p>"Advanced nurse" OR "Advanced midwife" OR "Nurse Consultant" OR "Midwife Consultant" OR "nurse specialist" OR "midwife specialist" OR "Clinical Nurse Specialists" OR "Advanced Practice Nurses" OR "Nurse Practitioners" OR "Nurse Practitioner" OR "Acute Care Nurse Practitioners" OR "Advanced Nursing Practice" OR "Nurse Consultants" OR "Clinical Nurse Specialists"</p> <p>AND</p> <p>Evaluate OR Evaluation OR Different OR better OR Improve OR measure</p> <p>AND</p> <p>Quality OR Impact OR Cost OR "Patient Outcome" OR effectiveness OR efficient OR "Quality of Health Care" OR "Quality of Health Care" OR "Quality Assessment" OR "Quality Improvement" OR "Quality of Nursing Care" OR "Quality Assurance" OR "Health Impact Assessment" OR "Costs and Cost Analysis" OR "Health Care Costs" OR "Cost Benefit Analysis" OR "Cost Savings" OR "Nursing Costs" OR "Outcomes (Health Care)" OR "Outcome Assessment" OR "Access to Service" "Health Services Accessibility".</p>

4. Outcomes and Impact of Practice in Relation to Quality of Care

In relation to impact of the specialist and advanced practice roles, Begley et al. (2010) demonstrated conclusively that the care provided improved patient/client outcomes and was safe, acceptable and cost-neutral. An overwhelming finding from this same report was the high quality of care provided with no difference seen between specialist and advanced practitioners in service-users' satisfaction with physical care, emotional support, or advice received. In a critical review of the literature Moore and McQuestion (2012) showed that CNSs have a positive impact on patients living with chronic illness. Key outcomes included improvement in quality of life, patient and health provider satisfaction, fewer and shorter rehospitalisations, and lower costs of care. The positive contributions to patient outcomes in the area of older person care for APN-led services have been documented (Imhof et al., 2012). In a study of the effectiveness of nurse advanced practitioner coordinated team group visits for type 2 diabetes patients in a family practice clinic it was identified that the group that participated in the nurse practitioner coordinated team had better clinical outcomes, greater knowledge, and better self-efficacy than the usual care groups (Jessee and Rutledge, 2012). The added value that ANPs bring to the emergency department (ED) was highlighted in a retrospective chart review which found that ANPs had, equivalent if not better radiology diagnostic skills, increased awareness of pain management practices, and a greater impact on reducing patient waiting times compared to medical clinicians (Thompson and Meskell, 2012).

More recently Eley et al. (2013) explored the feasibility and acceptability of a nurse-led chronic disease management model (type 2 diabetes, hypertension, and ischaemic heart disease) and demonstrated the positive contribution of a specialist practice nurse-led service in diabetes care. Moreover, the utilization of CNSs in outpatient roles, especially for patients with chronic diseases such as mental health

issues, cardiac failure, breast cancer, improved patient outcomes for nursing home residents (Kilpatrick et al., 2014). In a residential aged care integration programme where advanced gerontology nursing expertise was integrated to support registered nursing and care assistant staff, Boyd et al. (2014) reported reduced hospital admissions rates for the residents and improved wellness of residents. In a similar vein, McGlynn et al. (2014) found that a nurse-led collaborative care model has favourable potential efficiency and cost-effectiveness by reducing the burden on consultant outpatient clinics, freeing up consultants therefore ensuring that they can focus on patients with greater complex needs.

Egerton (2012) explored advanced paediatric nurse practitioner (APNP) service to improve the care of children and to reduce the number of admissions and suggests that the quality of care for children and their families improved, and re-admission rates were reduced. A more recent study (Feetham et al., 2015) in this area of paediatric emergency specialist nursing demonstrates a high standard of autonomous practice, low rates of 7-day unplanned re-attendance, suggesting a consistent standard of high-quality care.

5. Outcomes and Impact of Practice in Relation to Cost

The cost-effectiveness of involving nurse specialists for adult patients with urinary incontinence in primary care compared to care-as-usual was explored by Albers-Heitner et al. (2012) who recommend adopting the nurse specialist intervention in primary care. Since the introduction of an emergency department (ED) APNP service, Egerton (2012) suggests that the quality of care for children and their families has improved. The advanced practitioners were seen by the authors as efficient clinical decision-makers, freeing up doctors to deal with more seriously ill patients and they make financial savings because of reduced hospital admission rates.

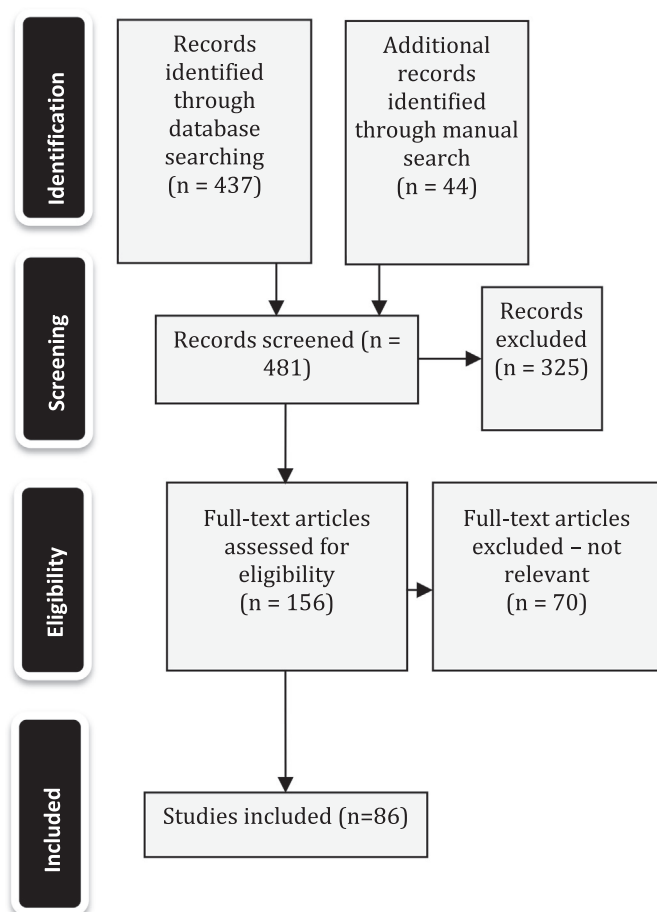


Fig. 1. Flow chart of the review process.

A retrospective evaluation in the UK found that a nurse consultant-led designated clinic for patients with fibromyalgia reduced the utilization of both primary and secondary healthcare services (Ryan et al., 2012). This service reduced the high demands often seen in this patient group on the local health economy. In the context of impact of these nursing roles in diabetes care quality and health service utilization, Everett et al. (2013) evaluated the impact of primary care physician assistant/nurse practitioner roles and show that nurse practitioners can successfully fill a range of roles on the primary care team and that a team based approach improves access and reduces costs. Moreover, two studies (Liu and D'Aunno, 2012 and Liu et al., 2014) examined efficiency models for the provision of a cost effective nurse practitioner service in primary care settings and recommended that healthcare organizations should focus on better utilizing the ANP role to contain costs and improve access to care. This point is supported by Tsiachristas et al. (2015) who concluded that ANP roles improve (a) access to health care, (b) patient information, (c) satisfaction of patients and their relatives, (d) clinical outcomes, (e) quality of care, and (f) health care utilization.

Skinner et al. (2013) evaluated the safety and feasibility of advanced nurse practitioners (NPs) delivering first-line care on a cardiac intensive care unit with all doctors becoming non-resident and concluded that with adequate training and appropriate support, resident NPs can provide a safe, sustainable alternative to traditional staffing models of cardiac intensive care. The outcome and cost-effectiveness of nurse-led outpatient care for people with rheumatoid arthritis (RA) across 10 rheumatology centres were evaluated using a multicentre pragmatic randomised controlled trial (Ndosi et al., 2014) that found the use of the Nurse Led Care (NLC) in the management of RA to be cost effective.

Kilpatrick et al. (2014) conducted a systematic review to assess the cost-effectiveness of CNSs in outpatient care in alternative or complementary provider roles and concluded that the utilization of CNSs in outpatient roles, especially for patients with chronic diseases was cost effective. Finally, David et al. (2015) examined the addition of a cardiac acute care nurse practitioner (CACNP) to care teams on utilization outcomes (i.e., time of discharge, length of stay, and readmission rates) in patients admitted to a cardiovascular intensive care unit (CCU) and concluded that the addition of a cardiac acute care nurse practitioner had a positive impact on 30-day emergency department return and hospital readmission rates for myocardial infarction and heart failure patients compared to treatment as usual.

6. Outcomes and Impact of Practice in Relation to Access to Services

A systematic review by Newhouse et al. (2011) identified that patient outcomes of care provided by CNMs are similar to, and in some ways better than, care provided by physicians. When examining a nurse consultant-led mental health model of care Harvey et al. (2012) found that the contemporary service model offered a more accessible and flexible service model supportive of primary health providers, while maintaining clinical efficacy. At the same time, in the context of emergency nursing, Wand et al. (2012) evaluated an emergency department (ED) outpatient-based mental health NP service and found a statistically light association between decreased psychological distress and an increase in perceived self-efficacy. Participant satisfaction was rated as high to very high and they clearly indicated that they benefitted from being listened to and understood and appreciated an emphasis on health promotion activities.

In terms of access to services, Mason et al. (2013) undertook a retrospective chart review of a weekly NP-managed symptom-management-clinic for patients with head and neck cancer treated with chemoradiotherapy. This NP-led clinic was established in 2006 and the study assessed outcomes for patients in the four years before and after this date (i.e., 2002–2010). The results demonstrated that a weekly NP-led symptom management clinic reduced rates of hospitalization and chemotherapy dose deviation.

A randomised control trial by Koksvik et al. (2013) compared consultations led by a CNS with consultations by a physician in patients ($n = 68$) treated with disease-modifying anti-rheumatic drugs in a rheumatology outpatient and found positive clinical outcomes in patient satisfaction as well as greater access to care for patients attending a CNS-led rheumatology clinic. Medical and nursing staff reported being satisfied with the CNS-led service in a study by McGlynn et al. (2014) who undertook a retrospective audit on a CNS-led prostate cancer service. They showed good compliance with the National Institute for Health and Care Excellence (NICE) standards relating to selection of appropriate prostate cancer treatments.

According to Li et al. (2013), in a cross-sectional qualitative study that conducted interviews with 14 members of staff in two large Australian emergency departments, the impact of the EDNP role was perceived differently following the introduction of NPs. Nurse Unit Managers noticed significant efficiencies in patient throughput when NPs contributed to patient management. However, ED directors expressed a significantly different view with one medical director questioning the cost-effectiveness of the NPs in the time-sensitive ED environment where he perceived NPs could not match the patient throughput achieved by a junior doctor. More recently, O'Keeffe et al. (2014) explored the patient experience of an extended role in health care, comparing emergency care advanced practitioners with usual providers in different emergency and urgent care settings and reported a greater percentage of emergency care practitioner (ECP) patients being very satisfied with overall care in all sites. In the context of emergency departments, a randomised control trial, demonstrated the superior performance of Emergency Nurse Practitioners, in achieving timely

analgesia for patients (Jennings et al., 2015).

Finally, the impact of these roles in relation to access to services is provided by Parrish et al. (2013) who evaluated the clinical outcomes of adult clients ($n = 20$) diagnosed with major depression who were treated by advanced practice psychiatric nurses (APPNs). The findings indicate that APPNs are highly effective in treating clients with depression and that clients are very satisfied with the care received.

7. Discussion

While studies have been valuable with respect to delineating the impact of advanced practitioner roles on care, they provide limited robust evidence (Kennedy et al., 2012) and information on the unique contributions of these roles on care (Gerrish et al., 2013). Nevertheless, there is evidence of the positive impact of specialist and advanced practitioners on quality care in the areas of chronic illness (Moore and McQuestion, 2012) particularly diabetes care and older person care for example. Imhof et al. (2012) found that a lower incidence of falls, hospitalization rate, and occurrence of acute events were the positive effects of a 9-month intervention by APPNs.

Begley et al. (2010) demonstrated conclusively that at that time the care provided by CNS/CMS/ANP/AMP was cost-neutral. Nurse led outpatient care for people with chronic illness tended to have more favourable healthcare costs in comparison to physicians (Albers-Heitner et al., 2012; Ndosi et al., 2014). There is some conflicting evidence relating to the potential costs of specialist and advanced nurse and midwife practitioner service. On the one hand the introduction of clinical and advanced practitioner roles may at the very least be cost neutral, the savings accrued from the proliferation of advanced nursing roles may be less than anticipated, due to the fact that nurses occupying these roles conduct longer consultations than their medical counterparts and make more referrals that result in the use of more diagnostic tests (Delamaire and Lafortune, 2010). Nevertheless, the present review did note that nurse practitioners provide adequate care which is also cost-effective in a range of care settings such as emergency departments, cardiac intensive care, rheumatoid arthritis, and in primary care settings (Skinner et al., 2013; Everett et al., 2013; Ndosi et al., 2014; David et al., 2015).

According to Stanik-Hutt et al. (2013) the question of the comparability of NP/MD quality, safety and effectiveness of care is answered, to a very considerable degree and the current findings provide further support for this claim while also recognising the cost-effectiveness of these roles. The availability of literature on impacts and outcomes in advanced midwifery practice is sparse and there are only brief references to midwifery specialist roles. While Begley et al. (2013) suggested that advanced midwifery practitioners (AMPs) in Ireland ($n = 3$) may practice at an even higher level than ANPs in the area of continuity of care, little international evidence was identified to corroborate this.

The literature indicates that access to care is improved with greater use particularly of advanced practitioners in areas such as emergency care (Wand et al., 2012), mental health (Harvey et al., 2012) and outpatient management of chemotherapy (Mason et al., 2013). An analysis of outcomes and impact of specialist and advanced nursing and midwifery practice in relation to quality of care, cost and access to services reveals a growing need worldwide to measure the outcome and impact of specialist and advanced practitioners to patient outcomes because these roles have the potential to improve accessibility of services while controlling expenditure (Martin-Misener et al. (2009), DiCenso and Bryant-Lukosius (2010), Donald et al. (2014), Woods and Murfet (2015)).

8. Conclusion

While the outcome studies in the evidence have been useful to delineate the impact of specialist and advanced practitioner roles on care, they provide limited evidence and information on the unique

contributions of these roles on care. This review suggests that greater use of advanced nurse practitioners could improve accessibility of primary care services while also saving on cost, yet nursing and midwifery practitioners continue to be under-utilised. The literature indicates that healthcare organizations should utilize the ANP role to improve quality, contain costs and improve access to care. Other evidence suggests that a nurse-led collaborative care model may reduce the burden on consultant outpatient clinics, freeing up consultant capacity and thus ensuring that consultants can focus on patients with more complex needs. As there are many small studies on nurse-led services across various specialties it is challenging to extrapolate the referral process, the autonomy of the roles, the governance structures and activities. More importantly, the attribution of the ANP to specific outcomes is difficult to extrapolate from studies because of the complexity of the intervention, which sometimes included several components and multiple team members.

This rapid review provides important insights that go some way to compensating for the lacuna in the empirical evidence concerning the impact of specialist and advanced practice roles on quality care, cost and access to care. If nurses and midwives are to demonstrate a clinically significant and cost-effective contribution to healthcare they must demonstrate succinctly clinical processes and outcomes which matters to the patient, the profession and the organisation. The impact of these specialist and advanced practice roles on patient care needs to be captured through measurement. It is clearly necessary to identify nurse/midwife sensitive indicators of impact, which can then be attributed wholly or partially to nursing or midwifery interventions. Future research should capture the actual impact of specialist and advanced practice roles on patient, professional and organisational outcomes. A collaborative model where specialist and advanced nursing and midwifery practitioners work in a team based approach appears optimal.

References

- Albers-Heitner, C.P., Joore, M.A., Winkens, R.A., Lagro-Janssen, A.L., Severens, J.L., Berghmans, L.C., 2012. Cost-effectiveness of involving nurse specialists for adult patients with urinary incontinence in primary care compared to care-as-usual: an economic evaluation alongside a pragmatic randomized controlled trial. *Neurourol. Urodyn.* 31 (4), 526–534.
- Australian Nursing and Midwifery Accreditation Council, 2015. *Nursing Practitioner Accreditation Standards 2015*. ANMAC, Canberra, Australia.
- Begley, C., Murphy, K., Higgins, A., Elliott, N., Lalor, J., Sheerin, F., Coyne, I., Comiskey, C., Normand, C., Casey, D., Dowling, M., Devane, D., Cooney, A., Farrelly, F., Brennan, M., Meskeel, P., MacNeela, P., SCAPE, 2010. *Evaluation of Clinical Nurse and Midwife Specialist and Advanced Nurse and Midwife Practitioner Roles in Ireland (SCAPE) Report*. National Council for the Professional Development of Nursing and Midwifery in Ireland, Dublin.
- Begley, C., Elliott, N., Lalor, J., Coyne, I., Higgins, A., Comiskey, C., 2013. Differences between clinical specialists and advanced practitioner clinical practice, leadership, and research roles, responsibilities, and perceived outcomes (the SCAPE study). *J. Adv. Nurs.* 69 (6), 1323–1337.
- Begley, C., Murphy, K., Higgins, A., Cooney, A., 2014. Policy-makers' views on impact of specialist and advanced practitioner roles in Ireland: the SCAPE study. *J. Nurs. Manag.* 22 (4), 410–422.
- Boyd, M., Armstrong, D., Parker, J., Pilcher, C., Zhou, L., McKenzie-Green, B., Connolly, M.J., 2014. Do gerontology nurse specialists make a difference in hospitalization of long-term care residents? Results of a randomized comparison trial. *J. Am. Geriatr. Soc.* 62 (10), 1962–1967.
- Casey, M., Fealy, G., Kennedy, C., Hegarty, J., Prizeman, G., McNamara, M.O., Reilly, P., Brady, A.M., Rhode, D., 2015. Nurses', midwives' and key stakeholders' experiences and perceptions of a scope of nursing and midwifery practice framework. *J. Adv. Nurs.* 71 (6), 1227–1237.
- Cashin, A., Buckley, T., Donoghue, J., Heartfield, M., Bryce, J., Cox, D., Waters, D., Gosby, H., Kelly, J., Dunn, S.V., 2015. Development of the nurse practitioner standards for practice Australia. *Policy Polit. Nurs. Pract.* 1–11. <http://dx.doi.org/10.1177/1527154415584233>.
- Cronenwett, L., Dracup, K., Grey, M., McCauley, L., Meleis, A., Salmon, M., 2011. The doctor of nursing practice: a national workforce perspective. *Nurs. Outlook* 59 (1), 9–17.
- Daly, W.M., Carnwell, R., 2003. Nursing roles and levels of practice: a framework for differentiating between elementary, specialist and advancing nursing practice. *J. Clin. Nurs.* 12 (2), 158–167.
- David, D., Britting, L., Dalton, J., 2015. Cardiac acute care nurse practitioner and 30-day readmission. *J. Cardiovasc. Nurs.* 30 (3), 248–255.

- Delamaire, M.L., Lafortune, G., 2010. OECD Health Working Paper No. 54: Nurses in Advanced Roles: A Description and Evaluation of Experiences in 12 Developed Countries. OECD, Paris.
- DiCenso, A., Bryant-Lukosius, D., 2010. The long and winding road: integration of nurse practitioners and clinical nurse specialists into the Canadian health-care system. *Can. J. Nurs. Res.* 42, 3–8.
- Donald, F., Kilpatrick, K., Reid, K., Carter, N., Martin-Misene, R., Bryant-Lukosius, D., Harbman, P., Kaasalainen, S., Marshall, D., Charbonneau-Smith, R., Donald, E., Lloyd, M., Wickson-Griffiths, A., Yost, J., Baxter, P., Sangster-Gormley, E., Hubley, P., Laflamme, C., Campbell-Yeo, M., Price, S., Boyko, J., DiCenso, A., 2014. A systematic review of the cost-effectiveness of nurse practitioners and clinical nurse specialists: what is the quality of the evidence? *Nurs. Res. Pract.*. <http://dx.doi.org/10.1155/2014/896587>. (Accessed July 2015).
- Egerton, L., 2012. Role of advanced paediatric nurse practitioners. *Emerg. Nurse* 20 (4), 30–34.
- Eley, D.S., Patterson, E., Young, J., Fahey, P.P., Del Mar, C.B., Hegney, D.G., Synnott, R.L., Mahomed, R., Baker, P.G., Scuffham, P.A., 2013. Outcomes and opportunities: a nurse-led model of chronic disease management in Australian general practice. *Aust. J. Prim. Health* 19 (2), 150–158.
- Ervin, N.E., 2005. Clinical coaching: a strategy for enhancing evidence-based nursing practice. *Clin. Nurse Spec.* 19, 296–301.
- Everett, C., Thorpe, C., Palta, M., Carayon, P., Bartels, C., Smith, M.A., 2013. Physician assistants and nurse practitioners perform effective roles on teams caring for Medicare patients with diabetes. *Health Aff.* 32 (11), 1942–1948.
- Feetham, J.E., Christian, W., Bengner, J.R., Hoskins, R., Odd, D., Lyttle, M.D., 2015. Paediatric ED reattendance rates: comparing nurse practitioners and other clinicians. *Emerg. Med. J.* 32 (5), 379–382.
- Furlong, E., Smith, R., 2005. Advanced nursing practice: policy, education and role development. *J. Clin. Nurs.* 14 (9), 1059–1066.
- Gerrish, K., McDonnell, A., Kennedy, F., 2013. The development of a framework for evaluating the impact of nurse consultant roles in the UK. *J. Adv. Nurs.* 69 (10), 2295–2308.
- Gosby, H., 2013. Media release: Australian College of Nurse Practitioners (ACNP)—transforming health care. In: Proceedings of the ACNP National Conference, Hobart, Australia.
- Hamric, A., 2014. A definition of advanced nursing practice. In: Hamric, A.B., Hanson, C.M., Tracy, M.F., O'Grady, E.T. (Eds.), *Advanced Nursing Practice: An Integrative Approach*, 5th edn. W.B. Saunders, Philadelphia, pp. 67–84.
- Hamric, A.B., Hanson, C.M., 2003. Educating advanced practice nurses for practice reality. *J. Prof. Nurs.* 19, 262–268.
- Hamric, A.B., Hanson, C.M., Tracy, M.F., O'Grady, E.T., 2014. *Advanced Nursing Practice: An Integrative Approach*, 5th edn. W.B. Saunders, Philadelphia, pp. 67–84.
- Harvey, S.T., Fisher, L.J., Green, V.M., 2012. Evaluating the clinical efficacy of a primary care-focused, nurse-led, consultation liaison model for perinatal mental health. *Int. J. Ment. Health Nurs.* 21 (1), 75–81.
- Heale, R., Buckley, R., 2015. An international perspective of advanced practice nursing regulation. *Int. Nurs. Rev.* 62 (3), 421–429.
- Imhof, L., Naef, R., Wallhagen, M.I., Schwarz, J., Mahrer-Imhof, R., 2012. Effects of an advanced practice nurse in-home health consultation program for community-dwelling persons aged 80 and older. *J. Am. Geriatr. Soc.* 60 (12), 2223–2231.
- International Council of Nurses, 2013. Position paper: scope of nursing practice. At: http://www.icn.ch/images/stories/documents/publications/position_statements/BO7_Scope_Nsg_Practice.pdf (Geneva International Council of Nurses).
- Jennings, N., Gardner, G., O'Reilly, G., Mitra, B., 2015. Evaluating emergency nurse practitioner service effectiveness on achieving timely analgesia: a pragmatic randomized controlled trial. *Acad. Emerg. Med.* 22 (6), 676–684.
- Jessee, B.T., Rutledge, C.M., 2012. Effectiveness of nurse practitioner coordinated team group visits for type 2 diabetes in medically underserved Appalachia. *J. Am. Acad. Nurse Pract.* 24 (12), 735–743.
- Jokiniemi, K., Pietila, A.-M., Kylma, J., Haatainen, K., 2012. Advanced nursing roles: a systematic review. *Nurs. Health Sci.* 14, 421–431.
- Karnick, P.M., 2012. Theory and advanced practice nursing. *Nurs. Sci. Q.* 24 (2), 118–119 (Apr).
- Kennedy, F., McDonnell, A., Gerrish, K., Howarth, A., Pollard, C., Redman, J., 2012. Evaluation of the impact of nurse consultant roles in the United Kingdom: a mixed method systematic literature review. *J. Adv. Nurs.* 68 (4), 721–742.
- Kilpatrick, K., Kaasalainen, S., Donald, F., Reid, K., Carter, N., Bryant-Lukosius, D., Martin-Misener, R., Harbman, P., Marshall, D.A., Charbonneau-Smith, R., DiCenso, A., 2014. The effectiveness and cost-effectiveness of clinical nurse specialists in outpatient roles: a systematic review. *J. Eval. Clin. Pract.* 20 (6), 1106–1123.
- Koksvik, H.S., Hagen, K.B., Rodevand, E., Mowinckel, P., Kvien, T.K., Zangi, H.A., 2013. Patient satisfaction with nursing consultations in a rheumatology outpatient clinic: a 21-month randomised controlled trial in patients with inflammatory arthritides. *Ann. Rheum. Dis.* 72 (6), 836–843.
- Letts, L., Wilkins, S., Law, M., Stewart, D., Bosch, J., Westmorland, M., 2007. Guidelines for Critical Review Form: Qualitative Studies. McMaster University, Ontario, Canada.
- Li, J., Westbrook, J., Callen, J., Georgiou, A., Braithwaite, J., 2013. The impact of nurse practitioners on care delivery in the emergency department: a multiple perspectives qualitative study. *BMC Health Serv. Res.* 13, 356.
- Liu, N., D'Amunio, T., 2012. The productivity and cost-efficiency of models for involving nurse practitioners in primary care: a perspective from queueing analysis. *Health Serv. Res.* 47 (2), 594–613.
- Liu, N., Finkelstein, S.R., Poghosyan, L., 2014. A new model for nurse practitioner utilization in primary care: increased efficiency and implications. *Health Care Manag. Rev.* 39 (1), 10–20.
- Martin-Misener, R., Downe-Wambold, B., Cain, E., Girouard, M., 2009. Cost effectiveness and outcomes of a nurse practitioner paramedic-family physician model of care: the Long and Brier Islands study. *Prim. Health Care Res. Dev.* 10, 14–25.
- Mason, H., DeRubeis, M.B., Foster, J.C., Taylor, J.M.G., Worden, F.P., 2013. Outcomes evaluation of a weekly nurse practitioner-managed symptom management clinic for patients with head and neck cancer treated with chemoradiotherapy. *Oncol. Nurs. Forum* 40 (6), 581–586.
- Mays, N., Pope, C., Popay, J., 2005. Systematically reviewing qualitative and quantitative evidence to inform management and policy-making in the health field. *J. Health Serv. Res. Policy* 10, 6–20.
- McDonnell, M., O'Brannagáin, D., McGuigan, E., 2008. Development of Advanced Nurse Practitioner Model for Specialist Palliative Care HSE Dublin North-East for the Three Local Health Offices of Louth, Meath, Cavan/Monaghan and Hospital Network 3. Health service Executive North East, Louth.
- McGlynn, B., White, L., Smith, K., Hollins, G., Gurun, M., Little, B., Clark, R., Nair, B., Glen, H., Ansari, J., Mahmood, R., Nairn, R., Balsitis, M., Chanock, D., McLaughlin, G., Meddings, R., 2014. A service evaluation describing a nurse-led prostate cancer service in NHS, Ayrshire and Arran. *Int. J. Urol. Nurs.* 8 (3), 166–180.
- Moore, J., McQuestion, M., 2012. The clinical nurse specialist in chronic diseases. *Clin. Nurse Spec. J. Adv. Nurs. Pract.* 26 (3), 149–163.
- National Council for the Professional Development of Nursing and Midwifery, 2004. Framework for the Establishment of Clinical Nurse/Midwife Specialist Posts, 2nd edn. NCNM, Dublin.
- Ndosi, M., Lewis, M., Hale, C., Quinn, H., Ryan, S., Emery, P., Bird, H., Hill, J., 2014. The outcome and cost-effectiveness of nurse-led care in people with rheumatoid arthritis: a multicentre randomised controlled trial. *Ann. Rheum. Dis.* 73 (11), 1975–1982.
- Newhouse, R., Stanik-Hutt, J.M., White, K., Johantgen, M., Bass, E., Zangaro, G., Weine, J., 2011. Advanced practice nurse outcomes 1990–2008: a systematic review. *Nurs. Econ.* 29, 230–250.
- O'Keeffe, C., Mason, S., Knowles, E., 2014. Patient experiences of an extended role in healthcare: comparing emergency care practitioners (ECPs) with usual providers in different emergency and urgent care settings. *Emerg. Med. J.* 31 (8), 673–674.
- Parrish, E., Peden, A., Staten, R.T., Hall, L., Danner, F., 2013. Advanced practice psychiatric nurses outcomes of care: a pilot study. *Issues Ment. Health Nurs.* 34 (8), 587–594.
- Popay, J., Roberts, H., Sowden, A., Petticrew, M., Arai, L., Rodgers, M., Britten, N., Roen, K., Duffy, S., 2006. Guidance on the conduct of narrative synthesis in systematic reviews. In: ESRC Methods Programme. Lancaster University, Lancaster.
- Pulcini, J., Jelic, M., Gul, R., Loke, A.Y., 2010. An international survey on advanced nursing practice, nursing education, practice and regulation. *J. Nurs. Scholarsh.* 42 (1), 31–39.
- Ryan, S., Packham, J.C., Dawes, T., P. and Jordan, K.P., 2012. The impact of a nurse-led chronic musculoskeletal pain clinic on healthcare utilization. *Musculoskelet. Care* 10 (4), 196–201.
- Skinner, H., Skoyles, J., Redfearn, S., Jutley, R., Mitchell, I., Richens, D., 2013. Advanced care nurse practitioners can safely provide sole resident cover for level three patients: impact on outcomes, cost and work patterns in a cardiac surgery programme. *Eur. J. Cardiothorac. Surg.* 43 (1), 19–22.
- Stanik-Hutt, J., Newhouse, R.P., White, K.M., Johantgen, M., Bass, E.B., Zangaro, G., Wilson, R., Fountain, L., Steinwachs, D.M., Heindel, L., Weiner, J.P., 2013. The Quality and Effectiveness of Care Provided by Nurse Practitioners. *J. Nurse Pract.* 9 (8), 492–500.
- Thompson, W., Meskell, P., 2012. Evaluation of an advanced nurse practitioner (Emergency Care)—an Irish perspective. *J. Nurse Pract.* 8 (3), 200–205.
- Tsiachristas, A., Wallenburg, I., Bond, C.M., Elliot, R.F., Busse, R., van Exel, J., Rutten-van Molken, M.P., de Bont, A., 2015. Costs and effects of new professional roles: evidence from a literature review. *Health Policy* 119 (9), 1176–1187.
- Vandenbroucke, J.P., von Elm, E., Altman, D.G., Gøtzsche, P.C., Mulrow, C.D., Pocock, S.J., Poole, C., Schlesselman, J.J., Egger, M., for the S.I., 2007. Strengthening the Reporting of Observational Studies in Epidemiology (STROBE): explanation and elaboration. *PLoS Med.* 4 (10), e297.
- Wand, T., White, K., Patching, J., Dixon, J., Green, T., 2012. Outcomes from the evaluation of an emergency department-based mental health nurse practitioner outpatient service in Australia. *J. Am. Acad. Nurse Pract.* 24 (3), 149–159. <http://dx.doi.org/10.1111/j.1745-7599.2011.00709.x>.
- Woods, M., Murfet, G., 2015. Australian nurse practitioner practice: value adding through reflexivity. *Nurs. Res. Pract.*. <http://dx.doi.org/10.1155/2015/829593>. (accessed June 2015).
- Yensen, J., 2013. PICO search strategies. *Online J. Nurs. Inform.* 17 (3). Available at <http://ojni.org/issues/?p=2860>.
- Zeng, X., Zhang, Y., Kwong, J.S.W., Zhang, C., Li, S., Sun, F., Niu, Y., Du, L., 2015. The methodological quality assessment tools for preclinical and clinical studies, systematic review and meta-analysis and clinical practice guideline: a systematic review. *J. Evid. Based Med.* 8 (1), 2–10.