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The development of a framework for evaluating the impact of nurse consultant roles in the United Kingdom

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The development of a framework for evaluating the impact of nurse consultant roles in the United Kingdom

ABSTRACT

Aim: To develop a framework to evaluate the impact of nurse consultants on patient, professional and organisational outcomes and identify associated indicators of impact.

Background: Since nurse consultants were introduced into the United Kingdom in 2000, there has been growing interest in demonstrating their impact, although robust evidence of impact is lacking. Existing frameworks for evaluating the impact of advanced practice roles do not cover the four dimensions of the nurse consultant role sufficiently.

Design: Multiple case study.

Method: Individual case studies of six nurse consultants in England were undertaken between December 2009 and October 2010. Each case study involved interviews with the nurse consultant, healthcare staff, managers, patients and carers. Interviews explored participants' perceptions of the impact of the nurse consultant and indicators of actual and/or potential impact. Data were analysed using Framework approach.

Findings: Three domains of impact of nurse consultant roles were identified: clinical significance, professional significance and organisational significance. Each domain included three to four indicators of impact. All nurse consultants showed some evidence of impact in all three domains although the primary focus varied across the different nurse consultants. Due to the wide diversity in nurse consultant roles there was little commonality in the specific indicators of impact across all nurse consultants.

Conclusion: The framework for capturing the impact of nurse consultants could be used by researchers and by nurse consultants to demonstrate their impact. Further research is required to assess the suitability of the framework for capturing the impact of other advanced practice roles.

SUMMARY STATEMENT

What is already known about this topic

- Robust evidence of the impact of nurse consultant roles in the United Kingdom is lacking.
- Existing frameworks for capturing the impact of advanced practice nurses do not address the four components of the nurse consultant role adequately.
- A proposed framework for capturing the impact of nurse consultants identified domains of clinical and professional significance but did not consider the organizational impact of these roles.

What this paper adds

- A framework for capturing the impact of nurse consultant roles on patient, professional and organizational outcomes.
- A range of indicators of nurse consultant impact in patient, professional and organizational domains.
- Examples of direct and indirect impact of nurse consultants for patient, professional and organizational domains.

Implications for policy and practice

- The framework for capturing impact could be used as an analytical and practical tool by researchers seeking to evaluate the impact of nurse consultants.
- The framework for capturing impact could be used by nurse consultants to evaluate their own impact.
- The framework may be applicable to a broad range of advanced practice nurse roles but requires further validation with these groups.

KEY WORDS

Advanced nursing practice, nurse consultants, impact, outcomes, case study

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INTRODUCTION

Nurse consultants (NC) were introduced into the United Kingdom (UK) in 2000 as part of the Department of Health's (DH) strategy to modernise nursing (DH 1999a). The role was intended to retain experienced clinical nurses in practice and enable them to achieve better outcomes for patients by improving quality and services. The DH envisaged this role to be different from other advanced practice nursing (APN) roles such as clinical nurse specialists (CNS) or nurse practitioners in specifying four core functions: 50% of the NC's time should be spent providing expert practice and the remaining 50% divided between leadership and consultancy; education and training; and service development, research and evaluation (DH 1999b). During the past decade there has been a gradual increase in NCs across the UK, although growth in England has been most marked with 1091NCs in post in 2010 (NHS Information Centre www.ic.nhs.uk). As the number of NCs increases there is growing interest in assessing their impact. However, there is little guidance on how the impact of different components of the role might be captured. This paper builds upon a systematic review of the impact of NCs conducted by the authors (Kennedy at el 2012) which reported a provisional framework for capturing impact, and presents the further refinement of the framework through research.

BACKGROUND

Changing health needs of populations resulting from an increase in long-term conditions and frail older people, rising public expectations of healthcare and economic pressures necessitating optimal use of the healthcare workforce, have contributed to a proliferation in APN roles globally (DiCenso and Bryant-Lukosius 2010). These include NC roles in the UK. As the number of APNs increases there is a need to articulate how and for whom APNs add value in order to ensure the future viability of these roles and the delivery of quality healthcare services (Cunningham et al 2004). However, demonstrating the added-value of APNs to healthcare provision is challenging. APNs often work as members of a multi-disciplinary team; therefore it can be difficult to differentiate their impact from that of other team members (Guest at al 2004). Moreover, APNs often have an indirect impact on patient outcomes through influencing the practice of other healthcare professionals (Daly and Carnwell 2003).

Published reviews of APN roles include a range of studies which have sought to demonstrate outcomes resulting from APN interventions, often comparing APN input with that of

physicians to the neglect of capturing the added-value of such roles (Begley et al 2010). Most studies have focused on capturing impact on patient outcomes or patient experience and so have omitted to consider the broader dimensions of the role, such as education and leadership. Moreover, the focus has often been on multi-disciplinary outcomes that measure generic health status, such as quality of life or patient satisfaction rather than measures that are sensitive to nursing intervention (Behrenbeck et al 2005).

Identifying nurse sensitive indicators of impact which can be attributed wholly or partially to nursing interventions is essential if nurses are to demonstrate a clinically effective and cost-effective contribution to healthcare provision (ICN 2008). Within the UK, work is progressing with the identification of a national, evidence-based set of nurse sensitive indicators for nursing quality in the areas of safety, effectiveness and compassion (Griffiths et al 2008). However, these indicators are generic to nursing as a whole and do not capture the specific contribution of APNs.

Some progress has been made in identifying indicators of outcome attributable to advanced nursing practice. A Delphi study of nurse sensitive outcome measures for advanced practice (Ingersoll et al 2000) identified that the 10 highest ranked indicators were satisfaction with care delivery, symptom resolution/reduction, perception of being well cared for, compliance/adherence with treatment plan, knowledge of patients and families, trust in care provider, collaboration among care providers, frequency and type of procedure ordered and quality of life. Other frameworks have been proposed which include financial outcome measures (e.g. Hegvary 1991, Irvine et al 1998; Niess et al 1999, Cunningham 2004). Although these indicators are relevant to NCs they do not capture outcomes associated with leadership, education and research components of the role.

In a study examining the role of APNs (including NCs) on promoting evidence-based practice among front-line staff, Gerrish et al (2007) drew upon the work of Schultz et al (2000) in outlining a framework for capturing the impact of APN roles. Schultz et al emphasised the *clinical significance* of outcomes which could be captured in terms of the practical value attributed to the intervention and the extent to which it resulted in direct patient benefit. Central to this approach is the importance of recognising that the measures used to judge impact should be meaningful to the patient/carer and not just the clinician, manager or policy maker.

Gerrish et al. (2007) extended Schultz' framework to include the *professional significance* of outcomes, i.e. the extent to which interventions had an impact on the healthcare workforce. Although this new framework had the potential to capture the impact of NC roles, Gerrish et al identified that it required further testing and refinement through cross-referencing with the literature and through empirical testing.

A recent systematic review of the impact of NC roles undertaken by the authors of this current paper (Kennedy et al 2012) sought to further refine Gerrish et al's framework. The domain of clinical significance focused on the impact of NCs on patients and family carers and comprised four indicators (symptomatology, quality of life, social significance and social validity), each of which were associated with outcomes of NC activity. The domain of professional significance comprised four indicators (professional competence, quality of working life, social significance and social validity) relating to the impact of NCs on the healthcare workforce. Although the review concluded that there was little robust evidence of the impact of NCs, the proposed framework had significant potential as an analytical and practical tool for capturing NC impact but required further refinement through empirical research. In recognising that other frameworks for capturing APN impact identified financial outcomes of benefit to the healthcare organisation, it was considered important to explore organisational indicators of impact in addition to clinical and professional domains.

THE STUDY

Aims

To develop a framework to evaluate the impact of NCs on patient, professional and organisational outcomes and identify associated indicators of impact.

Design

A multiple instrumental case study design (Stake, 1995) was used. Six case studies, each focusing on an individual NC, were undertaken in NHS organisations in one region in England.

Participants

The sample was drawn from two NHS trusts which comprised 5 hospitals that provided inpatient, outpatient and community services. The organisations were purposively selected to ensure variation in geographical location, populations served, size and service configuration.

The sampling strategy involved meeting the Chief Nurse of each organisation to identify the range of NC posts and the extent to which NCs worked across all four dimensions of the role. NCs were then purposively sampled to obtain maximum variation on factors shown to influence the complexity of capturing impact (Gerrish et al. 2007), including:

- Management of a clinical caseload
- Specialist support/consultancy to front-line staff
- Cross-boundary working (organizational and/or professional boundaries)
- Ways of working – e.g. independent practitioner or multi-disciplinary team member

NCs who had been in post for less than 12 months or were not considered to be working across all four role dimensions were excluded.

Six NCs from diverse clinical areas were recruited as 'cases'. Two posts were primarily clinically focused, two had a wide departmental remit and two had broad roles involving external and cross-boundary work between hospital and community services.

The NCs approached a range of stakeholders (e.g. junior/senior nurses, physicians, managers, patients, family carers) who could provide insights into their impact on patient, staff and organisational outcomes.

Data collection

Data were collected between December 2009 and October 2010. In-depth interviews were undertaken with each NC, followed by semi-structured interviews in each case study with six to eight professional stakeholders and up to five patients/family carers. Despite all NCs having a clinical component to their role it was difficult for some to identify appropriate patients/family carers for interview, for example NCs considered it inappropriate to approach some patients due to their medical or social condition.

Most stakeholder interviews were carried out face-to-face, with six telephone interviews undertaken at the participant's request. All staff interviews explored participants' views of the NC's impact on patient, professional and organisation outcomes and indicators that could be used to capture such impact. Patient/family carer interviews sought to ascertain what they considered important in relation to the care provided by the NC and how the NC had made a difference to their experience and/or health outcomes.

Following stakeholder interviews, a further interview was undertaken with each NC in order to clarify any issues emerging from stakeholder interviews and seek respondent validation of the developing framework of impact.

Ethical considerations

NHS research ethics approval was obtained, and research governance approval from each participating organisation. Participants were given an information sheet detailing the study aims, their involvement and confirming that their data would be confidential. Written consent was obtained from participants prior to interview.

Data analysis

Interviews were digitally recorded and transcribed verbatim. Using the computer package NVIVO 8, data analysis employed the 'framework approach' (Richie et al 2003). Five key stages were undertaken: familiarisation, identifying a thematic framework, systematic coding, organising the coded data into major themes and mapping the relationship between themes.

This process involved developing a thematic framework for coding data which built upon the framework for capturing clinical and professional impact identified through the systematic review (Kennedy et al 2012). The framework was further developed through analysis of data from individual case studies (i.e. all interviews relating to each case). Following within-case analysis for each case study, cross-case analysis was undertaken in order to further refine the framework of impact. This involved comparing the summary of data relating to the framework across all six cases to identify similarities and differences. Indicators of impact of clinical and professional significance were identified and the framework extended to include a third domain of organisational significance.

Rigour

All researchers were involved in data analysis. Initial analysis undertaken by one researcher was checked by other team members to ensure consistency in coding and interpretation and to safeguard against selectivity in the use of data. An audit trail was kept throughout the study.

RESULTS

Case study participant characteristics are presented in Table 1.

Framework for capturing impact

The framework of impact for NCs has three overarching domains: clinical significance, professional significance and organisational significance. Each domain has three or four indicators which can be examined in terms of the associated outcomes of NC activity (see Table 2). Examples of outcomes for each domain are provided in Table 3. Examination of the indicators identified how NCs can have a direct impact through their interventions or an indirect impact through influencing others. Additionally, the impact of NC interventions could be experienced in the short, medium or longer term.

Clinical significance

The domain of clinical significance comprises four indicators which relate to the clinical impact of NC interventions on patients and family carers.

Symptomatology

The impact on symptomatology focuses on how NCs make a difference to patient's physical and/or psychological outcomes. The impact on physical symptoms varied according to speciality: some NCs influenced an individual's return to normal functioning (e.g. relieving severe morning sickness) or reducing symptoms (e.g. pain), whereas other NCs who saw patients with long-term, progressive and complex conditions had an impact on maintaining patients' physical state or preventing deterioration. Impact on psychological outcomes often related to reducing anxiety and promoting general wellbeing.

Some NCs worked closely with family carers on a one-to-one basis and exerted an impact on their wellbeing. For example, the neonatal NC introduced individualised developmental care (Als et al 1994) that engaged parents more actively in care. This NC-led initiative was seen by other staff to have a positive impact on parents' psychological wellbeing.

The impact on physical and psychological symptoms was evident in patients where NCs were involved *directly* in their care, for example, one-to-one consultations, but it was also evident *indirectly* through patient-focused services developed by NCs. For example, through influencing healthcare commissioners the stroke NC had developed continuing rehabilitation therapy services for patients discharged into the community which had a positive impact on patients by improving their functional ability.

Quality of life & social wellbeing

NCs were seen to impact on patient or family members' quality of life and social wellbeing. This included outcomes such as improvements in activities of daily living, the ability to work or engage with hobbies. This impact was seen directly through NC's one-to-one provision of holistic care and support, and indirectly through the development of patient-focused services or developing relationships with other agencies which could impact upon quality of life and social wellbeing. For example, arranging palliative care support services could improve the quality of life for patients with pulmonary hypertension and their family carers.

Clinical social significance

Clinical social significance is concerned with clinically oriented outcomes that are considered important to society. As societal concerns are often translated into healthcare policy, this indicator captures NC's impact on outcomes which are manifest in policy directives.

At the time of data collection, key clinically-focused policy concerns relevant to NCs in the study related to modifying patient behaviour, such as increasing breast feeding rates, promoting the effective use of contraception to reduce teenage pregnancy, improving concordance with treatment for patients with sexually transmitted disease, or reducing smoking rates amongst stroke patients. Whereas some outcomes of clinical social significance might be achieved in the short term (e.g. % of patients who stopped smoking) other outcomes took longer to capture (e.g. reduction in stroke as a consequence of reducing smoking rates) and were difficult to attribute to NC interventions.

Clinical social validity

Social validity refers to the social importance and acceptability of NC interventions in terms of whether the intervention addresses important problems in the patient/family carer's life, in a way that is meaningful and acceptable to patients/family carers.

Outcomes relating to this indicator captured the patient experience of healthcare and included increased satisfaction with the quality of the consultation with the NC (e.g. more time, patient-focused, positive communication) or greater satisfaction with services in general, better understanding about their condition and more involvement in treatment decision-making. Positive interpersonal interactions between NCs and patients were emphasised.

In parallel with clinical indicators described above, this impact was evident directly and indirectly. Firstly, directly through NC-led clinics or other one-to-one encounters with

patients. Secondly, indirectly through the care patients received within the service as a whole, especially if the NC influenced the practice of other staff by developing new services.

Professional significance

This domain comprises four indicators that focus on NC impact on other healthcare professionals.

Professional competence

NCs were seen to impact on the competence of the healthcare workforce, including improvements in staff knowledge, skills, attitudes and increased confidence in care delivery. Additionally, changes in behaviour, including encouraging a questioning approach to practice through developing critical thinking were identified as an impact of NCs.

Impact was manifest both directly and indirectly. NCs' direct impact was evident through formal education that they provided for staff. For example, the sexual health NC provided training in motivational interviewing for health advisers in order to develop their skills and confidence in supporting patients. The clinical consultancy that NCs provided to colleagues also impacted on staff. This was formalised through clinical supervision but often it was informal and unplanned. For example, the stroke NC provided informal advice to GPs when they contacted her spontaneously regarding the care of patients following hospital discharge.

Indirect impact was evident through NCs' involvement in developing guidelines that other staff followed and which influenced their behaviour. Furthermore, the indirect impact of the gynaecology NC was cascaded down when nurses in the department (originally trained by the NC) subsequently provided on-the-job training for junior doctors.

Quality of working life

Interviews with clinical staff indicated the positive impact of working alongside a NC in terms of enhancing work experience. This related to improvements in morale, motivation, job satisfaction, and creating a positive ethos in the clinical team. This was evident to varying degrees for different NCs, but was especially apparent in those who worked primarily through influencing other staff. Innovative service developments that many NCs led enhanced staff satisfaction through improvements in patient care. For example, the gynaecology NC initiated a training programme for ward staff to extend their scope of practice in order to improve continuity of patient care. This had a clear impact on job

satisfaction and morale (and proposed additional effects on reduced staff turnover and sickness which are addressed in the following indicator).

Some NCs had a direct role on positively influencing how other staff experienced their work, for example the sexual health NC involved team members in service development projects or helped them to develop their own ideas about possible new service initiatives which increased job satisfaction.

Professional social significance

The indicator of professional social significance refers to the impact of NC activity on professional outcomes considered important to society through addressing policy concerns. At the time of the study this included impact on workload, work distribution and turnover among the workforce.

NCs impacted on workload and distribution of work across the workforce, both directly, e.g. through taking over an aspect of the service that would have ordinarily required physician input such as running clinics and indirectly through staff training or service initiatives introduced by NCs. For example, the stroke NC trained nurses to assess patients' swallowing ability following stroke, which had previously been undertaken by speech and language therapists.

Professional social validity

Professional social validity refers to the social importance and acceptability of NC interventions for the workforce, whether the interventions address important problems that staff encounter in a way that is meaningful to staff.

NCs' positive impact on team working emerged as a strong concern among stakeholders. In this context effective team working was an outcome in its own right, but could also impact on other professional outcomes such as improving professional competence, enhancing the quality of working life through increasing morale and job satisfaction, which in turn led to improvements in patient care.

The impact on team working was evidenced through NCs' clinical and professional leadership. For example, the sexual health NC influenced how the sexual health team, for whom she provided leadership, worked together.

Additionally, some NCs' impact on team working spanned organisational boundaries and professional disciplines. This was achieved through setting up networks or multi-disciplinary

initiatives (e.g. improved referral processes). Often NCs acted as the conduit that brought together different components of the care pathway. This was evident for the neonatal and stroke NCs who had successfully enabled different disciplines along a new patient pathway to work together more effectively.

Organisational significance

The domain of organisational significance comprises three indicators which relate to NC impact on organisational concerns. The national role description places an expectation on NCs to engage in leadership activities that extended beyond their employing organisation. As senior managers stressed the value of external activities in terms of organisational payback as well as the contribution to nursing nationally, these impacts are included within the single domain of organisational significance.

Organisational competence

Organisational competence refers to NCs' impact on the effectiveness and efficiency of the organisation as a healthcare *business* and was reflected in financial, contractual, governance and legal requirements.

NCs were seen to impact on the financial stability of the organisation through developing clinically and cost-effective services and through income generation. For example, the stroke NC was appointed clinical lead with responsibility for redesigning the stroke care pathway which involved working across hospital and community providers, health and social care sectors, and ensuring effective multi-disciplinary working in order to achieve a clinically and cost-effective stroke service for which the hospital secured a business contract to deliver.

All NCs had either a direct or indirect impact on the organisation's business activity in terms of patient flow, length of stay, bed occupancy rates which impacted on the organisation's ability to meet contractual requirements of commissioning bodies and maintain business viability.

NCs also had an impact on the organisation's ability to meet statutory legal requirements. For example, the gynaecology NC assumed organisational responsibility for safe guarding issues relating to teenage pregnancy and enabled the organisation to fulfil its legal governance requirements in this field.

Organisational social significance

Organisational social significance relates to NC interventions that are important to society. These include outcomes relating to policy objectives concerning the organisation, such as achieving national priorities and targets set by commissioners, and include NCs' impact on policy development and knowledge generation.

Organisations in the study were required to meet national standards or targets set by the government and/or healthcare commissioners with the objective of enhancing the quality of services provided. Several NCs exerted an impact on the organisation's ability to achieve such targets. For example, the pulmonary hypertension NC had reduced waiting times from first referral which meant that the organisation met the target imposed by commissioners (direct impact). Likewise, the sexual health NC introduced initiatives which led to more timely and comprehensive contact tracing by health advisers (indirect impact) and enabled the organisation to meet a national target.

Most NCs were involved in committee work which resulted in national policy development which had an impact beyond the NC's own organisation.

A further aspect of organisational social significance reflected societal concerns for healthcare to be based on robust evidence. Through undertaking research NCs impacted on knowledge generation which was evidenced through grant capture and research publications. Moreover, research undertaken by NCs had been used to inform practice at a local level.

Organisational social validity

Organisational social validity refers to the social importance and acceptability of interventions undertaken by NCs for the organisation, whether the outcomes address important issues for the organisation in a way that is meaningful to managers and the broader workforce.

The main focus of this indicator related to activities which were not formalised as part of the organisation's business (these are captured through indicators of organisational competence) but were nevertheless considered important to senior managers and other stakeholders. In particular the impact of NCs on achieving the organisation's core values was stressed. For one organisation, this related to NCs' impact (direct or indirect) on achieving core values of 'putting patients first', 'promoting respect' and 'demonstrating ownership and commitment to achieving the organisation's goals'. Although impact on core values was difficult to capture

objectively, it was evidenced through activities associated with clinical and professional significance, such as clinical social validity and professional quality of working life.

Additionally, the impact of external activities (e.g. committee membership, conferences presentations) on raising the organisation's profile nationally and the ability for the organisation to be 'ahead of the game' through NCs feeding back into the organisation learning from external activities was valued.

Capturing the breadth of impact

The three domains and their respective indicators of impact provide a means of mapping the overall impact of individual NCs. Not all NCs identified outcomes for every indicator; however they all identified outcomes in relation to the three domains. Table 4 provides an overview of the impact of the stroke NC in each domain.

DISCUSSION

Data from NCs and stakeholders has verified the provisional framework for capturing impact in the domains of clinical and professional significance derived from the systematic review of NC impact (Kennedy et al 2012) and extended the framework to include a third domain of organisational significance. Indicators of impact for each domain have been verified through identifying outcome measures specific to individual NC roles.

It is acknowledged that some indicators of impact might fit within more than one domain. For example, increased patient satisfaction with a consultation that was patient-focused fitted the indicators of clinical social validity and organisational social validity (addressing the organisation's core values of 'putting patients first'). Such issues were resolved by locating the example of impact within the domain that reflected the emphasis placed on it. For example, if a patient stressed the outcome it would be located within the domain of clinical significance, whereas a manager may stress the impact in terms of organisation significance. In developing the framework we considered it appropriate to use it flexibly and to associate some examples of impact with more than one domain where appropriate.

The specific indicators of impact in the domain of clinical significance reflect several identified in the literature on the impact of APN roles (e.g. Irvine et al 1998, Ingersoll et al 2000, Begley et al 2010). However, findings from the current study extend the range of indicators of impact associated with professional significance beyond those of enhanced team

working emphasised in the literature on APN impact to include increased workforce competence, the quality of work experience for healthcare professionals and maximising workforce contribution through redistribution of workload. Although knowledge and skills of care providers and staff satisfaction were identified by Ingersoll et al (2000) as outcome indicators for APNs, they were not seen to be of high importance, being ranked 24th and 26th respectively out of 27 indicators.

Apart from financial indicators of impact, literature on APN impact places little emphasis on indicators relevant to the domain of organisational significance. The findings from this study identified a range of indicators of impact relating to healthcare delivery associated with organisational priorities which can help establish the value-added dimension that NCs bring to healthcare organisations. Moreover indicators of impact which arise from NC activities outside their employing organisations provide a means of capturing impact on the profession at large as well as payback to their organisation.

Although the related systematic review of NC impact focused on domains of clinical and professional significance there was little evidence of indicators of impact which could not be incorporated within these two domains. This suggests that the organisational domain has received relatively little attention to date in studies evaluating the impact of NC roles, although Guest et al (2004) draw attention to NCs' contribution to service development and research. If NCs are to demonstrate their contribution in a financially pressurised healthcare environment, it is arguably a domain that merits further attention.

The aim of this study was to identify indicators of impact for NC roles associated with the domains of clinical, professional and organisational significance. In order to substantiate each indicator of impact, outcomes were identified for each indicator for individual NCs. It was not the intention of the current study to identify appropriate measures for each indicator. It is recognised that there are a number of valid and reliable measures which may be appropriate for some indicators, e.g. quality of life measures, patient satisfaction scales. However, tools for assessing other indicators, especially in the organisational domain, are lacking and substantial work would be required to develop valid and reliable measures to determine NC impact.

Ingersoll et al (2000) highlight the problem of directionality with outcome indicators and suggest that they should be directional free to allow for the assessment of a range of possible changes. The framework for capturing impact derived from this study fulfils this criterion in

that indicators of impact (symptomatology, quality of life etc.) are direction free. However, the examples of impact provided in Table 3 for each indicator are directional (e.g. *improvement* in quality of life arising from the urology NC's interventions) as this was relevant to assessing the impact of individual NCs involved in this study. However, it is recognised that some outcome measures may be non-directional, for example, where the intention is to maintain stability by preventing deterioration.

The framework for capturing the impact of NCs could be used to inform future research evaluating the impact of NC roles as it provides a comprehensive set of indicators of impact in three important domains. It could also be used by individual NCs to help them capture their own impact. As an outcome of the current research, a toolkit based on the framework was developed to assist NCs identify their impact on patient, professional and organisational domains and identify suitable outcome measures (Gerrish et al 2011). The toolkit is currently being evaluated but early feedback suggests that the framework is proving a useful practical guide for NCs to consider the breadth of their impact.

This study focused specifically on the impact of NCs and questions inevitably arise regarding the framework's applicability to other APN roles. The wider literature on advanced practice indicates that nurses occupying a broad range of APN roles have clinical, leadership, education and research responsibilities (Schober & Affara 2006). However, further work is required to establish the framework's relevance to other APN roles.

Limitations

The study relied on self-reported indicators of impact, rather than empirical measures of impact and included a small number of NCs and their stakeholders. However, the fact that the framework derived from the findings builds upon one developed from a systematic review of the impact of NCs gives credence to the comprehensiveness of the domains of impact and the associated indicators identified. Nevertheless it is recognised that the framework requires further testing through research, especially in relation to the organisational domain for which there was little evidence in the systematic review.

Although NCs were purposively sampled across a range of factors known to influence the complexity of capturing impact, a more extensive study involving a larger number of posts across different specialisms and settings would strengthen the framework's generalizability.

CONCLUSION

This study has illustrated how the impact of NCs can be defined across three key domains and identified associated indicators for each domain. The framework for identifying impact in terms of clinical, professional and organisational significance may help NCs, and potentially other APNs, to identify areas of impact in their own practice as well as provide a framework for researchers to assess impact. Future research should aim to capture evidence of the NCs actual impact on the various indicators identified in order to further validate the applicability and appropriateness of the framework.

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Table 1: Characteristics of the case study participants

Case study (CS) number	NC post	Stakeholders interviewed
1	Gynaecology	7 professionals, 1 patient
2	Neonatal care	7 professionals, 1 patient
3	Pulmonary hypertension	8 professionals, 2 patients
4	Sexual health	7 professionals
5	Stroke	7 professionals, 1 patient, 4 family carers,
6	Urology	6 professionals

Table 2: Framework of impact

Domain	Indicator	Definition of indicator
Clinical significance	Symptomatology	Impact on an individual's return to normal functioning, experience of a change of symptoms or maintenance of current wellbeing – i.e. physical or psychological outcomes of the patient and/or family members.
	Quality of life (QoL) & social wellbeing	Impact on an individual's QoL and self-efficacy, specifically the impact the disease has on activities of daily living (e.g. health-related QoL), and influence on social wellbeing (e.g. ability to work, engage in hobbies).
	Clinical social significance	Clinically oriented outcomes that are important to society. Societal concerns are often translated into healthcare policy, e.g. health behaviours such as smoking cessation or the self-management of long term conditions (e.g. concordance with treatment).
	Clinical social validity	The social importance and acceptability of the NC intervention, whether the intervention addresses important problems in the patient/family carer's life, and whether the outcomes are meaningful to patients/ family carers, e.g. the impact on patient experience of healthcare services such as satisfaction with consultation.
Professional significance	Professional competence	The extent to which the NC has an impact on the competence and confidence of the healthcare workforce (e.g. effecting knowledge, skills, behaviour, attitudes).
	Quality of working life	The healthcare workforce's perspective of the impact on the quality of their working life arising from NC intervention e.g. enhanced job satisfaction, morale and motivation.
	Professional social	The extent to which NC interventions are important to professional societal outcomes. Professional social significance includes outcomes concerning policy

	significance	objectives relating to the workforce (e.g. workload, work distribution and turnover across the workforce).
	Professional social validity	The social importance and acceptability of the intervention for the healthcare workforce, whether the intervention addresses important problems that healthcare staff encounter, and whether the outcomes are meaningful to the workforce.
Organisational significance	Organisational competence	The extent to which NCs contribute to an efficient and effective organisation in terms of business concerns of financial, contractual, governance and legal requirements.
	Organisational social significance	The extent to which NC interventions are important to organisational societal outcomes. These include outcomes concerning policy objectives relating to the organisation, such as achieving national or local priorities and targets set by commissioners, but also development of policy and generation of new knowledge.
	Organisational social validity	The social importance and acceptability of NCs interventions for the organisation, whether the intervention addresses important issues for the organisation and whether the outcomes are meaningful to the organisation in terms of achieving its core values.

Table 3: Examples of indicators of impact for each domain

Domain: Clinical significance Indicator	Direct (D) Indirect (I)	Examples of impact	NC
Symptomatology	D	Reduced patient anxiety associated with enhanced decision making in relation to termination of pregnancy	Gynaecology
	D & I	Positive impact on babies physical / psychological well-being through leading implementation of transitional care and developmental care initiatives	Neonatal
	I	Timely diagnosis (HIV/Chlamydia) through introducing partner notification initiatives to encourage self-testing (e.g. home sampling postal kits)	Sexual health
	D	Reduced patient anxiety through establishing formalised follow-up mechanisms for catheterised patients	Urology
Quality of life & social wellbeing	I	Improved QoL for babies & parents through introduction of developmental care initiative to actively involve parents in care.	Neonatal
	I	Improved positive client adjustment to diagnosis through support with negotiating life relationships / accepting diagnosis	Sexual health
	D	Improved patient/carer QoL and social wellbeing through on-going NC support, and provision of carer support group	Stroke
	D	Increased patient QoL through timely catheterisation and follow-up averting hospital admission	Urology
Clinical social significance	D & I	Reduction in teenage pregnancy rates through more effective use of contraception	Gynae
	I	Improved breast feeding rates	Neonatal
	D	Reduction in inappropriate use of other health services by patients through increasing their confidence to self-manage their condition.	Pulmonary hypertension
	D & I	Behaviour change relating to the prevention of stroke through providing advice on blood pressure checks, reduction in smoking	Stroke
Clinical social validity	D	Increased patient satisfaction with quality of consultation (e.g. more time / holistic / patient-focused)	Pulmonary hypertension
	D	Improved quality of patient follow-up through introduction of CNS telephone clinics - e.g. more timely response and saved journey	Pulmonary hypertension
	I	Increased understanding of stroke and stroke services amongst patients and carers	Stroke
	D	Increased patient satisfaction through telephone follow-up clinic following prostate surgery	Urology
Domain: Professional significance			
Professional competence	D	Increased skill of nurses/midwives/junior doctors in managing termination and miscarriage (e.g. undertaking ultrasound scans, examination, taking swabs, administering treatments) through providing training	Gynaecology
	D	Increased competence of nursing staff in the examination of the newborn and neonatal life support through providing in-house training	Neonatal

	D	Increased knowledge, skills, competence of sexual health advisors in using motivational interviewing to support clients through providing training	Sexual health
	D	Improved practice/stroke awareness of primary care staff through development of guidelines (e.g. follow up for transient ischaemic attack	Stroke
Quality of working life	D	Enhanced job satisfaction by providing staff with clinical supervision sessions	Gynaecology
	D	Reduction in stress experienced by staff through introduction of a more conducive multi-disciplinary care environment.	Neonatal
	D	Enhanced job satisfaction of sexual health advisers through providing clinical leadership to team members	Sexual health
	D &I	Positive influence on nursing staff morale - people feel valued with NC leading service reconfiguration	Stroke
Professional social significance	D & I	Effective communication between departments (e.g. midwifery/antenatal care, GU med) & external services (e.g. community termination clinic) to provide effective referral pathway	Gynaecology
	D	Reduction in workload of doctors through developing NC role in transitional care service	Neonatal
	D	Reduction in workload of doctors through developing gatekeeping role for CNS telephone clinic queries	Pulmonary hypertension
	D	Improved relationships between specialist sexual health service & primary care	Sexual health
Professional social validity	D	Professional problem solving / trouble shooting (e.g. CNS telephone clinic queries, General Practitioner helpline)	Pulmonary hypertension
	D	Effective team working through co-ordination of multi-disciplinary team	Neonatal
	D & I	Improved team working to give high quality care across stroke department and other ward areas through training / advice given / protocols developed NC	Stroke
	D	Timely, accessible advice provided for nursing / junior medical staff in problem solving.	Urology
Domain: Organisational significance			
Organisational competence	I	Reduced Did Not Attend rates in expectant miscarriage patients through implementation of telephone clinic	Gynaecology
	D	Reduced readmission rates through timely discharge and improved communication with community services leading to financial savings	Neonatal
	I	Income generation for service developed by NC (e.g. CNS telephone clinics)	Pulmonary hypertension
	D	Reduced length of stay and reduction in admission costs through initiating trial without catheter process	Urology
Organisational social significance	D & I	Contributor Royal College of Obstetrician and Gynaecologists Guidelines on Abortion and NICE Working Group on pain and bleeding in early pregnancy.	Gynaecology
	D	Increased involvement of parents in managing pain in neonates through undertaking research	Neonatal
	D & I	Improved patient information through leading the development of patient information booklet with national charity.	Pulmonary hypertension

	D	Achievement of national partner notification targets (e.g. number of partners verified as being tested / treated per index case) & six local HIV standards to reduce risk of transmission (e.g. reducing risk behaviour)	Sexual health
Organisational social validity	D	Raised profile of organisation through involvement with Royal College of Nursing on termination issues – lobby government re women's rights / services offered – thus broadly influencing women's rights re termination	Gynaecology
	D	Work with neonatal care charity raised profile of neonatal care nationally	Neonatal
	D	Achieving a 'patient-first' service through increased patient satisfaction by involving them in making decisions about their care	Pulmonary hypertension

Table 4: Example of the areas of impact for a nurse consultant working in stroke

Domain: Clinical significance	
Physical and psychological wellbeing	Prevention of progression to full stroke by treating symptoms via Transient Ischaemic Attack clinics
	Reduction/prevention of long-term impairment through prompt assessment and admission
	Reduced patient impairment/improved functioning (e.g. movement) and confidence via timely referral to rehab services or intermediate care (e.g. long-term care packages)
	Positive impact on patients/carers psychologically through variety of initiatives (e.g. Tell your story initiative, referral to support groups, referral to psychologist)
Quality of life & social wellbeing	Improved patient/carer QoL and social wellbeing through on-going NC support, carer support group, referral to social workers to help with finances/benefits
Social significance	Behaviour change relating to the prevention of stroke (e.g. providing advice on blood pressure checks)
Social validity	Positive influence on patient journey/satisfaction in continuity of care / streamlined services through NC led clinics, consistency in treatment/care (through guidelines/protocols), positive information / communication, community links, rehabilitation in the community
	Increased understanding of stroke and stroke services amongst patients & carers
Domain: Professional significance	
Competence	Increased skill of nurses/allied health professional s/junior doctors in various aspects of stroke care through providing education locally and via stroke network
	Enhanced staff skills/competencies through involvement with projects (e.g. swallowing management, mood assessment, district nurse review)
	Increased staff knowledge via ad-hoc problem solving of complex cases or service issues
	Increased knowledge and skills of CNS/therapists through NC involvement in development of national competency framework for CNS/whole of stroke workforce
	Improve d practice/stroke awareness of primary care staff through development of guidelines (e.g. TIA/follow-up
Quality of working life	Improved confidence/wellbeing on CNS team via clinical supervision and advice
	Positive influence on work environment/team and nursing morale - people feel valued
Professional social significance	Re-profiled workload of others - indirectly through development of CNS posts which reduce speech & language therapist workload and directly via development of nurse-led clinics/redistribution of responsibilities within pathway/introduction of targets which reduce workload for doctors
	Retention of staff (low turnover / sickness) through enhancing job satisfaction
	Positive influence on the development of CNS posts and contribution to increasing number of CNS/therapists
Professional social validity	Improved team working to give high quality care across stroke department and other ward areas through training / advice given / protocols developed NC
	Improved team working - including MDT involvement in national audits and subsequent work to address issues
	Improved care pathways/communication across boundaries (e.g. neuro/medicine, acute/ community) to provide seamless care for all
Domain: Organisational significance	
Organisational competence	Cost savings through reduced length of stay through organisation of stroke care pathway and community rehabilitation services
	Achieved cost savings via service redesign and income generated through clinics
	Reduced readmissions via NC clinic/review and management of patient at home
Organisation social significance	Achievement of national targets - e.g. national audit of stroke vital signs

	Contribution to development of national guidelines in stroke (influences other Trusts' pathway) Development of local / regional protocols / guidelines
	Advanced knowledge in field via research involvement / activities / publications
Organisational social validity	Achieves core value of 'ownership' through leading stroke service initiatives that deliver the organisation's goals
	Raised profile of organisation through presentations at national conferences
	Influenced national agenda for stroke through national committee membership

Response to reviewers' comments

We have added additional bullet points to the summary statements in order to comply with the guidelines.

We wish to thank the reviewers for their helpful comments.

Reviewer 1 provided very favourable comments and did not make any suggestions for further developing the paper.

Reviewer 2

We have inserted a statement in the Background section as to why NCs are included in the review of APNs.

In response to the reviewers concerns about the difference between domains and indicators we have sought to clarify how we have used the terms. We first refer to domains and indicators in the Introduction and Background by referring to our earlier work with APNs and the systematic review of NC roles which used these terms. We build upon this earlier work in the current study. Definitions of the indicators in relation to each domain are included in Table 2 and it may be easier for the reader to make these links once Table 2 is inserted into an appropriate slot in the paper. Likewise Table 3 identifies the indicators under each domain. We have corrected a couple of typographical errors where we used the terms 'domain' incorrectly and acknowledge that these errors may have made it difficult for the reviewer to identify the relationships between the two concepts. (These typographical changes have not been not highlighted in red). We have not felt able to expand upon this further without deleting other content as the paper was already at the maximum word length.

We have made some minor changes to the 'Participants' and 'Data Analysis' section to clarify what constitutes a case, the data generated from each case study and cross case analysis.

In the first paragraph of the Discussion we have changed the word 'validation' to 'verification' to avoid any confusion with statistical approaches to validation which may arise from our use of the term.

The reviewer expresses concern that there are no examples from the data to support the findings. Both Tables 3 and 4 provide examples of impact which are derived directly from our data so we have not made any changes here. We would wish to point out that this paper is about the development of a framework for capturing impact based on examples of impact provided by our research participants. The more in-depth qualitative data relating to the issues associate with capturing impact (in which we will use quotes from interviews) will be the subject of a follow on paper.