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An evaluation of the implementation of Advanced Nurse Practitioner (ANP) roles in an acute hospital setting.

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ABSTRACT

Aim

To report on a study to evaluate the impact of implementing Advanced Nurse Practitioner roles on patients, staff and organisational outcomes in an acute hospital.

Background

The worldwide development of advanced practice roles in nursing has been influenced by increasing demands and costs of healthcare. A key issue in the UK has been the reduction in hours junior doctors can work.

While there is evidence these roles can have a positive impact in a variety of clinical specialties, little is known about the impact advanced nurses substituting for junior doctors can have on patient, staff and organisational outcomes in general hospital care settings.

Design

Collective case study.

Methods

A collective case study in a district general hospital in England was undertaken in 2011-12. Interviews with strategic stakeholders (n = 13), were followed by three individual case studies. Each case study represented the clinical area within which the roles had been introduced: medicine, surgery and orthopaedics and included interviews (n = 32) and non-participant observation of practice.

Findings

The ANPs had a positive impact on patient experience, outcomes and safety. They improved staff knowledge, skills and competence as well as enhancing quality of working life, distribution of workload and teamworking. ANPs contributed to the achievement of organisational priorities and targets and development of policy.

Conclusion

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2
3 ANPs undertaking duties traditionally performed by junior doctors in acute hospital
4 settings can have a positive impact on a range of indicators relating to patient, staff
5 and organisational outcomes which are highly relevant to nursing.
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7

8 9 **SUMMARY STATEMENT**

10 11 **Why is this research needed?**

- 12
13 • Little is known about the impact of Advanced Nurse Practitioners undertaking
14 work traditionally undertaken by junior doctors in general hospital care
15 settings.
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- 18
19 • The impact of Advanced Nurse Practitioners working in general hospital care
20 settings on patient, staff and organisational outcomes requires investigation
21 and clarification.
22
23

24 25 **What are the key findings?**

- 26
27 • Ward-based Advanced Nurse Practitioners are viewed by a range of
28 stakeholders as having a positive impact on patient experience, patient
29 outcomes and patient safety.
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- 32
33 • Advanced Nurse Practitioners can have a positive impact on other staff by
34 improving knowledge, skills and competence as well as quality of working life,
35 distribution of workload and teamworking.
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- 38
39 • Advanced Nurse Practitioners, even when substituting for junior doctors, can
40 influence outcomes that are highly relevant to nursing.
41

42 43 **How should the findings be used to influence practice/research?**

- 44
45 • Further research is needed to quantify the impact of ward-based Advanced
46 Nurse Practitioners on patient outcomes e.g. safety and satisfaction and staff
47 outcomes e.g. quality of working life and teamworking.
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51 • Hospitals introducing ward-based Advanced Nurse Practitioners should
52 routinely collect data to monitor their impact on organisational priorities and
53 targets such as throughput, time to treatment and length of stay.
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KEYWORDS

nurses, advanced nurse practitioner, advanced nursing roles, case study, mixed methods

MAIN TEXT (4950 words)

INTRODUCTION

Nurses working in advanced roles are a global phenomenon (Por 2008). The nurse practitioner role is reported to have emerged in the USA in the mid 1960's (Marsden *et al.* 2003) and roles are now well established worldwide. An International Council of Nurses survey in 2003 found that over 60 countries were developing or implementing advanced roles (Schober & Affara 2006).

A variety of specialist roles have evolved worldwide for example Clinical Nurse Specialist, Nurse Practitioner, Advanced Nurse Practitioner (ANP) and Nurse Consultant. There is considerable international variation in role titles, educational preparation, purpose of role and care setting (Woods 1997, Kennedy *et al.* 2012).

While the impetus for these role developments varies between countries, overarching factors include rising demand for healthcare and professional development in nursing and physician shortages e.g. in Australia, France, Netherlands, Taiwan and USA. (Schober & Affara 2006).

Remodelling and re-engineering of clinical teams is happening globally to address physician shortages alongside rising costs of healthcare. One strategy has been the introduction of ANPs to undertake some of the tasks and responsibilities traditionally undertaken by doctors, including full substitution on the medical rota. However, little is known about the impact of ANPs working in this way on patients, staff and organisations. This study aimed to evaluate this impact through a collective case study approach.

BACKGROUND

The development of advanced practice roles for nursing has been influenced by a number of key drivers including increasing demands and costs of healthcare as new

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3 treatments become available. Countries including USA, Australia, Canada and
4 South Korea have reformed healthcare and introduced innovative options to address
5 these issues (Pearson & Peels 2002, Buchan & Calman 2005, Schober & Affara
6 2006).
7
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9
10 A key imperative in UK hospitals has been the implementation of the European
11 Working Time Directive (EC 1993). The adoption of a maximum 48 hour working
12 week for junior doctors (doctors undertaking a two-year, general postgraduate
13 medical training programme after medical school) has resulted in initiatives that have
14 expanded and extended the traditional scope of nursing, including the appointment
15 of ANPs to complement or replace these doctors (RCN 2012).
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18
19 While the characteristics and titles of ANPs are shaped by the context and country in
20 which they practice (Pulcini et al. 2010), they can be defined as registered nurses
21 who have acquired the expert knowledge base, complex decision making skills and
22 clinical competences for extended practice (RCN 2102). However, in the UK there is
23 no title protection for specialist nurses leading to multiple titles and inconsistencies in
24 scope of practice, education and training (RCN 2013).
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35 There is an implicit assumption that the goal of ANP roles is to improve patient
36 outcomes and improve the patient experience in a cost effective and timely manner.
37 Reviews have clearly demonstrated that nurses working in advanced roles can have
38 a positive impact on patient outcomes and experience in specialities such as
39 diabetes (Ingersoll *et al.* 2005), breast cancer (Cruikshank *et al.* 2009), Parkinson's
40 (Hagell 2007) and pain management (Courtney & Carey 2008). Reviews have also
41 shown that advanced practice roles evaluate positively in terms of patient
42 satisfaction, clinical outcomes and organisational indicators such as waiting times in
43 emergency departments (Griffin & Melby 2006) and primary care (Laurant *et al.* 2004,
44 Coddington & Sands 2008). There is also evidence of impact on the knowledge and
45 skills of other staff (Wilson-Barnett & Beech 1994, Kleinpell et al 2008).
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54 However, while studies describe the impact of ANPs in specialist hospital areas such
55 as emergency departments (Norris & Melby 2006), intensive care units or neonatal
56 units (Hall & Wilkinson 2005), Woods 2006, Fleming & Carberry 2011), there is little
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1
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3 evidence on the impact of ANPs working in general hospital care settings such as
4 medicine and surgery. While Dowling *et al* (1995) conducted case studies of early
5 ANPs working in general care settings, the study focused on professional boundaries
6 and implications for role development rather than impact in practice. Williamson *et al*.
7 (2012) conducted a recent ethnographic study exploring the role of ward-based
8 ANPs in an acute medical setting. While ANPs were pivotal and necessary to
9 provide quality and holistic patient care, their role was seen as much more than a
10 substitution role for junior doctors. They had expertise, networks and an in-depth
11 knowledge of health care. These qualities helped to facilitate patient care but also
12 had a role in facilitating nursing and medical practice. However, this study focused
13 on describing and understanding the ANP role rather than evaluating impact.
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22 In summary, while there is evidence that nurses working in advanced roles can have
23 a positive impact in a variety of clinical specialties and practice settings, there is little
24 evidence on the impact that ANPs substituting for junior doctors have on patient,
25 staff and organisational outcomes in general care settings. This study aimed to
26 explore this impact in practice by focusing on one hospital that had implemented
27 ANP roles in three different settings: medicine, orthopaedics and surgery.
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32 THE STUDY

33 Aim

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38 The aim of this study was to evaluate the impact of implementing ANP roles on
39 patient, staff and organisational outcomes in an acute hospital setting in England.
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42 Design

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44 A collective case study, comprising interviews with strategic stakeholders, followed
45 by three individual mixed-method case studies (Stake 1995) was undertaken. Each
46 case study represented the clinical area within which the ANP roles had been
47 introduced: medicine, surgery and orthopaedics. Data collection methods included
48 interviews, non-participant observation of practice and collection of documents.
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54 This approach was selected to capture detailed insights into the outcomes of ANP
55 roles that are meaningful to different stakeholders including managers, frontline staff
56 and patients. The collective case study would also enable exploration of similarities
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3 and differences between each clinical specialty and the extent to which ANPs had
4 achieved success from the perspective of these stakeholders.
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7 Sample and setting

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9 The study site was a hospital providing acute adult services in the North of England.

10
11 A purposive sample of thirteen strategic stakeholders with insight into role
12 implementation or development was selected. This included individuals with
13 organisation-wide senior strategic posts from the fields of general management,
14 education, medicine and nursing (n = 5), senior operational managers (n = 5) and
15 consultant medical staff (n = 3).
16
17

18
19 Each individual case study represented each clinical area within which the first
20 cohort of ANPs had been introduced i.e. medicine (n = 3 ANPs), surgery (n = 2
21 ANPs) and orthopaedics (n = 1 ANP). The ANPs had been in post for less than a
22 year at the start of the evaluation. ANPs identified a range of individuals with whom
23 they had worked closely who could provide insights into the development,
24 implementation and impact of their posts. From these a purposive sample was
25 selected for each case study to include staff nurses, ward managers, consultant
26 medical staff, senior and junior doctors, multi-disciplinary team members and
27 patients (n = 32).
28
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30 Data collection

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32 Data were collected in 2011 - 2012.
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35 *Interviews with strategic stakeholders*

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37 Data collection began with individual in-depth interviews with strategic stakeholders.
38 Interviews explored their perceptions of: the impetus for ANP role developments, the
39 objectives for the roles, impact of the roles and factors influencing successful role
40 implementation.
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42

43 *Interviews with ANPs*

44
45 Data collection for each case study began with an in-depth interview with each ANP
46 working in the specialty. Follow up interviews were conducted at the end of each
47 case study to clarify issues that arose as the case study progressed (see Table 1).
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Interviews with staff and patients

In each case study, semi-structured interviews were conducted with a range of staff and patients (see Table 1). Interviews explored the interviewee's contact with the ANPs and their perceptions of ANP impact. In-patient interviews explored the impact of ANP on their experience and care.

Non-participant observation of practice

A researcher shadowed the ANPs working in each clinical specialty on 2-5 occasions for approximately 4 hour periods. Visits were scheduled to ensure observations captured the full range of ANP work including day and night shifts. The focus of the observation was to gain greater insight into the ANP role in practice. Detailed field notes were taken immediately following the period of observation.

Gathering further evidence

Relevant documentary evidence was also collected including job descriptions and competencies developed for the ANP role.

Ethical considerations

Independent scientific review by the University Research Ethics Committee confirmed that as a service evaluation full research ethics approval was not required (NHS Health Research Authority 2013). Research governance approval was obtained from the participating organisation. Participants were given an information sheet outlining the purpose of the study and given assurances that their data would be treated confidentially. Informed consent was obtained prior to all data collection.

Data analysis

All interviews were audio recorded and transcribed in full. Data analysis drew upon the principles of the 'Framework' approach to qualitative analysis (Ritchie and Spencer, 1994). **This involves a systematic process of sifting, charting and sorting material (transcripts, fieldnotes and documents) into key issues and themes through the following stages: familiarisation, developing a thematic framework, indexing, charting, mapping and interpretation.**

The thematic framework was initially developed on the basis of the study aim, an existing framework relating to the impact of nurse consultant roles (Gerrish et al.

1
2
3 2013) and key issues and indicators of impact which emerged from stakeholder
4 interviews through a process of reading the data and open coding. The framework
5 was further developed in the light of emerging data analysis. NVivo 9 was used to
6 manage, store and search the data. At the end of each case study, within-case
7 analysis ensured that a detailed understanding of each case study had been
8 achieved. **Cross-case analysis was then undertaken to identify cross-cutting themes**
9 **common to all cases (although they might be articulated differently within each**
10 **context) and contextual issues which were particular to individual cases.**

17 Rigour

19 Analysis was conducted by three researchers. As the framework was developed,
20 regular consistency checks were carried out where a sample of transcripts were
21 independently coded by all analysts ensuring consistency in coding and
22 interpretation across the team. Throughout data analysis, regular team meetings
23 were held to ensure that interpretation of themes was consistent.

28 RESULTS

31 Characteristics of ANP participants

33 Characteristics of the ANPs are summarised in Table 2. All were experienced
34 nurses qualified between 4-22 years. Five were recruited internally and one
35 externally. **Training took place over 12 months and included master's level modules**
36 **(in advanced physical assessment and consultation skills, non-medical independent**
37 **prescribing and acute chest X-ray image interpretation) and supernumerary training**
38 **in practice where ANPs were supported, mentored and assessed by senior medical**
39 **staff.**

46 The ANPs worked differently across the three clinical specialties. The ANPs in
47 surgery worked on the surgical assessment unit and wards as well as filling in gaps
48 in junior doctors' rota. In medicine the ANPs covered the medical assessment unit
49 and wards at times when the junior doctor workload was heaviest. In orthopaedics
50 the ANP was mainly ward based and focused on fractured neck of femur (NoF)
51 patients across the care pathway. **ANPs were involved in clerking and reviewing**
52 **patients, initiating plans of care prior to review by senior doctors, prescribing**
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3 medication, ordering X-rays and investigations, providing advice to nurses,
4 cannulation and venupuncture.
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7 Findings from stakeholder interviews and cross-case analysis of all data sources
8 from the three case studies are presented here under three thematic headings:
9 impact on patients, impact on staff and impact on the organisation.
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11

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13 Impact on patients
14

15 *Impact on patient experience*
16

17 There was a wealth of data relating to the positive impact of ANPs upon patients'
18 experience of care. The holistic nature of the assessments carried out by the ANPs
19 and their ability to understand the patient perspective were highly valued:
20
21

22
23 I have other health problems as well, because I've got dermatomyositis, and
24 I've got arthritis in my spine, my neck and my shoulder, so that's giving me
25 pain, and then with my myositis you see it's weakening my muscles. So you
26 know when you've to prise yourself up, to stand up, it makes it worse because
27 I'm frightened my arms will give way. But she (ANP) takes all this into
28 consideration and will tell other nurses you see. (Patient Orthopaedics)
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34 Continuity of care was also seen as enhanced by ANPs following patients through
35 from admission to discharge and providing a reassuring presence and a different
36 type of service which was seen as more personalised, provided by someone who
37 had in-depth knowledge of patients as individuals.
38
39
40

41 Patients, nurses, doctors and allied health professionals alike commented on the
42 reassurance and confidence provided to patients through being cared for by ANPs
43 who were seen as capable, knowledgeable and skilled. ANPs were also seen to
44 impact on patient experience through improved communication:
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47
48

49 ...I mean everyone that I've seen these last few days has been fantastic, but
50 she (ANP) went more into depth with things and were a lot more thorough and
51 needed to know every bit of detail and more into it and were constantly giving
52 me feedback telling why they were asking and why she needed to know and
53 definitely a lot more thorough with everything. (Patient Surgery)
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3 Several interviewees highlighted the extent to which the ANPs considered patient
4 dignity:
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7 ... silly things like if they're taking the patient's blood and they've had to move
8 the blanket out of the way or had to move them around or something, they're
9 always left presentable, you know, and dignified and covered, and just little
10 things like that, where you can tell if a doctor's been to a patient with bits
11 everywhere. (Staff Nurse Orthopaedics)
12
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16 *Impact on patient outcomes and patient safety*

17
18 There was a clear consensus amongst staff that the ANPs had a positive impact on
19 patient outcomes and patient safety. Their constant presence in the ward areas and
20 their ability to put together multiple parts of a complex patient picture meant that
21 problems were picked up and actioned promptly:
22
23
24

25
26 I think it just means that they've (ANPs) got more pieces of the jigsaw ... so if
27 then somebody does deteriorate more dramatically then ANPs may know the
28 patient had seven lots of diarrhoea in this shift, which nurses might not have
29 bothered to tell the doctor about because you know are doctors very
30 interested in bowels? Well perhaps not. But the fact that the patient had
31 seven lots of diarrhoea and now they've got no blood pressure and they're
32 tachycardic might be because they're dehydrated. (Anaesthetist)
33
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38
39 There were also numerous examples during observation of enhanced vigilance,
40 where ANPs picked up shortfalls/omissions in care while undertaking other tasks e.g.
41 noticing that analgesia needed reviewing or alerting nurses to the fact that a patient
42 wasn't wearing compression stockings.
43
44

45
46 Within orthopaedics the rates of catheterisation and urinary tract infections (UTIs)
47 had fallen after the ANP changed practice by ensuring epidural blocks were done
48 earlier in order to avoid routine catheterisation.
49
50

51
52 Another recurring view was that since the introduction of the ANPs, the recognition
53 and management of deteriorating patients had improved. This was attributed to a
54 number of factors including faster response times (because ANPs could attend
55 deteriorating patients when doctors were in theatre or clinics). ANPs were also
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3 proactive in the management of deterioration and as ward nurses found them
4 approachable they were more likely to contact them if they had concerns about a
5 patient that they were not able to clearly evidence.
6
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8
9 Senior medical staff commented on the organisational skills of the ANPs, the
10 accuracy of their documentation and note writing. Investigation request cards were
11 filled in comprehensively and accurately. Completeness and legibility of their
12 prescriptions was also exemplary.
13
14

15
16 Impact on staff
17

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19 *Impact on competence of staff*

20
21 Many interviewees highlighted the ANPs' impact on the competence of junior doctors
22 by providing advice and support on a daily basis. Junior doctors valued the clinical
23 expertise of the ANPs and their in-depth knowledge of clinical policies and how
24 hospital systems worked. They also learned by example from the ANPs:
25
26

27
28 they are senior nurses, so they've been at the job for quite some time, so
29 they're quite clued in. It's quite helpful to look through their summary and
30 what they write in the notes and see their thought process and decide what to
31 do from there. (Junior Doctor Medicine)
32
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35
36 There was no evidence that the ANPs had detracted from the training needs of junior
37 doctors by diluting the amount of experience available to them.
38

39
40 There were also numerous examples both from interviews and observation of the
41 ANPs providing advice and sharing knowledge with nurses and providing them with
42 a clear rationale for clinical decisions. It was clear that ward nurses saw them as a
43 reliable source of expertise and were comfortable to seek their advice and support.
44
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46

47
48 *Impact on quality of working life*

49
50 As a consequence of being seen as responsive, approachable and having
51 considerable experience and expertise, the presence of the ANPs was very
52 reassuring - for both nurses and junior medical staff:
53
54

55 ...you feel a bit embarrassed with other people, you don't mind ringing them
56 because they're more easily approachable (Junior Doctor, Medicine)
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3 While the ANPs worked closely as members of a team with junior doctors, they also
4 had an impact on the quality of working life of more senior medical staff:
5
6

7 ...So when I go to theatre or I go to endoscopy or clinic, I know patients are
8 looked after and if they need help I will be let know. Somebody's there who
9 can recognise the patient is poorly and need my help, so that makes my life
10 easier. (Senior Doctor Surgery)
11
12
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14 *Impact on workload or distribution of work*

15
16 In medicine and in surgery, the ANPs had an enormous impact on the workload of
17 junior doctors by sharing the workload on a day to day basis. In orthopaedics, the
18 ANP had assumed day to day responsibility for the care of the NoF patients from the
19 junior doctors, thus freeing them up to concentrate on other elements of care. The
20 diligence and thoroughness of the ANP in undertaking this role had an impact on the
21 workload of senior medical staff including the anaesthetists:
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26

27 I can talk about many anecdotes where they (*the anaesthetists*) said, great I
28 went to the ward and the nurse practitioner was there and I got the
29 information which I need, whereas if they were not on the ward it would take
30 them a huge amount of effort trying to get things together. So the
31 anaesthetists they find it fantastic, they love it really. (Consultant 2
32 Orthopaedics)
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37

38 There was also evidence from observation of ANPs reducing nursing workload in
39 medicine and surgery by offering to help when busy and doing tasks such as
40 venepuncture. However, conversely evidence suggested they might create work for
41 ward staff by noticing shortfalls in nursing care as described earlier.
42
43
44
45

46 *Impact on team working*

47
48 There was evidence that the ANPs improved teamworking and were able to 'bridge
49 the gap' and improve communication both within teams of doctors and nurses and
50 across professional boundaries. The ANPs in surgery were seen to encourage
51 nursing staff to attend medical ward rounds to improve information flow between
52 doctors and nurses. The ANP in orthopaedics played an active part in the MDT
53 meetings, ensuring that the MDT worked more closely and effectively for the benefit
54 of NoF patients.
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3 The impact on teamworking in all clinical specialties appeared to be within the
4 system as a whole. An example of how this worked in practice was given by an
5 anaesthetist:
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9 I think that communication with everybody is enhanced, so I've had to sort
10 somebody out for the trauma list and just said to the ANP I need to speak to
11 the son, we need to find out from the GP what medication they're normally
12 on... And she just sorted it all out in five minutes, and the son was in and I
13 could talk to him, and it's just about the whole quality of the care that they get,
14 and then she then communicated that to the nurse who was actually looking
15 after the patient so that they were in the loop and they knew, and I kind of
16 watched her do it all and thought actually that's fantastic. In 10 minutes she's
17 done something that might have taken a junior doctor half a day to do...

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24 (Anaesthetist)

25
26 Impact on the organisation
27

28
29 *Impact on organisational priorities and targets*

30
31 Interviews and observation indicated that the introduction of the ANPs had resulted
32 in patients receiving more timely care. This was articulated differently between
33 cases. For example, in medicine and surgery, prompt clerking of patients and
34 ordering of investigations on the assessment units ensured clinical decisions could
35 be made as soon as senior members of the medical team visited, rather than being
36 delayed because clinical information was not available. This was seen to contribute
37 to increased throughput and shorter length of stay as well as improvements in the
38 patient experience.
39

40
41 In orthopaedics, the ANP acted as the 'hub' of the NoF pathway. Part of their role
42 was to ensure that patients went to theatre within an optimal timeframe to improve
43 postoperative outcomes, ensuring the hospital met external quality targets and as a
44 result generated income.
45

46
47 The ANPs were also seen to have an impact on discharge from hospital in all
48 specialties. This was due to undertaking timely patient reviews for those medically fit
49 for discharge and timely completion of discharge forms, ensuring for example that
50 supply of take home medications was not delayed.
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3 In terms of financial targets and savings, in surgery the ANPs had been used to
4 cover a vacant junior doctor post, which had an impact on costs as well as quality of
5 care when compared to using/paying for additional locum doctors. However, in
6 orthopaedics, rota gaps were filled by locums, given the reluctance of senior medical
7 staff to accept that the ANPs had the skills to cover the rota. Contrary to the initial
8 expectations of some members of the management team the introduction of the
9 ANPs had not resulted in a reduction in the number of medical posts.
10
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14

15 *Development of policy*

16
17 The ANPs impacted on the organisation through the development of policy. For
18 example the development of a new policy for the prescription of blood products and
19 in orthopaedics the ANP had been instrumental in redesigning the NoF pathway and
20 the falls assessment pathway. The ANPs had also initiated the redesign of the
21 discharge form used within the hospital and were in the process of rewriting their job
22 descriptions and developing a new set of competences to reflect the range of their
23 roles and responsibilities.
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30 DISCUSSION

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32 The findings from the three individual case studies demonstrated clearly that the
33 ANPs had a positive impact on patient experience, patient outcomes and patient
34 safety. The introduction of the ANPs also had a positive impact on other staff by
35 improving knowledge, skills and competence as well as less tangible indicators such
36 as quality of working life, distribution of workload and teamworking. The final domain
37 of impact was on the organisation. The ANPs contributed to the achievement of
38 organisational priorities and targets and development of hospital policy.
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45 There was clear overlap between the framework of impact generated in this
46 evaluation and a framework for capturing the impact of nurse consultant roles
47 (Gerrish *et al.* 2013). However, in this study impact on patient safety featured more
48 prominently while the generation of new knowledge, was not a key feature of the
49 ANP roles.
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54 Begley *et al.* (2013) also found that advanced nursing roles in Ireland resulted in
55 improved clinical practice and service delivery and greater clinical leadership. There
56 is also overlap between the indicators of impact highlighted here and the evidence-
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3 based nurse sensitive indicators developed by Griffiths *et al.* (2008), indicating the
4 salience of the ANP roles in terms of influencing outcomes which are sensitive to
5 nursing. These include safety (e.g. failure to rescue) effectiveness (e.g. staff
6 satisfaction) and compassion (demonstrated through experience of patient care and
7 communication). While an early evaluation of similar roles Dowling *et al.* (1995)
8 highlighted concerns that key nursing skills including caring, communicating and
9 providing a holistic approach to care might be lost when nurses substitute for doctors,
10 no such concerns were raised in this study. There is little evidence in the
11 international literature relating to the impact of ANP roles as described here. While
12 the safety and effectiveness of ANPs in primary care is well evidenced (Horrocks *et al.*
13 2002, Laurant *et al.* 2004) there are very few evaluations of ANPs working in
14 general care settings in acute hospitals. There is however overlap between the
15 domains of impact identified here and the study of ANP roles reported by Williamson
16 *et al.* (2012) who also reported enhanced communication and better detection of
17 patient deterioration as well as potential reductions in length of stay. There are
18 parallels with the domains of impact identified in a recent systematic review of the
19 outcomes of advanced nursing roles in a variety of care settings in the USA
20 (Newhouse *et al.* 2011). These included improved patient satisfaction, clinical
21 outcomes, reduced mortality and reduced length of stay. This study extends the
22 body of international knowledge about the positive impact of ANP roles across a
23 range of domains. It also provides new insights into the value of ANPs working in
24 general hospital settings, particularly in relation to patient experience and patient
25 safety.

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42 The evidence for the impact of the ANP roles in this study came mostly from
43 interviews and observation of practice, there was relatively little quantitative evidence
44 of impact available in the form of routine data. However, lack of quantitative data to
45 evidence impact is not the only issue to impede evaluation. The impact of all
46 advanced nursing roles is inherently hard to quantify for a variety of reasons. The
47 impact of these roles is often indirect (e.g. through up-skilling other staff) and may be
48 felt some time after the initial ANP intervention. In addition, there are problems with
49 attributing changes in outcomes to an ANP when these nurses often work in the
50 context of a multi-disciplinary team (McDonnell *et al.* 2012). This issue is particularly
51 pertinent to the ANPs in this hospital. The impact of the roles was not simply a
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3 consequence of delegating elements of junior doctors' responsibilities to ANPs, but
4 was a result of improvements in care through a whole systems approach. Through a
5 variety of mechanisms, the ANPs were able to harness the efforts of the team as a
6 whole to improve care 'across the piece' for the benefit of patients.
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10 The evidence for impact of the ANPs on patients and staff was particularly strong.
11 For patients this included impact on patient outcomes and patient safety, which
12 concurs with existing evidence that clinical decisions and management provided by
13 advanced nurses compare favourably with those of medical practitioners in terms of
14 quality, safety and accuracy (Horrocks *et al.* 2002, Buchan & Calman 2004, Lenz *et*
15 *al.* 2004) and provides new insights into how this is enacted in a hospital setting.
16 There was positive impact on the patients' experience of hospital care, which
17 included the provision of more timely care, as well as improved communication and
18 continuity of care, which is reflected in other studies (Newhouse *et al.* 2011). The
19 quality of patient experience is articulated in a list of quality statements by the UK
20 National Institute of Health and Clinical Excellence (NICE). These include being
21 treated with dignity, experiencing effective interactions with staff and continuity of
22 care (NICE 2012). There is also a startling degree of congruence between the
23 indicators of impact for these ANP roles and the domains of the UK NHS Outcomes
24 Framework (DoH 2012), which include treating and caring for people in a safe
25 environment, protecting them from avoidable harm and ensuring that people have a
26 positive experience of care. These core values are also reflected in the international
27 nursing community and underpin the International Council of Nurses Code of Ethics
28 for Nurses (ICN 2012).
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43 Collaboration and team working were also positively influenced by the ANPs in this
44 evaluation. This adds to the picture reflected in studies of ANPs working in other
45 specialties (Wilson-Barnett & Beech 1994, Smallwood *et al.* 2005) and as Schober &
46 Affara (2006) point out, will inevitably influence patient satisfaction and quality of
47 care.
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51 Limitations

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54 This study relied on reported indicators of impact collected through interviews with a
55 range of stakeholders including patients and staff with strategic as well as clinical
56 roles across a range of professions. These findings were substantiated with
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3 extensive observation of practice. However, there is a risk that interviewees may not
4 be representative of all stakeholders – and others within the organisation may have
5 held different (less positive) views of impact. Findings would also have been
6 strengthened had they been supported by quantitative measures of impact.
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12 While the ANPs worked across a range of clinical settings, they were based in a
13 single hospital in England and it is recognised that a more extensive study across a
14 range of organisations would strengthen the generalisability of the findings within the
15 UK.
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19 20 CONCLUSION

21
22 This study has demonstrated that ANPs undertaking duties traditionally performed by
23 junior doctors in acute hospital settings can have a positive impact on a range of
24 indicators relating to patient, staff and organisational outcomes which are highly
25 relevant to nursing. However, the ANPs in this study had received bespoke masters
26 level training during which they had supernumerary status and even within a single
27 hospital setting the roles had evolved very differently in each clinical specialty -
28 including the extent to which the ANPs complemented or substituted for doctors.
29 Herogeneity between ANP roles is reflected in the international literature and
30 makes it difficult to draw comparisons across clinical settings and develop evidence-
31 based recommendations for policy and practice. However, the framework for
32 capturing impact developed in this study provides a useful basis to capture impact
33 across a range of posts. Future research should focus on quantifying this impact by
34 designing studies which include prospective collection of data relating to these
35 outcomes.
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Review Copy

Table 1. Summary of interviews undertaken

Stage	Data collection	Number
Interviews with strategic stakeholders	In-depth individual interview	13
Case study Surgery	In depth individual interview with ANP	2
	Interview with healthcare staff	9
	Interview with patients	2
	Follow-up in-depth interview	2
Case study Medicine	In depth individual interview with ANP	3
	Interview with healthcare staff	8
	Interview with patients	3
	Follow-up in-depth interview	2
Case study Orthopaedics	In depth individual interview with ANP	1
	Interview with healthcare staff	8
	Interview with patients	2
	Follow-up in-depth interview	1
Total		56

Table 2 . Characteristics of ANPs

ANP	No years qualified as an RGN before taking up post	Post held prior immediately before taking up the ANP post	Highest academic qualification before taking up ANP post
ANP Medicine	8	Band 6 Charge Nurse	*Advanced Diploma in nursing
ANP Medicine	8	Band 6 Clinical Lead	Bachelor's degree in nursing
ANP Medicine	4	Band 6 Night Sister Medicine	Bachelor's degree in nursing
ANP Orthopaedics	8	Band 6 Sister ITU	Advanced Diploma in nursing
ANP surgery	11	Band 6 Sister Surgery	Advanced Diploma in nursing
ANP surgery	22	Band 7 Senior Sister ITU	Masters degree in Medical Education

*Denotes completion of a number of bachelor's level units of study

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2
3 **Many thanks to the editors and reviewers for their helpful comments on the**
4 **manuscript. The revisions we have made have inevitably been constrained by**
5 **the word length. The original paper was already at the maximum word length**
6 **and the revisions have therefore had to be accommodated by deletions /**
7 **reworking the content.**
8
9

10 **The changes made to the manuscript in response to the editor and reviews are**
11 **summarised below:**
12

13 **1. EDITOR'S GENERAL POINTS TO REMEMBER:** 14

15
16 - Format the headings like this: main headings UPPER CASE, major sub-headings
17 lower case, subsidiary sub-headings italics.

18 **Format of headings has been revised.**
19

20
21
22 - Use precise JAN format for citations and references – please see our guidelines
23 at <http://www.wileyonlinelibrary.com/journal/jan/default.asp?file=guidereferences>.
24

25 **Jan format applied to references and citations**
26

27
28 - Structure the abstract using the recommended headings and content for the type of
29 paper submitted. The abstract may not exceed 250 words.
30

31 **Recommended structure for empirical research (mixed methods) has been adopted**
32

33
34 - For Research papers, provide the inclusive years of data collection in both the
35 abstract and the text.
36

37 **This has been included.**
38

39
40 - The international relevance of the topic should be explicated in the introduction
41 section of the paper.
42

43 **The introduction has been revised.**
44

45
46 - The conclusion section should not be a summary or repetition of previous content.
47 This section should provide a discussion of the implications for practice or policy and
48 recommendations for further work. This is currently very thin.
49

50 **The conclusion has been revised.**
51

52 **2. EDITOR'S COMMENTS:** 53

54
55
56 This topic is not new. It would be helpful to have the authors draw out how things
57 have changed / developed since:
58
59
60

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3 Dowling S1, Barrett S, West R. With nurse practitioners, who needs house officers?
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5

6 Reference to this study is included in the background and discussion sections.
7

8
9
10 The paper is unwaveringly positive about these ANPs – is there no other
11 perspective?
12

13 A sentence has been added to reflect the fact that some managers had initially
14 anticipated that introducing ANPs this might result in an overall reduction in the
15 number of medical posts. This issue has also been addressed within the
16 'Limitations' section.
17
18

19 Title should just be: A pluralistic evaluation of the implementation of Advanced Nurse
20 Practitioner (ANP) roles in an acute hospital setting.
21

22 The title has been changed as suggested.
23
24

25
26 No 'The Study' heading.
27

28 This has now been added
29

30
31 Please also revise the paper for an international readership – it is currently strongly
32 UK-centric.
33

34 Introduction, background and discussion have been revised for an international
35 readership.
36
37

38 39 **3. REVIEWER 1.COMMENTS:**

40
41 Comments to the Author

42 This is certainly a very contemporary area of investigation in an under-explored
43 context. The findings appear to make a contribution to knowledge. The paper has
44 potential but needs substantial work
45

46
47 Why is pluaristic in the title as this is a mixed method study.
48

49 The word pluralistic has been removed from the title although the need to reflect a
50 variety or perspectives is still outlined within the body of the paper.
51

52
53 The aim would be enhanced by mentioning the impact areas targeted
54

55 The aim has been amended as suggested by the reviewer.
56
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3 The case study methodology needs to be specified in greater detail including
4 justification.

5
6 It is not clear what constituted 'a case' –

7
8 The case is clearly defined within the 'methods' section of the abstract, within the
9 'design' section and the 'sample and setting section' in the main text

10
11 The methods also need to be justified The rationale for the sample needs to be
12 stated and relationship to the case drawn

13
14 The justification for the collective case study approach in the 'design' section has
15 been expanded. The rationale for the sample of stakeholders has been expanded.
16 The rationale for the sample of individual case studies has been clarified.

17
18 I am surprised that NHS Ethics approval wasn't needed as patients were included -
19 brief explanation is needed for this.

20
21 We have included a reference to the NHS Health Research Authority publication
22 'Defining Research' which spells out clearly the difference between service
23 evaluation and research.

24
25 DPA isn't mentioned As documents were looked at, did you not need particular
26 approval for that too? How was documentary analysis done?

27
28 This was covered by the governance approval given by the participating
29 organisation. The data analysis section has been amended to reflect the
30 incorporation of documents and fieldnotes.

31
32 The results are interesting but the evidence from data to support findings needs to
33 be much more detailed.

34
35 Extensive excerpts from transcripts and fieldnotes has been included.

36
37 Some illustration of your analysis would be very helpful to show case related findings
38 and data sources

39
40 The data analysis section has been expanded to illustrate how the cross case
41 analysis was undertaken. We have also included an example within the findings of
42 how an overarching finding was articulated differently between cases.

43 44 45 46 47 48 49 50 51 52 53 **4. REVIEWER 3 COMMENTS**

54
55 The study tackles an important issue: how to maximize the contribution of nurses in
56 the provision of care for hospitalized patients. This is consistent with the IOM
57 recommendation to allow nurses to function at the top of their license. The paper,
58 however, focused on describing outcomes and devoted little amount of description
59
60

1
2
3 on the process of implementation. I think this is a critical piece that is missing and I
4 detailed areas below that need to be included. Providing specifics is particularly
5 helpful for readers who may be interested in replicating this practice. Additionally,
6 there are some parts that need to be clarified, especially to readers who are not
7 practicing in England. My comments for revision are as follows:
8

9
10 1. Please clarify what you meant by Advanced Nurse Practitioner. On page 3, 2nd
11 paragraph under Introduction, you specified that there is a variety of specialist roles
12 including Nurse Practitioner, Advanced Nurse Practitioner (ANP), and others. Is a
13 nurse practitioner different then from ANP? How different is an ANP from a nurse?
14 How is their scope of practice determined? What kind of supervision did they
15 receive? Is this practice congruent with the scope of nursing practice?
16

17 **As stated in the paper, there are inconsistencies worldwide in titling and role**
18 **definition for advanced nursing practice. In the UK there is no title protection for**
19 **specialist nurses leading to the use of multiple titles and inconsistencies in scope of**
20 **practice, education and training. This has now been highlighted within the**
21 **introduction and a definition of nurse practitioner/advanced practice nurse supplied.**
22

23 In Table 2, you specified academic qualification for ANPs. Again, for someone not
24 practicing in the England, I do not understand what is Advanced Diploma in Nursing
25 or BSc in Nursing Studies. To me, this is crucial description that you need to provide
26 as some challenges with the expanded role of nurses are about their degree of
27 preparation.
28

29 **Table 2 has been modified to clarify the qualifications listed.**
30

31 2. Similar to above, please provide definition of “ junior doctors”. Are these Interns?
32 Residents? Fellows? What is their scope of practice? If the APNs are nurses with
33 expanded role, I have a difficult time understanding that APNs can function in the
34 same capacity as junior doctors.
35

36 **A definition of junior doctors has been supplied.**
37

38 3. Did the APNs function using a protocol? How different are their roles from those of
39 bedside nurses? The examples stated on pages 9 and onward under Results
40 revealed that APNs were better in assessment, provided more education to other
41 nurses and patients, and seen as more approachable by nurses and patients. Other
42 than that, I did not get a sense on what exactly were their roles and responsibilities?
43 Did they initiate and change dosing of medications? Did they do special procedures,
44 especially those who practiced in Orthopedics and General Surgery?
45

46 **A description of the activities of the APNs has been provided.**
47

48 What kind of training did they have that was reported to be yearlong?
49

50 **Details of the training have been provided.**
51

52 4. I do not think that interviewing hospitalized patients who were currently receiving
53 care from APNs would provide objective data.
54

55 **It's always difficult to pinpoint the right time to interview patients in order to capture**
56 **their experience of care. Post discharge interviews are inevitably subject to recall**
57
58
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3 bias. Patients were interviewed by a member of the independent valuation team and
4 were assured that the information they gave would be treated confidentially.
5

6 5. Were the APNs interviewed? It will be interesting to include their take on their
7 expanded role.
8

9 The perceptions of the ANP regarding their roles is likely to form the focus on a
10 separate paper. There is insufficient space to do justice to this data within the current
11 paper.
12

13 6. Can you pull historical data from units before APN implementation and after
14 implementation? Data can include length of stay, hospital adverse events such as
15 falls? These will be a nice complement to your qualitative outcomes.
16

17 We did explore this possibility as part of the evaluation, but given the limitations of
18 the ways that routine data was collected within the participating hospital this did not
19 prove to be a useful line of enquiry.
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