

# An Evaluation of the Quality and Patient Satisfaction With an Advanced Nurse Practitioner Service in the Emergency Department

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## ABSTRACT

The main aim of this survey was to explore patients' satisfaction and evaluate the quality of care provided by an advanced nurse practitioner (ANP) service in an emergency department. ANPs increasingly assume the role of providing care for patients in Irish emergency departments. Measuring the impact of ANP services on patient outcomes has become a necessary component of performance evaluation. A prospective survey design was used for this study, which incorporated a self-complete questionnaire. The majority of respondents perceived the ANP service positively. There was a high level of patient satisfaction associated with waiting times, pain management, advice given, and communication. This survey demonstrated the provision of quality of care by the ANP service and correspondingly high levels of patient satisfaction.

**Keywords:** advanced nurse practitioner, emergency department, patient satisfaction, quality

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The evaluation of patient satisfaction in the health care setting remains an important indicator of assessing service provision. Gagan and Maybee<sup>1</sup> recognized that patient satisfaction is an integral aspect of the evaluation of any new role within health care. Although there is evidence to demonstrate enhanced patient outcomes with the introduction of advanced nurse practitioners (ANPs) at a national level,<sup>2</sup> it is necessary to continue to demonstrate this at a local level also. Thompson and Meskell<sup>3</sup> acknowledged the importance of assessing care outcomes to ascertain whether they affect quality. A key aspect of the role of ANPs is to examine the quality and safety of their practice through clinical audit and research and to initiate quality improvements based on the findings.<sup>4</sup>

## BACKGROUND TO ANP DEVELOPMENT IN IRELAND

ANPs were first introduced in Ireland in the 1990s. Before the introduction of ANPs, many patients faced long waiting times. ANP services are now established nationwide, and, currently, there are 77

ANPs practicing in many of the emergency departments (EDs) and the local injuries units.<sup>5</sup> Although the development of ANP services continues to gain support, it has yet to achieve its full potential in the Irish health care system. The role provided by ANPs in EDs has been shown to support care provision by providing safe and efficient care.<sup>6</sup>

## BACKGROUND TO LOCAL ANP SERVICE

This ED manages the care of over 36,500 new patients yearly, with almost 18% (6,500) of these patients being children.<sup>7</sup> Based in a large town with a diverse population, this particular ED also serves a large rural population. Many patients attending the ED are deemed to have *minor injuries*, which fall within the scope of practice of the ANP. There would appear to be no universally agreed upon definition of the term minor injuries because this term is broadly interpreted by many. For the purposes of this article, the term minor injuries will encompass those injuries the participants of this particular study had incurred (Table 1). Other types of minor injuries not identified

**Table 1. Types of Injuries**

Injury/Problem	Number	Percentage
Ankle/foot/great toe	38	33.3
Hand/finger/thumb	26	22.8
Wrist/scaphoid/radius and ulna	15	13.2
Knee	12	10.5
Elbow	10	8.8
Shoulder/humerus	5	4.4
Wound	4	3.5
Eye	4	3.5
Total	114	100

in this study are seen by ANPs both at this study site ED and throughout Ireland. This particular ANP service is currently operated by 2 full-time ANPs.

### BACKGROUND AND RATIONALE FOR THE SURVEY

Because ANPs increasingly assume the role of providing care for patients, measuring the impact of their care becomes a necessary component of performance evaluation and service planning. Jennings et al<sup>8</sup> acknowledged that patient satisfaction is often a reflection of the patients' own interpretation of the quality of care experienced. Nationally, it has been shown that ANPs have a positive effect on health care; their practice is cited as being safe and effective.<sup>2</sup> Although the role of the ANP in Ireland has been established since the 1990s, it remains in its formative years, yet the role is dynamic and evolving rapidly. Information from this survey can help in the planning and development of future services.

The main aim of this survey was to explore patients' satisfaction and evaluate the quality of care provided by an ANP service. We explore the quality of the ANP service in terms of patient satisfaction; determine the quality of the ANP service by the evaluation of other measurable clinical indicators including radiologic interpretation skills, waiting times, and unplanned reattendances; and establish areas of the ANP service that could be improved in the future as a result of the findings of this study.

### METHODOLOGY

A prospective survey design was used for this study, which incorporated a self-complete questionnaire.

Patients were asked to rate their satisfaction on a survey that included Likert scale—type questions. One open-ended question was added to allow patients to comment on how the service could be improved.

Eligible patients who were treated by the ANPs were invited to complete a questionnaire after their episode of care. Participation was voluntary, and questionnaires were anonymous. The survey also examined various other clinical indicators including waiting times, types of injuries, radiologic investigations, pain management, and referrals.

### Sample

A convenience sample of eligible patients who met the criteria was included in the survey. Inclusion criteria encompassed all adults and children over the age of 2 who registered as new patients and were treated by the ANP within the time frame of the survey. The exclusion criteria included any patients who were staff members or their next of kin was a staff member in the hospital. We also excluded patients if English was not their first language and patients who may have had difficulty completing the questionnaire. Selection bias was avoided by including all patients in the survey who met the criteria. Children were included in this survey because they form a large proportion of the ANP caseload. Children who participated in this study ranged from the age of 2 to 16 years because local guidelines stipulate that ANPs treat only children who are 2 years and older.

### Survey Design and Data Collection

A prospective survey was performed by inviting patients who attended the ANP service to complete a questionnaire. A tool originally developed by Touché Ross<sup>9</sup> to measure patient satisfaction was used in this survey. Additional questions were added regarding pain management. Similar versions of this tool were used successfully in previous studies,<sup>10,11</sup> and this enhanced its validity.

On completion of care, questionnaires were given to the patient and their purpose explained. The ANPs invited patients to complete the questionnaire and place the completed questionnaire in a sealed postbox on exit from the ED. It was explained to parents/guardians of younger children that they may

complete the questionnaire on the child's behalf. Older children were advised that they could complete the questionnaire unaided if they felt they could. It was left to both the child and the parents' discretion as to who actually completed the questionnaire. However, they were all advised that completion of the questionnaire could also be a combined child/parent effort.

It is possible that patients may have felt obliged to participate; however, this would have been minimized because patients were only invited to participate after completion of their care and by assuring anonymity. All participants gave informed consent, and all data were kept confidential and anonymous. Patients were given an information sheet giving assurance of confidentiality, informed consent, and voluntary participation.

#### Recording Waiting Times and Other Relevant Data

Unique identification codes were used on the questionnaires in order to correlate the responses to other relevant data. An activity schedule was developed and completed by the ANPs to capture information regarding patient presentations. Such information included the time from registration until the initial assessment by the ANP, the time from the initial assessment to referral or discharge, type of investigations, presentation type, and any unplanned reattendance.

#### Analysis

Statistical analysis was performed using SPSS (Version 22) for Windows (SPSS Inc, Chicago, IL). Qualitative data from the open-ended question were content analyzed.

## RESULTS

### Response Rate

During the allocated study period, a total of 162 new patients were treated by the ANPs. A total of 5 patients did not meet the inclusion criteria. Of the 157 eligible patients, a total of 114 chose to participate, giving a 72.6% response rate.

### Age and Sex of Participants

Males accounted for 61.3% of the response rate, and females accounted for 38.7%. The youngest

respondent was 4 years old. Of all of the participants who took part in this survey, 32.5% (n = 37) were children (aged 2–16 years). Therefore, children account for one third of the ANP caseload in this particular ED. The oldest respondent was 78 years old, and the median age was 25.5 years.

### Responses to Questionnaire

**Question 1: “The ANP Understood Why I Had Come to See Them.”** Of all the responses given to this question, 83.3% (n = 95) of participants strongly agreed that the ANP understood why they had come to the ED. Furthermore, 16.7% (n = 19) of participants agreed with this question. This meant that all participants (100%, N = 114) either strongly agreed or agreed that the ANP understood why they had come to the ED.

**Question 2: “The ANP Seemed to Be Very Thorough.”** Of the responses given to this question, 88.6% (n = 101) of participants strongly agreed that the ANP seemed to be very thorough. Some participants (11.4%, n = 13) agreed that the ANP seemed to be very thorough. In total, 100% (N = 114) of all participants agreed that the ANP seemed to be very thorough to some extent.

**Question 3: “I Was Less Worried About My Injury/Problem After Seeing the ANP.”** Of the responses given to this question, 73.7% (n = 84) of participants strongly agreed that they were less worried about their injury after seeing the ANP. Some 24.5% (n = 28) of the participants of this survey agreed that they were less worried about their injury/problem after seeing the ANP. Just 1.8% (n = 2) of the participants disagreed that they were less worried about their injury after seeing the ANP.

**Question 4: “I Will Follow the Advice of the ANP Because I Believe It Is Good Advice.”** Many participants strongly agreed (86.8%, n = 99) or agreed (13.2%, n = 15) that they would follow the advice of the ANP. Therefore, all participants (100%, N = 114) agreed that they would follow the advice given to them by the ANP because they believed it to be good advice.

**Question 5: “Did You Have Enough Time to Discuss Things With the ANP?”** Of the valid responses returned, many of the participants

(95.5%,  $n = 107$ ) agreed that they had enough time to discuss things with the ANP. Of those surveyed, 4.5% ( $n = 5$ ) felt they did not have enough time to discuss their injury/problem.

**Question 6: “If You Needed to Visit the Emergency Department Again, Would You Be Happy to See the ANP About a Similar Injury?”** The vast majority (99.1%,  $n = 112$ ) of patients indicated that they would be happy to see an ANP about a similar injury. Only 0.9% ( $n = 1$ ) indicated that they would not be happy to see an ANP again, although no reason was offered as to why this was the case.

**Question 7: “While You Were in the Emergency Department, Were You Given Any Health Promotion Advice (eg, Stopping Smoking or Healthy Eating) From the ANP?”** Just 20.2% ( $n = 22$ ) of the participants were given health promotion advice.

**Question 8: “Were You Informed of Who to Contact if You Needed More Help or Advice Regarding Your Injury/Problem?”** Of the participants who answered this question, 84.0% ( $n = 95$ ) indicated that they were informed of who to contact if they needed more help or advice regarding their injury.

**Question 9: “Were You Given Any Written or Verbal Advice About Your Injury/Problem?”** Over half (57.1%,  $n = 64$ ) of the participants in this survey indicated that they were given verbal advice about their injury. Those who were given written advice accounted for 9.8% ( $n = 11$ ) of the participants. Over a quarter of all participants (26.8%,  $n = 30$ ) indicated that they were given both verbal and written advice. Some (6.3%,  $n = 7$ ) of the participants indicated that they were not given any written or verbal advice regarding their injury.

**Question 10: “Were You in Pain While You Were in the ED?”** Many of the participants (67.3%,  $n = 74$ ) indicated that they were in pain while they were in the ED. Conversely, 32.7% ( $n = 36$ ) indicated that they were not in pain while in the ED.

**Question 11: “Did the ANP Do Enough to Help Control Your Pain?”** Many of the participants (86.2%,  $n = 75$ ) indicated that the ANP definitely did enough to help control their pain. Some of

the participants (13.8%,  $n = 12$ ) indicated that the ANP helped control their pain to some extent. No patients indicated that the ANP did not do enough to control their pain.

**Question 12: “How Would You Rate the Overall Quality of the Care Provided by the ANP Service?”** This global question revealed that 91.9% ( $n = 102$ ) of the participants thought that the overall quality of care provided by the ANP service was excellent. Participants that thought the service was good accounted for 8.1% ( $n = 9$ ) of the total. None of the participants indicated that they believed the quality of care was either average, poor, or very poor.

**Question 13: “Are There Ways in Which the ANP Service Could Be Improved?”** The vast majority of participants in this survey (96.3%,  $n = 103$ ) indicated that they could not see any way in which the ANP service could be improved. Some participants (3.7%,  $n = 4$ ) indicated that there were ways in which the ANP service could be improved.

In an open-ended qualitative question, participants were asked “In what ways could the ANP service be improved?” The responses to this open-ended question were categorized under 4 main headings (Table 2).

### Waiting Times

The median length of time from registration to the initial assessment by an ANP was 36 minutes. The median length of time from the initial assessment to either discharge or referral by the ANP was 40 minutes. Overall, 78.6% ( $n = 90$ ) of participants were seen and either discharged or referred within 60 minutes (group 1) of the initial assessment by the ANP (Table 3).

Correlation between the total waiting time (from registration to the initial assessment by the ANP) and global satisfaction was undertaken. Using the Spearman nonparametric test, no significant correlation was revealed ( $q = -.075$ ) between the 2 variables. The percentage of variance (0.56%) revealed minimal overlap between the 2 variables. Similarly, correlation between the total time taken from the initial ANP assessment to discharge or referral and total patient satisfaction was also examined. A Spearman rank order correlation

**Table 2. Categories of Response From the Open-ended Question**

ANP thoroughness	<p>“Very thorough and helpful”</p> <p>“Very thorough”</p> <p>“The nurse practitioner did all they could have done.”</p>
Professional service	<p>“This service was excellent and the nurse practitioner was very professional and related well to patient.”</p> <p>“My experience was of great staff and professional service.”</p>
Satisfaction with ANP service	<p>“The nurse practitioner was excellent.”</p> <p>“I was very happy with the nurse practitioner.”</p> <p>“. . . was very pleased with the care he got from the nurse practitioner.”</p> <p>“Happy with the service. Nurse practitioner was very efficient.”</p> <p>“Great service”</p>
Reduced waiting time	<p>“Was impressed with short waiting time to be seen”</p> <p>“Very happy with reduced waiting time and received excellent care and advice from ANP”</p>

ANP = advance nurse practitioner.

between the 2 variables found no significant correlation ( $q = -.085$ ). The percentage of variance (0.72%) revealed minimal overlap between the 2 variables. Therefore, waiting times did not influence total patient satisfaction with the ANP service.

A Kruskal-Wallis test was undertaken to determine if there was any statistical significance between the age of patients and a global question regarding the overall quality of the ANP service. The ages of the participants were *collapsed* into 3 equal age groups. The test proved to hold no statistical significance ( $.753 > 0.05$ ), and, therefore, it can be stated that there was no difference in the age groups and global satisfaction with the ANP service. A Mann-Whitney *U* test revealed no statistically significant difference ( $P = .68, >0.05$ ) between total patient satisfaction between male and female participants.

Many (93%,  $n = 106$ ) of the participants in this survey had an x-ray as part of their investigation. Of all the participants ( $N = 114$ ) who completed this

survey, one quarter of them (25.4%,  $n = 29$ ) had incurred a fracture of some type. The radiologists’ x-ray report was used as the *gold standard* to check that these fractures had been correctly identified. All patients (100%,  $n = 29$ ) with confirmed fractures had been correctly identified and appropriately managed by the ANPs. Those patients with confirmed fractures were either referred to the fracture clinic ( $n = 20, 17.5%$ ) or referred directly to the orthopedic team ( $n = 9, 7.9%$ ) as appropriate. A further 10 patients (8.8%) were referred to the fracture clinic for clinical reasons other than having incurred a fracture.

Of all the participants ( $N = 114$ ) who took part in this survey, there were 22 (19.3%) referrals made to specialties. Orthopedics accounted for 19 (16.7%) of referrals, and ophthalmology referrals accounted for 3 (2.6%) of all referrals made to specialties. A total of 5 (4.4%) of the patients were referred to a trauma clinic for review by the ED consultant at a later date. The remaining patients ( $n = 67, 58.8%$ ) were either discharged or advised to see their own general practitioner for follow-up if required (Table 4).

Of all the participants in this study, there were 2 (1.75 %) unplanned reattendances to the ED. One patient reattended with a cast problem. A second patient reattended with continued pain after a period of immobilization in a cast for fracture.

**Types of Minor Injuries Seen During the Study Period**

The participants in this study presented with multiple various types of injuries. These injuries were classified under 8 main subheadings (Table 1).

**Table 3. Time of the Initial Assessment to the Time of Referral or Discharge by the Advanced Nurse Practitioner**

Groups	Frequency	Percent
Group 1 0-60 min	90	78.6
Group 2 61-120 min	23	20.4
Group 3 121-180 min	1	1.0



**Table 4. Discharges and Referrals of Patients**

Discharge/Referral	Number	Percentage
Discharged/general practitioner	67	58.8
Fracture clinic	20	17.5
Ortho referral for other reason	10	8.8
Ortho referral for fracture	9	7.9
Trauma clinic (emergency department review)	5	4.4
Ophthalmology referrals	3	2.6
Total	114	100

## DISCUSSION

### Response Rate

The high response rate (72.6%) in this survey meant that the findings could be deemed representative of this cohort of patients. The demographics of the participants involved in this study were examined in detail. It transpired that children and young adults account for a significant amount of the average caseload of the ANPs at this particular ED. Children accounted for one third of all patients managed by the ANPs, and the average age of patients was just over 25 years.

### Waiting Times

This ANP service facilitates an expedient journey of care for many patients through the ED. The vast majority of these patients were either referred or discharged within 60 minutes of point of contact with the ANP. Some injuries, such as complicated wounds requiring multiple interventions, often account for those patients who are in the ED for longer periods of time. A review of several audits throughout Ireland has shown that ANPs reduce usual waiting times by as much as 20%.<sup>6</sup>

### Questionnaire

The results of this survey showed that all patients felt that the ANP understood why they had come to see them. This indicates enhanced history taking and communication skills, which are core elements of any ANP role. Many of the participants agreed that they had enough time to discuss their care with the ANP, and this also shows good listening skills.

Another theme that permeated throughout this research was the *thoroughness* shown by the ANP service. The vast majority (99.1%, n = 113) of all participants agreed that the ANP seemed to be very thorough. Similarly, the responses from the open-ended question revealed that participants believed that the nurse practitioners were *very thorough* (Table 3). The apparent *thoroughness* of ANPs was a theme previously identified in the literature.<sup>11</sup> High levels of patient satisfaction may not have been evident had patients not experienced thoroughness in the ANP service.

Although many of the participants had indicated that they were in some pain while they were in the ED, it would appear that this was managed adequately by the ANPs. Crucially, no patients indicated that their pain was not managed, at least to some extent by the ANP. ANPs have prescriptive authority allowing them to prescribe medication within their agreed scope of practice. Nurse prescribing of medication within the Republic of Ireland has assisted in the improvement of managing patients with pain. An evaluation of nurse prescribing in Ireland has found that nurse prescribing has benefited both patients and staff.<sup>12,13</sup>

The vast majority of the participants indicated that they were “less worried” about their injury after seeing the ANP. Adequate provision of information and reassurance may be the reason why these patients were less worried about their injury.

This survey revealed that the vast majority of the patients seen by the ANP were given either written or verbal advice or both verbal and written advice about their injury. All of the participants in this study (100%, N = 114) agreed that they would follow the advice given to them by the ANP because they believed it to be good advice. This stated commitment to adherence of imparted advice indicates confidence in the clinical skills and the holistic approach indicative of many ANP services. This assumption is supported by the fact that the vast majority (98.2%, n = 112) of participants indicated that they would be happy to see an ANP about a similar injury.

Not all injuries improve on the predicted time line as anticipated by the ANP. This fact is acknowledged by this ANP service because most of the participants in this study indicated that they were

informed of who to contact if they needed more help or advice regarding their injury. Ensuring that patients know where to go and who to talk to should their injury/health care problem deteriorate aims to maintain the safety of the patient.

The results of this survey revealed that the opportunity to impart health promotion advice (eg, smoking cessation) by the ANP was not used to its full potential. Just under one fifth of the participants were given health promotion advice through this ANP service. Time-related pressures of this ANP service may account for this apparent shortfall in imparting health promotion advice. The vast majority of these patients received comprehensive advice specifically tailored to their particular injury. In some instances, it was considered that providing additional health promotional advice may have diluted the importance of comprehensive injury advice imparted at that time.

All of the confirmed fractures had been correctly identified by the ANPs at this ED. Competency in the skill of radiologic diagnostics by ANPs has been acknowledged in previous studies.<sup>3,14</sup> ANPs in Ireland have been acknowledged as being able to enhance the patient experience with less recalls for missed fractures and fewer unplanned reattendances.<sup>6</sup>

The patients' perception of this ANP service would appear to be largely positive. A global question in this survey revealed that the vast majority of the participants thought that the overall quality of the care provided by the ANP service was excellent. Conversely, none of the participants in this survey indicated that the quality of the quality of care was average, poor, or very poor. It would appear that the provision of a high-quality seamless service is being achieved.

## CONCLUSION

This survey examined patient satisfaction and quality with an ANP service in an Irish ED. The findings of this study indicate that ANPs can provide high-quality, safe, and effective care, which is reflected in high levels of patient satisfaction. ANPs working autonomously in EDs can provide a quality service for those children and adults with so-called minor injuries and complaints. Despite the many challenges

EDs in Ireland currently face, ANPs are providing quality care in extremely busy environments.

The findings of this study correlate closely to the findings of other research into ANPs in EDs in Ireland.<sup>2</sup> Despite the foundation of evidence already completed, further research is required to assess established ANP services throughout Ireland and also the potential for the expansion of further ANP services. This piece of research provides a summary of the current ANP service and highlights some of the opportunities that can improve quality of the service. **JNP**

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