The Impact of a Nurse Practitioner-Run Emergency Department Fast Track on Patient Satisfaction

A Systematic Review

Presented to the faculty of the School of Nursing

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in

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Family Nurse Practitioner

by

Kristin Dampier

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School of Nursing
College of Education, Health, and Human Services
California State University San Marcos
Abstract

of

THE IMPACT OF A NURSE PRACTITIONER-RUN EMERGENCY DEPARTMENT FAST TRACK ON PATIENT SATISFACTION

by

Kristin Beth Dampier

Statement of Problem
The increasing demand for care in the ED by patients who do not require emergency care, according to acuity levels, contributes to overcrowding which may reduce patient satisfaction. A nurse practitioner-run fast track in the emergency department has the potential to reduce ED overcrowding and improve patient satisfaction with care.

Sources of Data
Three health care related electronic databases were searched for research articles fitting the inclusion criteria of emergency, nurse practitioner, and patient satisfaction. Nineteen articles met the inclusion criteria for this systematic review. Research studies included case-controlled studies, randomized controlled trials, observational studies, explorative descriptive design studies, explorative studies, secondary analysis of prospective studies, and surveys.

Conclusions Reached
There is a strong recommendation for an NP run fast track considering the feasibility, appropriateness, meaningfulness, and effectiveness of the collected evidence. There are NPs with sufficient education and experience to run a fast track in the ED setting. This model of care delivery lessons ED wait times for low acuity patients and improves patient satisfaction. This systematic review adds to the body of literature and will be useful to Emergency Departments who are considering implementing a nurse practitioner-run fast track.

Committee Chair
Wendy Hansbrough, PhD, RN

4/21/2015
Date
ACKNOWLEDGEMENTS

I would like to thank my husband Matt for standing beside me while I pursue my dreams. He has encouraged and motivated me to push myself each day. Thank you for loving me and being there for me during the craziness of graduate school.

I would like to thank my family for supporting me over the years. You have encouraged me to strive towards my goals. I am grateful for your love and friendship.

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Chapter 1

Emergency departments (ED) enable healthcare professionals to care for a vast array of patients with needs ranging from life-threatening emergencies to major injuries. Because there are no national universal health benefits programs in the United States, the ED is the only division of the health care system where the federal law mandates that all patients are to be screened and treated if necessary (McGee & Kaplan, 2007). The Emergency Medical Treatment and Labor Act guarantees people access to care and treatment in the ED regardless of their financial situation (Examination and treatment for emergency medical conditions and women in labor, 1986). It is unlawful for an ED to turn away patients, which leads to overcrowding, a pressing issue in many EDs (American Academy of Emergency Medicine, 2014).

Overcrowding is a serious problem facing EDs nationwide. It is defined as “a situation in which demand for emergency services exceeds the ability of a department to provide quality care within acceptable time frames” (McGee & Kaplan, 2007, p. 442). From 2003 to 2009, the average wait-time to see a provider in the ED increased by 25%. In 2009, approximately 78% of ED patients being admitted to the hospital were boarded in hallways and other places while waiting for an inpatient bed (Hing & Bhuiya, 2012). Much of the reported overcrowding is due to low-acuity patients’ seeking care at an ED rather than in an acute care clinic. According to the CDC, in 2009 approximately 35% of ED patients were triaged as being semi-urgent (needing to be seen in 1-2 hours) and 10% of patients were triaged as non-urgent (needing to be seen within 2-24 hours) (Hing & Bhuiya, 2012). These low-acuity patients usually require an initial brief examination and
typically have to wait to be treated until higher acuity patients are cared for. Longer wait times often leads to decrease in patient satisfaction. The patients who have the lowest patient satisfaction ratings are often those who present to the ED with non-urgent or minor-medical problems and are triaged with a low-acuity level, thus having a longer wait until they are seen by a physician (Quattrini & Swan, 2011).

Nearly half of all EDs in the United States report that they are overwhelmed with patients needing care and are at their fullest operating capacity or exceeding it (Quattrini & Swan, 2011). Emergency department overcrowding leads to many consequences including “increased risk of poor patient and organizational outcomes; prolonged waiting times, as well as boarding times; increased ambulance diversion; increased frustration among health care providers; and dissatisfied patients” (Quattrini & Swan, 2011, p. 40). In addition, overcrowding leads to delay in treatment. According to The Joint Commission (2002), the most common antecedent to a sentinel event in the ED is delay in treatment. Because of the rising problem of crowding in EDs, it is essential to develop a plan to provide timely and proper care for ED patients with non-urgent conditions.

In order to address the issues that may threaten patient safety, many EDs are implementing a nurse practitioner (NP)-run fast track to provide care to patients with less severe acuity. The goal of a fast track is to manage low-acuity patients in a timely manner, reduce overcrowding in EDs, decreases wait times, decrease length of stay in the ED, and increase patient and staff satisfaction (Quattrini & Swan, 2011). These fast tracks are ideal for the NPs scope of practice (Board of Registered Nursing, 2011).
The NP role was originally introduced in the United States in the 1960’s and has since spread throughout the world. NPs were originally intended to care for the poor in rural and urban settings where physicians were not present. This role has expanded significantly over time to include caring for patients in areas such as clinics, schools, doctor’s offices, hospitals, and emergency departments. (Soeren, Hurlock-Chorostecki, & Reeves, 2011). NPs were first employed in the ED in the 1970’s (McGee & Kaplan, 2007). However, there are few emergency department NPs. According to the 2012 U.S. Department of Health and Human Services, Health Resources and Services Administration, National Center for Health Workforce Analysis, only 3% of the 127,210 NPs working in patient care are employed in the ED (2014).

One solution to this influx of patients and workforce shortage is to employ NPs in the ED. From 1995 to 2004, the number of patients cared for by NPs in the ED had increased by 48%. Factors contributing to this growth include expanded scope-of-practice regulations, economic efficiency for the healthcare system, and the NPs authority to prescribe medications (Hooker et al., 2008). With the goal of reducing ED crowding and expediting patient flow, fast track areas have been implemented into numerous EDs. These fast track areas are designed for patients with less serious but urgent conditions and are ideal for the role of the NP (Quattrini & Swan, 2011). In addition, the economic benefit of NPs has been substantial. When comparing NPs with primary and acute care physicians, select patient populations are provided high quality, cost effective care and have similar clinical outcomes (Soeren et al., 2011).
Chapter 2
The Problem

Background

Emergency departments are designed to be a place to care for patients suffering from major injuries and life-threatening medical conditions. Today, many patients seeking medical care in EDs could have been treated by their primary care provider. There is a serious problem nationwide that continues to get worse. Another source of overcrowding is increasing demand for inpatient beds. Because the ED gets backed up with patients who need to be admitted, there is a higher demand for inpatient beds leading to overcrowded EDs and a limited number of ED beds for acute patients (Quattrini & Swan, 2011). Overcrowding includes the following:

All ED beds occupied for more than six hours a day, patients placed in hallways, a full ED waiting room for six hours or more per day, physicians feeling rushed for six hours or more a day, and acutely ill patients who wait more than 60 minutes to be seen by a physician. (McGee & Kaplan, 2007, p. 442)

Many factors contribute to ED overcrowding. The amount of ED visits in the United States had increased by 23% from 1997 to 2007. The number of EDs has decreased by 27% over the past two decades from 1990 to 2009 (Marco et al., 2012). Over the past five years, there has been more than a 7% increase in patients presenting to EDs. This increase has an impact on the timely, high quality, patient-centered care that EDs strive to provide. The increasing occurrences of chronic disease, lack of general
practitioners, and limited access to primary healthcare has contributed to overcrowding in EDs throughout the world (Jennings, Mckeown, O’Reilly, & Gardner, 2013).

As the demand of emergency medical care continues to increase, EDs nationwide continue to struggle with managing the growing numbers of patients year after year (Hooker et al., 2008). The Patient Protection and Affordable Care Act (PPACA) (2010), signed into law by President Obama in 2010, enables approximately 32 million U.S. citizens and legal residents to have health insurance for the first time, adding to the 254 million Americans who were already insured in 2010 (DeNavas-Walt, Proctor, & Smith, 2010; Marco et al., 2012). The hope was for the newly insured to establish therapeutic relationships with primary care providers (PCPs). However, because many PCPs have a full practice or are unwilling to accept Medicaid due to the low reimbursement rates, these patients continue to depend on the ED as their primary source for medical care (Marco et al., 2012). Even though the PPACA has increased the number of patients who are insured, the full impact of ED overcrowding has not yet been felt. The Protection and Affordable Care Act (2010) has numerous provisions that take place between 2010 and 2020 that may further impact overcrowding in EDs. Even though it may alleviate ED overcrowding to some extent, there will still be the uninsured population who will continue to use the ED as their primary source for medical care. ED crowding may increase as a result of newly insured patients being denied access to primary care services (Marco et al. 2012).
Figure 1. Emergency Department Overcrowding Concept Map

Figure 1. A concept map portrays the variables leading to ED overcrowding and the negative results of ED overcrowding.

Figure 2. NP Run Fast Track Concept Map

Figure 2. A concept map portrays the intervention and benefits of an NP run fast track to help alleviate ED overcrowding. The problems greyed out are areas of overcrowding that will be alleviated by having an NP run fast track.
Problem Statement

The increasing demand for care in the ED by patients who do not require emergency care, according to acuity levels, contributes to overcrowding which may compromise patient safety and patient satisfaction (Carter & Chochinov, 2007; Quattrini & Swan, 2011).

Research Question

The research question in this study is: What impact does a nurse practitioner-run emergency department fast track have on patient satisfaction?

Significance to Nursing

There are many nursing implications for a NP run fast track in the ED. It is likely to improve the safety and quality of patient care. Research shows that ED patients’ satisfaction is linked to delays in care. If an NP-run fast track area helps decrease long wait times and as a result improve patient satisfaction, hospitals will benefit from the study results as they may be able to improve their patient satisfaction scores (Nash et al., 2007). An NP run fast track also demonstrates the value to patients and healthcare organizations to employ nurse practitioners to deliver direct care in this setting. In addition, this role may contribute to NP workplace satisfaction.

Chapter 3

Search Strategy

The researcher conducted a literature search using the electronic databases CINAHL, PubMed, and PsycINFO. Key words were “emergency,” “nurse practitioner,” and “patient satisfaction.” The search was limited to articles written in the English
language and published in peer-reviewed journals. There was no limit on the year of publication. Articles found in the reference list of published literature reviews and existing systematic reviews were also included.

Chapter 4

The Sample

Selection Criteria

Both the title and the abstract were used to identify inclusion criteria and to eliminate those articles with exclusion criteria. The full text of each remaining article was screened further for additional inclusion and exclusion criteria.

Inclusion criteria. The articles used for this systematic review were screened to insure they met the inclusion criteria of English, published in peer-reviewed journal and containing the key words of “emergency”, “nurse practitioner” and “patient satisfaction”.

Exclusion criteria. Articles were excluded from this review if they reported research studies of mental health NPs, patient discharge planning, outpatient NP clinics, or physician assistants. Grey literature, or studies that were either unpublished or informally published, were also excluded from this systematic review.

Prisma flow chart. After searching CINAHL, PubMed, and PsycInfo, a total of 194 articles were obtained for further review. One additional article was obtained for further review from another article’s reference list. There were 47 duplicate articles removed, leaving 147 articles to be screened. After reviewing the articles abstracts for inclusion and exclusion criteria, 127 articles were excluded, leaving a total of 20 full-text articles assessed for eligibility. One full-text article was excluded because it did not meet
inclusion and exclusion criteria. The total number of articles included in the review were 19.
Figure 3. PRISMA Flow Chart of Systematic review

Databases: CINAHL, PubMed, and PsycInfo
# Articles = 194

Reference List
# Articles = 1

Articles After Duplicates Removed
# Articles = 147

# Articles Screened = 147

# Articles Excluded = 127

# Full-Text Articles Assessed For Eligibility = 20

# Full-Text Articles Excluded, With Reasons = 1
Articles excluded include those that are not scientific research, did not meet inclusion criteria, editorials, or clinical protocols

# Articles in the Systematic Review = 19

# Articles After Duplicates Removed
# Articles = 147
Chapter 5

Quality Appraisal

Using the New Joanna Briggs Institute Levels of Evidence Template (Table 1), each article was reviewed for its level of evidence and was evaluated for its strength of research. The results were recorded in a table for further evaluation (Table 2). Levels of evidence are graded from the highest level of validity to the lowest level of validity ranging from Level 1 to Level 5. The goal of this systematic review was to have high quality of evidence to include so that the results can be considered as strong evidence (Joanna Briggs Institute, 2014b).

Strengths

The strength of this systematic review is variety. The sample research articles include diverse populations, ages, and environments. Studies compared patient satisfaction with NPs to patient satisfaction with physicians. Many articles were included in this systematic review, allowing for the overall effect of the intervention to be determined.

Limitations

The greatest limitation of this systematic review is that wait time and length of stay was not required inclusion criteria. These variables can have an impact on the level of patient satisfaction. Satisfaction measurement can also be influenced by patient demographics, past experiences with health practitioners, and the patients understanding of the professional role, which was not evaluated in this systematic review.

Levels of Evidence

A total of 19 articles met inclusion criteria for this systematic review. Based on Joanna Briggs Institute’s Levels of Evidence, five studies were randomized controlled trials meeting the criteria for level 1.c. Three studies were observational with an analytical design, meeting the
criteria for level 3. There were two case-controlled studies that met the criteria for level 3.d and two observational studies without a control group that met the criteria for level 3.e. Seven studies were cross-sectional studies, meeting the criteria for level 4.b. Table 2 displays each article and a rationale for defining the levels of evidence.

**Conclusion**

This systematic review adds to the body of literature and will be useful to Emergency Departments who are considering implementing an NP run fast track. Emergency Departments are facing challenges with patient satisfaction related to issues of overcrowding. Not only does NP run fast track areas in EDs help alleviate problems of overcrowding, but they have also been shown to improve patient satisfaction. This systematic review summarizes the levels of patient satisfaction with NPs in the ED fast track. Emergency Departments looking to establish a fast track run by an NP can refer to this systematic review for current evidence on patient satisfaction with NP run fast tracks.

**Recommendation**

After reviewing patient satisfaction scores in 19 different studies, it is evident that there is a high level of patient satisfaction with NPs in the fast track area. Seven of these studies resulted in higher patient satisfaction with NPs than with MDs (Byrne, Richardson, Brundson, & Patel, 2000; Cooper, Lindsay, Kinn, & Swann, 2002; Jennings, Lee, Chao, & Keating, 2009; Dinh, Walker, Parameswaran, & Enright, 2012; Lutze, Ross, Chu, green, & Dinh, 2014; Powes, Jalowiec, & Reichelt, 1984; Sandhu, Dale, Stallard, Crouch, & Glucksman, 2009). Four of these studies had no difference in patient satisfaction when comparing NPs and MDs (Chang, Daly, Hawkins, McGirr, Fielding, & Hemmings, 1999; Dinh, Enright, Walker, Parameswaran, & Chu, 2013; Rhee & Dermyer, 1995; Sakr, Angus, Perrin, Nixon, Nicholl, & Wardrope, 1999). Eight
studies had only NPs in their fast track areas, therefore only evaluated patient satisfaction with NPs (Nash, Zachariah, Nitschmann, & Psencik, 2007; Thrasher & Purc-Stephenson, 2008; Wilson & Shifaza, 2008; Organ, Chinnick, Higgison, Stanhope, Hoskins, & Benger, 2005; Barr, Johnston, & McConnell, 2000; Alongi, Geolot, Richter, mapstone, Edgerton, & Edlich, 1979; Jarvis, 2007; Megahy & Lloyd, 2004). Each of these eight studies results showed high levels of patient satisfaction with the NPs. Satisfaction ratings with NP services ranged from 70.2% to 100% in this group of studies.

**Recommendation Grade**

There is a strong recommendation for an NP run fast track. Nurse Practitioner run fast track areas should be implemented in emergency departments to help minimize the issues of ED overcrowding and increase patient satisfaction.

**Explanation of Recommendation using FAME**

Evidence for this systematic review was graded using the Grading of Recommendations by the Joanna Briggs Institute (2014a) to determine the overall recommendation for the use of NP run fast tracks in emergency departments. This systematic review was then graded for its feasibility, appropriateness, meaningfulness, and effectiveness using the Joanna Briggs Institutes FAME scale (2014).

**Feasibility.** Implementing an NP run fast track is feasible as there are resources available and there are NPs with sufficient experience to run a fast track area (Jennings, Lee, Chao, & Keating, 2009; Wilson & Schifaza, 2008). Chang et al (1999) addressed the issue of NP training in selected competencies within the FT area in EDs. In addition, patients can be seen by an NP in a timely manner in a fast track area rather than waiting to get seen by a physician in the main
ED. This intervention requires equipment, trained NPs, and an ED that has adequate space to implement a fast track area.

**Appropriateness.** NPs have the necessary education to run an emergency department fast track. NP run fast tracks are culturally acceptable, are applicable to the majority of the population, and are easily adaptable to a variety of circumstances. Fast track patients were satisfied with the care they received from the NPs. Many studies comparing NPs with MDs in the fast track area showed higher levels of patient satisfaction with NPs than with MDs (Byrne, Richardson, Brundson, & Patel, 2000; Cooper, Lindsay, Kinn, & Swann, 2002; Jennings, lee, Chao, & Keating, 2009; Dinh, Walker, Parameswaran, & Enright, 2012; Lutze, Ross, Chu, green, & Dinh, 2014; Powes, Jalowiec, & Reichelt, 1984; Sandhu, Dale, Stallard, Crouch, & Glucksman, 2009). Overcrowding has become a major problem in many EDs. Implementing an NP run fast track area into these overcrowded EDs may help alleviate this problem.

**Meaningfulness.** An NP run fast track can be meaningful as it is associated with high levels of patient satisfaction and is not associated with negative experiences. The studies reviewed showed high levels of patient satisfaction with NPs in ED fast tracks. Eight of the studies only evaluated patient satisfaction with NPs (Nash, Zachariah, Nitschmann, & Psencik, 2007; Thrasher & Purc-Stephenson, 2008; Wilson & Shifaza, 2008; Organ, Chinnick, Higgison, Stanhope, Hoskins, & Benger, 2005; Barr, Johnston, & McConnell, 2000; Alongi, Geolot, Richter, mapstone, Edgerton, & Edlich, 1979; Jarvis, 2007; Megahy & Lloyd, 2004). Results of these eight studies showed patient satisfaction with NPs in the ED fast track. Eleven studies compared NPs with MDs in ED fast track areas. Seven of these studies showed a higher level of patient satisfaction with NPs than with MDs (Byrne, Richardson, Brundson, & Patel, 2000; Cooper, Lindsay, Kinn, & Swann, 2002; Jennings, lee, Chao, & Keating, 2009; Dinh, Walker,
Parameswaran, & Enright, 2012; Lutze, Ross, Chu, green, & Dinh, 2014; Powes, Jalowiec, & Reichelt, 1984; Sandhu, Dale, Stallard, Crouch, & Glucksman, 2009). Four studies resulted in no significant difference between patient satisfaction with NPs and MDs (Chang, Daly, Hawkins, McGirr, Fielding, & Hemmings, 1999; Dinh, Enright, Walker, Parameswaran, & Chu, 2013; Rhee & Dermyer, 1995; Sakr, Angus, Perrin, Nixon, Nicholl, & Wardrope, 1999). No study reported higher levels of patient satisfaction with MDs than NPs in ED fast track areas.

**Effectiveness.** NP run fast tracks can be very effective. They benefit the ED patient population by increasing patient satisfaction for ED patients to receive medical care. Seven studies in this review reported better communication skills among NPs compared to MDs (Byrne, Richardson, Brundson, & Patel, 2000; Cooper, Lindsay, Kinn, & Swann, 2002; Jennings, Lee, Chao, & Keating, 2009; Dinh, Walker, Parameswaran, & Enright, 2012; Lutze, Ross, Chu, green, & Dinh, 2014; Powes, Jalowiec, & Reichelt, 1984; Sandhu, Dale, Stallard, Crouch, & Glucksman, 2009).

**Implications for Clinical Nursing Practice, Policy, Education, and Future Research**

**Clinical nursing practice.** Nurse Practitioner run fast tracks in the ED will benefit nursing practice by providing more job opportunities for nurses and NPs in the ED. There are high levels of patient satisfaction with NPs in ED fast track areas. When patients are satisfied, they are usually happy and appreciative of the care they have received. This is a rewarding feeling, which can increase job satisfaction for these ED nurses.

**Policy.** The policy for NP run fast tracks in the ED would have to be established prior to implementation. Currently, multiple hospitals already have NP run fast tracks in place, therefore the model exists. NPs working in this capacity are within their regulatory scope of practice, however, there is variation among states. Compliance with individual state laws is required.
Education. NPs are educated to provide care for patients in the ED fast track. This is another area of practice that can be promoted for NP students.

Future research. Further studies would be beneficial in determining the impact of a nurse practitioner-run emergency department fast track on ED wait time, cost, and quality of care.
Table 1. The New Joanna Briggs Institute Levels of Evidence Template (Joanna Briggs Institute, 2014)

Level 1 – Experimental Designs

Level 1.a – Systematic review of Randomized Controlled Trials (RCTs)
Level 1.b – Systematic review of RCTs and other study designs

**Level 1.c – RCT (5 studies)**
Level 1.d – Pseudo-RCTs

Level 2 – Quasi-experimental Designs

Level 2.a – Systematic review of quasi-experimental studies
Level 2.b – Systematic review of quasi-experimental and other lower study designs
Level 2.c – Quasi-experimental prospectively controlled study
Level 2.d – Pre-test – post-test or historic/retrospective control group study

**Level 3 – Observational – Analytic Designs (3 studies)**

Level 3.a – Systematic review of comparable cohort studies
Level 3.b – Systematic review of comparable cohort and other lower study designs
Level 3.c – Cohort study with control group

**Level 3.d – Case – controlled study (2 studies)**

**Level 3.e – Observational study without a control group (2 studies)**

Level 4 – Observational – Descriptive Studies

Level 4.a – Systematic review of descriptive studies

**Level 4.b – Cross-sectional study (7 studies)**

Level 4.c – Case series
Level 4.d – Case study

Level 5 – Expert Opinion and Bench Research
Level 5.a – Systematic review of expert opinion

Level 5.b – Expert consensus

Level 5.c – Bench research/ single expert opinion
Table 2. Level of Evidence Table: Scale 1-5 (Joanna Briggs Institute, 2014)

<table>
<thead>
<tr>
<th>No.</th>
<th>Year</th>
<th>Research Design</th>
<th>Level of Evidence</th>
<th>Sample/Characteristics</th>
<th>Variables/Instrument</th>
<th>Results</th>
<th>Critique: Strengths</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
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<td>1</td>
<td>2000</td>
<td>Case control</td>
<td>Level 3.d: Case-controlled study</td>
<td>N=181 Total patients involved in trial N=57 Patients in NP-staffed unit in ED N=67 Patients in free-standing NP unit N=57 Patients in traditional ED staffed by physician</td>
<td>Patient satisfaction questionnaire adapted from the Touche Ross tool (17 questions; 4-point Likert scale, Yes/No, open-ended). Intra class correlation coefficient R=0.89</td>
<td>Patient satisfaction scores were higher for NPs. NPs had better communication, were able to fully discuss problems, and gave better instructions than physicians. Patients were less worried about their health after seeing an NP. NP’s adopted more of a patient-centered holistic approach to care.</td>
<td>Strengths: Every patient entering the department who met inclusion criteria was included in the study, eliminating selection bias. Limitations: The reliability of the satisfaction questionnaire is unknown. Small sample of patients from three different units. Sample was limited due to excluding children under 17 years of age as consent would have to be obtained. A large proportion of children were seen by the NPs.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1999</td>
<td>Randomized controlled trial</td>
<td>Level 1.c: Randomized controlled trial</td>
<td>N=169 Total patients involved in trial N=78 Patients cared for by an NP N=91 Patients cared for by a medical officer</td>
<td>Telephone interviews were conducted to evaluate patient satisfaction using a researcher developed patient satisfaction questionnaire (5 questions; 4-point Likert)</td>
<td>No difference in patient satisfaction when NP is compared with physician. Patients are willing to see NP again. There was strong support for the role of the NP in the rural emergency setting. NPs can be trained in selected competencies where they can provide a level of service that is consistent with acceptable</td>
<td>Strengths: The majority of study participants were surveyed for client satisfaction (78% of the randomized sample). A telephone interview was conducted by a non-healthcare professional who was unaware of who had treated each patient, allowing control for bias. Limitations: The reliability of the satisfaction questionnaire is unknown. Small sample size. The sample size of the study places limitations</td>
<td></td>
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<tr>
<td>N=132 (cared for by NP N=61; cared for by medical officer N=71) Patients surveyed for client satisfaction</td>
<td>scale, qualitative and quantitative methods)</td>
<td>on the extent to which one can generalize from the results. Study only includes patients requiring wound management and treatment of blunt limb trauma.</td>
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</table>

**Reference:** Cooper, M.A., Lindsay, G.M., Kinn, S., & Swann, I.J. (2002). Evaluating emergency nurse practitioner services: a randomized controlled trial. *Journal of Advanced Nursing, 40* (6), 721-730.

| 3 | 2002 | Randomized controlled trial | N=199 Total patients involved in study N=99 Patients cared for by NP N=100 Patients cared for by Senior House Officer N=168 (NP N=87, SHO N=81) Patients returning satisfaction questionnaires | A self-completion patient satisfaction questionnaire modified from a previously validated questionnaire developed by Jenkins and Thomas (8 questions, Likert scale). | Patient satisfaction higher for NP than physician. NPs were easier to talk to. NPs gave patients more information on preventing accidents and illnesses. NPs gave patients enough information on their injury. |

**Strengths:**
This study was large enough to demonstrate higher levels of patient satisfaction with NP led care. The patient satisfaction questionnaire was simple to use and sensitive enough to detect differences between the NP and the SHOs quality of care.

**Limitations:**
The reliability of the satisfaction questionnaire is unknown. Some patients refused to complete or return the questionnaire, which could lead to bias if the non-responders’ opinion differs from the responders’ opinion. Patients completing the questionnaires could ask other people to assist them or answer questions for them, prejudicing the sample. Not all patients answered every question.

<table>
<thead>
<tr>
<th>Study</th>
<th>Year</th>
<th>Design</th>
<th>Level</th>
<th>N</th>
<th>Total Patients</th>
<th>Patients Cared for</th>
<th>Assessment Tool</th>
<th>Findings</th>
<th>Strengths</th>
<th>Limitations</th>
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</thead>
<tbody>
<tr>
<td>4</td>
<td>2009</td>
<td>Randomized controlled trial</td>
<td>Level 1.c</td>
<td>N=202</td>
<td>Total patients involved in study</td>
<td>N=103 Patients cared for by NP</td>
<td>N=99 Patients cared for by MD</td>
<td>A self-completion patient satisfaction questionnaire adapted from the Touche Ross tool (16 questions, 4-point Likert scale).</td>
<td>Greater patient satisfaction with NP than with MD. NPs were able to address patients' needs while providing high-quality emergency care and maintaining patient satisfaction.</td>
<td>Strengths: Patient assignment to either the MD or NP was at random. Patients saw whomever was available at that time within in the ED fast track area. The questionnaire was answered anonymously and placed into a box prior to leaving the ED. Limitations: The reliability of the satisfaction questionnaire is unknown. Wait time and length of stay was not measured. Both of these can have an impact on survey response and patients level of satisfaction.</td>
</tr>
<tr>
<td>5</td>
<td>2012</td>
<td>Observational study</td>
<td>Level 3.e</td>
<td>N=320</td>
<td>Total patients involved in study</td>
<td>N=103 Patients cared for by NP</td>
<td>N=99 Patients cared for by MD</td>
<td>Self-administered patient satisfaction survey that was validated in a previous study of emergency department patient satisfaction and quality of care (Sun, Adams, &amp; Burstin, 2001). Completed by patients prior to discharge (5 questions, 5-point Likert scale). Cronbach’s alpha=0.88</td>
<td>Patient satisfaction scores are significantly higher with NPs. High quality of care was delivered and overall health outcomes and adverse event rates were similar between the NP and MDs at a 2 week follow up.</td>
<td>Strengths: Patients were randomly assigned to NP or MD. This study followed up with patients to assess their overall quality of care. The NP group had a shorter wait time of 7 minutes. The total satisfaction scores were adjusted for wait times and higher satisfaction with the NP group remained statistically significant. Limitations: Patients waiting &gt;2 hours were not involved in this study as they were placed with an MD not involved in the study who was available to care for patient.</td>
</tr>
</tbody>
</table>


Total number of patients who completed survey and were cared for by NP

Satisfaction survey developed by the investigator (6 questions, Likert-scale). Cronbach’s alpha=0.83

who completed the patient satisfaction survey rated the care they received by the NP as good or excellent.

This study looked at length of stay and unscheduled return visits, evaluating the quality of care provided by the NP.

**Limitations:**
All but one NP in the unit were new hires and did not have previous ED experience, increasing patient length of stay which can have a negative impact on patient satisfaction. This study was conducted during the first 3 months the fast track unit was open while several process issues were being worked out, increasing time in the department and adversely skewing the data. Surveys were not available during the entire study due to delays in translating the survey into Spanish. Patients chose whether to participate in survey. It is possible that only the patients with either strong negative or positive feelings chose to take the time to fill out the survey.


| 7 | 2008 | Observation study | Level 3 Observation- Analytical design | N=113 Total number of patients who completed survey and were cared for by NP | Self-report questionnaire adapted from the Cole et al. (1999) instrument. (21 items total; 18 items measured components of satisfaction with NP care and 3 items measured understanding the NP role; 4-point Likert scale) Cronbach’s alpha=0.79-0.88 | Patients are very satisfied the care provided by NPs in ED settings. 71% of patients indicated that they would prefer to see an NP while 29% of patients indicated that they would rather see an MD. Patients were highly satisfied with the NP and had a good understanding of the NP role. Patients felt satisfied with the treatment and health information provided by the NP. | Strengths: Questionnaire was piloted with six 12-year-old children who were asked to put the questions into their own words, validating that the survey was at a grade 6 reading level. Six EDs across Ontario were involved in this study, reflecting differences in geographical location, patient volume models of physician reimbursement, and affiliation with teaching hospitals. This study compared demographics with patient satisfaction scores. A trained research assistant invited patients to participate in the study after they had been seen by the NP, attempting to control for selection and social desirability. **Limitations:** There was a small sample from an ED in a small Canadian province. The results from this ED... |
may not be generalizable to other locations.


<table>
<thead>
<tr>
<th>Year</th>
<th>Methodology</th>
<th>Level</th>
<th>Study Type</th>
<th>Patient Population</th>
<th>Researcher Patient Satisfaction Questionnaire</th>
<th>Patient Satisfaction Scores</th>
<th>Strengths</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>Exploratory Study</td>
<td>4.b</td>
<td>Cross-sectional study</td>
<td>N=57 Total number of patients who completed survey and were cared for by NP</td>
<td>70.2% of patients were very satisfied and 21.1% of patients were somewhat satisfied with the total care they received from the NP. Only 3.5% of patients were very dissatisfied with the care received by the NP. The NP also improved patient waiting times and increased patient flow through the ED.</td>
<td>86% of the total patients rated their care as either very good or excellent. Patient satisfaction scores in the NP group were higher than those in the MD group.</td>
<td>This study also observed patient wait times which can have an impact on patient satisfaction.</td>
<td>The reliability of the satisfaction questionnaire is unknown. Small sample size. Surveys were mailed out to 100 patients. Only 57 completed the survey. It is unknown when the patients received their surveys by mail.</td>
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<tr>
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<th>Strengths</th>
<th>Limitations</th>
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<tbody>
<tr>
<td>2014</td>
<td>Observational Study</td>
<td>4.b</td>
<td>Cross-sectional study</td>
<td>N=353 Total number of patients involved in study N=141 Patients cared for by NP N=212 Patients cared for by MD</td>
<td>86% of the total patients rated their care as either very good or excellent. Patient satisfaction scores in the NP group were higher than those in the MD group.</td>
<td></td>
<td>Large sample size. Study was performed at two different hospitals, allowing for diversity in hospital practices and populations.</td>
<td>The reliability of the satisfaction questionnaire is unknown. Selection bias needs to be considered as one hospital was unable to accurately determine the number of fast track patients and only one-third of patients at the other hospital completed the satisfaction questionnaire. One hospital had only MDs in fast the track and the other hospital only had NPs in the fast track area. Patient population can vary between both hospitals. Satisfaction measurement can be influenced by patient demographics, past experiences with health practitioners, and the patients understanding of the professional role.</td>
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<tr>
<th>Reference</th>
<th>Date</th>
<th>Study Type</th>
<th>Level</th>
<th>Observational Design</th>
<th>N</th>
<th>Total Number of Patients Surveyed</th>
<th>Researcher Developed Survey</th>
<th>Patient Satisfaction</th>
<th>Strengths</th>
<th>Limitations</th>
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<tbody>
<tr>
<td>Organ et al.</td>
<td>2005</td>
<td>Observational study</td>
<td>Level 3</td>
<td>Observation-Analytical design</td>
<td>123</td>
<td>Total number of patient and parents cared for by the NP and surveyed</td>
<td>Yes/no and open-ended questions</td>
<td>98% of patients were satisfied with all aspects of NP management and care. All patients stated that they would be happy to see an NP in the ED in the future.</td>
<td>Study was held during Summer and Winter, accounting for the fluctuation of ED visits.</td>
<td>The reliability of the satisfaction questionnaire is unknown. It was designed and approved by both the clinical audit department and an emergency consultant doctor. There is a potential for performance bias as the NPs gave the questionnaires to the patients and parents at the end of their visit.</td>
</tr>
<tr>
<td>Barr et al.</td>
<td>2000</td>
<td>Survey</td>
<td>Level 4.b: Cross-sectional study</td>
<td>N=241</td>
<td>Total number of patients completing</td>
<td>Self-administered patient satisfaction survey that was validated in a previous study of emergency department patient satisfaction and quality of care (Sun, Adams, &amp; Burstin, 2001). Patients completed questionnaire prior to ED discharge (5-point Likert scale) Cronbach’s alpha=0.82</td>
<td>84% of patients surveyed rated their care as either very good or excellent. There was a linear decrease in median patient satisfaction scores with each incremental hour of waiting time. Satisfaction scores were also influenced by patients who spoke English and those who had an initial consultation by an NP.</td>
<td>Large sample size. Survey instrument covered a variety of domains of satisfaction in the ED.</td>
<td>No distinction between patient satisfaction with NP and MD. Selection bias is a potential. This study used a convenience sample with a potential for selection bias based on the response rate of 74% (320 patients consented and enrolled into the study, 236 patients submitted satisfaction questionnaire). It is possible that those patients who did not participate were associated with poorer satisfaction.</td>
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<tr>
<td>Year</td>
<td>Survey/Study</td>
<td>Study Design</td>
<td>Sample Size</td>
<td>Participants</td>
<td>Data Collection</td>
<td>Satisfaction</td>
<td>Strengths</td>
<td>Limitations</td>
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<tr>
<td>1995</td>
<td>Survey</td>
<td>Cross-sectional</td>
<td>N=60</td>
<td>Total number of patients surveyed</td>
<td>N=30 Patients cared for by NP and N=30 Patients cared for by MD</td>
<td>Prospectively designed telephone survey developed by the researchers</td>
<td>Satisfaction was good between both the NP and MD group. There was no significant difference between the two groups. (3.9/5 for NP and 4.0/5 for residents)</td>
<td>Strengths: Survey was a telephone interview, allowing for patients to ask questions if they did not understand the questions. Only one person declined to be interviewed. Limitations: Reliability of survey is unknown. Small sample size. There may have been socioeconomic bias because this was a telephone survey. Only one NP was involved in this study so he/she may not represent the typical practitioner. All patients who were seen by the NP were also seen by a physician. Currently, fast-track patients are only seen by NPs unless otherwise indicated.</td>
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<td>1984</td>
<td>Case-control study</td>
<td>Case-controlled</td>
<td>N=62</td>
<td>Total number of patients surveyed</td>
<td>N=31 Patients cared for by NP and N=31 Patients cared for by MD</td>
<td>Researcher developed patient satisfaction survey. Interviews done in the ED, two weeks later by phone, and three weeks later by phone, mail, and chart review.</td>
<td>77% of patients were completely satisfied with NP care. 48% of patients were completely satisfied with MD care.</td>
<td>Strengths: Survey was a personal interview immediately following ED visit. This allowed patients to recall the details of their visit and to ask questions if they did not understand the questions. Limitations: Reliability for survey is unknown. Small sample size. There may have been socioeconomic bias because patients who did not have a telephone were excluded from this study. The MD group was comprised of 20 interns and residents. Some patients may be more satisfied.</td>
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<tr>
<td>15</td>
<td>1979</td>
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<tr>
<td>16</td>
<td>2009</td>
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<td>17</td>
<td>2007</td>
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to their patients. These patients could have thought it impolite to refuse to take part in the survey because the NPs were treating them. Satisfaction ratings could be linked to the perceived waiting time for treatment which was not evaluated in this study.


<table>
<thead>
<tr>
<th>Study</th>
<th>Year</th>
<th>Design</th>
<th>Level</th>
<th>Sample Size</th>
<th>Methods</th>
<th>Findings</th>
<th>Strengths</th>
<th>Limitations</th>
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<tbody>
<tr>
<td>18</td>
<td>1999</td>
<td>Randomized controlled trial</td>
<td>Level 1.c: Randomized controlled trial</td>
<td>N=704 Total number of patients cared for by the NP N=749 Total number of patients cared for by the junior-doctor group</td>
<td>Patient satisfaction questionnaire validated by Carey and Seibert (1993). High patient satisfaction with NPs. There was no difference in patient satisfaction between the NPs and junior doctors.</td>
<td>Strengths: Large sample size. Limitations: Reliability of questionnaire unknown. Because both NPs and junior doctors were informed of this study and the methods of assessment, it is possible that they could have put more effort into the management of their patients during this study.</td>
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<td>19</td>
<td>2004</td>
<td>Survey</td>
<td>Level 4.b: Cross-sectional study</td>
<td>N=151 Total number of patients cared for by NP completing satisfaction survey</td>
<td>Researcher developed patient satisfaction questionnaire handed to the patients as they left the ED All patients were happy with their treatment and were happy to see NP again.</td>
<td>Strengths: This study evaluated to quality of care provided by the NP. Limitations: Reliability of questionnaire unknown. Small sample size.</td>
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References


U.S. Department of Health and Human Services, Health Resources and Services
