Advanced nurse-led referral versus ED physician referral to a nurse-led chest pain clinic: patient outcomes

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Registered Advanced Nurse Practitioner (RANP)

- Registered general nurse/midwife on the active register maintained by the NMBI
- Post-registration qualification in the specialist area of nursing
- Master’s degree in nursing or higher,
- Clinical component must be relevant to the area of practice -500 supervised clinical hours
- Minimum of 7 years’ post-registration experience
  - 5 years’ experience in the chosen nursing specialty
- Registered nurse prescribing of medicinal products and nurse prescribing of medical ionising radiation (X-ray)

- Health History
- Physical examination
- Interpretation Hs Tnt
- Interpretation ECG
- Risk stratification
- Interpretation of the EST
- Further investigation CTCA/Coronary Angiogram
- Autonomy-manage cases with CNS
- Diagnosis
- Termination of episode of care from ED/Clinics
The role of registered advanced nurse practitioner (RANP) in Ireland is in its infancy compared to the US.

The SCAPE study (NCNM, 2010) recommended that future research focus on capturing specific clinical outcomes related to advanced nursing practice.

Existing evidence shows similar outcomes for nurse practitioners and physician care in the US (Stanik-Hutt et al., 2013).

Better RANP radiological diagnostic skills in Ireland (Thompson & Meskell, 2012).

Dearth of literature showing better outcomes of RANP led services to usual physician led care.
A teaching hospital of Trinity College, Dublin

- Emergency Dept. sees 48,000 patients annually
- Dept. of Cardiology led by Consultant Cardiologist,
  - 7 Clinical Nurse Specialists
  - 2 Registered Advanced Nurse Practitioners
Chest pain is a common presentation to Emergency Departments (ED), accounting for 5-10% of ED visits annually and 25% of hospital admissions. (Bidmead et al 2015)

• 48% of Chest pain admitted in 2009
Once ACS ruled out: then what?

- ACS Programme/Pathway to Primary PCI (Roffi et al, 2016, Steg et al, 2012)

- 90% of chest pain presentations are unrelated to ACS (Body et al, 2008) less standardised protocols and treatment for this group

- Europe/USA: specific protocols and practices have been developed to facilitate direct discharge from the ED.
  - a two-hour accelerated diagnostic protocol (Than et al, 2014)
  - a chest pain diagnostic algorithm using outpatient stress testing within 48 hours (Scheuermeyer et al, 2012)
RANP Nurse led chest pain service

- RANP / CNS (cardiology nurse) consultation in the Emergency Dept. (ED) and Acute Medical Assessment Unit (AMAU)
  - ACS Rule out
  - ? Stable Coronary Artery Disease (SCAD)
  - Aim to discharge patient to........

- ....RANP led chest pain clinic review in the outpatient setting
  - within 72 hours after discharge,
  - for further assessment and exercise stress testing.

- Utilising an evidenced based local protocol (Montalescot et al, 2013; Six et al; Cooper et al 2010)
  - patients are referred to the chest pain clinic by the
    i. cardiology nurse during consult hours (08:00-19:00)Mon-Friday and
    ii. out-of-hours by ED physicians (19:00-08:00)
Nurse Led Chest Pain Service: commenced Dec 2011

- RANP Cardiology x 2
- Clinical Nurse Specialist x 2

Core competencies of Registered Advanced Nurse Practitioner (NCNM 2007)
- Autonomy in clinical practice
- Expert practice
- Professional and clinical leadership
- Research

Core Competencies of Clinical Nurse Specialist (NCNM 2008)
- Clinical Focus
- Patient/client advocate
- Education and training
- Audit & research
- Consultancy
Two main aims:

1. Determine the overall patient profile and final diagnosis

2. Compare the patient profile and outcomes of those referred to the nurse-led chest pain clinic by referral type (cardiology nurse or ED physician).
Method & Analysis

Study design and population

- The study was a one cross sectional survey of patients referred upon discharge from the ED and AMAU (acute medical assessment unit) to a nurse led outpatient chest pain clinic (chest pain clinic).

- All patients who were referred from ED/AMAU to the chest pain clinic were included in the study.

- There were no exclusion criteria.

- Data was collected from December 2011 to end of March 2014.

- Data was analysed using SPSS version 20.

- Means and frequencies were used to describe the data.

- To examine the relationship between profile factors and method of referral to the chest pain clinic, Chi squared test and t test were used as appropriate.

- To meet these analysis needs, assuming a medium effect size (0.8), alpha of 0.05, and power of 0.80 a sample size of 128 was required.\(^{23}\)

- Ethical approval granted
Results: Final Diagnosis

- 1041 patients attended the chest pain clinic;
- 76% non-anginal chest pain
- 15% obstructive coronary disease, of which
  - 22 were treated with percutaneous intervention (PCI)
  - 7 with coronary artery bypass grafts (CABG).
- 9% with non-obstructive CHD disease
  - <70% but >10% of lumen in at least one major vessel (Newby et al, 2012).
Comparison by Referral type: Cardiology Nurse v ED physician

- 45% of patients were referred by the cardiology nurses
- 55% by the ED physicians

Those referred by the advanced cardiology nurse were significantly more likely to be
- older,
- have a history of cardiovascular disease (24% vs 13%),
- Positive Exercise stress test (21% vs 12%)
- confirmed final diagnosis of CHD (19% vs 11%)
- Less patients with a diagnoses of musculoskeletal chest pain (5% vs 13%)
<table>
<thead>
<tr>
<th>Confirmed diagnosis (1028)</th>
<th>DNA for CTCA x 6</th>
<th>CTCA result outstanding x 2</th>
<th>Pre-existing unchanged CHD x5</th>
<th>Cardiology nurse referral (467)</th>
<th>ED physician referral (574)</th>
<th>Chi</th>
<th>p</th>
<th>eta</th>
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</thead>
<tbody>
<tr>
<td>Non anginal chest pain (788)</td>
<td>70% (323/460)</td>
<td>82% (465/568)</td>
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<td></td>
<td></td>
<td>19.3</td>
<td>&lt;0.001*</td>
<td>0.14</td>
</tr>
<tr>
<td>Obstructive coronary heart disease (150)</td>
<td>19% (85/460)</td>
<td>11% (65/568)</td>
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<tr>
<td>Non Obstructive coronary heart disease (90)</td>
<td>11% (52/460)</td>
<td>7% (38/568)</td>
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Discussion: Non-Anginal Chest Pain

- 76% had a final diagnosis of Non Anginal CP.
- The proportion was significantly lower in those referred by the cardiology nurse (70%) than the ED physician (82%).
- Either way:
  - admission avoidance = bed days saved
  - Patient is reassured
Discussion: Comparison by Referral type
Cardiology Nurse v ED physician

- Those referred by the cardiology nurse were significantly more likely to have a differential and final diagnosis of CHD
- Less likely to refer musculoskeletal causes of chest pain to the chest pain clinic
- The RANP has a specific caseload of patients, enables greater clinical gestalt for that patient group (Chest pain)
- Reflects appropriate patient referral by RANP led service in ED, for finite clinic resources
Conclusion: The expertise of the RANP/CNS

- It has been suggested that for certain chest pain patients follow up with a specialist cardiologist was related to a decreased rate of all-cause mortality or myocardial infarction at one year. (Czarnecki et al, 2013)

- The findings of this study support the premise that
  - this could be an expertly trained cardiology nurse practitioner/specialist
  - (being a constant in healthcare service provision, whilst doctors rotate every three to six months).
Discharge of Non–Acute Coronary Syndrome Chest Pain Patients From Emergency Care to an Advanced Nurse Practitioner–Led Chest Pain Clinic: A Cross-Sectional Study of Referral Source and Final Diagnosis

Shirley J. Ingram, RGN, MSc; Gabrielle McKee, BA, PhD; Mary B. Quirke, PhD; Niamh Kelly, RGN, MSc; Ashley Moloney, RGN, HDip

Background. Chest pain is a common presentation to emergency departments (EDs). Patients with non–acute coronary syndrome (ACS) chest pain are not referred. An advanced nurse practitioner-led chest pain clinic was established in a hospital ED to triage patients with chest pain to an advanced nurse practitioner (ANP)-led clinical pathway. The aim of this study was to assess the outcomes of patients referred to the ANP-led pathway and to determine factors associated with ED discharge versus ANP discharge of non–ACS chest pain patients. Patients were recruited from a hospital ED and discharged from non–acute coronary syndrome ED chest pain clinics post-referral. Data were collected from ED nurses. The study was therefore a cross-sectional study of patients attending the chest pain unit over 2 years. Results. A total of 501 patients were recruited. Of those, 344 were discharged from the ED (69%). Of the 194 patients who were admitted to the hospital, 155 (80%) were discharged from the hospital after 24 hours of observation. The remaining 39 patients (20%) required further care. Conclusions. The findings of this study highlight the importance of the role of the ANP in the management of non–ACS chest pain patients. The ANP-led pathway provides a valuable service to emergency departments, reducing the time-to-treatment and efficiency of the service provision.