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

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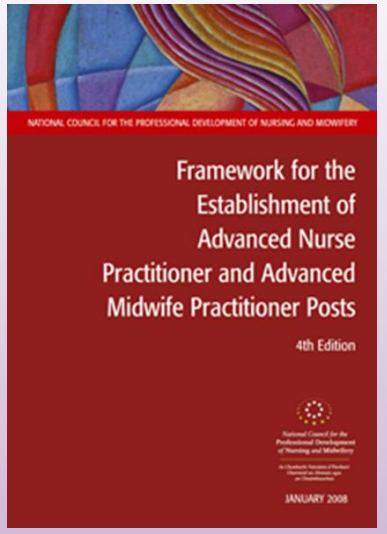
Registered Advanced Nurse Practitioner (RANP)

- 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**



RANP Clinical outcomes: are they better?

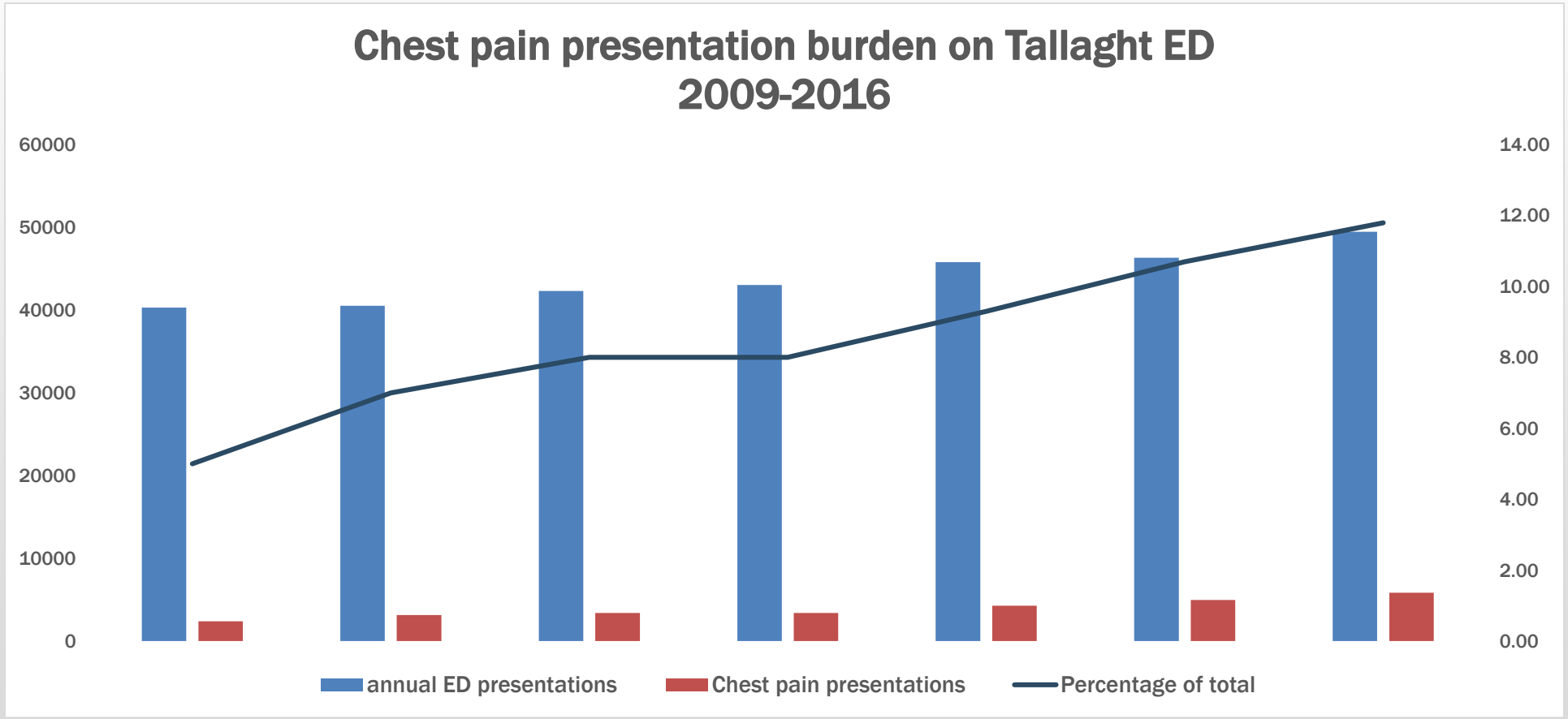
- The role of registered advanced nurse practitioner (RANP) in Ireland is in its infancy compared to the US.
- The SCAPE study (NCNM,2010) recommended that future research focus on capturing specific clinical outcomes related to advanced nursing practice
- Existing evidence shows similar outcomes for 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

Tallaght Hospital, Dublin www.tallaghthospital.ie

- A teaching hospital of Trinity College, Dublin

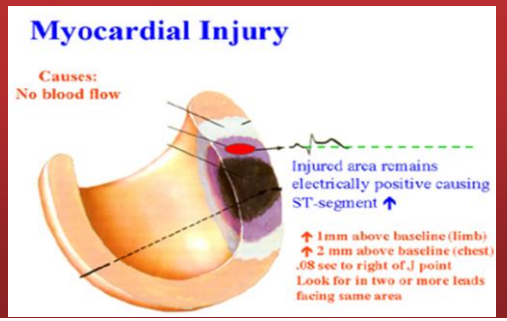
- Emergency Dept. sees 48,000 patients annually
- Dept. of Cardiology led by Consultant Cardiologist,
  - 7 Clinical Nurse Specialists
  - 2 Registered Advanced Nurse Practitioners

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 48hours (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

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

- RANP Cardiology x 2
- Clinical Nurse Specialist x 2

Study aim: Comparison by Referral type Cardiology Nurse v ED physician

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%)

Confirmed diagnosis by referral source

		Cardiology nurse referral (467)	ED physician referral (574)	Chi	p	eta
Confirmed diagnosis (1028) DNA for CTCA x 6 CTCA result outstanding x 2 Pre-existing unchanged CHD x5	Non anginal chest pain (788)	70% (323/460)	82% (465/568)	19.3	<0.001*	0.14
	Obstructive coronary heart disease (150)	19% (85/460)	11% (65/568)			
	Non Obstructive coronary heart disease (90)	11% (52/460)	7% (38/568)			

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

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Background: Chest pain is a common presentation to emergency departments (EDs). Pathways for patients with non–acute coronary syndrome (ACS) chest pain are not optimal. An advanced cardiology nurse–led chest pain service was commenced to address this. The aim of the study was to assess the outcomes of non-ACS patients discharged from ED to an advanced cardiology nurse–led chest pain clinic and compare by referral type (nurse or ED physician). **Methods:** The service consisted of advanced cardiology nurse or ED physician consultation in the ED and discharge to advanced nurse–led chest pain clinic review less than 72 hours after discharge. Referrals were by the advanced nurses during consult hours and out of hours were by the ED physicians. Data were extracted from case notes. This was a 1-site cross sectional study of patients attending the chest pain clinic over 2 years. **Results:** Confirmed coronary disease was diagnosed in 24% of patients. Of the 1041 patients, 45% were referred by the advanced nurses, who referred significantly more patients who were older (66.5 years/57.3 years), had positive exercise stress test results (21%/12%), and were diagnosed with stable coronary artery disease (19%/11%) and less patients with musculoskeletal diagnosis (5%/13%) and other noncardiac pain (36%/45%). **Conclusions:** The study fills a gap in the literature on the follow up of non-ACS patients who present to ED and patients who were diagnosed with coronary disease, reflecting the expertise, experience, and efficiency of the used advanced cardiology nurse–led chest pain clinic. The advanced nurse referred more advanced cardiology nursing expertise in the ED and chest pain clinic. The advanced nurse–led service.

KEY WORDS: chest pain, coronary heart disease, emergency department, nurse-led clinic, nurse practitioner, nurse specialist

Internationally chest pain is a common presentation to emergency departments (EDs), accounting for 5% to 10% of ED visits annually and a quarter of hospital admissions.[1–3] Algorithms and protocols have been developed to ensure prompt detection and treatment of acute coronary syndrome (ACS).[4,5] However, more than 90% of chest pain presentations are unrelated to ACS,[6] and there are less standardized protocols and treatment for this group.[7] Across Europe, chest pain assessment units linked to ED provide a common route to manage the patient who presents with chest pain,[8,9] focusing on prompt diagnosis and management of ACS.

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