

Patients' Psychological and Practical Reasons for Attending the Cairns Hospital Emergency Department

A mixed methods study (P3ED)

James Cook University's Centre for Nursing and Midwifery Research
Cairns and Hinterland Hospital and Health Service
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Patients' psychological and practical reasons for attending the Cairns Hospital Emergency Department: a mixed methods study (P3ED)

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Table of Contents

LISTS OF TABLES	i
LISTS OF FIGURES	ii
GLOSSARY OF ACRONYMS	ii
1. Summary	1
1.1 Background and objectives	2
1.2 Our approach and methodology	2
1.3 Key findings	3
1.4 The contemporary literature	3
1.5 Our recommendations	3
2. Our approach and methodology	4
2.1 Methodology and methods	5
2.2 Ethics approval	5
2.3 The survey	5
2.4 The Emergency Department Information System (EDIS) data	6
2.5 The focus groups	8
3. Our findings	9
3.1 Who is coming to the ED and how are they getting there?	10
3.2 What happens when they get to the ED?	12
3.3 Self-assessment is the first step.	13
3.4 It's complicated, therefore urgent	14
3.5 All in one place	15
3.6 The doctor sent me	17
3.7 Consumer confidence in models of care	17
4. The contemporary literature	19
4.1 Introduction to the contemporary literature	20
4.2 Defining 'GP-type' presentations	21
4.3 Health care messages	23
4.4 Alternative service models	24
4.5 Chronic care management	27
5. Our recommendations	30
5.1 Looking to the future	31
APPENDICES	32
Appendix 1: Survey template	32
Appendix 2: 'Choose Well' and NHS community education material	37
REFERENCES	38

List of Tables

Table 1: List of EDIS variables	7
Table 2: Most common diagnoses for 'GP-type' patients	12
Table 3: ICD10 diagnosis by age group (one month EDIS data – March 13 – April 11, 2014; N=4937)	13
Table 4: Variables to consider when establishing alternative models of care	25

List of Figures

Figure 1: Sequential mixed methods design	5
Figure 2: Place of residence (by percentage of total annual presentations) at Cairns Hospital ED	11
Figure 3: After hours ED presentations by age group (one month EDIS data, March 13 – April 11, 2014; N=4937)	11
Figure 4: Referral source for ED patients over time (January 1, 2010 – December 31, 2013; N=215,587).	11
Figure 5: 'GP-type' presentations of patients at Cairns Hospital ED from 2010-2013 (N=215,587)	12
Figure 6: Trends in selected primary reasons for presentation at Cairns Hospital ED from 2010-2013 (N=215,587) (* $p < 0.001$) showing a significant increase in chronic disease presentations in 2013 compared to 2010)	15
Figure 7: Broad systems affected by chronic disease (primary) diagnosis (one-month EDIS data – March 13 – April 11, 2014; N=4937)	16
Figure 8: Age of survey participants presenting to Cairns Hospital ED between March 13 and April 11, 2014.	16
Figure 9: Residential postcode of ED patients (one-month EDIS data – March 13 – April 11, 2014; N=4937) <i>(Note: Inner Cairns is defined as residential post code of 4870, 4868, 4878; Southern Corridor includes 4865 & 4869; Northern Beaches is 4879; Tablelands includes 4872, 4880-4888); Port Douglas/Mossman is 4873 & 4877. "Outer Cairns" includes any area within 60 minutes of Cairns.)</i>	17
Figure 10: Approaches to reducing and/or managing GP-type ED presentations	19
Figure 11: The three main health professionals' attitudes towards 'non-urgent' ED use, according to Guttman (2001)	21
Figure 12: Main community education health messages	23

Glossary of Acronyms

ACEM	Australian College of Emergency Medicine
AIHW	Australian Institute of Health and Welfare
BEACH	Bettering the Evaluation and Care of Health
CH	Cairns Hospital
CHHHS	Cairns and Hinterland Hospital and Health Service
CCM	Chronic Care Model
COAG	Coalition of Australian Governments
ED	Emergency Department
EDIS	Emergency Department Information System
FNQ	Far North Queensland
ICD10	International Statistical Classification of Diseases (10th revision)
JCU	James Cook University
GP	General Practitioner
HREC	Human Research Ethics Committee
NHS	National Health Service (United Kingdom)
NP	Nurse Practitioner
P3ED	Patients' Psychological and Practical Reasons for Attending the Cairns Hospital Emergency Department: A Mixed Methods Study



1. Summary

This section provides a rationale for this report and summarises our approach, methodology and key findings.

The aim of this mixed methods research study was four-fold: to provide an analysis of current and recent trends in utilisation of the Cairns Hospital (CH) Emergency Department (ED); to estimate the rate of GP-type patients presenting to the CH ED; to identify the psychological and practical reasons for people attending the CH ED; and to consider alternative models of care to potentially reduce presentations to the CH ED.

1.1 BACKGROUND AND OBJECTIVES

In late October 2013, discussions commenced between the Cairns and Hinterland Hospital and Health Service (CHHHS), James Cook University's (JCU) Centre for Nursing and Midwifery Research (CNMR) and the FNQ Medicare Local about a collaborative research study to investigate consumers' motivations in attending the ED. The rationale for undertaking the study was the increasing number of ED presentations at the CH. Cairns Hospital ED presentations had been increasing by approximately 11 per cent per annum according to unpublished data from the CHHHS. This figure was significantly higher than that of Queensland as a whole, in which ED presentations had been increasing at a rate of 4.2 per cent per annum over the same period (Australian Institute of Health and Welfare, 2013). This discrepancy could not be explained by unequal population growth or demographics (e.g. a greater ageing population in Northern Queensland). The CHHHS Board and the FNQ Medicare Local Board approved research funding for 'Patients' Psychological and Practical Reasons for Attending the Cairns Hospital ED: A Mixed Methods Study' (P3ED) in December 2013. A research team was formed with representation from each of the organisations, which included a number of clinicians from the ED.

The original objectives of the study were to:

1. Provide an analysis of current and recent trends in utilisation of the CH ED
2. Estimate the rate of GP-type patients presenting to the CH ED.
3. Identify the psychological and practical reasons for people attending the CH ED.
4. Consider alternative models of care to potentially reduce presentations to the CH ED.

Growing pressure on EDs is not unique to Cairns, Queensland, or Australia. Non-urgent use of

emergency services has been at the forefront of minds, policy initiatives and research projects for more than 20 years, particularly in the United Kingdom (UK), parts of Europe, and the United States of America (USA). The burden of 'GP-type' patients presenting to EDs has been a focus of recent Australian studies. (Abernethie & Nagree, 2004; Callen, Blundell, & Prgomet, 2008; Lowthian et al., 2010a).

The increasing presentations to the CH ED might be attributed to a number of psychological and practical factors. Many of these factors have also been noted in the broader ED research literature (Cunningham & Sammut, 2012; Durand et al., 2011; Durand et al., 2012; Nagree et al., 2013b; Richardson & Mountain, 2009) and include, but are not limited to the:

- convenience or practicality of ED services as a combined 'one-stop shop' model;
- reputation of EDs for providing a high quality of healthcare service;
- individual's engagement with other health services, for example trends in the proportion of people with a regular GP;
- degree of access to GP or other health service of choice, for geographical or other reasons;
- perceived acuity and urgency of the presenting problem;
- knowledge of alternative health services to the ED, particularly after hours services;
- lack of holistic primary care options for people with chronic medical conditions.

1.2 OUR APPROACH AND METHODOLOGY

The mixed methods study has been conducted over two phases of data collection. Phase 1 involved a one-month 24/7 survey of patients attending the ED. EDIS data was also analysed for the one-month period during which the survey

took place. A four-year trend analysis of EDIS data was also undertaken. Findings from the survey informed phase 2 of the study in which five focus groups comprised of patients who participated in phase 1 were facilitated to help explore and clarify the findings from phase 1.

1.3 KEY FINDINGS

Our key findings were as follows:

1. The most significant increase in ED presentations in the past four years has occurred among adults (16-74yrs);
2. Lack of consumer confidence in primary health care services based on the public perception that many health conditions are “too complicated” for such services is potentiating ED presentations;
3. The increase in ED presentations can be partially linked to acute exacerbations of chronic disease;
4. While parents of young children have good access to GP services, the ED is often considered the ‘best place’ for medical care.

1.4 THE CONTEMPORARY LITERATURE

Here, we summarise the research literature into ED use, then outline the many approaches used to reduce ED presentations in other settings. This section has been ordered into four main topic areas deemed to be the most relevant to the findings of our study and to the CHHHS area.

- Defining ‘GP-type’ presentations
- Healthcare messages
- Alternative service models
- Chronic care management

1.5 OUR RECOMMENDATIONS

Our first recommendation is that a working party be established to further progress the study. Initial analysis highlighted a number of ‘red flag’ issues. The working party, therefore, should be funded to

conduct targeted analysis of the existing dataset with a view to supporting projects, people and services that will ease pressure on the ED and strengthen current models of service delivery. Three areas are then recommended for further investigation: the establishment of a minor injuries clinic, the development of an electronic patient decision making support system, and strategies to prevent exacerbations of chronic disease that lead patients to present to the ED. It is also recommended that the dataset be expanded to include Medicare data, ethnicity data, Bettering the Evaluation and Care of Health (BEACH) data, and separations data.



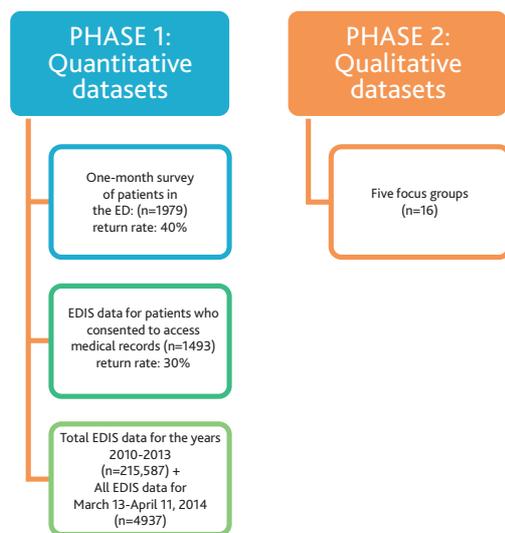
2. Our Approach and Methodology

In this mixed methods study, we combined quantitative data in the form of a 28-question, 52-item survey administered face-to-face by research assistants working in the CH ED, and EDIS data, with qualitative data gleaned from semi-structured focus group meetings. Descriptive analyses were used for quantitative data to investigate the characteristics of CH ED presentations, trends over time, and potential determinants. Qualitative data was coded, categorised and further analysed using a storyline technique.

2.1 METHODOLOGY AND METHODS

This study used a sequential, explanatory mixed methods approach (Figure 1). The two-phase study began with collection of quantitative data from two separate sources: patients presenting to the ED, and the EDIS database. Phase 1 involved a one-month 24/7 survey of patients attending the ED. Survey responses were obtained from 1979 people who attended the ED (40% of the total presentations for that month). EDIS data was also analysed for this one-month period (n=4937). Findings from the survey informed Phase 2 of the study in which five focus groups of patients were facilitated to further clarify and explore key survey findings from phase 1 (n=16). An additional component of Phase 1 was analyses of all presentations to Cairns ED over four years (2010-2013; N=215,857).

Figure 1: Sequential mixed methods design



2.2 ETHICS APPROVAL

The original research design was split into two because of requirements of the ethics approval process, resulting in the creation of a sub-study. A waiver of consent and approval under the Public Health Act (PHA) was required for the research team to access potentially re-identifiable patient data without consent. The approval process was expected to take some time so, in order to meet the study timelines, the research team submitted a

low risk ethics application for the main survey-related study (HREC/14/QCH/9 – 887 LR), which was approved first. This approval allowed the survey to commence on time. An additional low risk ethics application, including a request for waiver of consent, was then submitted to the full Human Research Ethics Committee for the EDIS data-based sub-study and approval was received (HREC/14/QCH/28 – 901 LR). Public Health Act approval to extract the EDIS data for the time period, 2010- 2013, was granted on 20th May 2014.

2.3 THE SURVEY

The study aimed to sample all patients who were able to provide informed consent within the CH ED over a one-month period. Data collected provided an accurate analysis of current utilisation of the CH ED over a one-month period by quantifying the following points:

- Determine characteristics of current CH ED presentations.
- Determine the diagnostic and referral profile of patients arriving to CH ED.
- Analyse the usage of ED by non-local or overseas residents.
- Analyse ED usage by aged care, mental health and chronic disease patients.
- Analyse the rate of GP or 13 HEALTH phone number referrals to ED.

The cross-sectional patient survey, consisting of 28 questions and 52 items (Appendix 1) was used to examine patient choices, options and determinants, and to identify the psychological and practical reasons for people attending the CH ED. The survey form included questions to elicit demographic and health information, and was translated into seven languages identified to be most prevalent in the Cairns region. Seven medical students and seven nursing students were recruited as research assistants. The 14 students

were given training in the use of the survey instrument and in interview techniques. The students worked in shifts to collect data in the ED 24 hours a day, seven days a week for 28 days between March 13, 2014 and April 11, 2014.

The survey instrument was based on several previous studies by Steele, Anstett, and Milne (2008), Chalder et al. (2007) and Durand et al. (2012), and was adapted from a survey most recently used by Jukka, Hollins, Hollins, & Beaton (2013) in their study of the Atherton Hospital ED. The instrument was refined in collaboration with clinical experts in the research team and other key stakeholders to ensure as many potential factors as possible were included. The instrument was piloted for 44 hours prior to full deployment and one question was changed slightly as a result of this work. Responses were received from 144 people in the pilot period. In the survey period, responses were received from 1979 patients.

2.4 THE EMERGENCY DEPARTMENT INFORMATION SYSTEM (EDIS) DATA

The initial collection of EDIS data was for the survey time period of March 13 – April 11, 2014 (n=4937). Two separate extractions of EDIS data were obtained. Firstly, data were extracted from EDIS relating to survey participants who consented to their patient records being accessed. Data extracted for this group included the following: unique record number, presenting complaint, triage code, ICD10 (International Statistical Classification of Diseases 10th revision) diagnosis code, private health insurance status, gender, age, time/day of presentation, and discharge status/destination. Secondly, data were extracted for all patients who presented to the ED over the month of data collection (March 13 – April 11, 2014). Data extracted were identical to that described above with the exception of a unique record number. Thirdly, EDIS data were then collected for the four years 2010-2013 to provide

an accurate longer-term analysis of recent trends in the utilisation of the CH ED. Analysis of this data were used to achieve the following research aims:

- Determine trends in characteristics of CH ED presentations over the study period.
- Determine trends in the diagnostic and referral profile of patients arriving to CH ED.
- Analyse trends in the usage of ED by non-local or overseas patients.
- Analyse trends in ED usage by aged care, mental health and chronic disease patients.
- Analyse trends in the rate of GP or 13 HEALTH phone number referrals to ED.
- Estimate the proportion of patients presenting to the CH ED over a four-year period who may have been suitable to be seen in a general practice.

Participants who completed the survey were asked for consent for the research team to access their electronic medical record via the EDIS database to extract the following data: unique record number, presenting complaint, triage code, ICD10 diagnosis code and private health insurance status. Consent to access this EDIS data was given by 1493 people, a return rate of 30%.

Quantitative analysis of the CH EDIS data focused on trends and patterns in CH ED presentations over the past four years (2010-2013). In the four-year period some 215,587 people attended the CH ED. One of the contentious issues in coding and analysing the data was, 'what is a 'GP-type' patient?'. Many researchers have devoted considerable attention in recent years to determining the appropriateness of methods used to quantify 'GP-type' presentations in the ED. Analysis of the dataset in this study was guided by this research. Nagree et al. (2013a) trialled four methods used to estimate ED presentation rates for patients who might have otherwise been suitable for consultation in a general practice. In Nagree et al's study of tertiary hospital EDs in

Perth between 2009 and 2011, Nagree and colleagues found that an estimated 10-12% of patients fell into this 'GP-suitable' category using three of the four methods trialled. The fourth method, used by the Australian Institute for Health and Welfare (AIHW), resulted in a much higher estimate of 25-26% of patients classified as GP-type patients. The data in our study were analysed using the Australasian College for Emergency Medicine method, recommended by Nagree and colleagues. In this method, potential 'GP-type' patients are identified by estimating the number of self-referred, non-ambulance patients with a medical consultation time of less than one

hour (Australian College for Emergency Medicine, 2001). In the current study, 'medical consultation time' is defined in accord with the recommendations of Nagree and colleagues, which is the 'treating clinician time' (time at which the patient first sees the treating clinician, and not the time of arrival at the ED) and discharge time. Microsoft Excel was used to undertake all quantitative analysis. Descriptive analyses were used to investigate the characteristics of CH ED presentations, trends over time, and potential determinants. A description of the primary variables analysed is provided in Table 1 below.

Table 1: List of EDIS variables

Type of Variables	Variable Name	Variable Description
<i>Demographic</i>	Present Age in Years	Age
	Gender	Gender
	Present Postcode	Postcode
	Present Suburb	Present suburb (includes interstate/country information)
	Private health insurance status	Private health insurance status
<i>Medical Status</i>	Presenting Complaint	Presenting complaint
	Type of Visit	Type of Visit (eg. ED presentation/prearranged visit/planned return visit)
	Diagnosis ICD Code Primary and description	Diagnosis code and description
	Chronic/Diabetes status	Chronic Disease/Diabetes status (if available)
<i>Arrival Logistics</i>	Mode of Arrival	Mode of arrival
	Referred by Hospital	Referred by Hospital
	Transfer Destn Hospital	Transfer back to Hospital
	Referred by Desc.	Referred by description (self/family/GP/13 HEALTH/Nursing home)
<i>ED Visit Descriptors</i>	Triage Priority	Triage priority
	Triaged At	Triage date and time
	TimeDiff Arrival Actual Depart	Length of stay
	Treating Clin Seen At	Time seen by treating clinician
	Treating Nrs Seen At	Time seen by treating nurse
	Treating ED Dr Seen At	Time seen by senior ED doctor
	Admitted At	Admitted or not

2.5 THE FOCUS GROUPS

Five focus groups were facilitated at the hospital and in three community health centres. Some 163 survey participants consented to be contacted about attending a focus group meeting. Forty-five of those people contacted agreed to participate, and 16 participants attended a focus group meeting and provided written consent. Four researchers were present at each focus group. Two researchers acted as facilitators and two as transcribers, writing up field notes. Analysis of the survey data guided the direction of the focus groups. The following discussion points were used to structure the focus group sessions and activities.

- Motivations for health care use
- Sources of information used to select the type of health service accessed
- Perceptions of health services in the local area
- Understandings of physical and mental health symptom severity
- Knowledge of alternative services to the ED

These activities included a symptom card sorting activity; a sticky note brainstorming activity about the sources of information people consult for health information; and viewing a social media video, a life sized poster and other 'Choose Well' material developed by the National Health Service (NHS) in the United Kingdom to prevent people visiting the ED for non-urgent conditions (See appendix 2). The focus groups were observed, and notes were taken about participants' responses including direct quotes. Facilitators engaged in concurrent data analysis during post focus group debrief meetings. The total qualitative data set comprised ethnographic field notes from each of the five focus groups, artefacts generated in each of the focus groups which included sticky note brainstorming, and the digital recording of the researcher debriefs and analysis.

Data was coded and categorised into six themes. A count of each of the codes was undertaken and mapped using an excel spreadsheet. From this analysis, a storyline technique was used to describe and explain the themes identified in the data.



3. Our Findings

The CH ED was visited by 215,587 people between January 1, 2010 and December 31, 2013. Daily presentation rates rose from 130 in 2010 to 164 patients in 2013. Our key findings were as follows:

1. The most significant increase in ED presentations in the past four years has occurred among adults (16-74yrs);
2. Lack of consumer confidence in primary health care services based on the public perception that many health conditions are “too complicated” for such services is potentiating ED presentations;
3. The increase in ED presentations can be partially linked to acute exacerbations of chronic disease;
4. While parents of young children have good access to GP services, the ED is often considered the 'best place' for medical care.

3.1 WHO IS COMING TO THE ED AND HOW ARE THEY GETTING THERE?

In the four-year period between January 1, 2010 and December 31, 2013, some 215,587 people came to the CH ED for medical treatment. Men accounted for 53% of that total number and women, 47%. The mean age of presenting patients was 37 years. Analyses were completed to determine whether the survey participants were representative of those who presented to the ED for treatment during the one month of data collection. No differences were observed between these groups on key demographic characteristics such as age, gender, geographical location and admission status ($p > 0.05$). However, some differences were observed in relation to triage code, time spent in ED, diagnosis code and mode of arrival ($p < 0.05$).

Among survey respondents, just over half (55.2%) had experienced the complaint for which they presented to hospital for less than 24 hours. An additional 13.6% of survey respondents reported experiencing the condition for between 24 and 72 hours. Importantly 16.1% of survey participants reported experiencing the complaint for which they were seeking treatment for one week or longer. For 56.1% of survey respondents, the ED was their first contact point with a health professional for that issue or complaint. The remaining 43.9% ($n=782$) of survey respondents had sought advice from a health professional prior to visiting the ED about the complaint for which they were seeking treatment. Of these patients the majority (59.8%) had sought medical treatment within the 24 hours prior to presenting to the ED. An additional 13% had sought medical advice between 24 and 72 hours prior to presenting to the ED, and 15.2% had sought medical advice at least one week prior to presenting to the ED for assistance.

Among survey participants who had sought advice from a health professional about the complaint for which they were seeking treatment at the ED ($n=782$), almost half (41.8%) had consulted a GP or attended some kind of medical centre. An additional 9% ($n=68$) reported that they had visited a 24-hour medical centre, and almost 5% ($n=38$) had consulted 'Dial a Doctor' or 'Doctor to your Door'.

Mostly patients came to the ED from Cairns city and surrounding suburbs (see Figure 2). Data on postcode of residence were analysed to investigate whether there were any patterns in relation to geographical residence and ED attendance. Contrary to initial assumptions that tourists might be significant users of local hospital services because they did not have a local doctor, the number of presenting patients from interstate or overseas was relatively small in comparison to attendees from local areas (1.7% - 2% of total attendees over the one-month survey period were interstate tourists, and 2.8% were overseas tourists). Daily presentations increased in the four-year time period, from 130 people per day in 2010 to 164 people per day in 2013. This represents an increase of 26.6% over the four-year period from 2010-2013. In the one-month survey period (March 13 – April 11, 2014) there were an average of 165 presentations per day.

In the month-long survey period, almost twice as many people made their own way to hospital as arrived by ambulance. The split was 63% by self-transport (car, foot, taxi or bus) and 37% by ambulance or another retrieval service, a statistic reflected in the four-year trend data, which was largely unchanged from year to year. A small percentage of people arrived at the ED with the police (1.4%). No day of the week was significantly busier than any other; similar numbers of people presented to the hospital on a Wednesday, for

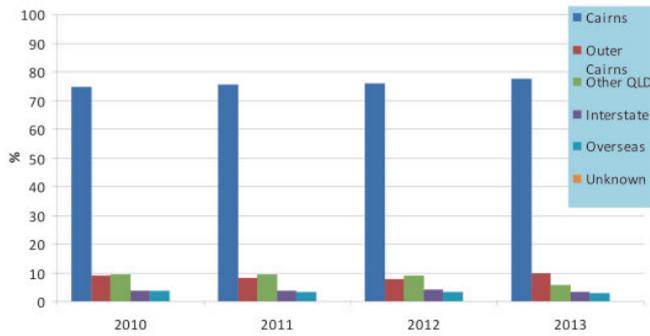


Figure 2: Place of residence (by percentage of total annual presentations) at Cairns Hospital ED

example, as on a Sunday. Friday was the busiest day of the week, but not significantly so. There was a slight difference in the number of people presenting to the ED at different times of the day. More people came to the ED after hours than in business hours. Business hours was classified as 8am to 5pm weekdays and 9am to 12 noon on Saturdays; 'after hours' is any other time. Using the one-month 2014 EDIS data, it can be seen that 62% of the total ED presentations (n=4937) occurred after hours. Except for people aged over 75 years, all age groups presented at the ED for treatment more frequently after hours than during regular business hours (see Figure 3). This pattern was most pronounced for adults aged 15-74 years.

Figure 4 below shows the referral source for all ED patients who presented for treatment between 2010-2013 (n=215, 587), as recorded at the time of presentation (by the triage nurse). As can be seen, the overwhelming majority of patients were recorded as "self-referred" upon presenting for treatment. There was little variation over time; in 2012, 86.27% of all ED patients were identified as self-referred, and this was true for 86.86% of patients in 2013. There does seem to be a slight increase over time in the proportion of patients identified as 'GP-referred' in the EDIS data: in 2010, 3.58% were identified as 'GP-referred', and by 2013 this increased to 4.09%.

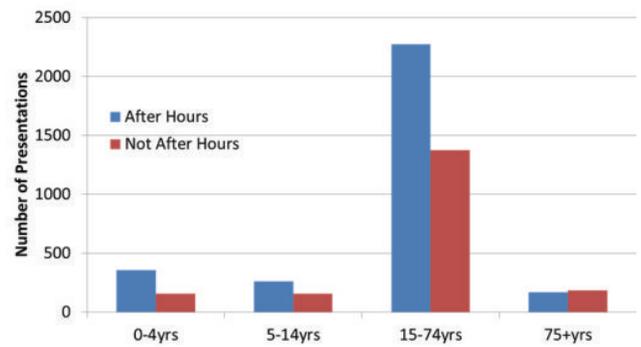


Figure 3: After hours ED presentations by age group (one month EDIS data, March 13 – April 11, 2014; N=4937)

As recommended by Nagree et al (2013), the ACEM method was used to objectively identify "GP-type" patients who presented for treatment at CH ED over the four years from 2010-2013. All patients who were recorded in the EDIS database as self-referred, were not transported by ambulance, were not admitted to hospital following their ED presentation, and who had a medical consultation time of less than one hour, were defined as 'GP-type' patients. As can be seen in Figure 5, there was a decrease in the proportion of patients identified as 'GP-type' between 2010 (19.1%) and 2013 (16.8%). Further analyses were conducted to determine whether there were differences in the characteristics of patients identified as 'GP-type' and other patients. No differences were observed on characteristics such as age, gender, triage code, day of week of presentation, and geographical residence ($p > 0.05$).

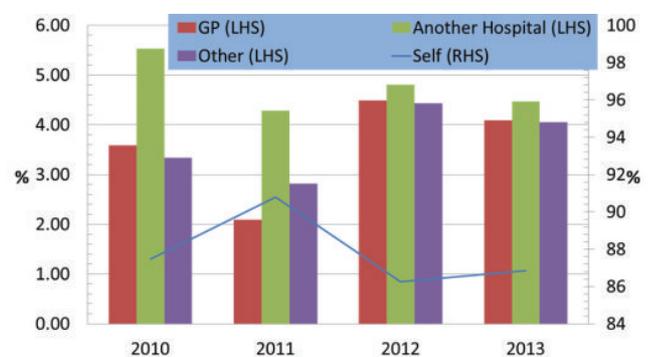


Figure 4: Referral source for ED patients over time (January 1, 2010 – December 31, 2013; N=215,587).

Note: There are two axes (axis on the left-hand side relates to GP, another hospital and other; axis on the right-hand side relates to self-referred patients)

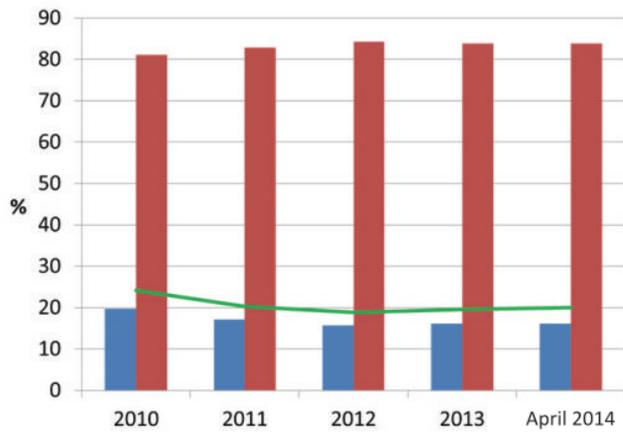


Figure 5: 'GP-type' presentations of patients at Cairns Hospital ED from 2010-2013 (N=215,587)

However, 'GP-type' patients were less likely to present after hours, and spend more time overall in the ED.

In Queensland, transportation to hospital by ambulance does not result in a cost to the patient. The analysis was therefore repeated to identify the proportion of patients who presented to CH ED by ambulance but would have otherwise been classified as 'GP-type' patients. In this instance, 'GP-type' patients were self-referred, not admitted to hospital following the presentation, and who had a medical consultation time of less than one hour, but may have been transported to hospital via ambulance. The proportion of patients identified as 'GP-type' increased by approximately 4-5% per annum, but overall the pattern did not change.

Crude analyses were also completed on diagnosis (ICD-10) in order to assess whether reasons for attending ED differed between patients identified as 'GP-type' and other patients. Table 2 shows the most frequent diagnoses for 'GP-type' and other patients. As can be seen, while there were some slight differences between these two patient groups, no striking differences were observed. Importantly, one-fifth of the patients identified as 'GP-type' presentations experienced some kind of (minor) injury

GP Type	Non-GP Type
1. Injury (23%)	1. Injury (31%)
2. Symptoms, signs & abnormal clinical and laboratory findings, NES (13%)	2. Symptoms, signs & abnormal clinical and laboratory findings, NES (13%)
3. Circulatory (8%)	3. Respiratory (8%)
4. Genitourinary (8%)	4. Circulatory (7%)

Table 2: Most common diagnoses for 'GP-type' and non 'GP-type' patients

3.2 WHAT HAPPENS WHEN THEY GET TO THE ED?

Most people (74-78% of all presentations) were triaged as category 3 or 4 on arrival to the ED between 2010 and 2013, a trend that has remained relatively constant across the four-year period. Triage category 3 patients (those with potentially life-threatening conditions who should be seen by a treating doctor or nurse within 30 minutes of arrival (Queensland Health, 2014)) accounted for between 35% and 41% of all presentations. Similarly, triage category 4 patients (those with potentially serious conditions who should be seen by a treating doctor or nurse within 60 minutes of arrival) accounted for between 36% and 42% of all presentations. Patients triaged as category 5 (those with less urgent health problems) consistently accounted for approximately 6% of total presentations. The mean time patients spend in the ED has been declining steadily since 2011. Mean time decreased from 348 minutes in 2011 to 318 minutes in 2012, and fell even more dramatically in 2013 to 269 minutes. Admission status data revealed a drop in the percentage of admissions from just over 70% of all presentations in 2010 to just over 60% in 2013. The three most frequent diagnoses (by age-group) are shown in Table 3 (below) for all patients who presented for treatment at CH ED during the month of data collection (March 13th – April 11th). The most frequent diagnoses overall (for all age groups) was injury (n =1465; 29.7%). Two-thirds of patients who presented for treatment of an injury

presented outside of usual business hours, and this did not vary significantly with age ($p>0.05$).

3.3 SELF-ASSESSMENT IS THE FIRST STEP

Patients assess their symptoms in an attempt to diagnose their own illness or condition before deciding where to go to seek medical treatment. The primary sources of information used in the self-diagnosis process are: social settings and family, the internet, and past experience. People will consult friends, neighbours, their mother or father or others in their social circle about a medical issue. They will also consider past medical and health experiences from their own and others' lives. Focus group participants described the self-diagnosis process as follows: "We all self-diagnose what is dangerous and what is not," said one participant. Another focus group participant described the thought processes and emotions around self-diagnosis. "Instincts, your gut instinct – if you have a little bit of knowledge you make your decisions". Most of the survey participants indicated that the ED was their preferred choice of health service for their particular problem on that day. In answer to the question, 'If you had a choice, where would you have preferred to go for the problem that you have come to hospital about today?', the ED was nominated by 57.5% of participants (944/1641 responses), and 21.4%

(351/1641) answered that they believed they had no choice. Respondents who would have preferred to see a general practitioner about their particular issue that day numbered 247 (15.1%).

Patients are discerning consumers of internet medical and health information. Focus group discussions revealed people were very conscious of accessing what they believed to be accurate and reliable information when they turned to the internet. They dismiss sites that are light on information. They also dismiss alarmist-type sites that jump to worst-case scenarios at the mention of any symptom. The most commonly-accessed health websites were the Victorian Department of Health, New South Wales Department of Health and the Mayo Clinic. People indicated that they would seek out sites they knew to be accurate and helpful rather than conducting a broad Google search. The tele-health triage service, 13 HEALTH, was not regarded as a useful source of information, with only 9.8% of survey respondents (69/701) indicating that they considered phoning the service before coming to the ED and 39.7% self-assessing their health condition as 'too complicated' for 13 HEALTH to be of any use (245/617).

Table 3: ICD10 diagnosis by age group (one month EDIS data – March 13 – April 11, 2014; N=4937)

ICD10 Diagnosis	0-4yrs	5-14yrs	15-74yrs	75+yrs	All Ages
1	Respiratory	Injury	Injury	Injury	Injury
2	Injury	Symptoms, signs and abnormal clinical and laboratory findings, NES	Symptoms, signs and abnormal clinical and laboratory findings, NES	Symptoms, signs and abnormal clinical and laboratory findings, NES	Symptoms, signs and abnormal clinical and laboratory findings, NES
3	Infectious/Parasitic	Respiratory	Cardiovascular	Cardiovascular	Respiratory

*Note: Injury was defined as any presentation assigned an ICD10 code of S00-T98, or V01-Y99. Symptoms, signs and abnormal clinical and laboratory findings, NES was defined as R00-R99; Respiratory was defined as J00-J99; Infectious/Parasitic was defined as A00-B99.

3.4 IT'S COMPLICATED, THEREFORE URGENT

The most frequent reason that survey participants cited for attending the ED was a judgement that their health condition was 'urgent' (n=579; 29.3%). Of this group, 50% were admitted (n=253), 88% had a regular GP, and 25% had visited their regular GP within one week of presenting to the ED. Over three-quarters of this group (77.9%) reported that their GP offered bulk-billing, 26% reported that they had difficulty obtaining an urgent appointment from their GP in the past, and 5.5% reported visiting the ED in the 12 months before interview because they couldn't get an urgent appointment with their GP. Most frequently the group of patients who defined their level of required care as "urgent" were allocated a triage category of 3 upon presentation (49.6%), followed by a 4 (29.4%).

Focus groups examined the concept of a complicated health condition with analysis indicating that multiple symptoms, combined with the length of time they had been present and/or the unknown nature to the patient created high levels of anxiety. This anxiety led to the self-diagnosis that the condition was complicated, therefore urgent, and needed immediate medical attention. In the words of focus group participants, "We want to resolve this problem as quickly as possible". People are attending the ED for support when they "cannot identify the reason" for their symptoms and require "alleviation of their concerns". They believe a general practitioner will not be able to adequately allay their fears. Individuals go to the ED when they are "panicking", when they feel "overwhelmed", when their "gut instinct takes over, because the symptoms (number of) are going too over the top". It was evident that anxiety was linked to the interplay between certainty and uncertainty in self-diagnosis, and trust or distrust in other health professionals. Symptoms were regarded as 'simple'

when they were 'pre-existing' or 'understood' or occurring in isolation. Symptoms became a cause for concern, however, when they were numerous, persistent, new, or occurred in young children, older adults or people with a pre-existing medical condition. Of the people who stated that the 'urgency' of their condition and treatment was their main reason for choosing the ED, half (50%) were admitted (n=253). Approximately 14.4% were identified through their ICD10 diagnosis as having a chronic disease, but one-fifth (22.6%) stated that they had a long-standing physical condition such as arthritis or pain, and 39.7% reported that they had a long standing illness (such as cancer, HIV, diabetes) 8.1% of these participants reported that they had a mental illness, and 2.8% were identified via their ICD10 diagnosis as having a mental health condition.

Chronic conditions complicate illness and injury experiences. In the month-long data collection period (between March 13th and April 11th 2014), EDIS figures showed that for the total number of ED presentations for the month, chronic disease was the primary reason for presentation for 7.5 % (n=372). For the purposes of this study, "chronic disease" was identified by ICD10 code diagnosis of any of the following, on the basis of expert advice: diabetes mellitus (E10-15, E16.2); obesity (E65-689); cardiovascular diseases [i.e., I00-I45.9 & I50-52.8]; respiratory diseases (J40-J99.8); liver and kidney diseases (K70-77; and N18-N19). However, this is an underestimate of the burden of chronic disease on the ED. It does not take into account ED presentations where chronic disease was a contributing factor, but not the primary reason for presentation. Survey data shows the percentage of people who present to the ED and self-identify as having a chronic disease is likely to be greater than 7.7%. Of the survey participants, 27.4% (n=542) reported they had a long-standing illness such as: cancer, diabetes, chronic heart disease or COPD,

and 14.5% (n=286) stated that they had a long-standing physical condition such as arthritis or chronic pain. Of interest is that 2.6% of survey participants were identified as having a chronic disease through their ICD10 diagnosis, but did not self-report that they had a chronic disease. Thus, the total of ED presentations for the month-long period in 2014 who either self-reported having a chronic illness, injury, pain or disease, or who were objectively identified as having a chronic disease via their diagnoses, was 37.8% (n=725).

Data relating to ED presentations over the 4 years from 2010 – 2013 show that the number of people who presented to hospital, and whose primary ICD10 diagnoses were related to a chronic disease, increased from 5% of total presentations in 2010 to 7.8% of the total presentations in 2013 (see Figure 6) – this represents a significant increase over this time period ($p < 0.001$). As stated earlier, data from ED presentations over the one month of data collection (March 2014), show that the percentage of chronic disease presentations remain elevated (at 7.5%). Percentages of presentations for other categories such as – mental health and aged care – have remained fairly constant across the four-year period (with 0.3% and 0.4% margins respectively and no consistent upward or downward trend).

Patients who were identified as having a chronic disease through their primary diagnosis did not differ from non-chronic disease patients in relation to: gender, geographical residence, triage code upon presentation, or day of the week of presentation to ED. However, they were more likely to be older (53 vs 36yrs), spend more time in the ED (351 mins vs 239 mins), arrive at the ED through self-presentation (not ambulance), attend ED during usual business hours, and more likely to be admitted ($p < 0.05$).

Figure 7 shows the system affected by chronic disease for patients who presented to the ED for treatment during the one month of data collection (from March 13 to April 11th, 2014). The majority of patients were affected by diseases related to the cardiovascular system, with the next most frequent category being the respiratory system.

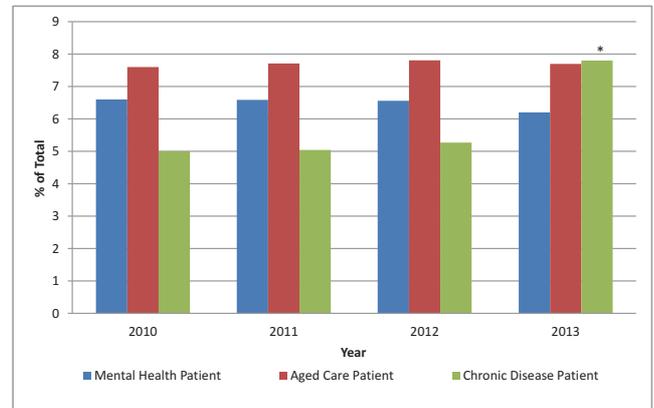


Figure 6: Trends in selected primary reasons for presentation at Cairns Hospital ED from 2010-2013 (N=215,587) ($*p < 0.001$) showing a significant increase in chronic disease presentations in 2013 compared to 2010)

3.5 ALL IN ONE PLACE

Another key reason for survey participants to attend the ED was they felt the ED was the 'best place' for their health condition to be treated or managed. Just over one third of this group of 421 participants were admitted to hospital following their ED presentation (34.5%) compared with 50% of survey participants who identified that their main reason for presenting to the ED was an 'urgent' need for treatment. In this group of people who regarded the ED as the 'best place' for their health condition to be treated or managed, 83% had a regular GP and 14% had a chronic disease; 10% of the total were parents or guardians who had brought in children aged between 0 and 4 years. A number of parents in the focus groups and on the survey forms commented that the ED was the best place for their children because it provided a 'medical home' where their records were 'all in one place', and there was access to specialist and diagnostic services. Figure 8 shows a breakdown of the age of presenting patients who participated in the survey (n= 1750).

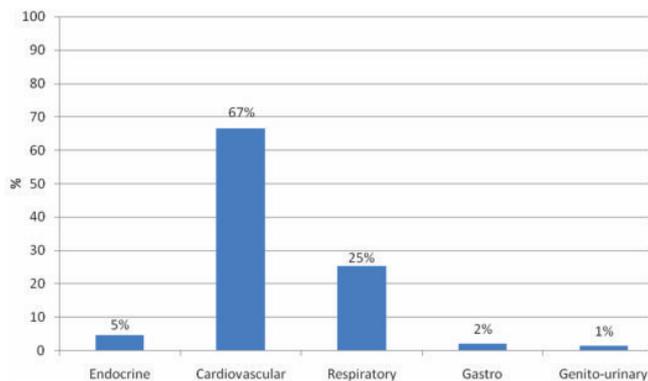


Figure 7: Broad systems affected by chronic disease (primary) diagnosis (one-month EDIS data – March 13 – April 11, 2014; N=4937)

Inner Cairns residents and those from the southern corridor and southern suburbs of Cairns were also highly represented in this group that described the ED as being the 'best place' for their condition to be managed or treated. Inner Cairns residents accounted for 59.1% of the total group, the southern corridor accounted for 15.1% as can be seen in Figure 9.

Access to radiology and pathology services in one place was a major motivator for the majority of patients attending the ED and was listed as the 'main reason' by 15.9% of respondents (184 out of 1159) to the survey question about the 'main reasons' for attendance at the ED. This view that services in the ED were comprehensive and convenient was reflected in the focus groups, as can be seen in the following comments "...all the facilities necessary when you need them" and, "The impression we had was that there was a specialist... very quick... no traumatising... that level of procedural care so fast would not have happened elsewhere". Survey respondents, including focus group participants, placed great importance on the availability of diagnostic tools and technology at the hospital and perceived radiology and pathology services as very important, as evidenced by answers to the survey question about the most important factors to include in an alternative health service to the ED. Respondents were asked to rate the top three

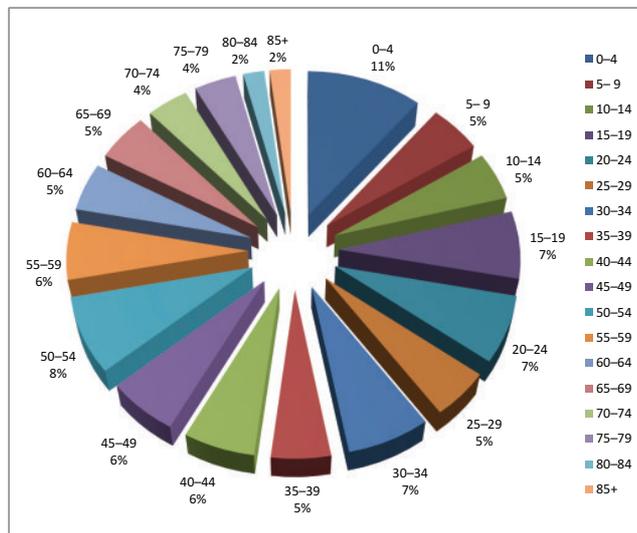


Figure 8: Age of survey participants presenting to Cairns Hospital ED between March 13 and April 11, 2014.

considerations for an alternative service. Some 1637 people answered this question, in which: the option 'access to x-rays and blood tests in one location' was regarded as most important by 279 respondents and 605 respondents included the option in their 'top three'. This option was second only to 'high quality care', which was prioritised by 850 people as one of the 'top three' factors to consider when developing an alternative health service.

3.6 THE DOCTOR SENT ME

Between 2010 and 2013 there was a slight increase in the number of referrals by doctors, specialists, GPs and other health professionals to the ED. Exact figures for ED referrals proved difficult to quantify because there is no clear definition of 'referral', particularly GP referral. Some people interpret GP referral as the presentation of a written referral paper; others believe they have been referred if their GP tells them to go to the hospital if the condition worsens or does not improve in a few days. The data about referrals to the ED was obtained from the EDIS figures and from two 'yes or no' survey questions:

- Have you seen another health professional about the same problem?
- Were you referred to the ED by a doctor?

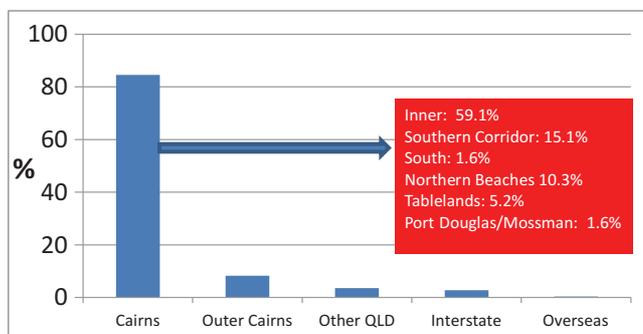


Figure 9: Residential postcode of ED patients (one-month EDIS data – March 13 – April 11, 2014; N=4937) (Note: Inner Cairns is defined as residential post code of 4870, 4868, 4878; Southern Corridor includes 4865 & 4869; Northern Beaches is 4879; Tablelands includes 4872, 4880-4888); Port Douglas/Mossman is 4873 & 4877. "Outer Cairns" includes any area within 60 minutes of Cairns.)

Of the survey participants, 43.9% of people said they had visited another health professional about the problem for which they subsequently attended the ED; just over 60% of that group said they had seen another health professional in the preceding 24 hours. Data from these survey participants was cross-checked with the data extracted from EDIS. Of those survey participants who reported they had been referred to the ED by a GP (n=370), only 11% were recorded in the EDIS data as "GP-referred".

Most (86%) of the self-identified "GP-referred" survey participants reported they have a regular GP. Sixteen percent of these participants were identified as having a chronic disease (according to the ICD10 diagnosis code for the presenting complaint), and 7% with a mental health issue. Almost half (48%) presented to ED outside of usual business hours (i.e., not between 8am-5pm Monday-Friday, or 9am-noon on Saturday); and just over half (53%) of these participants were admitted to hospital. Approximately two in five survey participants who reported they had been referred to the ED by a GP stated they had experienced their presenting complaint for less than 24 hours.

3.7 CONSUMER CONFIDENCE IN MODELS OF CARE

Of the survey participants the majority (51%) chose ED as their preferred healthcare provider for that episode of care, while 20% believed they had no choice but to come to the ED that day, and 13% would have preferred to have visited their GP. Participants were largely aware of alternative services such as Dial-a-Doctor (72%), bulk billing clinics (59%), after-hours GP services (66%) and 13 HEALTH (38%), however patients assessed their health conditions to be 'too complicated' to be adequately treated or managed at these services. As above, of the total survey sample, over 40% had seen another health professional prior to presenting to the ED and of this number, 60% had accessed this alternative service in the preceding 24 hours. The most common health professional accessed by this group was their GP (41%), with only 9% assessing a 24-hour medical clinic. Some 30.5% of survey respondents indicated they have had difficulty in getting an urgent appointment with their general practitioner in the past. Focus group participants identified a desire to find a 'good' GP. Participants highlighted effective communication and listening skills as characteristics of a 'good' GP, rather than medical knowledge. Several participants said they attended GPs more often to verify what they suspected about a health or medical condition rather than to find out something new or decipher an unknown condition. For those types of issues of uncertainty, participants said they would go to the hospital. Participants said, "I go to the GP when I know what is wrong with me" and, "If you go to the doctor not knowing, you leave not knowing".



NURSE

HEALTH

**MEDICAL
ASSISTANCE**

CURE

DOCTOR

AID

4. The Contemporary Literature

Here, we present and analyse the services and systems that have been trialled, with varying degrees of success, to ease pressure on hospital EDs burdened by excessive 'GP-type' attendances.

We have ordered the information into four sub-categories determined to be most relevant to Far North Queensland. These categories are as follows:

1. Defining 'GP-type' presentations
2. Health care messages
3. Alternative service models
4. Chronic care management.

Data analysis was used to identify 'red flag' issues. It is anticipated these reviews of the contemporary research literature will be used as a reference point in developing and strengthening services and initiatives.

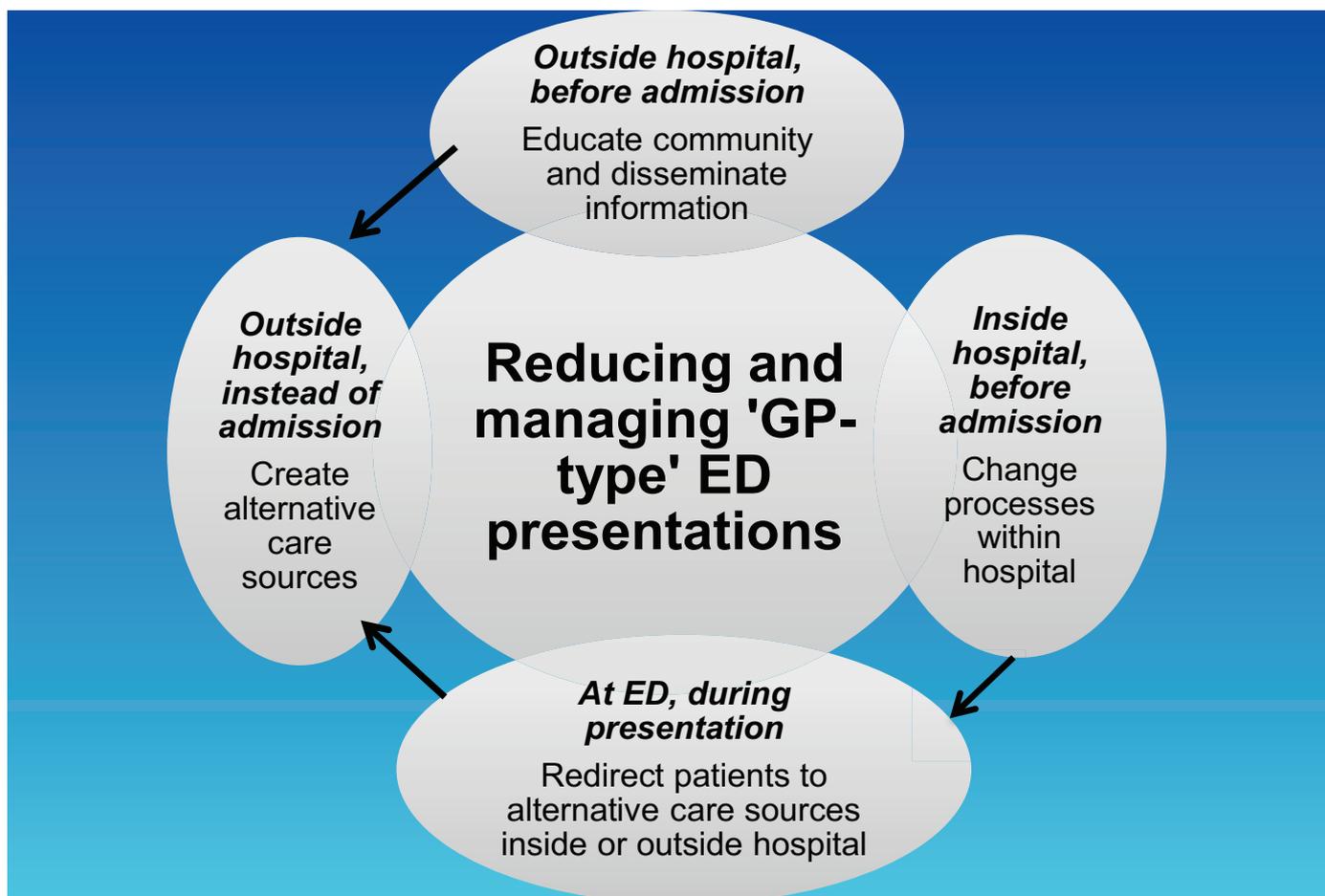


Figure 10: Approaches to reducing and/or managing GP-type ED presentations

4.1 INTRODUCTION TO THE CONTEMPORARY LITERATURE

Hospital and health services around the world, particularly in the United States, New Zealand, Spain and the United Kingdom, have taken many different approaches to tackle non-urgent ED presentations. In seeking to reduce the costs to society and government coffers of 'inappropriate' use of EDs, researchers and administrators have looked at a number of different points in time (before, during and after patient admission), space and place where resources and attention might be best directed. Projects and trials to reduce 'GP-type' presentations happen within the hospital and within the community. The four main types of interventions reported in the peer-reviewed literature are as follows:

1. Change and streamline internal hospital procedures (Cooke et al., 2004; Derlet, Kinser, Ray, Hamilton, & McKenzie, 1995)

2. Create targeted community health education (NHS Choose Well campaigns as illustrated in Appendix 2)
3. Develop and/or strengthen primary care services outside the hospital (Fry, 2011; Land & Meredith, 2013; Queensland Health, 2011; Smith & Bywood, 2012; Yee, Lechner, & Bookus, 2013)
4. Create co-located or associated medical services within the hospital (McDevitt & Melby, 2014; Sharma & Inder, 2011; Weinick, Burns, & Mehrotra, 2010).

Figure 10 summarises the various approaches that have been trialed to reduce and manage ED presentations.

It is important to analyse what has and has not worked elsewhere when considering the most appropriate response in Far North Queensland.

Each health setting has specialised needs, problems and pressures, and what works in one place will not necessarily work in another. As such, each of the approaches to managing non-urgent ED use will be outlined below. The context of each intervention will be discussed with a view to identify the best 'fit' for the CHHS. Many interventions and changes reported to have the greatest success combine more than one approach. For example, introduction of a new care source with a new name, such as an 'injury centre', will be of limited value if there has been no community education to introduce the service and to explain the centre's use and purpose. A logical starting point when deciding how to reduce 'GP-type' attendance in the emergency room is to define what is meant by the term 'GP-type' attendance and to decide what sort of ED attendance is 'appropriate'. Exactly what is an 'emergency' and who should be in the ED? These questions are difficult to answer, and different groups of people will have very different perspectives, as set out in the following section.

4.2 DEFINING 'GP-TYPE' PRESENTATIONS

The question of what precisely constitutes an 'emergency' or 'appropriate' use of a hospital ED has been confounding, not only patients, but also researchers, administrators and clinicians for years. Many terms have been used to describe the phenomenon of patients attending the ED when they might otherwise have received medical treatment at a more suitable and cost-effective place, like a GP clinic, primary health care setting or after-hours service. These attendances have been described variously in the literature as 'inappropriate', 'GP-type', 'non-urgent', 'potentially avoidable hospitalisations' (PAH) and 'unreasonable' (Bezzina, Smith, Cromwell, & Eagar, 2005; Northington, Brice, & Zou, 2005; Walsh, 1995). People who use the ED often have been labelled as 'frequent flyers' and 'ED-abusers'. Definitions for these terms vary greatly. As such, it has been noted that it is difficult to say with any

certainty exactly which patients are 'suitable' for treatment in the ED and which are not. Confusing the issue even more is the fact that 'GP-type' patients might be using the ED 'appropriately' if primary health care services are lacking where they live and these patients have nowhere else to go for medical and health treatment.

As it stands, patients and clinicians hold very different and often competing views about the types of people and conditions that should be treated in the ED. Clinicians might see a high percentage of their patients' use of the ED as frivolous or driven by the 'free' service offered. But patients will explain that they carefully considered their options, researched their condition and sought several opinions before deciding to come to the ED. As Murphy (1998) notes, 'criticising patients because these perceptions do not conform to professional standards is presumptuous. Appropriateness is in the eye of the beholder' (p. 30). Patients often perceive an 'emergency' to be a situation where pain and discomfort leads to feelings of urgent need (Walsh, 1995). This definition fits neatly with the traditional definition in the Macquarie dictionary of the word, 'emergency: an unforeseen occurrence; a sudden and urgent occasion for action.' (Macquarie University, 1995). Health professionals generally use the term 'emergency' in a more 'life or death' sense.

Psychological and practical factors affect the way patients and practitioners perceive 'appropriate' use of the ED. Guttman, Nelson & Zimmerman (2001) interviewed ED staff and found that medical professionals generally approached patient care with one of the following three mindsets illustrated in Figure 11 – restrictive, pragmatic or all-inclusive. Their particular mindset guided their interactions with patients.

The difference in clinicians' and patients' perspectives about appropriate ED use is

illustrated very clearly in Masso, Bezzina, Siminski, Middleton & Eagar (2007). Masso et al. (2007) asked the two different groups – patients and medical professions – to rank the reasons people come to the ED. Survey responses were received from 121 health professionals (93 nurses, 28 doctors), and 397 patients. Patients believed their conditions required urgent attention and health professionals largely believed patients were coming to the ED because they would not have to pay personally for the medical services. The ‘top three’ reasons cited by patients for coming to the ED were as follows:

- Health problem required immediate attention;
- Able to see a doctor and have tests done in the same place; and
- Health problem was too serious or complicated for a GP

The ‘top three’ reasons that medical and health professionals ascribed to patients for coming to the ED was as follows:

- No charge to see a doctor at the ED;
- Not able to get an appointment to see a GP;
- No charge for x-rays or medicine at the ED.

It can be seen that the term ‘emergency’, is a disputed term. Definitions become no clearer and no more uniform when researchers seek to use the terms ‘appropriate’ or ‘inappropriate’ to label ED use. Bezzina et al (2005) reviewed 34 papers that considered the terminology ‘primary care’, ‘general practice’ or ‘inappropriate’ attenders to EDs. Each paper considered a combination of factors in assigning their labels of appropriate or inappropriate attendance. Researchers considered how quickly the condition manifested, whether or not admission was required, mode of referral or arrival, urgency of care needed, type of diagnostic tools and technology needed to treat conditions and, retrospectively, the Australasian Triage Score assigned to the patient. Ultimately, Bezzina et al (2005) concluded there was no way of formulating

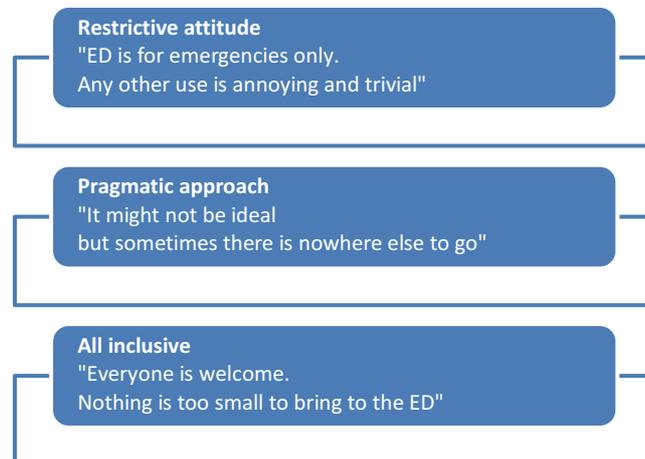


Figure 11: The three main health professionals' attitudes towards 'non-urgent' ED use, according to Guttman (2001)

and applying a uniform definition of ‘appropriate’ ED attendance. ‘Appropriate’ ED use was situation specific and dependent on three factors: the patient’s condition, the patients’ understanding of the condition, and the fit between treatment and service provided in the area at that particular time.

The patient’s point of view is canvassed in (Lowthian et al., 2010b), which reviewed trends in ED attendances in Australia. Patients’ motivations and stated reasons for attending the ED were summarised in Lowthian et al. (2010b) as follows: loneliness, lack of social support, ageing, health awareness, and convenience. It can be seen from those responses that a mix of demographic, psycho-social and practical reasons motivate people to attend the ED. Abernethie & Nagree (2004) discussed non-medical related stress being a trigger for many people to take themselves to an ED. For example, a chronic condition that a person has managed for some time might suddenly become unbearable when combined with the stress of bad news or a marriage breakdown. Thus, the person presents to the ED. The same research also noted that media and ‘awareness campaigns’, particularly around meningitis, can lead to increased ED presentations.

The question of ‘appropriate’ ED use is one clinicians and administrators must consider (and agree upon) when measuring and formulating

responses to ED crowding and overuse. Defining terms is a good starting point. A definition of 'appropriate' use will be different in each hospital region, as illustrated by Callen, Blundell & Prgomet (2008), who studied ED attendances in a rural Australian setting. Callen's et al. (2008) research determined that most 'GP-type' attendances to the rural ED in which their study took place were, in fact, 'appropriate', given the rural environment and difficulty in accessing alternative services, particularly after-hours. The same type of presentations, however, made to an inner-Sydney hospital where after hours and primary care services are more accessible, would possibly be inappropriate. Definitions of 'GP-type' attendances and 'appropriate ED use' must include, therefore, not only answers to questions about what exactly constitutes a medical 'emergency', but must also consider the available services, options and healthcare alternatives in the hospital's region.

4.3 HEALTH CARE MESSAGES

Health care messages designed to reduce GP-type emergency room presentations can take the form of tele-health triage or targeted education in the community. Australian medical professionals have been using tele-health in some form since the Royal Flying Doctors first used technology to deliver care remotely in the 1920s (Moffatt & Eley, 2010). Tele-health triage and referral systems, such as 13 HEALTH, have been operating since the late 1990s in Australia, the United States, the United Kingdom and some parts of Europe. Tele-health triage services are usually staffed by health professionals who conduct telephone consultations. The caller is then directed to an appropriate service or offered self-care treatment advice. A number of studies have shown tele-health triage can reduce GP attendances substantially, but the impact on EDs is less noticeable and negligible in some cases (Fry, 2011; Sprivulis, Carey, & Rouse, 2004). Some researchers (Richardson & Mountain, 2009) go so far as to say it simply does not make any difference at all to the

number of people attending the ED. Increases might even result when tele-health operators refer callers to the hospital frequently 'to be on the safe side' (Abernethie & Nagree, 2004). Tele-health triage, in its present form, has limited use in reducing emergency room presentations in Cairns.

More general messages about appropriate ED use might be conveyed through community education, courses, health marketing campaigns and social media campaigns. The National Health Service (NHS) in the United Kingdom have been running targeted community education campaigns, called 'Choose Well', to reduce pressure on EDs and direct people to the most appropriate source of health care. The success or otherwise has not been reported in the peer-reviewed literature or in public government documents (Turner, Nicholl, Mason, O'Keeffe, & Anderson, 2014) but the continued roll-out of locally-initiated 'Choose Well' campaigns throughout NHS regional areas in the UK might be regarded as anecdotal evidence that local health administrators believe the campaign is worthwhile or is making a difference. The British campaigns focus on helping people to choose from one of four levels of health care – self-care, pharmacy, general practitioner or hospital – and the marketing materials list the medical conditions most suited to each level. For example, a hangover is best treated with 'self-care' and chest pains are best dealt with in a hospital.

Another perspective on community health education, designed to ease pressure on the ED, is offered by Morgans & Burgess (2012). Instead of offering a guideline for appropriate treatment providers, Morgans and Burgess suggest a simpler message – take care of yourself and get treatment early. They posit that prompt advice and treatment in the early stages of sickness, preferably from general practitioners and pharmacists, can reduce escalation of symptoms and minimise the need for higher levels of clinical service. Two community education approaches can be seen in Figure 12.

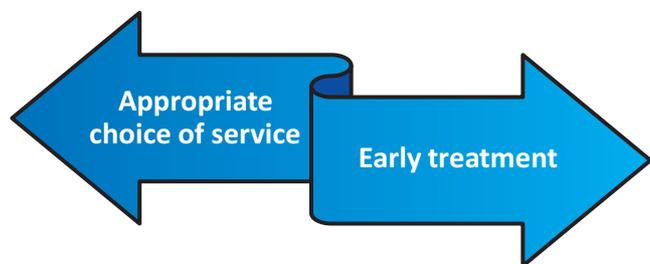


Figure 12: Main community education health messages

A clear, simple and consistent message must be sent to the community. Confusion feeds uncertainty and, as researchers have noted, uncertainty can prompt the feelings of anxiousness and anxiety that lead people to the doors of the ED (Williams, O'Rourke, & Keogh, 2009). Once the message is refined, the delivery method must be considered. Erny-Albrecht (2014) asks the question, 'where do people get their health information?' This important question must be answered before deciding where and how to place community education messages about ED use. Social media and traditional media (newspaper and magazine) appear to be primary sources of health information (Erny-Albrecht, 2014), as is the internet. Advertising through billboards and posters might be effective education tools, as used in the Choose Well campaigns. Morgans and Burgess (2012) suggest that health messages might be conveyed to patients at their first 'point of access' with the health system.

'(Patients' understanding of the role of emergency healthcare services in an emergency) has implications for determining the patient's point of access to the health system in an acute health event, and offers an opportunity to selectively educate patients and carers to change help-seeking behaviours to suit the health system resources and moderate patient demand.'
(Morgans & Burgess, 2012)

If community-based health information has not reached the patients, they might be directed to or provided with information during or after their visit to the hospital.

4.4 ALTERNATIVE SERVICE MODELS

Arguably, the point in time and space where the most significant and tangible interventions might be introduced is in the ED at the time of patient presentation. Hospitals in the United States have trialled a 'hard-line' approach - refusing to treat non-urgent patients (Derlet et al., 1995). There has also been research into the effectiveness and safety of telling people with non-urgent conditions to go elsewhere, supported by a patient liaison officer or help desk service; and diversion to other services within or outside the hospital. Grumbach et al (1993) described a project to divert people from the ED if they were suitable for treatment elsewhere. A relatively high percentage of people (38%) in the study who were classed as suitable for treatment elsewhere expressed a willingness to attend another health service if an appointment could be made within three days. Grumbach et. al (1993) suggested this approach would be complemented by collaborations with other health services that might be able to reserve appointment times for ED referrals. Similarly, Breen & McCann (2013) proposed that referrals from EDs could be handled by dedicated patient liaison officers who could move through the ED, delivering messages about alternative health care options and making appointments for patients.

Interventions at the point of admission might also include streaming of presenting patients. Patients with specified injuries, illnesses and conditions could be re-directed to more appropriate clinicians who are working in partnership within the ED: emergency nurse practitioners, multi-disciplinary teams, and short-stay emergency beds. Anaf (2006) details the inclusion of physiotherapists within a multi-disciplinary team, which dealt mostly with aged patients and handled complaints related to pain and mobility in the ED. ED short stay clinics (used as an alternative to formal admission) have also been trialled in Europe.

Advanced Practice Nurses (APN), and, in some settings, Nurse Practitioners (NP), work in EDs or in nurse-led clinics nearby or within hospitals (Horrocks, Anderson, & Salisbury, 2002; McGee & Kaplan, 2007) to treat non-urgent conditions and to ease 'bed block'. Particular attention was given to the expansion of training, the role and scope of practice of nurses working in New South Wales hospitals in the early 2000s. NPs vary between states and countries. In settings where nurses have taken on expanded roles, satisfaction levels and efficiencies achieved have been reported positively almost universally (Horrocks et al., 2002; Hudson & Marshall, 2008; McDevitt & Melby, 2014; McGee & Kaplan, 2007). McGee and Kaplan (2007) say NP clinics are an effective use of resources and do reduce overcrowding. Wiysonge and Chopra (2008), summarising Horrocks et al. (2002) and others reported that, generally, NP led care was comparable to that given by doctors; consultations were slightly longer; and patient satisfaction with nurse-led services was relatively high. McDevitt and Melby (2014) also reported high levels of patient satisfaction (97.3 per cent) with emergency NP services run out of a rural hospital ED in the UK.



Alternative sources of care outside hospitals include walk-in centres, urgent care centres, minor injury centres, co-located GP clinics, GP Super clinics, convenient care clinics and child specialist centres. It is impossible to define uniformly every type of centre because each centre offers different services (even though they might have a common name). A walk-in centre in London, for example, may offer the same service, staffing mix and opening hours as an urgent care centre in the United States or a minor injury centre in Sheffield, UK. An urgent care centre in the eastern suburbs of Sydney might well be called a GP Superclinic in Queensland. It is easier, therefore, to look at the variables that are taken into account when creating an alternative source of care, rather than focusing on defining each 'service model' or 'centre type'. The variables are listed below in table 4.

Effectiveness (or otherwise) of the different models varies greatly. At one end of the spectrum, Coleman, Irons and Nicholl (2001) says alternative models (walk-in centres, minor injury unit and urgent care centres) have made little impact on ED presentations because most people at the ED – urgent or otherwise – have been to another health service prior to attending the ED. The patients have exhausted all other options, as they see it, and the ED is their final port of call. Fry (2011) outlines the various models reported in the literature used in Australian settings. Fry's literature review reported limited impact on ED usage with the introduction of alternative services in Australia but said these alternative healthcare options did ease pressures on GP clinics. Similarly, co-located GP clinics and bulk billing GP clinics located near hospitals have variously been described as an 'effective demand management strategy' to divert non-urgent cases away from the ED (Sharma & Inder, 2011), and as 'having no impact' on ED caseloads (Morgans & Burgess, 2012).

New South Wales Health introduced Urgent Care

Variables	Options
Opening hours and booking system	<ul style="list-style-type: none"> 24-7 Business hours Opens at peak times of ED presentations After hours Booking or walk-in Reserved time for ED referrals/ on-the-day presentations
Staffing mix	<ul style="list-style-type: none"> GPs (with or without emergency specialisation) Nurse practitioners Nurses Advanced practice nurses ED specialist doctors Allied health practitioners
Location	<ul style="list-style-type: none"> Within hospital Outside hospital, but nearby Stand-alone site away from hospital
Services provided	<ul style="list-style-type: none"> Wound stitching and dressing (including casts) Prescribing medication X-ray Ultrasound Specialist paediatric services Vaccinations Pathology Tele-health link to ED doctors
Conditions treated	<ul style="list-style-type: none"> Respiratory infections Minor burns, lacerations, fractures Ear infections Pain Allergy Minor accident or incident Gastroenteritis Flu, coughs, colds Chronic illness escalation or management
Cost structure	<ul style="list-style-type: none"> User pays Government funding models Subsidies Insurance considerations

Table 4: Variables to consider when establishing alternative models of care

Centres recently in and near Sydney hospitals that were under strain. The centres were to treat minor injuries and illnesses but were met with mixed responses by clinicians who said the scheme resembled too closely an earlier unsuccessful attempt to divert the same sort of caseload to nearby GP clinics (Corderoy, 2010). What is apparent from the literature is that one of the most important considerations when creating an alternative health service is appropriate marketing and community awareness messages (Erny-Albrecht, 2014). The success of any new service will depend heavily on its marketing and the way in which its purpose and available services are communicated accurately to the sectors of the community most likely to need the centre. In the UK, the impact of walk-in centres and urgent care centres on ED use was affected adversely by a lack of awareness. Land & Meredith (2011) found that UK patients presenting to a hospital ED (20 to 40 per cent) were not aware of alternative services such as walk-in centres and urgent care centres. Had they been aware of alternatives they may have used them.

Another important consideration when developing alternative care centres is recognition of the importance people place on services such as x-ray and pathology (Abernethie & Nagree, 2004; Masso et al., 2007), a finding echoed in the current study. If people believed they might need further tests, x-ray or ultrasound, they went immediately to the ED. Clinicians' views were often different from that of the patients but people presenting to the ED simply will not go elsewhere if they think they need x-ray. One way to approach this issue might be to consider establishing a minor injury centre and equipping it comprehensively with radiology and ultrasound equipment. Minor injury centres, mostly run by NPs, have been operating with success in the United Kingdom since the mid 1990s – patients are reportedly happy to use the services and satisfied with their treatment. Injury presentations to EDs has also been shown to drop

by between 5 and 25 per cent with the introduction of an injury centre nearby (Cooke et al., 2004).

Heaney and Paxton (1997) describe the introduction of a minor injury centre in Edinburgh, Scotland, run by NPs. The centre itself was created as part of a health service restructure, was near a major hospital and was staffed between 9am and 9pm. The centre could treat "lacerations, sprains and bruises, fractures (excluding knee and above, elbow and above), minor head injuries with or without scalp wounds, dog bites, minor burns and scalds, insect bites and stings, and foreign bodies in ears and noses" (Heaney & Paxton, 1997, p. 3). The centre also had X-ray facilities, interpreted by the nurse, but a radiographer, a radiologist and a physiotherapist were on-call. Local GPs and Accident and Emergency staff were sceptical about the project at first, amid concerns it would not be cost-efficient. Within two years, however, most clinicians conceded there was a place for the minor injury centre and it was granted permanent funding. Cooke (2004) summarises efficiently the UK-based research literature from the 1990s and early 2000s around minor injury centres. The potential for alternative health services such as minor injury centres to ease ED use must be viewed within the context of complex state and federal government health funding models. The 'free' service offered at the ED can be an incentive and this must be considered when drawing up funding models and fee structures for any service that is being designed to divert patients away from the ED.

4.5 CHRONIC CARE MANAGEMENT

Patients with chronic medical conditions who cannot or do not manage their health effectively will frequent the hospital ED. Poor management of chronic conditions, such as chronic obstructive pulmonary disease (COPD), asthma and diabetes, can result in regular, sometimes life-threatening acute episodes that require urgent and often costly

hospital treatment. Such episodes are preventable. Prevention, however, is dependent on active health management by the individual (Eley et al., 2013), and the availability of appropriate services and support in the primary health care sector (Morgan et al., 2013). Chronic care management has received significant attention in the public health, medical and nursing spheres of research; chronic care management initiatives abound. There are quite literally tens of thousands of research articles written about chronic care management models and initiatives (Bodenheimer, Lorig, Holman, & Grumbach, 2002; Bourbeau et al., 2003; K. Coleman, Austin, Brach, & Wagner, 2009; Fireman, Bartlett, & Selby, 2004; Litaker et al., 2003; Lorig et al., 2001; Lorig et al., 1999). Unusually for a body of research knowledge, much agreement is evident among health providers and policy-makers about the most effective way to manage chronic health conditions. Generally most successful chronic care initiatives are reported to be:

- Run in primary health care settings, usually by a NP
- Involve teaching 'self-management' to patients with chronic diseases and conditions
- Adopt a collaborative model of care (GP, nurse, patient, allied health, family)
- Include very specific, realistic patient-led goal-setting, monitoring and support by a health practitioner
- Funded in an organised and ongoing manner
- Patients' health and the program itself is monitored and tracked in a systematic way.

Also important are enthusiastic, dedicated and educated practice nurses or NPs who are given a degree of autonomy whilst also working in partnership with the patient's GP. This level of autonomy for NPs has been evident in the UK for some time but is yet to be seen in Australia where nurses are still directed more than they are directing (Hegney, Patterson, Eley, Mahomed, & Young, 2013). The most common barriers to

implementation of chronic care programs include insufficient allocation of time or funds and a lack of order, structure or system.

Chronic care is one of many sectors of health and medicine that has been 'swept up' in a movement away from the strictly medical management of health problems towards a more proactive preventative view of health that says: often, people can control, monitor and enhance their own health by making sound lifestyle choices (Bandura, 2005). 'Healthful' behaviours can be taught and maintained through self-regulation and motivation – also skills that may be taught. The frameworks used most commonly in chronic care management initiatives are the Chronic Care Model (CCM) (Bodenheimer et al., 2002; K. Coleman et al., 2009) and Bandura's self-efficacy model (Bandura, 1977; Lorig et al., 1999).

Both models highlight the importance of teaching people, not only the practical and physical skills they need to treat themselves and manage their health conditions, but also the problem-solving, planning, goal-setting, decision-making and attitudes they need to take control of their own health and wellbeing. The CCM also stresses the importance of productive communication and collaborative care, sometimes defined as equal partnerships between health care providers and clients. In this way, nurses and doctors become supporters and enablers of health self-management rather than people who treat diseases. In this model, clinicians are supported by a strong, organised health system and operate in a community with adequate resources and sound health policy. Katterl et al (2012) summarise the chronic care initiatives undertaken throughout Australia in the recent past and highlight the common characteristics of the most successful programs as follows:

- Early identification of patients at risk of hospitalisation
- Care coordination and integration of services
- Enhanced access to primary health care and focus on equity
- Multidisciplinary team care
- Disease management, particularly for medium to long-term (page iii).

The Katterl Report by the Primary Health Care Research and Information Service also highlighted that successful projects focused on one condition or disease, say diabetes, rather than taking a broad brush approach to the full spectrum of chronic conditions (Katterl et al., 2012). The report lists successful smaller projects like the Inala Primary Care 'beacon' specialist diabetes clinic. It also refers to large-scale initiatives like the Hospitals Admissions Risk Project (HARP) model in Victoria and the NSW Community Acute/Post Acute Service. Both of these larger scale projects focus heavily on care connection and disease management. Dennis et al. (2008) reviewed 141 Australian interventions based on the Chronic Care Model and found that education of clinicians was vitally important to program success, as was the use of clinical information systems to improve accountability. Clinicians, policy-makers, administrators and researchers have developed strong, effective chronic care management systems and have built the evidence base to show that they work to improve outcomes for both patients and health care systems. The challenge now, lies in modifying and applying these models into new settings.



5. Our Recommendations

Analysis of the data gathered in the P3ED project has highlighted a number of 'red flag' issues around ED use in the Cairns and Hinterland Hospital and Health Service district. More work is needed, however, to mine the data for detail and to provide statistical justification for new initiatives or ideas to be trialled. As such, we recommend that a working party be established to guide further targeted analysis.

5.1 LOOKING TO THE FUTURE

Our recommendations revolve around the establishment of a clinician-led working party tasked with a targeted and more detailed analysis of the existing dataset and an expansion of the dataset to include other sources of information. This collaborative group would focus on the 'red flag' issues already identified through analysis – namely, the availability of connected and consistent chronic health care in Cairns; the perceptions and realities of General Practitioner services in Cairns; community perceptions of appropriate ED use; and alternative health service options that include diagnostic tools that are 'all in one place'. Our specific recommendations are as follows:

1. Establish a working party including James Cook University, Cairns and Hinterland Hospital and Health Service, Queensland Ambulance Service and the Primary Health Network;
2. The working party be resourced to conduct further targeted analysis of the existing data set with a view to strengthening current models of service delivery. Three areas need to be targeted by the working party: the establishment of a minor injuries clinic, the development of an electronic patient decision making support system and strategies to prevent exacerbations of chronic disease requiring patients to present to the ED;
3. That the data set be expanded to include Medicare data, ethnicity EDIS data, BEACH data and linked EDIS data and separations data.

Appendix 1: Survey Template

Cairns Hospital Emergency Department Survey

1 Day:.....

2 Time: (note time and tick field):

Exact time:.....

- 8am - 11am
- 11am - 3pm
- 3pm - 6pm
- 6pm - 11pm
- 11pm-8am

3 Why did you come to ED today?
(PROMPT: what is your presenting complaint?)

Please specify:.....

.....
.....
.....

4 How long have you had the complaint for?

- Less than 24 hours
- 24-72 hours
- 3-4 days
- 5-7 days
- 1-2 weeks
- 2 weeks or more

5 Have you seen another health professional about the same problem?

- Yes
- No

If YES, when:

- Less than 24 hours ago
- 24-72 hours ago
- 3-4 days ago
- 5-7 days ago
- 1-2 weeks ago
- More than 2 weeks

Who did you see? (please specify):

.....
.....

6 Were you referred to the Emergency Department by a doctor?

- Yes
- No

If yes, who referred you (and skip questions 8 and 9):

- GP
- Rural hospital
- Specialist
- RFDS

7

a) How did you arrive at the Emergency Department?

- By ambulance/retrieval service
- By foot
- By taxi
- By Police car
- By bus
- By car

b) If you arrived by ambulance did you call the ambulance yourself? (only ask if answer to question 7a is 'arrived by ambulance/retrieval service')

- Yes
- No

If 'No', who called the ambulance:

- GP
- Other health professional
- Someone else
- Other (please specify):.....

.....

c) If you arrived by ambulance, was it because: (only ask if answer to question 7a is 'arrived by ambulance/retrieval service')

- My problem required urgent medical attention
- I had no other transport available to take me to hospital
- Other (please specify):.....

.....

8 What was your main reason for choosing to come to ED today as opposed to seeking medical attention elsewhere.

Please specify:.....

Only ask if answer to question 6 is 'No'. Interviewer to note answer verbatim and tick box most appropriate.

- Asked to return by Cairns Hospital Doctor or Nurse
- Sent by another health professional (i.e. dentist, optometrist, pharmacist)
- Sent by Queensland Health's 13HEALTH help line
- Sent here by someone else
- Convenient location
- Open 24 hours
- The hospital has the services that I need in one location (x-ray, bloods tests etc.)
- Quicker than getting a GP appointment
- Would be a shorter wait
- Best place for my particular problem
- I don't have a GP
- I wanted a second opinion
- I didn't want to bother my GP
- There are no bulk-billing clinics nearby
- I always come to the hospital for my care
- ED is cheaper than a GP visit
- I came so I could be seen by someone who does not know me
- I feel reassured after I have been assessed by ED staff
- I knew I needed to be admitted to the hospital
- I have been very happy with the care I have received in the past
- NGO sent me (please specify):.....
.....
- Other (please specify):.....
.....

9 Please choose any other reasons that may have influenced your decision to come to ED today (please tick up to three boxes in order of importance). (Note: choices to be ranked)

Please specify:

- 1
- 2
- 3.....

Only ask if answer to question 6 is 'No'. Interviewer to note answers verbatim and tick boxes most appropriate.

- Asked to return by Cairns Hospital Doctor or Nurse
- Sent by another health professional (i.e. dentist, optometrist, pharmacist)
- Sent by Queensland Health's 13HEALTH help line
- Sent here by someone else
- I wanted a second opinion
- I didn't want to bother my GP
- There are no bulk-billing clinics nearby
- I always come to the hospital for my care
- ED is cheaper than a GP visit
- I came so I could be seen by someone who does not know me
- Convenient location
- Open 24 hours
- The hospital has the services that I need in one location (x-ray, bloods tests etc.)
- Quicker than getting a GP appointment
- Would be a shorter wait
- Best place for my particular problem
- I don't have a GP
- I feel reassured after I have been assessed by ED staff
- I knew I needed to be admitted to the hospital
- I have been very happy with the care I have received in the past
- NGO sent me (please specify):.....
.....
- Other (please specify):.....
.....

10 Where do you usually seek healthcare when you are unwell?

- Go to a GP
- Go to the Emergency Department
- Go to local Aboriginal Medical Service
- Go to the pharmacist
- Call the Queensland Health's 13HEALTH help line
- Other (please specify):.....
.....

11

a) Do you have a regular general practice that you attend?

- Yes
- No

If YES, when was your last visit?

- <1 week ago
- 1-4 weeks ago
- 1-3 months ago
- 3-6 months
- 6-12 months
- >12 months ago

b) Does your regular general practice offer you bulk-billing?

- Yes
- No

c) Have you ever experienced difficulty obtaining an urgent appointment (i.e. an appointment for the same day)?

- Yes
- No

If 'Yes', did you tell your GP that you needed a same-day appointment as your problem was urgent?

- Yes
- No

d) In the last 12 months have you visited the ED after not being able to get an urgent appointment with your general practice?

- Yes
- No

e) If you do not have a regular general practice that you attend, why is that? (tick one)

- I am visiting or working for a short time in this region
- I have recently moved here
- Cannot find one accepting new patients or visitors
- I cannot afford to visit the GP
- Have not looked for one
- I do not need a regular general practitioner
- Other (please specify):.....

.....

Narrative: The next questions relate to your awareness of other alternatives to the Emergency Department, that is whether you are aware of other healthcare alternatives for decisions in the future.

12 Are you aware of the 13-Health phone line for health advice over the phone?

- Yes
- No

13 Are you aware of bulk-billing, walk-in GP services that operate after hours in your local area?

- Yes
- No

If yes, have you used these services before?

- Yes
- No

Did you consider using these services today?

- Yes
- No

If no, please give a reason:

- Too long to wait
- Health issue too complicated
- Needed multiple health services
- Too far away
- Other (please specify):.....

.....

14 Are you aware of the Dial-a-Doctor service?

- Yes
- No

If yes, have you used this service before?

- Yes
- No

Did you consider using this service today?

- Yes
- No

If no, please give a reason:

- Too long to wait
- Health issue too complicated
- Needed multiple health services
- Too far away
- Other (please specify):.....

.....

15 (Do not ask this question if clearly inappropriate for the health condition, but note 'NO CHOICE' for survey purposes)

- No choice

If you had a choice, where would you have preferred to go for the problem that you have come to hospital about today?

- ED
- Local GP
- No preference
- Other GP
- After-Hours service
- Other (please specify):.....

.....

16 If an alternative service to ED were available, what would be the most important factors for you? (pick top three choices in order of importance): (Note: choices to be ranked)

- Extended or 24 hours opening
- Bulk-billing
- Access to x-rays and blood tests in one location
- Other specialist services
- Easy to get an appointment
- Convenient location
- Reliable appointment time
- High quality care
- Longer standard consultation length
- Other (please specify):.....

.....

17 What other alternative services could be offered in Cairns to help meet your health needs? (please specify):

.....
.....

18 Do you have any of the following long-standing or chronic conditions?

- Complete or serious hearing impairment
- Complete or partial vision impairment
- A long-standing physical condition (example, arthritis, chronic pain)
- A mental health condition
- A long-standing illness (example, cancer, HIV, diabetes, chronic heart disease, COPD, liver disease, illness requiring dialysis, epilepsy)
- No, I do not have a long-standing condition

19 Are you a permanent resident of Australia?

- Yes
- No

20 Are you a resident of Cairns?

- Yes
- No

If YES, which suburb do you live in:

.....

If NO, where do you normally live (if overseas please provide country, if within Australia please provide town/community and state):

.....

What is the postcode of your usual place of residence? (ask for all participants)

.....

21 Which suburb/town/community did you travel from to come to ED today?

.....

22 What is your gender?

- Male
- Female
- Other

23 What is your age?

- 0-4 yrs
- 5-9 yrs
- 10-14 yrs
- 15-19 yrs
- 20-24 yrs
- 25-29 yrs
- 30-34 yrs
- 35-39 yrs
- 40-44 yrs
- 45-49 yrs
- 50-54 yrs
- 55-59 yrs
- 60-64 yrs
- 65-69 yrs
- 70-74 yrs
- 75-79 yrs
- 80-84 yrs
- 85+ yrs

24 Is English your main language?

- Yes
- No

25 What is the highest education level that you have completed?

- None
- Primary
- Year 10 or equivalent
- Year 12 or equivalent
- TAFE certificate/diploma
- Trade certificate/diploma
- University degree (undergraduate/postgraduate)

26 In the past month how would you describe your occupational status?

- Full-time work
- Unemployment benefits
- Part-time work
- Disability benefits
- Casual work
- Aged pension
- Full-time student
- Self-funded retiree
- Part-time student
- Home duties
- Other (please specify):

.....

27 Do you identify as:

- o Aboriginal
- o Both Aboriginal and Torres Strait Islander
- o Torres Strait Islander
- o Not specified

28 Do you have any other comments about your visit to the hospital today?

.....

.....

.....

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Appendix 2: 'Choose Well' and NHS Community Education Material

Following is a sample of material from the NHS Choose Well community education campaign that was shown to focus group participants. Further resources can be viewed at the websites listed below the images.



<http://www.southwarwickshireccg.nhs.uk/Health-Services/Feel-Well/Dees-AE-Fail-Tale>

http://www.nwlh.nhs.uk/_assets/docs/general/PressCuttings/Choose%20Well.pdf

<http://www.saltairmedicalpractice.nhs.uk/website/B83040/files/Choose-Well-poster.pdf>

http://www.manchester.nhs.uk/document_uploads/Choose%20Well/Your%20Guide%20to%20Choose%20Well%20-%20AMENDED_5af71.pdf

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