Defining appropriateness of Emergency Department attendance: a NZ perspective

Sandra Kathryn Richardson

A thesis submitted for the degree of Doctor of Philosophy At the University of Otago, Dunedin, New Zealand

Date: 22 December 2011
ABSTRACT

Aim: To explore NZ emergency medical and nursing staff understandings of Emergency Department (ED) ‘appropriateness’ in relation to patient presentations.

Background: This study was developed in order to contribute to the knowledge and practice responses around ED overcrowding. Overcrowding of hospitals EDs is an international problem, and one that has given rise to a number of policy and practice interventions. A commonly cited contributing factor is the impact of ‘inappropriate’ or non urgent patients on the ED capacity and management of patient flow. Suggestions have been made that this group could be identified and potentially re-directed or managed in other ways, thus reducing the burden on the ED workforce and resources. What is often overlooked, however, is the need to first identify what is meant by the term ‘inappropriate’. Much of the research and recommendations currently available is based on the assumption that this definition is already known and agreed on. This thesis disputes that, and seeks to explore the degree of agreement possible within a group of expert NZ emergency care clinicians.

Research Design: This study was positioned within a Mixed Methods approach utilising a consensus research technique, the Delphi process, to gather data. Consideration in choosing the research design was to identify a process that would maximise the opportunity to formulate a consensus definition or set of criteria which could potentially be applied to the practice setting. A three round Delphi survey was used, including rated statements, and free text responses. Thematic and simple descriptive statistical analysis was used in evaluating the findings from this study.

Participants: An expert panel was established, consisting of 59 peer nominated clinical experts from ten tertiary level NZ EDs. This included 23 physicians and 36 nurses working in EDs with an average patient throughput of 30,000 or greater per annum.

Results: Fifty nine individuals commenced the study, with 49 completing all three rounds of the Delphi, providing a retention rate of 84%. A NZ specific consensus (set at 70%) generated 18 conditions, which if the only cause for presentation in an otherwise well individual were found to be indicative of ‘inappropriateness’ for ED presentation. Agreement was not reached in regard to a sample international tool, or to a number of other conditions and situations presented in international studies. The NZ criteria were
more specific than those suggested in the wider literature, and even where consensus was reached, there was evidence of ‘outlier’ opinions with strong viewpoints. The NZ experts asked for additional contextual information in relation to clinical assessment and eight additional non clinical factors were identified as impacting on decision making and assessment of appropriateness.

Conclusion: Following application of a rigorous consensus process, limited agreement regarding appropriateness of patient presentations was reached by a NZ panel of expert clinicians. The NZ experts did not endorse the internationally derived definitions or criteria that were presented. There were several concerns expressed; including the ability to apply clinical criteria in the absence of social context, and how much relative weighting each of these aspects should receive. The essential subjectivity associated with some definitions was acknowledged and whether these could be applied prospectively was questioned. Recommendations were identified for clinical practice, policy development and further research. In particular, the importance of acknowledging existing assumptions, the need to question the evidential base for these, and the risks associated with failing to clarify the NZ perspective.
PREFACE

The journey to complete this thesis has been long and challenging, as for many who try to work full time, raise a family and manage life, while also completing study. I would not have reached this point without the continuing support, encouragement and belief of my family, friends and colleagues.

I would like to dedicate this work to the memory of my father, Patrick Lionel Glasson, who died prior to its completion, but whose passion for knowledge and love of reading inspired me from childhood to value learning and to recognise and work towards opportunities that were not possible for many of his generation. I wish also to acknowledge and thank my mother, Caroline Islip Glasson, who supported me in all things and whose common sense and humour helped through many personal difficulties. As the first in my family to attend university, and to progress to postgraduate study, their support and belief gave me a sense of purpose and added incentive to complete this work.

I wish also to thank my husband Nicholas for his unfailing belief in me, for the many cups of tea, and for accepting the range of emotions that come with postgraduate study. Thanks also to my children, Sarah and John, who have grown up with a mother who is constantly distracted, in a home always in need of a little housework.

My colleagues in nursing, medicine and allied health have given me encouragement, shared my ups and downs and supported me through this journey. In particular, I thank my friends and workmates from the Christchurch Hospital Emergency Department and the University of Otago Centre for Postgraduate Nursing.

Without the support of my supervisors, nothing of course would have been possible – I offer a sincere thank you to Professors Mike Ardagh and Justin Roake for their encouragement and willingness to share their experience and expertise. I may not always have thought I would succeed, but if you shared this concern, you were kind enough not to tell me!
TABLE OF CONTENTS

ABSTRACT ......................................................................................................................... II
PREFACE .......................................................................................................................... IV
LIST OF TABLES ................................................................................................................. X
LIST OF FIGURES ............................................................................................................... XI
LIST OF MAPS ..................................................................................................................... XV
LIST OF ABBREVIATIONS ............................................................................................... XVI

CHAPTER 1: INTRODUCTION AND BACKGROUND .......................................................... 1
1.1 Introduction ...................................................................................................................... 1
1.2 Thesis structure .............................................................................................................. 2
1.3 Identifying the context: Factors impacting on the health system ........................................ 3
1.4 Identifying the context: the Emergency Care Setting ...................................................... 5
1.5 ED Overcrowding ......................................................................................................... 7
1.5.1 Definition .................................................................................................................. 7
1.5.2 Scope of the problem ............................................................................................... 8
1.5.3 Factors contributing to overcrowding .................................................................... 9
1.5.4 The ED Cardiac Analogy Model (EDCAM) ............................................................ 10
1.6 Effects of ED overcrowding ......................................................................................... 12
1.6.1 Link to increased mortality .................................................................................... 12
1.6.2 Ambulance diversion .............................................................................................. 13
1.7 Responses to overcrowding ......................................................................................... 14
1.7.1 Pre-hospital alternatives ....................................................................................... 14
1.7.2 The role of the GP .................................................................................................. 15
1.7.3 Ambulance service responses ............................................................................... 16
1.7.4 Rapid response systems ......................................................................................... 17
1.7.5 Understanding patient decision making ............................................................... 18
1.8 Summary .................................................................................................................... 18

CHAPTER 2: LITERATURE REVIEW .................................................................................. 20
2.1 An integrative review of the ED appropriateness literature ........................................... 20
2.1.1 The role of Integrative Reviews .......................................................................... 20
2.1.2 Overcrowding and the concept of ‘appropriateness’ ............................................. 20
2.1.3 Use of terminology .............................................................................................. 21
2.1.4 Appropriateness and primary care ....................................................................... 22
2.1.5 Appropriateness and demographic / social characteristics .................................. 23
2.1.6 Patient perceptions of urgency ............................................................................ 24
2.1.7 Health professional’s perceptions of urgency ....................................................... 25
2.1.8 Contradictions ...................................................................................................... 26
2.2 A systematic review: definition and measurement of ‘inappropriate’ ED attendance ... 27
2.2.1 Research Question ............................................................................................... 27
2.2.2 Eligibility criteria .................................................................................................. 29
2.2.3 Information sources ............................................................................................. 30
2.2.4 Search strategy ..................................................................................................... 32
2.2.5 Range of data ........................................................................................................ 34
2.2.6 Variations in measurement .................................................................................. 35
2.2.7 Study variance ....................................................................................................... 37
2.2.8 Considerations of rigour ....................................................................................... 39
2.3 Measurement criteria sets .......................................................................................... 40
CHAPTER 6: DELPHI ROUND TWO FINDINGS ................................................. 145

6.1 Initial information and feedback .................................................................. 145
  6.1.1 Set 1 statements: Role of Emergency Departments ........................................ 145
  6.1.2 Set 2 statements: Determinants of appropriateness ........................................ 159
6.2 Condition descriptors: rating of Set 3 ......................................................... 172
  6.2.1 Additional criteria suggested by participants (set 4) ........................................ 182
  6.2.2 Clarification of service availability ................................................................. 185
  6.2.3 Non clinical factors that influence perceptions of appropriateness .................. 186
  6.2.4 International appropriateness tool ................................................................. 188
  6.2.5 International tool: General comments ......................................................... 193
**LIST OF TABLES**

Table 2.1: Existing Systematic Reviews ........................................................................... 31
Table 2.2: Evidence Criteria Table .................................................................................... 33
Table 2.3: Range of studies ............................................................................................... 34
Table 4.1: Pilot study .......................................................................................................... 75
Table 4.2: NZ Hospital EDs meeting inclusion criteria ...................................................... 79
Table 4.3: Set 1 statements: Role of the ED ................................................................. 82
Table 4.4: Set 2 statements: Situational / descriptive ................................................... 82
Table 4.5: Braun & Clarke’s six phases of thematic analysis ........................................ 84
Table 5.1: Summary of Panel Responses: Role of the ED ......................................... 105
Table 5.2: Patients are capable of determining what conditions are suitable for ED care (chi-square test) ................................................................. 108
Table 5.3: NZ EDs have a problem with 'inappropriate' patient attendances (chi-square test) ................................................................. 115
Table 5.4: Consensus Summary (Set 1) Role of the ED ............................................ 117
Table 5.5: Summary of Panel Responses: Situational / descriptive ......................... 117
Table 5.6: Consensus Summary (Set 2) Situational/descriptive .................................... 127
Table 5.7: Summary of Panel Responses: Specific conditions .................................. 136
Table 5.8: Consensus Summary (Set 3) Specific conditions ....................................... 137
Table 6.1: Summary of Panel Responses: Re-presented Set 1 statements ................ 146
Table 6.2: Consensus Summary: Re-presented Set 1 statements ................................ 158
Table 6.3: Summary of Panel Responses: Re-presented Set 2 statements ............... 161
Table 6.4: Consensus Summary: Re-presented Set 2 statements ................................ 170
Table 6.5: Summary of Panel Responses: Re-presented Set 3 statements ............... 181
Table 6.6: Consensus Summary: Re-presented Set 3 statements ................................ 182
Table 6.7: Summary of Panel Responses: Additional criteria ................................... 183
Table 6.8: Consensus Summary (Set 4) Additional criteria ........................................ 184
Table 6.9: Regional Service Availability ....................................................................... 186
Table 6.10: Summary of Panel Response: Non clinical factors .................................... 187
Table 6.11: Consensus Summary (Set 5) Non clinical factors ....................................... 188
Table 6.12: International tool condition criteria: Panel consensus findings ............. 193
Table 7.1: Re-presented questions from rounds 1 and 2 ............................................. 209
Table 7.2: Summary of Panel Responses: Prospective determination of appropriateness ............. 219
Table 7.3: Consensus Summary (Set 6) Prospective determination of appropriateness ................................. 221
## LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>EDs should be kept for 'emergencies'</td>
<td>107</td>
</tr>
<tr>
<td>5.2</td>
<td>Pts can determine conditions suitability</td>
<td>108</td>
</tr>
<tr>
<td>5.3</td>
<td>GP or AHS visit before ED</td>
<td>109</td>
</tr>
<tr>
<td>5.4</td>
<td>Non-urgent Pts should not be seen in the ED</td>
<td>110</td>
</tr>
<tr>
<td>5.5</td>
<td>Only a doctor can determine urgency</td>
<td>111</td>
</tr>
<tr>
<td>5.6</td>
<td>Cost to pt.</td>
<td>112</td>
</tr>
<tr>
<td>5.7</td>
<td>Seeing non-urgent pts adversely affects the more seriously unwell</td>
<td>113</td>
</tr>
<tr>
<td>5.8</td>
<td>It is safe to refer some pts away from ED</td>
<td>113</td>
</tr>
<tr>
<td>5.9</td>
<td>Not all pts who come to ED need hospital assessment</td>
<td>114</td>
</tr>
<tr>
<td>5.10</td>
<td>NZ EDs have a problem with 'inappropriate' attendances</td>
<td>115</td>
</tr>
<tr>
<td>5.11</td>
<td>All pts who present to an ED need to be assessed by a doctor</td>
<td>116</td>
</tr>
<tr>
<td>5.12</td>
<td>If symptoms unchanged for &gt; 72 hrs, this is an inappropriate attendance</td>
<td>119</td>
</tr>
<tr>
<td>5.13</td>
<td>GP / AHS referrals indicate appropriateness</td>
<td>120</td>
</tr>
<tr>
<td>5.14</td>
<td>Ambulance transportation represents ED appropriateness</td>
<td>120</td>
</tr>
<tr>
<td>5.15</td>
<td>If discharged from ED with no follow up, this is an inappropriate attendance</td>
<td>121</td>
</tr>
<tr>
<td>5.16</td>
<td>Road traffic accidents are ED appropriate</td>
<td>122</td>
</tr>
<tr>
<td>5.17</td>
<td>If admitted to hospital, this is an appropriate attendance</td>
<td>122</td>
</tr>
<tr>
<td>5.18</td>
<td>Work place accidents are ED appropriate</td>
<td>123</td>
</tr>
<tr>
<td>5.19</td>
<td>If no investigations while in ED, this is an inappropriate attendance</td>
<td>123</td>
</tr>
<tr>
<td>5.20</td>
<td>If limited treatment, this is an inappropriate attendance</td>
<td>124</td>
</tr>
<tr>
<td>5.21</td>
<td>If requires oxygen administration, this represents an appropriate attendance</td>
<td>125</td>
</tr>
<tr>
<td>5.22</td>
<td>If a specialty consultation required, this is an appropriate attendance</td>
<td>125</td>
</tr>
<tr>
<td>5.23</td>
<td>Prescription medications</td>
<td>126</td>
</tr>
<tr>
<td>5.24</td>
<td>Pts triaged as category 5 have inappropriate reasons for presenting</td>
<td>126</td>
</tr>
<tr>
<td>5.25</td>
<td>Allergy or Hayfever (Combined panel)</td>
<td>129</td>
</tr>
<tr>
<td>5.26</td>
<td>Allergy or Hayfever</td>
<td>129</td>
</tr>
<tr>
<td>5.27</td>
<td>Constipation &lt;3 days (combined panel)</td>
<td>129</td>
</tr>
<tr>
<td>5.28</td>
<td>Constipation &lt;3 days</td>
<td>130</td>
</tr>
<tr>
<td>5.29</td>
<td>Dental problems (combined panel)</td>
<td>130</td>
</tr>
<tr>
<td>5.30</td>
<td>Dental Problems</td>
<td>130</td>
</tr>
<tr>
<td>5.31</td>
<td>Lice or scabies (combined panel)</td>
<td>131</td>
</tr>
<tr>
<td>5.32</td>
<td>Lice or scabies</td>
<td>131</td>
</tr>
<tr>
<td>5.33</td>
<td>Mouth Ulcers (combined panel)</td>
<td>132</td>
</tr>
<tr>
<td>5.34</td>
<td>Mouth Ulcers</td>
<td>132</td>
</tr>
<tr>
<td>5.35</td>
<td>Nausea and vomiting (combined panel)</td>
<td>132</td>
</tr>
<tr>
<td>5.36</td>
<td>Nausea and vomiting</td>
<td>133</td>
</tr>
<tr>
<td>5.37</td>
<td>Painless urethral discharge (combined panel)</td>
<td>133</td>
</tr>
<tr>
<td>5.38</td>
<td>Painless urethral discharge</td>
<td>133</td>
</tr>
<tr>
<td>5.39</td>
<td>Pregnancy testing (combined panel)</td>
<td>134</td>
</tr>
<tr>
<td>5.40</td>
<td>Pregnancy testing</td>
<td>134</td>
</tr>
<tr>
<td>5.41</td>
<td>Prescription refill (combined panel)</td>
<td>135</td>
</tr>
<tr>
<td>5.42</td>
<td>Prescription refill</td>
<td>135</td>
</tr>
<tr>
<td>5.43</td>
<td>Attending for a second opinion (combined panel)</td>
<td>135</td>
</tr>
<tr>
<td>5.44</td>
<td>Attending for a second opinion</td>
<td>136</td>
</tr>
<tr>
<td>6.1</td>
<td>Round 2 ED should only be for ‘emergencies’ (combined)</td>
<td>147</td>
</tr>
</tbody>
</table>
Figure 6.49: Round 2 Dental problems (combined) .......................................................... 175
Figure 6.50: Round 2 Dental problems (nursing) .......................................................... 175
Figure 6.51: Round 2 Dental problems (medical) .......................................................... 176
Figure 6.52: Round 2 Mouth ulcers (combined) ............................................................ 176
Figure 6.53: Round 2 Mouth ulcers (nursing) ............................................................... 177
Figure 6.54: Round 2 Mouth ulcers (medical) .............................................................. 177
Figure 6.55: Round 2 Painless urethral discharge (combined) ........................................ 178
Figure 6.56: Round 2 Painless urethral discharge (nursing) .......................................... 178
Figure 6.57: Round 2 Painless urethral discharge (medical) .......................................... 179
Figure 6.58: Round 2 Attending for a second opinion (combined) .................................. 179
Figure 6.59: Round 2 Attending for a second opinion (nursing) ...................................... 180
Figure 6.60: Round 2 Attending for a second opinion (medical) .................................... 180
Figure 7.1: Round 3 Pts can determine condition suitability (combined) ......................... 200
Figure 7.2: Round 3 Pts can determine condition suitability (nursing) ............................. 200
Figure 7.3: Round 3 Pts can determine condition suitability (medical) ........................... 200
Figure 7.4: Round 3 Non-urgent pts could be seen elsewhere (combined panel) ............. 201
Figure 7.5: Round 3 Non-urgent pts could be seen elsewhere (nursing) ....................... 201
Figure 7.6: Round 3 Non-urgent pts could be seen elsewhere (medical) ....................... 201
Figure 7.7: Round 3 Seeing non-urgent pts disadvantages the more unwell (combined) .... 202
Figure 7.8: Round 3 Seeing non-urgent pts disadvantages the more unwell (nursing) ....... 202
Figure 7.9: Round 3 Seeing non-urgent pts disadvantages the more unwell (medical) ....... 202
Figure 7.10: Round 3 ED care in NZ is affected by non-urgent pts (combined) ............... 203
Figure 7.11: Round 3 ED care in NZ is affected by non-urgent pts (nursing) ................. 203
Figure 7.12: Round 3 ED care in NZ is affected by non-urgent pts (medical) ................. 204
Figure 7.13: Round 3 GP / AHS referrals indicate appropriateness (combined) ............. 204
Figure 7.14: Round 3 GP / AHS referrals indicate appropriateness (nursing) ................. 204
Figure 7.15: Round 3 GP / AHS referrals indicate appropriateness (medical) ................. 205
Figure 7.16: Round 3 Road traffic accident are ED appropriate (combined) ................. 205
Figure 7.17: Round 3 Road traffic accident are ED appropriate (nursing) ..................... 205
Figure 7.18: Round 3 Road traffic accident are ED appropriate (medical) ....................... 206
Figure 7.19: Round 3 Ambulance transportation indicates ED appropriateness (combined) 206
Figure 7.20: Round 3 Ambulance transportation indicates ED appropriateness (nursing) .... 206
Figure 7.21: Round 3 Ambulance transportation indicates ED appropriateness (medical) .... 207
Figure 7.22: Round 3 Workplace injuries are ED appropriate (combined) ................. 207
Figure 7.23: Round 3 Workplace injuries are ED appropriate (nursing) ....................... 207
Figure 7.24: Round 3 Workplace injuries are ED appropriate (medical) ....................... 208
Figure 7.25: Round 3 If a specialty consultation required, this is ED appropriate (combined) . 208
Figure 7.26: Round 3 If a specialty consultation required, this is ED appropriate (nursing) .... 208
Figure 7.27: Round 3 If a specialty consultation required, this is ED appropriate (medical) ..... 209
Figure 7.28: Identification at triage (history alone) ......................................................... 212
Figure 7.29: Identification at triage (history and focussed physical assessment) .............. 213
Figure 7.30: Willingness to wait for non-urgent care ................................................... 213
Figure 7.31: Willingness to advise of alternative services .............................................. 214
Figure 7.32: Willingness to refer a pt away from ED ..................................................... 214
Figure 7.33: Pts right to be seen in ED .......................................................................... 215
Figure 7.34: Assessment of a patients condition ............................................................ 215
Figure 7.35: If assessed and non urgent, may as well be treated in ED ............................ 216
<table>
<thead>
<tr>
<th>Figure 7.36: Prospective identification</th>
<th>216</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 7.37: Retrospective identification</td>
<td>217</td>
</tr>
<tr>
<td>Figure 7.38: Identification of appropriateness</td>
<td>217</td>
</tr>
<tr>
<td>Figure 7.39: Check list determination of appropriateness</td>
<td>218</td>
</tr>
<tr>
<td>Figure 7.40: Determination of appropriateness and pt flow</td>
<td>218</td>
</tr>
<tr>
<td>Figure 7.41: Determination of appropriateness and pt flow in a specific ED</td>
<td>219</td>
</tr>
</tbody>
</table>
LIST OF MAPS

Map 5.1: Concept Coding Map - Round 1 Question 1 ................................................................. 89
Map 5.2: Thematic Coding Map - Round 1 Question 1 .............................................................. 90
Map 5.3: Concept Coding Map - Round 1 Question 2 .............................................................. 96
Map 5.4: Thematic Coding Map - Round 1 Question 2 .............................................................. 97
Map 5.5: Concept Coding Map - Round 1 Question 3 .............................................................. 100
Map 5.6: Thematic Mapping Map - Round 1 Question 3 ........................................................... 101
LIST OF ABBREVIATIONS

A&E   Accident and Emergency
ACEM  Australasian College of Emergency Medicine
AHS   After Hours Service
CCT   Care Coordination Team
CTAS  Canadian Triage and Acuity Score
DHB   District Health Board
ECP   Emergency Care Paramedic
EDCAM Emergency Department Cardiac Analogy Model
ED    Emergency Department
ER    Emergency Room
GP    General Practitioner
HUAP  Hospital Urgency Appropriateness Protocol
IPA   Independent Practice Association
MIU   Minor Injuries Unit
MM    Mixed Methods
NZ    New Zealand
MoH   Ministry of Health
POAC  Primary Care Options for Acute Care
Pt    Patient
QRP   Quick Response Team
RCT   Randomised Controlled Trial
SR    Systematic Review
UK    United Kingdom
US    United States
CHAPTER 1: INTRODUCTION AND BACKGROUND

1.1 Introduction

This thesis identifies and analyses the concept of patient ‘appropriateness’ as it applies to Emergency Department (ED) overcrowding. The context within which the ‘appropriateness’ discourse has developed is presented and rationale for study of this topic outlined. The intent of the research presented is to examine the way in which ED patients are conceptualized as ‘appropriate’ or ‘inappropriate’ in the New Zealand (NZ) setting, with reference to the international literature. This incorporates a critique of the construct, its likely validity, utility and the implications associated with viewing patients through this lens. The current lack of underlying consensus is identified, and an attempt to generate a NZ specific set of criteria for defining ‘appropriateness’ (by means of a national Delphi survey process) is presented.

This study has arisen from a social context within which media reports, public perceptions and health professional’s concerns have identified issues with the current functioning and efficiency of NZ EDs. Reports of increased waiting times, patient dissatisfaction and adverse patient outcomes are common. Concerns have been raised about the growing number of people seeking care from EDs, and the impact this has on patient flow within hospitals. The ability of ED staff to provide timely and effective treatment has been questioned, with the overcrowding of ED facilities seen as a major contributing factor. These issues relating to ED care are not confined to NZ but have been identified internationally.

It has been suggested that part of the problem is the increased number of patients who come to ED with non-urgent or inappropriate health care needs. These patients are seen as diverting resources away from those with more urgent needs, as well as contributing to the overall patient volume. One approach put forward in the international literature is to identify patients who could be appropriately treated in settings other than EDs, to deter them from presenting, or failing this to redirect their care elsewhere. However, many such policies are based on assumptions, including that there is a large enough population of ‘inappropriate’ patients to justify such an intervention, and that having identified this group, it is possible to change the behaviour of the patient, the healthcare professional or both.
1.2 Thesis structure

This first chapter outlines the health and social context of ED care and patient ‘appropriateness’, encompassing the socio-political environment, the ED setting and ED overcrowding. These areas provide the necessary background within which the conceptualisation of patient ‘appropriateness’ can be discussed. This creates an understanding of the setting from which debate around appropriateness has emerged, and provides the foundations for further exploration of the key terms and concepts.

Chapter two reviews the literature, discussing core issues associated with appropriateness, including the link with ED overcrowding. Debates within the wider literature are presented, including range and variation in terminology, patient and health professional viewpoints, and patient characteristics and rationale for presentations. This is followed by a systematic review of literature relating to specific attempts to define and measure appropriateness, with the assumption that in order to measure the extent of the ‘issue’, authors must have either implicitly or explicitly defined appropriateness. The final section in this chapter presents a review of criteria sets and definitions outlining ways of determining appropriateness.

An introduction to the methodology selected for this study is provided in chapter three, which outlines consensus processes, their role in research and relevance for this type of study. Specific discussion of the Delphi technique is presented, identifying its central features, strengths and weaknesses, and variations in format and application. The role and composition of the expert panel is outlined, and consideration given to aspects of rigour.

The study design is introduced in chapter four. This includes clarification of the research question, sample selection and expert panel formulation as well as acknowledgment of ethics approval. Initial statements for presentation to the panel are identified, and the methods for analysis of data are reviewed.

Chapters five, six and seven present the findings and amendments made to each of the three rounds of the Delphi survey. The findings are presented with a combination of simple textual description and thematic analysis of free text questions. Where rating scales have been used for responses these are presented with use of graphs and tables to differentiate between professional group responses. This allows consideration of medical and nursing subsets. Simple descriptive statistics are presented, and ratings which reach the level of 70% or higher are deemed to have reached consensus.
Discussion of the findings and their potential implications are presented in chapter eight. This includes consideration of the limitations and strengths of this thesis, as well as an overview of the specific responses presented over the three rounds of the Delphi. Links are made to the existing international findings and comparison between these and the NZ generated data is introduced.

The final chapter offers a summary of the research and its findings, drawing the findings together to formulate a NZ criteria set of ‘appropriateness’ factors that reached the consensus level for agreement within the study. Factors potentially influencing participants responses are considered and critical review of these are presented. The implications for clinical practice are reviewed and recommendations derived from the study are given.

1.3 Identification of the context: Factors impacting on the health system

As ED ‘appropriateness’ is socially constructed, it is important to understand the wider context within which this research takes place. This includes acknowledging changes to demographic composition, societal expectations, legislative responses and health policy directives. As advances in medicine and science continue, the pressures on health services are increasing. As more investigations, treatments and interventions become available, there is an increased need for physical and personnel resources. The ‘knowledge economy’ has seen individuals gain greater access to specialised information through the internet and similar sources, resulting in a higher level of awareness and expectation regarding health care[1, 2]. This has led to increased demand for health care, with associated economic implications including explicit and implicit rationing, and individual financial burden for patients[3].

Social attitudes and understandings of ED care have changed in response to global trends in health, welfare, education and altered population profiles. This includes the publicly perceived role of the ED and the degree to which universal and unrestricted access to health care is valued, including its role as a conduit into hospital and speciality services. Increasingly, there are expectations from both public and health professionals around competing demands and use of ED services. These include the need to focus on the ‘emergency’ aspects of care, providing services primarily for those with urgent or high acuity care needs[4]. At the same time, there are suggestions that ‘opportunistic’ screening occur within the ED population, effectively identifying or providing public health and health promotional (typically ‘non-urgent’) interventions[5-8]. Regardless of the core
focus, the provision of hospital based emergency care incorporates a number of unique features in terms of service delivery, philosophical underpinnings and societal mandate.

A number of factors impact the ability to provide hospital based emergency medical services. One influence is the changing demographic profile, including a marked increase in the proportion of elderly within society. As the ageing sector increases, there is often a corresponding drop in birth rates with financial implications as the workforce/dependant ratio changes. Reduced numbers of wage earners results in a reduction in available government revenue, with an associated impact on the ability to fund health care [9-14]. An ageing population links to an increase in the number of individuals requiring chronic disease management, the incidence of age related conditions and presence of co-morbidities in association with acute conditions. Yap and Celi [9] forecast that health expenditure by those over 65 years in NZ will rise from 39.9% in 2002 to 62.5% by 2051. Increasing numbers of elderly have been linked to increased ED use and acuity at time of presentation [15-17]. Within NZ, the impact of the aging population has been noted for some time [12, 18, 19]. In 2001 the Auckland Hospital ED Clinical Director, Dr Peter Freeman, noted this was a major contributing factor to increasing ED workload [20]. Eastwood and Dowell [21] studied patterns of attendance at After Hours medical services, and found that ‘young old’ New Zealanders (aged 65-74 years) were more likely to seek care from an ED than an After Hours Service (AHS), although they did not specifically consider whether such presentations were ‘appropriate’.

Other areas of population change include a global acknowledgment of the need to provide culturally appropriate care, and recognition this may have implications in terms of access, equity, service type and delivery method [22-24]. Within the NZ context, commitment to the Treaty of Waitangi provides a legislative as well as moral requirement to address issues of inequality and equity in relation to Maori, the indigenous people [25].

Technological advancements have also impacted on the provision of ED services. Increased access to technology leads to increased complexity of potential investigations and treatments, which in turn fuels consumer expectations and demand. Inability to access technological resources has also been shown to impact on staff satisfaction [26] for as well as being a source of increased workload, technology can be a tool for managing ED overcrowding and improving clinical efficiency and effectiveness [27, 28]. Individuals seeking emergency care often cite access to complex tests and investigations as a factor in deciding to attend an ED[29-31].
Societal factors such as increased access to health information, a rise in consumer expectation and incorporation of New Right philosophies have seen the emergence of more articulate, informed and demanding health care consumers [32, 33]. Individuals are increasingly aware of the range of investigations and treatment options potentially available, as well as their rights. This combination has led to an increased demand for accessible, affordable and equitable health care. The converse of this consumer empowerment is the potential recognition of financial and resource limitations, leading to the introduction of rationing of health care services[34, 35]. Financial barriers are increasingly cited as a factor in patient choice of healthcare provider [36]. This has specific implications for those health services which provide a mix of fee-for-service and ‘free’ access, and has been shown to lead to an increased utilisation of ‘free’ services, often for situations they were not designed to address. Socioeconomic factors are increasingly recognized as influencing individuals’ use of ED facilities [37-40].

Fiscal constraints and growing demand for health services have led to health reforms and the re-conceptualisation of in-patient care. This has seen a shift towards ‘deinstitutionalization’ in response to a mixture of financial, social and political forces. This movement is particularly evident within mental health services, with a shift towards providing treatment and on-going care for patients in the community. However, the decrease in institutionally based beds also affects acute care hospitals, rest home and community facilities, rehabilitation, intermediate care, addiction and intellectual disability services with suggestions that this in turn has impacted on ED workloads [41-43].

1.4 Identifying the context: the Emergency Care Setting

The ED setting is a unique health care environment. There is limited ability to forecast likely workload and no reliable tool for predicting expected levels of acuity. Staffing levels need to reflect potentialities yet often there is insufficient funding or resource to make this a practical response. Richardson[44] describes EDs as “specialized multidisciplinary units with expertise in managing acutely unwell patients for the first few hours in hospital” (p516). The practice of Emergency Medicine is defined as:

…a field of practice based on the knowledge and skills required for the prevention, diagnosis and management of acute and urgent aspects of illness and injury affecting patients of all age groups with a full spectrum of episodic undifferentiated physical and behavioral disorders; it further encompasses an understanding of the development of prehospital and inhospital emergency medical systems and the skills necessary for this development…[45]
The role and function of the ED is subject to debate, with some authors suggesting the need to ‘reconceptualise’ the accepted structure and processes in line with changes to societal expectations [46, 47]. Despite this, there are a number of clear, generally accepted functions associated with ED care. These include the acceptance of patients following referral from community agencies, general practitioners (GPs) or other hospitals; acute ambulance transfers; and individuals who self refer. Once the individual has presented for care, their process and management as a ‘patient’ commences. This includes establishment of a clinical record, triage to estimate urgency of the presenting complaint, investigative and diagnostic work-up and definitive treatment measures. The final stage in the patient flow process is to determine an appropriate destination and to facilitate this in an efficient and effective manner. This may involve discharge planning and a return to the community, referral for a specialty team consult or formal admission as an in-patient to the hospital [48].

The majority of emergency care is carried out in specifically designated hospital units (EDs, Emergency Rooms, Accident and Emergency Department, Casualty). While internationally there are private fee-for-service facilities offering urgent and/or emergency care, this has not been a significant trend in NZ. There is limited access to 24 hour or AHS GP care in NZ[49-51], with the 2007 Canterbury DHB Direction Paper identifying that “Canterbury has the only true urban 24 hours surgery in the country” (p.3), noting that consumer acceptance of associated costs continues to impact on attendance and levels of use[52]. In 2004 New Zealanders were identified as having “comparatively good access to primary care when they need it”[53] (p1), in a comparison between Australia, NZ, Canada, UK and US. However this same study did note that while lower in comparison to other countries, 33% of the NZ sample still identified difficulties accessing care on nights, weekends or holidays without going to the ED[53, 54]. Since that time, there have continued to be concerns with the financial viability of providing 24 hour services, the impact of co-payments on service users, and issues around resilience and sustainability of services[49, 51, 55]. The majority of emergency care remains positioned in government funded organisations, with facilities established and maintained through District Health Boards (DHBs).

ED based care has traditionally been seen as a ‘safety net’ within the health system, ensuring access to fundamental and essential emergency care services. There is growing concern, however, that this right of access is no longer viable [56-59], reflecting a
fundamental shift in social and political attitudes. This role is seen particularly in countries with fee-for-service health systems, where access to general health care may be limited by an individual’s ability to pay. In the United States (US), the ED is described as the “only type of health care to which access is guaranteed by law” [60] (p.1056). Indigent, poor and uninsured individuals have been identified as approaching EDs for basic health services as well as urgent care [61]. The ‘safety net’ concept is seen as integral to the US health system, ensuring first line emergency care as well as providing a last resort source of routine health care [62, 63]. This ‘safety net’ has been increasingly described as ‘threatened’, ‘frayed’, ‘threadbare’ and ‘unravelling’ as a result of increasing pressures from overcrowding and associated problems [58, 62-65]. Such pressures not only impact on ED based care, but on the social fabric underpinning health systems and the implicit commitment to provide care for the most vulnerable in society.

Within NZ, the concept of the Welfare State with its explicit commitment to ‘cradle to the grave’ care was the foundation of health and social policies for many years, following the introduction of the 1938 Social Security Act [66]. With the health reforms in the 1990s, a change was signalled, where by the government no longer saw the Welfare State as a credible template on which to base its policies, but rather moved towards the provision of what it described as a “modest safety-net” [67]. In a manner similar to that occurring in the US, EDs in NZ have by default taken on the role of ‘last resort’ access to health services for a proportion of low income and marginalised patients.

1.5 ED Overcrowding
1.5.1 Definition

The problem of ED overcrowding has reached crisis level in a number of countries [58, 64, 68, 69]. This has significant implications in terms of patient safety, quality of care, potential for staff ‘burnout’ and patient and staff satisfaction. There are implications with regard to patient flow throughout the hospital system, with back up in ED a common outcome. It typically either includes or alludes to associated concepts such as access block (difficulty admitting patients to the hospital), staff shortages, insufficient availability of critical care beds, poor interface between primary and secondary care and increases in waiting times at all stages of ED care. Discussions around these concepts often identify a concern that the unique nature of the ED environment is not clearly understood by those outside the clinical setting, whether these be administrators, politicians, budget holders or other health professionals. Fulde[70] acknowledges a number of the issues associated with
ED service provision, in particular the rising incidence of violence, but suggests overall the key problem is the “apparent lack of perception for and appreciation of our workplace” (p. 301).

There is no single, clearly identifiable cause of overcrowding, nor a simple means of addressing the problem [71-73]. In Canada, where the issue has been given national recognition, the following definition was released in a joint position statement from the Canadian Association of Emergency Physicians and the National Emergency Nurses Affiliation: “a situation in which demand for services exceeds the ability to provide care within a reasonable time, causing physicians and nurses to be unable to provide quality care”[74]. A similar definition was formulated by the American College of Emergency Physicians[75]. This makes reference to service need which outstrips resources, more patients than staffed ED beds, and unreasonable waiting times. Additional descriptive features are included in this definition, such as the placement of patients in non-treatment areas (eg hallways), the inability to appropriately triage patients and the presence of large numbers of patients in the ED waiting area. The Australasian College of Emergency Medicine (ACEM)[76] identifies that overcrowding has emerged as an issue for EDs following the increased incidence of ‘access block’, thus positioning the issue clearly as a hospital wide rather than ED specific concern.

Many of the definitions around overcrowding include the inability to provide emergency care within an acceptable time frame. The way in which ‘acceptable’ is measured is subject to individual and situational parameters. Contextual factors also impact on the definition and response to ‘overcrowding’. An example of this is the ability of some facilities to implement ‘ambulance diversion’, whereby acute admissions are diverted to another ED. This can both be a response to overcrowding and a criterion for identifying when overcrowding has occurred.

1.5.2 Scope of the problem

The phenomenon of ‘overcrowding’ is widely recognized, with ACEM [76] suggesting that it has been present in Australian metropolitan hospitals since the 1980s and Canadian authors noting increased utilization of emergency services in most Western countries since the late seventies [47]. Studies from the 1980s in NZ show an awareness of ED usage by individuals described as ‘primary care’ or ‘general practice type’ patients[77, 78] although there is no explicit recognition of ‘overcrowding’ as a phenomenon until later.
There is no clear or agreed means of measuring the extent of overcrowding in a given setting. Richardson, Asplin and Rowe [65] note that “the absence of common definitions, protocols and measures limits our ability to develop national estimates of the problem and make comparisons across communities and facilities” (p. 390). A number of different tools for measuring overcrowding have been suggested, but criteria vary between these. It was identified by the Lewin Group in 2002 that 62% of US EDs felt that they were at or over their operating capacity [79], with one third of these reporting the need for ambulance diversion. A 2003 survey of US hospital ED directors [80], found that 91% reported crowding as a problem. Specific criteria used to identify overcrowding include assessing hours spent on ambulance diversion, percentage of patients who remain two hours or longer in the ED while waiting for an in-patient bed, and the number of patients who leave before being medically assessed [71]. Another method suggested by Schneider, Gallery, Schafemeyer and Zwemer [81] involved a comparison of the number of ED bed spaces available with the number of presenting patients, the use of corridors, halls and non clinical spaces for patient care, consideration of nurse / patient and physician / patient ratios, number of patients admitted, length of time waiting for a specialty review and number of hours spent on ambulance diversion.

1.5.3 Factors contributing to overcrowding

Models developed to illustrate ED overcrowding typically identify three distinct phases [73, 82-84]. The first of these is the pre-hospital phase, focusing on aspects such as relative acuity, referral mechanisms and sources, and public expectations and knowledge. Contributing factors at this point include poor public understanding or acceptance of the role of the ED and in particular its focus on urgent care needs; the impact of poverty and difficulty in accessing primary health care services; and lack of awareness of alternative options / services. The second phase is that occurring within the ED itself. This enables focus on process, policies and existing structures, identifying areas for increased efficacy and efficiency. Examples of this include focus on patient flow models, ‘fast track’ protocols, clinical pathways, lean thinking and innovative role development such as the emergence of Nurse Practitioners, nurse-led clinics, GP services based in ED and rapid response units aimed at avoiding admissions. The final phase relates to inpatient admission processes, clinical management and discharge efficiency and capability. Areas of concern here include ‘bed block’ (the lack of available beds to place acute patients), delays in diagnostic and definitive investigative services and difficulties instituting timely
and efficient discharge processes. This then links back to community facilities, intermediate care, and the need to develop services to avoid re-admission to hospital.

Barriers and blockages can occur at any of these three stages, and most often impact on the system as a whole. While discrete actions can be taken at any of these points, lack of a coordinated approach limits the long term benefits of such interventions. The problem of overcrowding is not the ED’s alone, nor can the ED, working in isolation, effectively address it. Issues associated with hospital wide service provisions, capacity, patient flow and throughput need to be considered.

The concept of the ‘inappropriate’ patient is potentially linked to all three phases of ED flow. At the pre-hospital phase, suggestions have been made to essentially deter or divert these patients from presenting to ED at all. This includes focus on increasing education and understanding around the role of ED and alternative services and increasing knowledge of and access to alternative healthcare opportunities. Once the patient has physically reached the ED, focus is on assessment and recognition of non-urgent needs, ‘streaming’ and diversion to more ‘appropriate’ care. At the point of discharge, the emphasis is again on education, advice and recognition of factors that led to the presentation. Establishment of alternative support networks and linking to primary health care are often emphasised.

1.5.4 The ED Cardiac Analogy Model (EDCAM)

A NZ model developed to illustrate the connected nature of overcrowding issues is the cardiac analogy model [73]. This is an illustrative model representing patient flow and identifying the potential problems associated with this. This model likens the ED to the heart, within the ‘body’ of the hospital. Individual patients represent the lifeblood circulating throughout [48, 73]. There are three phases identified as affecting the functioning of the ‘heart’. These can be seen as Preload, Contractility and Afterload, identifying the key areas where problems can occur. It can be seen that any one of these phases, if disrupted, will inevitably impact on the other stages. This highlights the importance of a combined approach to dealing with ED overcrowding.

Preload refers to the context within which patients present for treatment. Factors that are identified in this area include changing demographics, population needs and societal expectations. Also included here are factors which can be likened to the valves of the heart, - those features which are concerned with access and equity. These include the
nature of the community profile – degree of poverty, cultural relevance, availability of alternate services, transport services, public education and perception of the nature of the emergency department role. A number of interventions have been focussed at this point, with the aim of diverting patients away from the overloaded ‘heart’. Efforts to achieve this typically focus either on identification of ‘inappropriate’ reasons for patient presentations, education of the general public about the role of emergency services, or by implementing ambulance diversion [73].

Contractility refers to the capacity of the existing service to respond and adjust to changes in workload. Following the cardiac analogy, there are a range of internal and external forces that restrict the ability of the ‘heart’ (ED) to respond to changing demands. These can be seen to act at both the macro and micro levels of socio-political and economic influence. Internal forces include factors such as the physical environment, staffing and equipment availability and access to diagnostic and adjunct services. External forces include health budgets and available funding for expansion / contraction of resources, societal changes such as increased technology, ethical and moral expectations relating to the prolongation of life, and changes in staff working patterns and attitudes [73]. Interventions targeted at the ‘inappropriate’ patient populations include case management, recognition of ‘frequent attenders’, and introduction of ‘rapid response’ multidisciplinary teams to manage social needs.

Afterload correlates to the need to move patients from the ED setting, either further into the hospital system or back into the community. This is influenced by issues such as ‘bed block’ (where patients are unable to be moved onto ward beds or specialty areas), delays in inter-hospital transfers and access to ambulance support for transfers back to the community, mismatches between admission and discharge times and available community resources. In terms of managing the ‘inappropriate’ patient load, interventions include the establishment of community based care facilities, increasing home based services and facilitating community based treatment and follow up.

While individual factors impact at each stage of the patient flow model, the development of isolated responses specific to single elements can only have limited affect. Adjustment to policy or procedures in response to discrete ‘problems’ may enable the practitioner to make specific improvements, but it is important to recognise that these changes alone are not sufficient to ‘fix’ the system. It is suggested that “each stage needs to
be addressed, to enable the adequate functioning of the hospitals ‘heart’, but this can be done progressively, rather than by means of ‘open heart’ surgery” [73].

1.6 Effects of ED overcrowding

Given the perceived link between overcrowding and the inappropriate attender, it is difficult for many working in the emergency medicine field to consider one element without the other. In other words, discussions around appropriateness are likely to be impacted by consideration of the outcomes of overcrowding, and a potential causative or contributing correlation with increased non urgent patient presentations. For this reason, an awareness of the commonly recognised consequences of and reactions to this phenomenon are significant in understanding the expert panel responses presented in this study.

The effects of overcrowding have been summarized by Derlet, Richards and Kravitz [80] as follows – risk to public safety, prolonged pain and suffering, lack of satisfaction amongst patients/family/significant others, ambulance diversion, decreased staff productivity, increase in violence, negative effect on the ability of teaching hospitals to fulfil their role and miscommunications. A similar range of potential outcomes is identified by ACEM[76], including an increase in adverse incidents including medication errors and missed diagnostic testing; a decrease in service availability and performance; increased overall length of stay; impact on staffing such as increased sick leave, overtime claims, staff turnover; and negative impacts on emergency medicine trainees; negative impact on patient dignity and privacy. Service wide implications include the contribution to access block, the deferral of elective surgery in order to manage more acute admissions and the need to facilitate early discharge with resultant increase in average in-patient acuity.

1.6.1 Link to increased mortality

Recent studies in Australia have proven what many ED staff have long suspected – that overcrowded EDs are associated with increased mortality. A study in Western Australia looked at three major public hospitals in 2003, finding that 120 deaths could be linked to overcrowded EDs [85]. A further review of patients who presented during periods of high ED occupancy was shown to be associated with increased in-hospital mortality at 10 days [86]. This study suggested approximately thirteen in hospital deaths per annum result from ED overcrowding. Further studies support the idea of a link between adverse outcomes and length of time spent in the ED. A 2011 Canadian study [87] identified that
as mean length of stay in ED increases, so too does risk of increased mortality or hospital admission. These authors conducted a retrospective cohort study of all ED presentations occurring in Ontario, Canada during 2003-7. Findings indicated that, for every “extra hour of mean length of stay in an emergency department, in similar patients at the time of presentation, there is an association with increased seven day mortality and admission to hospital in those who are discharged home or leave without being seen” (p.7).

1.6.2 Ambulance diversion

Specific examples of the impact from overcrowding include ‘ambulance diversion’ and ‘critical care bypass’. These result from workload issues, physical overcrowding and limited available resources in the ED. Once a pre-set criterion has been met, the hospital advises ambulance response services that no further patients can be accepted by the designated ED [88, 89]. Inevitably this results in delays accessing emergency medical care. This process is only possible when there are multiple EDs to choose from, so this is not always a realistic alternative, regardless of how severe the level of ‘overcrowding’. The impact of this on patients is highlighted in terms of professional, clinical, quality and ethical concerns [89, 90]. Recognition of the effect of ambulance diversion for patients with cardiac chest pain has been shown, with resultant delays in thrombolysis following acute myocardial infarction highlighted [91, 92]. Delay in ambulances accessing, unloading at and departing from EDs as a result of overcrowding also impacts on ability of ambulance services and staff to respond to other urgent calls [93]. Ambulance ‘ramping’ occurs when patients remain in ambulances or on ambulance stretchers and are cared for by ambulance personnel while waiting for an ED bed or staff to become available [94, 95]. As ambulances are increasingly ‘tied up’ on diversion, ramping and acute responses, there are further delays for routine and non acute ambulance transfers. This in turn limits the transfer of patients away from acute hospitals, either back to community or non acute care facilities.

The range and potential seriousness of the outcomes associated with overcrowding have triggered concerted efforts to address this problem. Currently, a number of responses appear predicated on assumption and unsubstantiated belief. While there is recognition of the need for additional research in the area of overcrowding, the immediate need for response is such that interventions are often trialled in advance of supporting data. Magid, Asplin and Wears [90] support the call for further research, noting that “many delivery
systems are implementing operational changes much faster than the research agenda on ED crowding is unfolding” (p. 586).

1.7 Responses to overcrowding

Understanding actual and potential responses to overcrowding is significant to this thesis, in that individuals asked to define appropriateness are often influenced by what they perceive may be the outcome of such processes. As a result, willingness to consider the question and the scope of responses may be linked to understanding of how such definitions could be used to influence health care in the future.

1.7.1 Pre-hospital alternatives

Many responses to ED overcrowding aim to intervene at single, specific points in the ‘process’, despite widespread recognition that this is a hospital wide ‘systems’ issue. The ED becomes overcrowded when there is no ability to move patients into the hospital system or to discharge them back to the community. With reference to EDCAM, it is possible to identify generic responses to overcrowding that have been developed. At the ‘preload’ stage the focus is on avoidance of patient presentation through development of alternative systems or the enhancement of existing services. This includes the development or extension of alternative, community based services such as the provision of 24-hour access to acute GP care, minor injuries units, paramedic practitioners and identification of more efficient ways of dealing with patients who present with non-urgent conditions. These services essentially seek to establish viable, acceptable alternative patient pathways that bypass the need to seek care from a tertiary level hospital. Key features here are the need for the service to be recognized and acceptable to members of the public, while representing a financially viable and medically appropriate forum for healthcare.

Issues around access to care are frequently cited in the literature as contributors to ED demand. This varies from inability to access usual care, no links to established GP / primary healthcare services, inability to afford fee-for-service care, lack of transport and issues of convenience [60, 61, 96]. The use of GP and primary care services is often discussed in relation to ED use. This includes recognition that some patients could be equally well cared for in community based GP care, where such is readily available. There are a number of developments that aim to shift the balance of care from secondary to primary care [97, 98]. Within the UK, Pedersen and Leese[97] described the introduction of financial incentives for GPs to provide previously hospital based services, for example
minor surgery and chronic disease management. These include the establishment of minor injury units (MIUs), early discharge programs, day surgery, relocation of long term patients into the community and GP based follow up care, peri-operative assessments and work-ups. Similar movement is evident within NZ, with the Ministry of Health’s (MoH) Primary Healthcare Strategy [99] and the development of Primary Healthcare Organisations.

1.7.2 The role of the GP

The concept of the GP as a gate-keeper, restricting access to secondary care services is well established [98, 100]. This role has the potential to ‘manage’ some aspects of increased demand for acute hospital admission, with GPs acting to ‘filter’ those patients seeking access to secondary care services. However, there are variation in referral rates between individual practitioners and between group practices, with discussion around the appropriateness of some GP referrals to secondary care and whether this itself contributes to hospital ‘overcrowding’. Elwyn and Stott [101] carried out a retrospective evaluation of appropriateness of referrals from a single-handed general practice in the UK. 168 referrals were assessed, of which 58 were considered at least theoretically avoidable. Reasons for referring the patients later identified as ‘avoidable’ included lack of resources, poor communication between primary and secondary care, and inadequate community resources. Studies have cited up to 20% of GP referrals as being ‘inappropriate’ or where more could have been done before referring the patient [102]. One response in the UK aimed at reducing inappropriate admissions by GPs has been the introduction of specific admission guidelines [103].

While management and restriction of GP referral is one possible approach, in order for this to happen, there needs to be viable alternatives to hospital level review and admission. Alternative service developments include the development of services and facilities providing ‘intermediate care’. Auty[104] suggests that ‘intermediate care’ may well become a new career pathway for GP’s. He defines intermediate care in this sense as “a range of integrated services to promote faster recovery from illness, prevent unnecessary hospital admissions, support early discharge from hospital and maximise independent living” (p.36).

A number of initiatives have been undertaken within NZ, where the role of the GP is central to providing previously hospital based services in the community setting. The NZ MoH recognises the growing demand on acute hospital services, and has suggested that up
to 30% of acute hospital admissions may in fact be ‘inappropriate’ [105]. One response to this by the Counties Manukau District Health Board (CMDHB), was to initiate the development of the Chronic Care Management Programme [106]. The overall aim of the project was to “implement a generic system of chronic care management for targeted patients, across community and hospital settings” (p.3). A number of pilot programs focusing on specific chronic disease conditions were carried out, with a strong focus on increasing the role of primary care. Other examples include the establishment of the ‘extended care’ initiative through the Pegasus IPA in conjunction with the Canterbury District Health Board (CDHB), which offers alternatives to some hospital admissions, and pathways for community based treatment of cellulitis [107] and community acquired pneumonia.

A 2001 New Zealand study looked at Primary Care Options for Acute Care (POAC). This involved the recruitment of primary care “avoidable admissions” in a program that used GPs to manage these patients in a community setting [108]. POAC is described as a service that allows GPs to access more investigations, levels of care or treatment than would normally be either available or affordable to the patient. The authors concluded that POAC allowed for the community management of patients who would traditionally have been cared for in a hospital setting, and was evidence of the “ability and willingness” of primary care practitioners to take on this role.

1.7.3 Ambulance service responses

Alternative responses that have developed in the UK include the establishment of ambulance service paramedic practitioners and rapid response units. These approaches aim to maintain patients in their home environment by strengthening community resources rather than transferring them to hospital level care. Development of the ambulance paramedic role in the UK has occurred in response to a number of driving factors. There is a suggestion that requests for ambulance emergency response are at times ‘inappropriate’ [109] with rates of non-emergency usage cited between 11% and 52%. A number of alternative responses to non-urgent calls have been explored, including the introduction of telephone advice, the use of “Treat and Refer protocols”, and the dispatch of alternative vehicles [109]. Similar services are also being developed in NZ, including the introduction of Extended Care Paramedics (ECPs) able to assess and care for patients in their own homes and communities[110].
1.7.4 Rapid response systems

Rapid response style services are typically multidisciplinary teams either based in or activated from the ED itself. An Australian multidisciplinary Care Coordination Team (CCT) was formed to facilitate discharge from the ED at Royal Melbourne Hospital. The aim of the service was to ensure that ED patients were provided with community support services, to avoid or minimise re-presentation and hospital admission. This service was established in response to increasing demand for hospital services, with the target population including “frail elderly, those living alone, the homeless, frequent emergency department attenders, and those with complex medical or drug and alcohol problems” [111]. The aims of the service are to prevent unnecessary and / or inappropriate hospital admissions; minimise repeat presentations of patients and to provide safe and effective discharge from the ED. Other Australian models include the Response Assessment and Discharge (RAD) Team which operates within Penninsula Health, providing an interdisciplinary allied health response including assessment and discharge planning at point of entry with the intention of preventing admissions and presentations where possible[112].

A similar Canadian initiative is that of Quick Response Programs (QRPs), which are designed to provide access to alternative care options, and that involve an “interdisciplinary and multi-sectoral approach to problem-solving, decision-making, and delivery of appropriate community-based care from a variety of sources” (p.ii) [113]. QRPs focus on individuals coming to EDs, with the intention of preventing inappropriate hospital admissions, identifying whether individual needs could be met by existing community-based services.

Within NZ, there has been a similar focus on identifying individuals who could avoid extended ED time or hospital admission, identifying systems that can be set in place at the community level to facilitate and support return home. Changes in District Nursing services have seen an increased focus on hospital admission avoidance, with specific programs developed to work in collaboration with EDs. Examples include MidCentral Health DHBs introduction of a service where a district nurse and social worker are based in the ED and work together with existing ED and specialist teams to identify patients ‘at risk’ of requiring hospital admission or ED re presentation related to inability to cope in the community setting[114]. Other services have also seen introduction of allied health workers such as physiotherapists and occupational therapists into the ED setting[115, 116],...
increased focus on the hospital / community interface, introduction of community radiology, long term condition management and pathways aimed at allowing care to take place in the community rather than in the hospital setting[55, 112, 117].

1.7.5 Understanding patient decision making

Other interventions have been aimed at identifying reasons for choosing ED rather than GP care amongst patients who self refer [118-120], establishment of alternative services such as ED based GP or Nurse Practitioner care [121-124] and examining better ways to deal with regular ‘repeat’ attenders [125-127]. There is an underlying assumption behind all these approaches that there are alternative pathways, either actual or potential, that could be utilized to relieve the current pressure of patient numbers presenting to EDs for treatment. It is from within this ‘pre load’ access group that the so-called ‘inappropriate attenders’ have been identified. This concept is discussed in more detail in the next chapter.

At the contractility stage, responses are aimed at strengthening the ED capacity to react to changes in workflow, maximize existing patient flow pathways, and involve assessing the appropriateness of existing physical layout and resources. Among the commonly identified interventions in the ‘afterload’ stage are the development of specialized observation areas, holding areas and medical assessment units [128-130]. Development of fast track protocols and pathways and policies aimed at facilitating rapid movement from the ED to specialist services, tests or in-patient beds are also relevant here. ‘See and treat’ and minor injury units (MIUs) are also examples of service developments that aim to maximize the ED efficiency and patient flow [131-134].

1.8 Summary

This chapter has highlighted the context within which the research question developed – that of hospital based emergency care and the issues associated with this. Recognition has been given to the increase in patient numbers presenting to EDs, and changes to health care expectations. A generic overview of overcrowding, its implications and potential responses has been provided. While this is necessarily limited, providing individual examples rather than a comprehensive review, it provides sufficient information within which to position the research concerns and more specific discussion which follows.

Overcrowding represents a major health care concern, and if ‘inappropriate’ ED attenders are in fact a significant contributor then policy needs to be developed to address
this. The evidence is limited, however, as to the nature, degree and contribution of the supposed ‘inappropriate’ attender, and it is essential that clarification is achieved around this. There is the potential to dedicate much needed health resources to managing a ‘problem’ that appears self-evident, but for which the evidence and justification is currently lacking. Before determining the extent of any ‘problem’, a first step is to define the underlying concept of ‘appropriateness’.
CHAPTER 2: LITERATURE REVIEW

This chapter examines in more detail the existing literature relating to definition and quantification of ‘inappropriate’ patient presentations to EDs. Three sections are incorporated which provide the basis from which to explore the thesis question:

1. An integrative review of the general literature around appropriateness
2. A systematic review of specific literature which attempts to quantify the extent of non-urgent presentations
3. A compilation of criteria proposed for identifying inappropriate / non-urgent / or primary care patients in the ED

2.1 An integrative review of the ED appropriateness literature

2.1.1 The role of Integrative Reviews

There are several ways of examining the literature related to a specific topic or area of interest. The integrative literature review is described as the broadest of these approaches, enabling an overview of material and incorporating a diverse range of methodologies [135, 136]. In this way, both theoretical and empirical literature can be incorporated, and experimental and non experimental research included. This type of review is used to address a wide range of purposes, including conceptual analyses, theoretical and methodological reviews, and assessment of specific evidence based questions[137, 138]. Integrative reviews have also been described as ‘evaluative’ or ‘descriptive’ reviews, emphasising the broad approach and intention to provide a comprehensive interpretation of the current context.

2.1.2 Overcrowding and the concept of ‘appropriateness’

ED overcrowding has been widely discussed in the literature, with reports emerging from the early 1990s in the US. Andrulis et al[139] suggested awareness of overcrowding followed high profile reporting of ED gridlock, and references in the popular media to ED crises. Grumbach, Keane and Bindman[140] identified changes to the role of US EDs, with a shift away from emergency care provision to an expectation of primary care and social service input. They identified that ED visits had been “rising dramatically” (p372) since the 1950s, with many patients presenting with conditions that did not require emergency treatment. This was linked to overcrowding, with noncritical patients described as waiting up to 17 hours for treatment. Other authors make explicit the suggestion that
increased use of EDs for less acute conditions contributes to overcrowding[141], which in turn contributes to patients leaving the ED before being seen by a doctor.

Recognition of ED overcrowding and a rising volume of non urgent patients as an international phenomenon has become apparent. In addition to literature from the US and UK evidence has emerged from Canada [142-145], South America, [146, 147], Asia [148-151], Australasia [36, 48, 76, 152], Europe [153, 154] Scandinavia [155] and the Middle East [156-158] reporting concerns with increasing patient numbers and groups of low acuity patients. Similarities in terms of issues identified and responses are evident, suggesting this is a significant issue within healthcare.

2.1.3 Use of terminology

Whilst associated with the literature around overcrowding, the terms ‘appropriate’ and ‘inappropriate’ emerged from discussions around the need for ED visits. Following recognition of overcrowding and its impact on ED function, patients with ‘non urgent’ conditions were seen as diverting resources. It can be argued that the terms ‘appropriate’ and ‘inappropriate’ are emotive and value laden, representing a specific social belief – that in order to ration ED care, those most deserving (or ‘appropriate’) should be identified and prioritised. In this way a moral judgment is being made, that is then used as justification for a number of responses to overcrowding including deferral away from ED and refusal of care. The intention is to identify a sub group of patients who are able to be treated in an alternative care facility, the implication being this would free up resources for those more in need.

Debate exists regarding the use of terms such as ‘inappropriate’, together with the idea that some patients should not be seeking ED care. Some authors are clear in their categorisation of patients: Driscoll, Vincent and Wilkinson [159] identify that a high proportion of A&E patients have “only trivial or non-urgent complaints” (p77); Liggins [160] suggests the term inappropriate attendance is synonymous with non-urgent attendance, which is associated with the “misuse and abuse of the A&E Department” (p1141). Other authors question whether the term “inappropriate” is in itself inappropriate, citing concern with lack of definition and competing interpretations of urgency and seriousness [161][162]. Afilalo et al [163] suggest the ‘inappropriateness’ label developed from a purely clinical assessment, with healthcare providers and insurance assessors relying on medical judgment for its determination. They identify that use of this phrase has changed with growing recognition that “appropriateness varies subjectively from
provider to insurer to patient” (p1303) and that patients’ perceptions are more often influenced by issues of access than medical urgency.

Terms that have been used to refer to this group of patients include ‘non urgent’ [163-166], ‘unnecessary’ [148], ‘trivial’ [159], ‘casual’ [167] or descriptive phrases such as patients who are ‘able to safely access care from an alternative source’. Specific sub groups within the population of ‘inappropriate’ patients have also been identified, including frequent ED attenders [125, 168-172], paediatric and elderly populations [16, 157, 173, 174], and in the context of the US, uninsured or medically indigent patients [61, 175, 176].

2.1.4 Appropriateness and primary care

A correlation between non-urgent and primary care is often made, with the presumption that patients presenting with ‘minor’ conditions would be better served seeking care from a GP or primary care service. Identification of the primary care patient is not always self evident, despite the simplistic definition that these patients are ones whose care could “equally or better be delivered by a general practitioner (GP) or other primary care service” [177] (p473). Given the variation in role and scope of practice within GP services, it is understandable that no clear criteria exist. Discussion often centres on the nature of the presenting problem, described in terms of its minor or non life threatening nature, with the comparison made to conditions which are deemed ‘acute’, ‘emergent’ or ‘urgent’. Dale [178] suggested that while as many as half the presenting patients to city based and urban EDs have conditions that could be treated in primary care, that there “is no clear cut boundary between problems that belong in accident and emergency and those of general practice” (p90). He goes on to note that severity can often only be determined in hindsight.

Provision of primary care by ED staff is seen as limiting the ability to care for more acutely unwell patients, and potentially disadvantaging patients with primary care needs. Arguments are put forward that ED care is more costly than primary care, does not offer follow up or continuity of care, often involves unnecessary tests and interventions and can contribute to the medicalisation of everyday conditions [179].

It has been suggested that management of primary care patients might be more appropriately undertaken by GPs, based either in the community or within the ED itself. Murphy et al. [180] compared the practice of ED physicians and primary care physicians
working in an inner city hospital A&E department in Ireland. These authors identified that there were some cost savings but also differences in practice apparent between the two groups. Those patients seen by primary care physicians received fewer tests and investigations, and were less likely to be referred to other hospital services or admitted. Similar findings were found in a study by Dale et al. where comparisons were made between outcome and costs of patient care provided by GPs, senior house officers and registrars based in an inner city London ED [181].

Thompson et al. [182] note that changes in out of hours primary care provision in the UK were associated with an increase in non traumatic patient presentations to ED. Some authors have sought to understand the reasons why non urgent patients may seek care from an ED rather than an alternative source. In a Canadian study of 1,783 ED attenders [146] comparisons between urgent and non urgent ED patients were made, and included asking why a primary care physician was not contacted prior to presenting to ED. The focus was on identifying potential barriers to primary care use. Respondents cited issues with accessibility (32%), perception of need (22%), referral/follow-up to the ED (20%), familiarity with the ED (11%), trust of the ED (7%), and no reason (7%). The multifactorial nature of patient reasoning was suggested as impacting on the effectiveness of any planned interventions or responses aimed at changing patient behaviours.

2.1.5 Appropriateness and demographic / social characteristics

Much of the literature has focussed on identifying social characteristics or determinants of ED use, creating profiles of risk factors associated with urgent and non urgent care needs. This is evident in the early literature which focuses on the topic [167, 183-186]. Interest in identifying social drivers and demographic characteristics of ED patients has continued, with parameters such as age, gender, ethnicity, socio-economic status, income, and education routinely collected [146, 163, 187, 188]. Factors that are seen to impact on choice of ED or as barriers to primary care access such as distance to health care provider, established relationship with a GP, ability to access services and availability of appointments, hours of service availability and method of arrival to ED have been identified [182, 189]. Additional psychosocial factors may be considered including decision making processes, definition of urgency and identification of service appropriateness [190, 191]. Personal factors identified include desire for a second opinion, convenience, confidence in service provider, and knowledge of service capabilities [192, 193].
2.1.6 Patient perceptions of urgency

Considerations around the meaning of urgency and interpretations of what constitutes an emergency have led to recognition that patient perspectives often differ markedly from those of health professionals. It is acknowledged that there is no consistent definition or rating of urgency within health care, which adds to the difficulty patients face in self determining the nature of their illness or injury [194-197]. Stratmann and Ullman [198] writing in the US context during the mid 1970s identified changing patterns of ED use, noting a constant rise in non urgent patient presence since the 1950s. In order to better understand public opinion, they carried out a community survey of households and as part of this asked about urgency in relation to health care. They defined an urgent medical problem as “a condition that the respondent felt could not be put off until the next day”, and when this definition was put to respondents who had sought ED care, 95% (n=213) felt their condition met this criteria. Gifford et al [194] suggests the term ‘emergency’ is difficult to define, and that while patient perceptions of urgency and emergency influence their choices, many of the situations which bring patients to ED are not viewed as ‘true emergencies’ by health care professionals. Many studies which seek to determine patient urgency do so retrospectively, and from the physician’s perspective. One of the first studies that sought to compare patient and physician prospective assessments of urgency as well as physicians retrospective assessment of urgency looked at 10,253 ED visits in the US in 1980 [194]. This study provided the following definitions of urgency, used by both the patients and physicians: immediate, need to be seen within minutes; urgent, need to be seen within 1-2 hours; prompt, within 2-12 hours; soon, within 24 hours and fairly soon, within days. Prospective physician assessment identified 12.6% of patients needed immediate care, 26.3% urgent care. Retrospective review found that 9.4% and 23.4% respectively needed immediate and urgent care. The patient’s prospective assessment of their condition showed that 44.4% believed they needed immediate care, and 28.5% urgent care.

A more recent Israeli study[196] looked at non urgent ED attenders, comparing the urgency assessments of patients with those of nurses. This showed that while 77.14% of the patients (n=75) believed their condition to be either urgent or most urgent, the nurses (number not specified) found 78.58% of the patients to be non urgent. It was not specified whether the nursing assessment was prospective or retrospective. There are limitations within this study, but this does illustrate the disparity between patient self identification
and health care professional recognition of urgency. In 2006 a Canadian study surveyed a group of 253 patients triaged as non-urgent (assigned level IV or V of the Canadian Emergency Department Triage Acuity Scale), seeking to understand the reasons they sought ED care. Included in the findings was that 44% of these patients assessed their condition as requiring urgent care. Patients do not have the benefit of medical knowledge or results from investigations and assessments to guide them. Despite this, there seems to be an expectation that patients can prospectively determine the urgency and relative appropriateness of their complaint, and can then act to make an informed choice of health care provider. Many interventions aim to increase public awareness of provider options and recognition of ‘emergency’ situations, but when a perception of urgency persists (however medically unfounded) an individual remains likely to seek what they consider the most responsive source of care.

2.1.7 Health professional’s perceptions of urgency

Inconsistency in assigning urgency is evident in studies that have focussed on the health professional’s perspective. There is no universal definition of urgency or emergency, which gives rise to an element of subjective assessment. A lack of agreement between health professionals has been identified, as well as by the same individuals over time. Foldes et al [199] acknowledged that physician review is often central to studies that seek to assign urgency and determine appropriateness of patient presentation. These authors questioned whether there was a single medical perspective or consensus approach to defining urgency, asking two physicians to independently review a series of patient notes. The physicians had differing specialty backgrounds, one being an internist and the other an emergency physician. While similarities in clinical appraisal were apparent, there was considerable divergence when determining urgency and ‘appropriate’ location for care. The suggestion is made that there are underlying individual, professional and institutional ideologies that impact on the interpretation of urgency and emergency status. Both reviewers had collaborated in the formation of a review instrument, and while differences were apparent during this process, a mutually acceptable tool was devised and applied to a sample of 219 patient records. Having applied this tool, the emergency physician identified that 90% of the presentations were “definitely” or “probably” an emergency, while the internist identified this for only 36% of cases. When asked whether an alternative primary care or urgent care centre would have been appropriate, the
emergency physician indicated it would have “definitely” or “probably” been appropriate in 77% of cases, while the internist identified this for 91% of cases.

Despite applying the same tool, the subjective element of the assessment showed differences in approach and priority, with the suggestion made that ED physicians are more likely to anticipate the worst case scenario in a presentation, and have a higher concern for potential implications of a missed serious diagnosis. The patients whose cases were reviewed in this study were also asked to rate the perceived urgency and seriousness of their condition, with 86% identifying that immediate medical attention was an urgent need. The authors noted that a comparison of patients’ perceptions to those of the physician raters showed no statistically significant correlations.

The concern is raised that any triage process to assist access to alternative forms of care would likely be subject to variation in professional judgment. A further US study[200] compared the assessments of eight health professionals (four emergency nurses, two emergency physicians and two family physicians). These individuals each assessed the medical charts of 266 ED patients, using identical criteria to retrospectively rate urgency. The percentage of patients identified as needing urgent care ranged from 11% to 63%, with no particular agreement evident between reviewers from the same specialty. A further comparison of prospective review by a triage nurse with retrospective review by a similarly experienced nurse also showed poor correlation. The authors identified that this disagreement in urgent assessment has the potential for serious implications dependent on the use to which such assessments are put. Examples of concern identified included the potential to refuse or defer care and to influence authorisation for third party payment in health care. Further studies have identified significant differences in the assessment of GPs and Emergency Medicine consultants regarding appropriateness of ED referrals [201], between triage nurses, emergency physicians and computer triage operators in identifying emergent conditions and predicting need for admissions [76, 202]

2.1.8 Contradictions

There are a number of contradictions evident in the literature associated with the ED non-urgent / inappropriate / primary care patient population. While some authors identify this group as a significant contributing factor to overcrowding and advocate active measures to manage, reduce or minimise their impact [141, 203, 204] others suggest that they have little impact overall on ED workload and patient flow [76, 205, 206].
While there remains discussion in the international literature relating to the role and significance of an ‘inappropriate’ patient population, there has been a different emphasis within the Australian literature. The focus here has shifted to an explicit dismissal of inappropriateness as a major contributing factor to overcrowding [76, 206, 207], with attention instead given to ‘access block’. Specific acknowledgment of the low priority given to managing this patient group is evident in the statement by ACEM (2004), where the solution to overcrowding is identified as management of hospital occupancy and the need for responses from all levels of the health system [76]. In particular, the comment is made that “general practice-type patients attending emergency departments represent the low-end of complexity and cost. Significant reductions in this type of patient, if they are capable of being identified, will have marginal impact on emergency department workloads” [76] (p1). Richardson and Mountain (2009) carry this further, suggesting that “there is no evidence for the oft-proposed myth of ‘general practice-type’ or ‘inappropriate’ leading to emergency department overcrowding” [206] (p370). They go on to identify that focus given to these patients serves to divert attention from what they see as the core issue of “excessive numbers of admitted patients” (p370). As a result of this approach, the Australian literature discusses the impact of overcrowding, the opportunity to better manage patient flow and address access block, rather than considering ways to identify and measure a potentially inappropriate patient population.

Other areas where contradiction can be identified include varying emphasis placed on specific factors associated with this population. It is apparent that the same underlying data can be used to generate fundamentally different interpretations. This is further apparent in regard to variations in methods, analysis and research design which contribute to divergent findings. There is also a large amount of ‘grey literature’, presenting expert opinion which has the potential to influence perceptions, not always backed up by an evidential base.

2.2 A systematic review: definition and measurement of ‘inappropriate’ ED attendance

Core concepts relevant to this thesis include the definition and quantification of ‘inappropriate’ or ‘non urgent’ ED presentations. In order to better understand the existing knowledge regarding these, a systematic style review of the literature is presented. This review has been guided by established protocols including PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) [208], STROBE (Strengthening The
Systematic reviews (SRs) and meta-analyses are becoming an expectation within healthcare in response to the growing volume of research literature. The Cochrane Collaboration defines a systematic review as “A review of a clearly formulated question that uses systematic and explicit methods to identify, select, and critically appraise relevant research, and to collect and analyse data from the studies that are included in the review” [211]. SRs can be used to inform the development of clinical guidelines, justify research, facilitate economic evaluations and decision analyses as well as to provide effective educational resources [208, 212]. While SRs initially focussed on randomised controlled trials (RCTs), which are generally identified as offering the most robust evidential basis for decision making [210, 213], increasingly topics which do not lend themselves to RCT based research are also being explored. Stroup et al on behalf of the MOOSE group developed a checklist to assist in the reporting of meta-analyses of observational studies [210], identifying the increasing incidence of research topics better served by consideration of observational studies and where RCTs are not feasible. Observational studies are defined by this group as including “an etiologic or effectiveness study using data from an existing database, a cross sectional study, a case series, a case control design, or a cohort design” (p.2008). von Elm et al[209] present a series of guidelines for the reporting of observational studies (in particular cohort, case-control and cross sectional studies) as part of the STROBE initiative. While both the STROBE and MOOSE guidelines provide direction for the reporting of observational studies, they are not intended as evaluation instruments. These instruments have been considered in relation to this thesis, given that the research question under consideration is one that does not easily lend itself to the implementation of RCT research, rather generating a preponderance of observational style studies. Wieslar and McGauran[214] draw on the PRISMA statement and other evidence based recommendations to generate their Steps in the Conduct of a Systematic Review and the Corresponding Items for Reporting (p1241) and this structure has been used to inform the SR protocol presented here.

2.2.1 Research Question

The research question focuses on whether or not consensus by NZ ED doctors and nurses about ‘appropriateness’ of patient presentations can be reached. Much of the literature identified was in the form of opinion pieces, editorials, philosophical and
sociological reviews of the topic. In order to determine the definitions used for appropriateness (and their underpinning justifications), it was decided to focus on literature that specifically sought to identify and measure the non urgent patient population. The assumption being, that in order to measure a problem, some form of definition must logically be provided. Using the PICOS framework (participants / population, interventions, comparisons, outcomes and study design) the following parameters were identified:

**Population:** patients presenting to ED for assessment and treatment, both adult and paediatric

**Intervention:** determination of non-urgent need or inappropriate basis for presentation, with this sub group of patients specifically identified and quantified

**Comparisons:** implicit or explicit comparison to those patients determined to have appropriate reasons for seeking ED care

**Outcomes:** a measurement allowing quantification of inappropriate patients in relation to the larger group of all ED patients

**Study design:** any type of study design.

Drawing on these parameters, the following review question was devised with associated specific objectives:

Where measurement of inappropriate or non-urgent ED presentation has occurred, is there a clear definition or criteria for this provided?

**Objectives:**

Is there a specific definition, set of criteria or other means of identifying inappropriate or non-urgent ED patients?

Is this presented together with a justification, rationale and derivation of the definition?

Who applies the definition criteria within the study area?

How is the measurement of appropriateness presented?

**2.2.2 Eligibility criteria**

Based on previous readings and knowledge of the literature it was decided not to focus on RCT or primary research based materials; while the topic has been included in
emergency medicine literature for a significant period of time, there are limited examples of this type of data. The available material relating to definition and quantification of appropriateness in the ED setting was acknowledged as including a mix of qualitative and quantitative research, expert opinion, and other ‘grey literature’. Grey literature can be defined as material that is unpublished, has limited distribution, or is not included in bibliographic retrieval systems [215]. This can include studies where only the abstract is published, where study findings or details are sought from the author or by personal contact with a researcher, and use of unpublished theses and conference papers. The inclusion of grey literature in SRs is supported by a number of authors, with the suggestion that this can reduce publication bias and provide a more realistic estimate of intervention effects [215, 216]. However, the quality of such studies, absence of peer review and unclear methodology can also impact on their relevance. Also considered as ‘grey’ were articles which reported opinion, viewpoint, general discussion not generated by specific research and summaries of secondary findings.

Literature was purposively sought over an extended period of time. Data searches were run from the 1950s through to present day, with the intention of identifying whether there were changes in definition, quantification or other trends. Electronic versions of much of the earlier literature were available. While initial search strategies were run and repeated at intervals, data continued to be collected up until (and including) 2010.

Electronic searches included the parameter English Language, but where secondary searching identified non-English literature (primarily through reference list searches) this was also considered. Several pieces of literature which had abstracts in English but where the text was published in other languages were assessed.

2.2.3 Information sources

A number of electronic databases were searched, as were hard copies of some journals, targeted electronic journal websites, correspondence with experts and authors, and open internet searching using tools such as Google and Google Scholar. The electronic databases used included:

- Cochrane database of systematic reviews (CDSR)
- Database of Abstracts of Reviews and Effects (DARE)
- Health Technology Assessment (CLHTA)
- Allied and complementary medicine (AMED)
Several systematic reviews were identified that were deemed relevant to the research question. These were accessed and considered for relevance. References from these were identified and included in the review where appropriate.

### Table 2.1: Existing Systematic Reviews

<table>
<thead>
<tr>
<th>Author</th>
<th>Source</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Zealand Health Technology Assessment (NZHTA) (1996)[217]</td>
<td>NZHTA Report 8 Dept of Public Health and General Practice, Christchurch School of Medicine</td>
<td>Emergency Department Attendance: A critical appraisal of the literature</td>
</tr>
<tr>
<td>Health Services Utilization and Research committee (1998)[218]</td>
<td>Health Technology Assessment Database</td>
<td>Reducing non urgent use of the emergency department: a review of strategies and guide for future research</td>
</tr>
<tr>
<td>Abi-Aad, Johnson, Mays, &amp; Roberts (2010)[219].</td>
<td>Cochrane Database of Systematic Reviews</td>
<td>Primary and community health care professionals in hospital emergency departments: effects on process and outcomes of care and resources</td>
</tr>
</tbody>
</table>

Review of reference lists from relevant articles were also followed up, and targeted searches of electronic and hard copy journals, which included (but was not limited to):

- Academic Emergency Medicine
- Accident and Emergency Nursing
- Annals of Emergency Medicine
- Archives of Emergency Medicine
- Australian Medical Journal
- British Medical Journal
- Emergency Medicine Journal
- Emergency Medicine Australasia
- Journal of Emergency Nursing

- Ovid MEDLINE (1950-2010)
- Ovid Nursing Database (1950-2010)
- PsychINFO (1967-2010)
• Lancet
• New Zealand Medical Journal

In addition, regular updates were generated using the programme MDlinx which provided regular review from electronic journals in the areas of interest (emergency medicine, emergency/trauma, Nurse Practitioner – emergency), so that additional data could be reviewed on a weekly basis.

2.2.4 Search strategy

The PICOS analysis was used to help in the identification of search terms. A number of different search strategies were trialled, those using specific or discrete terms such as ‘inappropriate attender’ were found to generate very limited results. The final search strategy selected is outlined as follows, and offers a broader starting point. This search was repeated several times, commencing in 2007 and run through the multiple databases identified. The following provides an example of the process utilised, drawn on a search run in March of 2010.

In order to find research related to the population of ED patients, terms related to the context area and that matched to a number of international contexts were identified, including: emergency department; emergency room; accident and emergency; A&E, casualty department and following review of the items generated the term ‘ambulatory care’ was also included. These terms were then combined with the use of the Boolean logic ‘OR’, generating a group of 103,054 findings. A second category group was generated using the terms ‘inappropriate’ OR ‘non-urgent’ and generating 43,559. These groups were combined, generating 813 findings. Limitations were then applied, including abstracts and English language. This reduced the findings to 752. Duplicates were removed, reducing the total to 605. These abstracts were reviewed and screened for eligibility. Articles were excluded at this point if obviously not relevant (ie the appropriateness component was in relation to a medical intervention; treatment alternatives; hospital admission or other element of care received). Where it was possible to determine from the abstract that the article was about overcrowding in general and did not include appropriateness of patient presentation, these were also excluded. Attempts to limit using additional terms had proven too blunt, often reducing the available numbers to less than 10 (eg attempts to use AND patient attendance resulted in 0 findings; AND measurement led to 25, none of which were relevant).
This strategy generated 97 articles which were then reviewed in more detail. A number of these were also excluded following closer review of the article content, but additional material was also sourced through consideration of reference lists and citations. Further additional literature was identified from the online searches and hand searching of articles.

Criteria for inclusion in the systematic review were set as following:

- ED patient population under consideration
- A measurement or estimate of appropriateness of ED presentations was provided
- Sufficient methodological detail given to provide a level of evidence assessment

The level of evidence criteria rating was derived from existing tools, but modified in response to the anticipated range of data to incorporate use of grey literature and expert opinion.

**Table 2.2: Evidence Criteria Table**

<table>
<thead>
<tr>
<th>Type and Strength of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>I Systematic review of well designed randomised controlled trial meta-analysis</td>
</tr>
<tr>
<td>II Randomised Controlled Trials</td>
</tr>
<tr>
<td>III Research that does not include randomisation:</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>IV Well designed non experimental studies</td>
</tr>
<tr>
<td>V Descriptive studies</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>VI Grey literature including:</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

While inclusion of a specific definition or set of criteria for determining appropriateness was desirable, failure to include this was not seen as a reason to exclude the study from final analysis. The presence of studies that attempted to measure or quantify appropriateness in the absence of such grounding was expected to be a significant finding.

Data variables collected included:

- Setting
- Year of publication
• Country and source of data
• Method and date that the data was collected
• Sample size
• Findings
• Percentage of patient presentations determined to be non urgent or inappropriate
• Level of evidence
• Reference source

A detailed list of articles included and excluded from the review is presented as appendices one and two.

2.2.5 Range of data

Literature was sourced from a number of contexts for this review. Geographical differences need to be acknowledged, with variation in health systems, access to services and societal expectations present as well as physical variation in terms of the size and type of EDs. Fifty-five articles were included in the review, representing findings from a total of 78 identified study sites or time periods. It was decided to retrieve data from the 1950s forward, in order to allow consideration of changes in understandings of and approaches to the issue over time. Date of publication ranged from 1959-2010 and data collection took place from 1958-2007. The majority of sites were either general EDs or population base was not specified, with three identified as specialty EDs and two as paediatric EDs. The studies were based in a number of developed countries; no studies were identified from developing nations.

<table>
<thead>
<tr>
<th></th>
<th>Date of data collection</th>
<th>1980s</th>
<th>1990s</th>
<th>2000s</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% patients estimated as inappropriate or non urgent (n=number of data sets)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US</td>
<td>33-56% (n=5)</td>
<td>1.6-69% (n=8)</td>
<td>8-90% (n=14)</td>
<td>3.9-47% (n=3)</td>
</tr>
<tr>
<td>UK</td>
<td>28-90% (n=3)</td>
<td>15-94% (n=9)</td>
<td>16-55% (n=2)</td>
<td>30-73% (n=4)</td>
</tr>
<tr>
<td>Canada</td>
<td>53% (n=1)</td>
<td></td>
<td>9-69% (n=7)</td>
<td>30% (n=1)</td>
</tr>
<tr>
<td>Europe</td>
<td></td>
<td>29.6% (n=1)</td>
<td>19.6-35% (n=4)</td>
<td></td>
</tr>
<tr>
<td>South America</td>
<td></td>
<td></td>
<td>24.2-39% (n=2)</td>
<td></td>
</tr>
<tr>
<td>Asia</td>
<td>57% (n=1)</td>
<td>18-57% (n=5)</td>
<td>7.6-70% (n=4)</td>
<td></td>
</tr>
<tr>
<td>Middle East</td>
<td>83.1% (n=1)</td>
<td></td>
<td>91% (n=1)</td>
<td></td>
</tr>
<tr>
<td>New Zealand</td>
<td></td>
<td></td>
<td>31-81% (n=2)</td>
<td></td>
</tr>
</tbody>
</table>

The largest group of studies were from the US (n=31) and represented study data collected from 1967-2007, and included data based in two specialty EDs. Eighteen sets of data were identified from the UK, collected between 1958-2005 and including data from one specialty ED. An additional nine data sets were from Canada, collected from the 1980s...
through to 2004 and including data from one paediatric ED; five were from Europe (France, Italy, Spain and Portugal) with data collected between 1993-2001 and including one paediatric ED; and two were from South America (Brazil) with data collected in 2000 and 2004. The remaining data sets included 10 from Asia (Singapore, Malaysia, Hong Kong) with data collected from 1984-2002, two from the Middle East (Jordan) with data collected in 1997 and 2004 and two from NZ in 2003 and 2007.

No studies from Australia were included in the review. While there is considerable interest in and publication around the issue of ED overcrowding originating from Australia, the articles reviewed did not make the assumption that overcrowding was equated with or influenced by ‘inappropriate’ or non-urgent attenders. The focus was placed instead on hospital wide access issues and delays in accessing in-hospital beds for more seriously unwell patients. This may be indicative of the position of the ACEM, which clearly states that: “General practice-type patients attending emergency departments represent the low-end of complexity and cost. Significant reductions in this type of patient, if they are capable of being identified, will have marginal impact on emergency department workloads” [76](p. 1). Where publications discussed options for management of lower acuity patients, these were positioned in terms of improved patient flow, rather than as a response to an inappropriate patient load[222, 223].

While the data was generated in different countries, there is little evidence of consistent national variance. There is considerable variation in estimates of inappropriate or non urgent patient population, both across countries but also within them.

2.2.6 Variations in measurement

The specific findings from the individual research studies are not the primary focus of this review, rather the manner and detail associated with determining measures of appropriateness. There was no clear, uniform definition of appropriateness apparent in the studies considered in this review. While all suggested that there was international concern with inappropriate or non urgent patient presentations to ED, and background data was provided to support this view, there was little evidence of a consensus definition to underpin efforts at measurement. This supports the need for the research presented in this thesis, and highlights that the current use of ‘appropriateness’ measurements and estimates derive from studies that are often poorly defined and which generate findings that are at times contradictory. The widely varying estimates of appropriateness and urgency presented in the literature allow the selective choice of material to support very divergent
points of view. There is clearly no ‘gold standard’ in use, or widely recognised and accepted criteria to use as a reference point.

A number of the studies compared data collected at several sites [144, 150, 224-228] while others looked at data collected from the same sites but over time [148, 164]. There was evidence of variation in assessment of non urgent attendance even when similar study settings and tools were used for data collection. Afilalo et al (2004) compared data collected as part of a prospective observational study of five academic tertiary care centres in Canada [163]. This study looked at a convenience sample of adult patients (aged over 18yrs) in each setting, with a total of 1,783 participants. These authors identified significant differences between the groups determined to be ‘non urgent’ and others, and uncovered multiple reasons why patients had chosen not to seek assistance in the primary care setting. They also considered the issue of discrepancies in previous studies, regarding the estimate of non urgent patients, commenting on the lack of a uniform definition. This included recognition that medical definitions of urgency had a different focus (being primarily about clinical urgency) from that of lay persons, who were more likely to see urgency in terms of immediate accessibility. Determination of urgency was linked to the application of the CTAS score (Canadian Triage and Acuity Scale), with those patients receiving the lowest level score (triage 5) being deemed ‘non urgent’. While the settings were similar in terms of function and focus, and a constant method of assessment was applied, there remained variation in the estimate of ‘non urgent’ patients, ranging from 9.4% to 32.7%. The authors acknowledged that non urgent patients have been negatively associated with the three C’s – cost, crowding and continuity of care, but noted that there was insufficient evidence to know whether these assumptions were in fact valid, and that if not, “...then the issue of their diversion from the ED loses its relevance” (p.1308). This reflects back on the application of estimate findings, which are frequently cited in support of suggested interventions, and used to provide evidence for practice recommendations.

Several broader, retrospective studies were carried out over a number of years, looking at changes in patterns of presentation over time. In one of these, Anatharaman (2008) presented the findings of a retrospective review of the impact and effectiveness of social interventions introduced to minimize ‘unnecessary’ ED attendances in Singapore [148]. This review assesses a range of interventions introduced over a 12 year period from 1985-1997, in response to a recognised increase in ED presentations and concerns with overcrowding. The tool used for assessing urgency was the PACS (Patient Acuity
Categorisation Scale), a four category scale, with the lowest score (4) indicating ‘non urgency’. The study looked at patient presentations to the six Public EDs in Singapore, including both adult and paediatric patients. The estimates of unnecessary attendances showed a continuing decline over the time of the study, from initial estimates in 1982-84 of 49.4 – 57% incidence to estimates of 18% in 1997. A range of interventions were trialled over this time, with varying degrees of effectiveness. These included several rounds of public education campaigns, introduction of financial disincentives, and redirection of patients away from the ED through provision of alternative clinics / care options. The interplay between the strategies, and their relevance over time were carefully considered. It was noted that there needed to be a clear collaboration within the health system, and that efforts to change the pattern of ED use needed to be accompanied by an easily accessible primary health care system.

The majority of measurement estimates were derived from the US and UK context, with the peak focus occurring in the 1980s-90s. This corresponds with a period of increased interest in issues such as ED overcrowding, public expectations around responsibility for health care, and financial constraints. Over the period of this review, extremes of estimate are evident, with ranges from the low of 1.6% in one US study[225], to highs of 90% (US)[229] and 91% (Middle East)[230]. In each of the four time periods reviewed, there remains a wide divergence in estimates, with review of the data by country and in time intervals showing no clear patterns of recognised non urgent attendance level. Authors who cite low estimates of ‘inappropriateness’ or ‘non urgency’ often include discussion of the differing viewpoints and interpretations of this concept, and introduce a focus on context and sociological elements [144, 163, 225].

2.2.7 Study variance

Variance was apparent in terms of internal factors such as physical site, methodology, participant designation as well as external factors such as health system, culture and country specific definitions and assumptions. The studies examined included a number of settings and healthcare facilities, including emergency departments of hospitals variously described as military [230], public [141, 148, 229, 231], urban [142, 144-146, 183, 193, 224, 228, 232-236] , district [237, 238], teaching, academic or university [159, 164, 192, 227, 239, 240] and community hospitals[225]. Other sources from which participants were drawn included nationwide and regional surveys of the general public often involving the secondary use of data collected for other primary purposes [166, 241,
Participant selection and criteria were also varied, as well as overall numbers of participants sought. While the setting of some studies provided a framework for inclusion criteria (for example, paediatric only facilities), other studies sought to either represent or exclude certain elements of the typical ED population. A number of the research articles either failed to specify the age range included [142, 159, 201, 234, 243] or used generic descriptors without further clarification such as ‘adult’[228], ‘paediatric’[235, 244] or implied ‘all ages’[145, 149, 236, 245]. Even where age criteria were specified, there remained variation which potentially limits the comparability of populations. The lower age for ‘adult’ patients was variously given as 13yrs [153], 15yrs [146, 227, 231], 16yrs [239, 246] and 18yrs [163, 247, 248]. Other criteria were applied within individual studies; for example one study focused on older patient presentations to the ED so excluded any patients under 65yrs of age [173] while another specifically excluded both paediatric and geriatric patients from its analysis [192].

Methodological approaches also differed, and included audit[142, 246], secondary analysis of pre-existing databases[163, 166], retrospective chart or case study review [200, 224, 225, 227, 231, 237, 244] prospective survey or interview of presenting patients[119, 163, 233], longitudinal [148, 242] and cross sectional studies [146, 147, 150, 225, 227, 231], observational studies[192, 201, 229], cohort comparison studies[179], case control studies[192] and randomised controlled trials[141]. Thirty three of the studies utilised a prospective data collection method, which included patient and staff interviews, surveys, questionnaires and review of patient assessment / treatment. Those studies which utilised a retrospective approach primarily involved review of clinical charts, audit of practice, and observational studies drawing on previously collected data sets. Several studies combined elements of both prospective and retrospective data collection[183, 237]. Sample size, recruitment and study time frames also differed between studies. Participant or data recruitment was most typically based on convenience sampling, and included selection of consecutive patient presentations [145, 200, 236, 248], purpose driven selection for specific characteristics such as triage category [119, 142, 144], type of presenting complaint [192, 228], discharge diagnosis [242, 243], and method of referral [145, 246]. Efforts to provide representative sampling resulted in targeted participation to represent the variation in workload across shifts, times and periods of recognised acuity [150, 227] as well as description of ‘stratified’ sampling [231, 249]. Random sampling was also incorporated into several studies [141, 173, 238, 246].
2.2.8 Considerations of rigour

The relative credibility of the available data is open to some criticism, with the majority rating IV (75%, n=41) or V (18%, n=10) in terms of level of evidence, with only one level I RCT identified[142]. Washington et al (2002) carried out a randomised controlled trial which sought to determine the impact on health status and access to care of systemically referring patients with non acute emergency needs to next day primary care. As part of this study, the authors developed a specific deferred care criteria for application with three common types of presenting complaint – “abdominal and pelvic pain, musculoskeletal pain (including low back pain, neck pain, isolated extremity symptoms, and generalised musculo-skeletal pain) and respiratory infection symptoms (including ‘cold’, cough, flu, sore throat and ear and sinus symptoms)” (p. 708). This explicit criteria included not only categorisation of presenting complaint, but also application of certain clinical parameters. The study took place in a 500 bed inner city public hospital and involved the random assignment of 156 ‘walk in’ patients who met the predetermined deferral of care criteria. Applying the criteria to the patient population identified a potential 36% of screened patients who could be considered ‘non-urgent’ and suitable for deferral to an alternative, next day primary care service. This study used self reported health status and use of health services as measurements with a one week post presentation follow up. Both groups showed improved health status at the one week review point, but there was potentially a delayed improvement in the deferred care cohort. The authors identified the need for larger studies to further examine this finding. While the intention of the study was to determine the outcome of the applied criteria, rather than the accuracy of the criteria themselves, earlier studies had been published outlining the criteria development process in relation to specific conditions[250-252].

The nature of emergency presentations and concerns with regard to urgency and patient safety are such that investigation into the concept of ‘appropriateness’ does not easily lend itself to the stricter and more scientifically credible research methodologies. The risk of denying or delaying care is one that is strongly associated with the underlying philosophies surrounding ‘appropriateness’, and has implications in terms of clinical and professional risk that make it difficult to apply exclusionary criteria with certainty. This lack of ‘gold standard’ RCT style research should not be assumed to negate the utility of other methods in exploring this phenomenon, but does have impact in terms of generalisability and credibility outside the specific context of each individual piece of
research. The influence of these studies and the widespread citation of the statistics derived indicates the interest in this topic, alongside a paucity of scientifically valid and comparable data. Thus while statistics are often cited in support of underlying approaches to the concept of ‘inappropriateness’, there is no clear foundational base to draw on, with the potential to argue in support of widely differing perspectives.

2.3 Measurement criteria sets

In reviewing the literature around this concept, it became apparent that there was considerable variation in the definitions and application of criteria sets which had been used to explore and support estimates of ‘appropriateness’. As a result, a further search of the literature was undertaken to examine the ways in which these definitions were represented. Appendix three presents the findings of this additional search. The 56 articles identified here show considerable overlap with the articles presented in the systematic review, but do not comprise an identical set. Seven additional articles were selected because they presented criteria which were used to justify the associated discussion or research findings (but had failed to apply this in terms of generating a measurement), while seven from the original set were excluded because, although they presented an estimate of measurement, they gave insufficient detail of the criteria used to generate this. Points which were considered included the use of terminology, whether the derivation and development of the criteria was made explicit, and who applied the assessment process.

The articles selected used similar terminology to that found within the wider literature, with 23 referring to variants of urgency, ten to inappropriateness, five to a combination of urgency and inappropriateness, four to emergency and eight to primary care patients. The remaining five used terminology including ‘elective’, ‘minor’, ‘misusers’, ‘casual’ and ED efficient / non efficient. While all of these articles included reference to criteria used to determine this group of patients, 13 failed to provide any indication of justification, rationale or derivation of the criteria applied. For those that did, the degree of explanation varied considerably. Amongst the most commonly described tools were variants of triage assessment categories, with these then translated to reflect degree of appropriateness [29, 142, 148, 149, 163, 244, 253]. Several of these provide no further discussion on the relevance of such a tool for this type of use, while others either offer justification or refutation of existing criticism. Other authors suggest that as triage codes are a reflection of resource utilisation, they are in effect “validated methods of assigning urgency to visits” (p71)(244), and that triage based patient categorisation can be
used “to objectively indicate the condition of patients who register for treatment and to estimate the inappropriate usage rate” (p349)[149].

2.3.1 Triage scale criteria

Vertesi[142] discusses the use of the Canadian Emergency Department Triage and Acuity Scale (CTAS), which is described as well validated in a number of circumstances (as far as its use as a triage tool), and offers the suggestion that it is therefore reasonable to consider whether it might also provide a tool for identifying those with less urgent needs who might be safely diverted away from ED. However, he acknowledges that triage scales are not in fact intended as workload or illness severity tools, despite which they are frequently used for this purpose. As a result, the study was carried out to consider whether applying the CTAS scale as a measurement of acuity and need to an ED population would be effective in managing this group. The study findings suggested that at best this tool could result in a 4.6% reduction in demand, but that within this group there was potential for a 7.3% ‘miss rate’ leading to inappropriate delay or refusal of care to some patients.

An Australian study looked at a cohort of paediatric patient parents whose children had been allocated a low urgency triage code[254]. The study found that key factor leading to the presentation at a paediatric ED was the parental perception of urgency. Despite the low triage code categorisation (all were triage category 4 or 5) 11% of the children were admitted to hospital.

There appears to be a presumption that urgency and appropriateness are connected, and as a result triage urgency determinants are being used as a methodology to identify appropriateness. This ignores arguments made to define the role of triage and acuity based assessments, and provides an ill founded rationale for applying these tools in ways other than they were designed for.

2.3.2 Study replication

Some studies described the derivation of criteria from other published research, with a number identifying the original works utilised[166, 200, 224] while offering no explanatory detail[231]. A number of authors referred to adaptation or direct application of already used targeted criteria sets, often as part of a validation process[242, 255] or in conjunction with context specific amendments[240, 256]. Two study protocols that were replicated in other settings included the Hospital Urgency Appropriateness Protocol (HUAP) developed by Sempere-Salve et al.[154] and the criteria set developed by Derlet et al.[239]. The study by Derlet et al. utilised a series of four specific criteria sets which
needed to be considered in order to make a determination of non-emergency status. The criteria were grouped as vital signs (involving a list of clinical parameters relating to temperature, respiratory rate, blood pressure and pulse); absence of high risk indicators (relating to nature of the presenting complaint and patient characteristics), findings from a focused screening examination (involving a physical review linked to presenting complaint) and presence of a pre defined non-emergency chief complaint. The study took place over a five year period and involved those patients who met the non emergency criteria being refused care in the ED, and being referred elsewhere. Outcomes for patients were assessed in a number of ways, including telephone follow up of a subset of patients, and surveying of referral clinics to determine uptake of referral options. Not all patients who were identified for telephone follow up could be contacted, so there may be a discrepancy in outcomes between this group and those that were assessed. However, overall the findings from this study were that it was possible to prospectively identify and triage out of ED a subset of patients with non urgent problems, “without significant adverse outcomes provided there is community support for follow up care” (p. 215)[239]. Two earlier studies had been undertaken by Derlet and Nishio[203] (1990) and Derlet et al. [257] (1992) which also sought to demonstrate the validity of referral away from the ED, and which presented an earlier view of the criteria set. This earlier version utilised the same four criteria groups, and also found that the model could be used to send “large numbers of patients away from EDs” (p. 267). This model was used as the basis for two 1994 studies which sought to replicate the findings[229, 255]. The first of these suggested that the author’s intention was to determine whether “a set of published triage guidelines identifies patients who can safely be refused emergency department care” (p. 286)[229]. A retrospective historical cohort study was undertaken over a one week period, with the findings that of the 103 patients deemed potentially suitable for referral away under the guidelines, 33% were deemed to have in fact been ‘appropriate’ and four of these had been admitted.

A second study[255] also sought to determine whether this “previously developed predictive model for refusal of care to non urgent patients” (p. 214) could reliably identify non urgent patients at the author’s own institution. This study was also unable to validate the model trialled, finding a much greater incidence of hospitalisation in the ‘nonurgent’ group than that found in the original studies (a 1.1% incidence compared to the original finding of 0.02%). A number of possible explanations were considered, including flaws in
the original methodology, the significance of geographic and social differences between sites and use of a convenience sample with the potential to introduce bias.

2.3.3 Hospital Urgency Appropriateness Protocol (HUAP)

The Hospital Urgency Appropriateness Protocol (HUAP)[154] was developed from a set of “explicit and objective” criteria (p. 568), and applied to measure the appropriateness of medical visits to a Spanish accident and emergency (A&E) unit of a public university hospital. The authors had noted the lack of consistency in existing studies, the reliance on use of physician’s subjective criteria and “lack of operational criteria to determine the adequacy of care” (p. 569). An initial validation study was undertaken, which showed that the HUAP provided high specificity but low sensitivity, when compared to the subjective assessment of ‘experts’. The study was then applied to a random sample of 2,980 adult patients (over the age of 14) who presented to A&E. The criteria set (see appendix three for details) was applied to enable assessment of appropriateness of A&E visits, with ‘appropriateness’ defined as those cases that “could have been resolved in a similar fashion outside the hospital setting” (p. 570). The criteria set consists of five sections including criteria relating to condition severity, treatment provided, diagnostic tests ordered, type of outcome and criteria specific to self referred patients. For a patient visit to be identified as inappropriate, at least one of the criteria from any of the sections needs to be present. The findings from this study included a 29.6% rate of ‘inappropriateness’. The authors identify a number of limitations relating to both the study and the tool itself. These include acknowledgement that the findings reflect the lower end of existing estimates of appropriateness, noting that the criteria is designed to identify the most unambiguous of cases. In particular, it was noted that the most common factor identified in support of appropriateness was the use of diagnostic tests.

The authors then consider whether it is the A&E unit that has provided inappropriate diagnostics and treatment, by default treating all patients as if they were urgent, rather than the patient making poor choices for care. They suggest that the allocation of responsibility for inappropriate use to the primary health sector and the individual patient is in conflict with the apparent unwillingness of the care providers to reduce the intensity of diagnostic and therapeutic input to care on non urgent patients. A final point of relevance to this discussion is the recognition that the HUAP assessment is only made retrospectively, following assessment and treatment. The specific comment is made here that this
assessment is not intended, and is in fact “impossible”, to be applied as a triage tool (p. 575)[154].

Several other authors have applied the HUAP (or variations of it) in their clinical settings. Two studies were reported in the 2007 literature based in Brazil and NZ respectively[146, 258]. The Brazilian study used data from 2004, and included 1,647 patients seen on consecutive days at a hospital Emergency Room (ER). The findings showed a 24.2% rate of inappropriate use. The authors sought also to identify associations between individual patient characteristics and rate of appropriateness and used their findings to support the suggestion for redirection of inappropriate ED demand. The HUAP protocol was used in its original form, and although there were differences identified in terms of patient characteristics between this and the original study, the overall outcomes were similar. A modified form of the HUAP was applied in NZ also using data from 2004. This was based on a retrospective assessment of 1200 patient records, whereas the previous two studies had used ‘real time’ patient assessment and application of the criteria. In this study an initial sample of 200 patient records were assessed by an expert panel of GPs, ED specialists and nurses to determine whether or not the patient was ‘primary care appropriate’. Following this, the panel modified the HUAP to represent guidelines that were “specific and locally adapted” and applied these to the remaining patient data. Details of the changes were not provided. While the original HUAP was designed to determine appropriateness of ED patient presentation, the NZ study aimed to determine ‘primary care’ appropriateness, and differed further in that it considered this in relation to whether there was immediate access to outpatient laboratory testing and simple radiology. In addition, while the HUAP is specifically excluded from the role of prospective assessment, the NZ modification implied a desire to enable this with reference to the difficulty triage nurse would have in making a determination based only on presenting complaint and baseline observations. The authors also noted that there was only poor to moderate agreement between reviewers, when cases were represented to the reviewers without them being informed that they had assessed the cases before, 15% of assessors offered a different assessment.

2.3.4 Comparison of multiple criteria

Specific comparison of multiple criteria for determining appropriateness of presentation has also been undertaken[240, 246, 247]. A UK study by Lowy, Kohler and Nicholl[246] compared three different methods of assessing ‘inappropriate’ attenders.
These included an existing method described as an ‘objective classification’ used in the Nuffield Provincial Hospitals Trust (NPHT) and two new models of assessment, one based on classification by ICD-9 coding and the other based on processes of care. All of these were considered against a ‘gold standard’ of opinion generated by a panel of five GPs. The authors acknowledged discrepancies in existing assessment tools, and lack of clarity about the central question, in particular whether unnecessary or inappropriate attendances were being identified.

The existing method (NPHT) groups patients according to their clinical management needs, as implied by the diagnosis. This type of approach was further refined by using ICD-9 diagnostic codes in a second model, and grouping these into three patient categories – those whose conditions could usually be treated in general practice, those conditions where this could not be clearly determined, and those conditions where most would require treatment in an A&E. The third approach focused on process factors, in particular whether A&E specific investigations or treatments were used. Members of the GP group individually reviewed a sample of patient notes, with variation noted within the group, ranging from a 46-76% estimate of inappropriateness. These assessments were then used in comparison to the three proposed methods. The existing NPHT method was shown to have a clear tendency to misclassify patients as inappropriate; the ICD-9 coding showed better agreement with the GP opinion but in most cases it was determined that the diagnosis alone was insufficient to judge whether the patient could have been seen in primary care. The process focused method showed the highest agreement with the GP group. However, all three of these approaches were used in a retrospective setting, in addition to variation identified within the ‘gold standard’ used there was also a presumption that the use of any tests and investigations carried out in A&E was warranted, and the outcome was seen in terms of GP agreement with assessment, rather than incorporating that of A&E staff. The study population was limited to those over the age of 16 who were self referred, and there was no discussion or acknowledgment of the range of services available through the community GPs. The authors made recommendations that the management of inappropriate attenders could be addressed by either introducing GP style services into the A&E department itself, or by improving access to existing GP services.

A US study also looked at three different methods of determining appropriateness, including assessment at triage based on a list of 51 non emergent complaints; the use of ten
explicit criteria derived from existing literature and finally the consensus assessment of two emergency physicians[240]. The study population included adults who presented between 8am and midnight, and excluded anyone transferred immediately to a resuscitation room, or who had altered mental status. Information was collected from patients by means of self completed survey, so patients who were non English or Spanish speaking, unable to independently complete the form or who had an injury to their writing arm were also excluded. The triage based assessment depended on the patient’s presenting complaint, which the triage nurse registered then compared against an existing list of non emergent conditions. The explicit criteria referred to use of tests, investigations or specific treatments and absence of these was seen as indicative of inappropriateness. The physician assessment was derived from a review of the presenting patients’ triage notes including vital signs and initial assessments, and was determined by the assessor’s response to the question “could this problem be taken care of by a primary care physician within 24 hours without harm to the patient?” (p. 254)[240]. The authors found only moderate levels of agreement between the methods, noting for example that of those identified as inappropriate based on the triage criteria, 34 – 51% were identified as appropriate using either the explicit or physician assessments. It is noted that, similar to the Lowy et al study, that an inherent issue with the use of explicit criteria relating to investigations and therapeutics is the assumption that because the intervention was carried out, it must have been necessary. The comment is made that some of these could realistically have been carried out a later date. The difficulty in comparing retrospective assessments (in particular where the entire patient event is considered) with only those elements available on initial presentation (ie the triage and physician assessments) was also noted.

The comparative studies can be seen to offer direct comparisons of differing methods, but still to be affected by limitations in terms of setting, population and degree of specific contextual information provided. Throughout the studies, variation in statistical analysis noted between assessment approaches are often interpreted in terms of the authors particular position – similar degrees of variations being described as representing either “some disagreement” or “moderate” agreement. Despite the inability to generate agreement, recommendations and guidelines continue to be offered, together with the consistent call for additional research into the ‘problem’.

Even where similar methodology has been applied over time or across locations, there is limited support for replicability of findings. Despite the widespread variety in
terms of methodology and outcomes, a large number of recommendations have been generated from these existing studies, often in relation to clinical processes and patient management. In terms of potential outcome perhaps the most significant of these are those studies which suggest the need to actively manage the ‘inappropriate’ population, by means of active or passive discouragement and leading to implicit rationing of health care.

The two most commonly replicated criteria sets were those developed by Derlet et al. [239] and Sempere-Selva et al. [154]. While these developed from different countries and population groups, perhaps the most significant difference is that the Derlet et al. studies are intended to facilitate prospective assessment of patient appropriateness, while the Sempere-Selva et al. studies specifically state that a prospective approach is not possible. Given the focus in NZ appears to be around actively managing the flow of perceived ‘inappropriate’ patients, aspects of the Derlet et al. criteria set were included in the Delphi round, together with other questions derived from the wider literature.

2.4 Summary

Literature relevant to defining key concepts and to providing an understanding of the existing context has been reviewed. Specific attention was given to articles that sought to quantify the population of inappropriate attenders, and to those that provided criteria for doing so. Consideration was also given to outlining geographical, temporal and methodological patterns in relation to this issue. Evidence was presented of the wide variation in perspectives on, and definitions of, appropriateness. This identified strands within the literature whereby inappropriateness was linked to the concept of primary care; to population characteristics; variation between patient and professional definitions as well as variation within professional groups.

When reviewing the body of literature over time, it was shown that the issue of appropriateness has been the subject of discussion since at least the 1950s. The focus of research into this topic has shifted at times, moving in response to changing understandings of the role of EDs, patient expectations and desired outcomes. Geographical patterns are reflected in the intentions of different countries to quantify the impact of appropriateness. Considerable variation in the estimation of inappropriate population size is apparent, influenced by the use of different methodologies, sample size and population selection. This makes direct comparison between studies difficult.
The final aspect sought from review of the literature was identification of criteria used to identify and justify quantification of appropriateness within ED populations. This demonstrated a lack of consensus within and between the academic and professional communities. There remains a significant range of findings and interpretations regarding the definition and measurement of appropriateness in relation to ED patient populations.
CHAPTER 3: STUDY METHODOLOGY

3.1 Research methodology: Delphi technique

3.1.1 Consensus methods in research

A number of research techniques have been developed which are designed to draw together expert opinion with the aim of determining consensus or clarifying positions. It has been suggested that such ‘consensus’ methods have developed as a result of the need to formulate effective decisions in situations where there is contradiction or an insufficiency of available information to allow other methods to be used [259]. Cross suggests that when evidence based practice is not possible, “consensus methods provide a means of synthesizing the insights of experts to create a product that decision makers can use with relative confidence” [260]. The concept of consensus as a reliable tool was first investigated in the 1970s [261, 262]. These authors suggested that judgmental accuracy was possible when individuals make independent judgments, these individual judgments can be expressed through mathematical rank ordering and/or ratings, and that the mean value of independent judgments can be accepted as indicating group decision. Examples of consensus methods include ‘brainstorming’, nominal group techniques (also known as the expert panel), consensus conference, cross impact analysis and the Delphi technique [259, 260, 263-268]. Consensus methods have been used widely across a range of disciplines, and are typically used in such areas as the development of clinical guidelines, appropriateness criteria, quality indicators and the determination of review and research criteria. These methods have been variously described as providing “a quantitative approach to issues in which there is uncertainty, controversy, or limited evidence” [266] (p. 964), as “another means of synthesising information, but are liable to use a wider range of information than is common in statistical methods” [268] (p. 376) and as “widely used because, unlike informal methods such as committees, they offer structured, transparent and replicable ways of synthesising individual judgments” [264] (p. 429).

The Delphi technique is one of the most well-known and widely used of the consensus methods. It has been adopted within a range of health related fields, including medicine, nursing, psychology, occupational health, dentistry and physiotherapy. Health professionals often face the problem of trying to make decisions in situations where there is insufficient information or where there is an overload of (often contradictory) information [268], making the Delphi a relevant and effective approach.
3.1.2 Origins of the Delphi Technique

The ‘Delphi’ is referred to in a number of ways, as a technique [259, 265, 269-274], an approach [275], a methodology [267, 276-279]; a method [280-282]; a procedure [283] and as a process [284]. It is often referred to simply as a ‘survey’ or ‘study’ [285, 286] or by means of a combination of these different terms. One reason for the variety of terminology is that this reflects the flexibility of the Delphi, and the ease with which modifications and adaptations have developed. For the purpose of this discussion, the term ‘Delphi’ or ‘Delphi technique’ will be used, acknowledging that this is an action (methodology), which is in turn situated within a wider method, and structured to reflect the operating paradigm within which this thesis is presented.

The Delphi technique developed following a series of technological forecasting studies undertaken in the 1940s. In 1946, Project RAND (Research and Development) was authorised and established by the United States War Department and the Office of Scientific Research and Development with its implementation contracted to the Douglas Aircraft Company [287-292]. At the end of the 1940s, a number of investigations were being carried out which examined the scientific use of expert opinion, and studies were beginning to be published on the superiority of group opinion over that of individuals, and the justification of expert opinion in inexact sciences [281]. In 1959 a paper by Helmer and Rescher [293] (both RAND members) was published, outlining the philosophical base for forecasting studies. This paper suggested that where there are not yet established scientific laws governing a field, expert opinion should be permissible. Gupta and Clarke [294] identify the first Delphi study as occurring within RAND in 1948, but note that the first publication outlining the methodology associated with the Delphi technique did not occur until 1963. While a number of experimental Delphi were undertaken in the 1950s and early 1960s, these were focussed on defence, and subject to confidentiality. RAND was established primarily to analyse the potential military utility of future technology and to examine political issues and their possible resolution [290]. Linstone and Turoff, (1975) seminal authors in the area of the Delphi technique, note that RAND developed what came to be known as the Delphi technique in an attempt to:

…establish as objectively as possible a consensus on a complex problem, in circumstances where accurate information does not exist or is impossible to obtain economically, or inputs to conventional decision making…are so subjective that they risk drowning out individuals’ critical judgements (cited in Underhill, 2004, p. 3) [295].
In the mid 1960s the Delphi technique was ‘declassified’ and became a popular decision making and forecasting tool. It was initially used in a broad sense – both geographically and thematically, applied within a range of disciplines and in particular for the evaluation of technological forecasting and complex social problems [281, 296]. The ‘original’ form of the Delphi as it emerged in the 1960s became known as the Classic Delphi, and further variations began to develop, including the Policy Delphi which appeared in the 1970s [279].

3.1.3 Defining the Delphi

While originally designed to evaluate complex military problems and to forecast likely ‘outcomes’, the Delphi technique is now widely used in a variety of settings, including healthcare. The underlying assumption is that the opinion of a group of experts, who are in agreement, is more likely to be accurate than that of a group of non-experts [290]. The testimony of experts, particularly in areas where there is insufficient information to develop clear, scientific rules, is seen to be of value. However, it is recognised that there are concerns with ‘usual’ methods for obtaining expert opinion. In particular, a single expert opinion may be subject to individual bias, yet when bringing together a group of experts, there is the risk that particularly charismatic individuals or special interests may dominate the meeting.

Delphi has been defined in a number of ways, and is associated with a series of characteristics. Definitions usually include reference to group decision making processes, [259]; its role in determining consensus, [271, 297]; the presence of a ‘panel of experts’ [298] and specifics of the application of the technique [299]. It is often linked explicitly with clinical practice in the healthcare setting [270], in its capacity to aid in decision making [289, 295] and its role in forecasting [294]. The objective of the original RAND ‘Project Delphi’ is given as being to “…obtain the most reliable consensus of opinion of a group of experts...by a series of intensive questionnaires interspersed with controlled opinion feedback” [291]. Linstone and Turoff [291] themselves focus on the role of group communication, defining the technique in the following way:

Delphi may be characterised as a method for structuring a group communication process so that the process is effective in allowing a group of individuals, as a whole, to deal with a complex problem (p.3)

A more recent definition draws on a number of factors, and emphasises the process by which the technique is carried out. Skulmoski, Hartman and Krahn [280] describe:
the Delphi method is an iterative process to collect and distil the anonymous judgments of experts using a series of data collection and analysis techniques interspersed with feedback...well suited as a research method when there is incomplete knowledge about a problem or phenomenon (p. 1)

The focus on group communication processes is again evident in Rowe, Wright and McColl’s [283] definition of the Delphi as a:

forecasting tool that was developed to allow the benefits of canvassing multiple judges without the often-corresponding deficits associated with group interaction that may arise from social processes (p. 377).

A series of specific characteristics have been identified as central to and definitive of the Delphi technique. These generally include anonymity, iteration with controlled feedback and statistical group response [269, 280]. Other authors add reference to the expert panel [300], the ability of participants to alter their responses [281] and the aim of consensus as key features of the technique [273]. The Classical Delphi involves a prescribed set of procedures that reflect both behavioural and statistical processes.

These processes include the development of the research question, the selection of an ‘expert’ panel, the formulation of a questionnaire, and the submission of this, typically, in a series of three rounds to the panel members interspersed with statistical, group feedback [272]. Generally then, the approach is sequential, utilises structured questionnaires, with panellists asked to rank or rate their responses to indicate priority. The aim is to achieve stability in responses across rounds (iterations), which may end in consensus. The process is described in more detail later.

3.1.4 Anonymity

Anonymity is a central feature of the Delphi, and one that was introduced in an attempt to overcome some of the problems inherent in conventional, face to face group meetings and forum. The original ‘Project Delphi’ recognised and sought to overcome some of the confounding factors associated with group processes, including the tendency of a group to exert pressure on its members to conform, the potential for individuals of high status to influence the responses of those of lower status, and the risk that dominant or overbearing individuals may influence the groups responses [279]. In order to encourage an independent consensus, where the personality of their peers (rather than the logic of their arguments) did not influence individuals, relative anonymity was required, together with physical isolation. Anonymity is suggested to provide opportunity for “each panel
member to present and react to ideas unbiased by the identities of the other participants” (p. 197) [274].

While the original Delphi process required that the participants were unaware of each other’s identity [290], more recent adaptations of the method have included sharing the identity of the ‘panel’, but anonymising individual responses [274, 301]. The term ‘quasi-anonymity’ is used by Lofmark and Thorell-Ekstrand [301] in their study. The participants were given a list of all participants at the commencement of the Delphi, although individual responses were not subsequently identified in the group feedback. While the authors cite other studies that acknowledge ‘quasi-anonymity’, other than this attempt at methodological justification, no rationale for modifying the process is given.

Hassan, Keeney and McKenna [259] question whether anonymity is ever possible, in the true sense. They suggest that firstly complete anonymity cannot be guaranteed, the Delphi facilitator must know who has replied in order to send appropriate reminder letters or similar, if control over the response rate is to be attempted. Furthermore, they raise the question of maintaining anonymity in an ‘expert’ environment – the implication being that in any defined area of expertise, the main proponents are often aware of each other, and that even casual conversation is likely to reveal fellow panel members. It is reasonable to assume, then, that in a discrete area of specialty practice or expertise, and where the panellist rationale and explanations are included in the group feedback, that these may also provide clues in the form of phrasing and style that may serve to identify specific individuals.

Another variant of the ‘anonymity’ criterion is where the initial Delphi round is carried out anonymously, but in subsequent rounds the panel’s composition is disclosed [265]. While anonymity is often seen as one of the main strengths of the Delphi, it has also been criticised. The main criticisms are in relation to the potential that anonymity may equate to a lack of accountability, and result in hasty or poorly considered opinions [272, 302]. A variation on the concept of ‘accountability’ here can be seen in Landeta’s [281] discussion of ‘impunity’, and the risk that anonymity allows the participant to potentially answer in an irresponsible manner, without risk of exposure. Although the Delphi was designed to minimise the pressure towards conformity common in other group processes, there is no clear evidence that the impetus for panellist to alter or amend their ratings / opinions results from anonymity in conjunction with new information. Rather, it may represent a desire to ‘complete’ the process, or respond to pressure to ‘conform’ to the
group norms [274]. This is similar to Gordon’s [290] suggestion that anonymity can lead to individual compromises, rather than result in a true reflection of group consensus.

Physical isolation is seen as a means of ensuring ‘anonymity’, and is achieved by seeking the opinion of each ‘expert’ by a postal or electronic ‘questionnaire’ approach. This gives the panellist the opportunity to complete the questionnaire in private, in a setting of their choice, and at their own convenience. This is then presumed to allow for a more considered, thoughtful response, without undue influence or pressure to complete.

3.1.5 Iteration with controlled feedback

Powell [272] defines the Delphi as essentially a series of sequential questionnaires or ‘rounds’, interspersed by controlled feedback, that seeks to gain the most reliable consensus of opinion of a group of experts. Iteration refers to the repeated submission of the questionnaire to the panel, allowing the experts the opportunity to consider any feedback provided and to change their opinions should they choose to do so [279, 281, 283, 303]. Fache [304] defines the process of iteration as occurring over several rounds, where the experts are encouraged to react to one another’s opinions, arguments and propositions and to look critically at their own output in the light of the information given by the other participants. It is assumed that panellists will be consulted at least twice on every item, and the total number of rounds determined on the basis of stability in responses [279, 281].

Controlled feedback is formulated by the group coordinator, and typically introduced from the second questionnaire onwards. This usually takes the form of a statistical calculation of group response, such as average or median, however, it may include arguments, rationale and opinions submitted by panel members in support of their position [279, 281, 283, 303]. The specific feedback given to panellists varies depending on the study’s aims, and whether a modified or classic Delphi is used. Examples of feedback include a summary of opinions, midpoint of responses categorised by the median score, frequency distributions [301], central tendencies (means, medians and mode) and levels of dispersion (standard deviation and inter-quartile range) [259, 305-307] mean scores and percentages of panellists responding to each question [278]. While all studies provided group feedback on the overall (synthesised) response to items, a number also reminded individual panellists of their previous response, often showing this in a visual format in relation to the group median response [308]. This is thought to act as a ‘prompt’ for the individual respondent, allowing them to see where their own response falls in relation to
the overall range. Panellists whose responses fall at the extremes of the range are often asked to provide an explanation or justification for their position, and this is then fed back to the remaining panel members.

Campbell et al. [266] have demonstrated that the composition and type of feedback given to panellists influences their findings. This influence can be in the form of knowledge generation and participant education [272], which may then induce panellists to revisit their original rating of items in subsequent rounds. There is little clear evidence however, as to the effect of the different types of feedback in terms of panel outcomes. It has been hypothesised by Rowe, Wright and McColl that better quality, more informative feedback is likely to positively impact on the process, and also that ‘reasons’ feedback together with median and range of estimates lead to more accurate forecasting [283]. These authors carried out a series of experiments looking at factors influencing judgment change during Delphi-like procedures. Amongst their findings was that, in the experimental context, “majorities, whether accurate or otherwise, exerted a significant pull on minorities to the consensual position, even when that position was fallacious” (p397). It should be noted however that these experiments utilised students as panel members, rather than ‘experts’, which may have influenced the outcome.

3.1.6 Statistical group response

The statistical group response is determined at the end of the process, all the opinions expressed forming part of the final ‘answer’. Each of the questions submitted to the panel has been formulated in such a way that they can be processed quantitatively and statistically [279, 281]. The group opinion is defined as the appropriate statistical aggregate of individual responses (opinions) on the final round. This is usually based on the median rather than the mean, as ‘extreme’ opinions can ‘pull’ the mean unrealistically.

It must also be remembered, however, that the results are only as valid as the opinions of the experts who contributed to them. While the final outcome may indicate ‘consensus’, it does not necessarily generate the ‘correct’ answer.

3.1.7 The Expert Panel

The Delphi technique is based on the assumption that a group of people are less likely to arrive at a wrong decision than a single individual. This is applied together with the concept that decisions can be strengthened by reasoned argument and assumptions challenged which helps enhance the overall validity of the study [259]. A central tenet of
the Delphi technique is the establishment of an ‘expert’ panel to whom the questions are put. This is also an area of criticism, with little guidance given and consequently a range of selection criteria have been used. Given the potential impact of the panel composition, it is essential that the selection process and any criteria used are clearly identified. There are two principle approaches in selecting a panel, which can be deemed purposive and criterion sampling [259]. Purposive sampling assumes that a researcher’s knowledge about a population can be used to handpick the participants, who are deliberately approached on the basis of their knowledge. Criterion sampling involves the initial establishment of a series of set criteria against which individuals are matched, and which are then used as a ‘filter’ to select potential participants.

The selection of an ‘expert’ panel is difficult, with a number of differing definitions given for the term ‘expert’, and even questioning of whether ‘expert’ status is required. Crawford et al. [285] acknowledge that “the definition of expertise is a subjective one, which relies upon the lead researcher and advisers knowing who are the potential experts in the field” (p. 27). Hardy et al. [270] note that the panel “should be reflective of population sub groups under investigation” (p. 97), suggesting that the results of a study which fails to take into account (and represent) all geographical areas and sub specialties may be biased. This raises questions of panel size and brings into consideration the practical difficulties of ensuring such extensive representation. This will inevitably vary with the type of questions and the field of inquiry raised, and may not always be feasible. There is an assumption that a degree of attrition will occur in a Delphi study, which may mean that, despite the best intentions of the researcher, the breadth of representation initially intended is lost. In contrast to the suggestion that ‘representation’ is an essential element, Roberts-Davis and Read [300] state that the panel needs to be justified as a ‘genuine population’, and that representative sampling techniques may be inappropriate when expert opinion is sought, and high participant motivation is needed. Recognition that the panel needs to be committed and able to offer worthy opinion, rather than be a representative sample randomly selected is also advocated by Annells et al. [275], who go further suggesting that in order to ensure commitment, self selection of members is acceptable. The suggestion is made that a non-representative panel is appropriate, and that it is the selection of ‘knowledgeable’ persons that is important [279, 290].

The definition of ‘expert’ is subject to interpretation, as is the appropriate means of identifying and selecting such panel members [309]. Rigour in selecting expert
participants varies, but it is suggested that participants must be justifiable as an ‘expert’ on the matter under discussion [268, 300]. Burns et al. [278] used a criterion sampling approach, identifying as necessary criteria that their ‘experts’ had had extensive research publications, experience with evidence based reviews, and were recognised as leaders in the field of physical medicine and rehabilitation research. The use of publication status as a means of identifying ‘expertise’ is a relatively common approach with Baumann et al [308] also selecting panel members from specialty fields proportionally related to the distribution of publications on the management of pneumothorax among specialty and subspecialty journals. Gordon [290] recommends identification from literature searches, looking for people who have published in the area of interest; they also suggest seeking recommendations from relevant institutions, and ‘daisy chaining’ (where links are present between participants and are used to identify further ‘experts’), but warns that this has the potential disadvantage of identifying cliques. Selection bias is a recognised risk that can impact on the outcomes of the group [259, 279, 286].

More practical considerations involve recognition that ‘experts’ are often selected, at least in part, on the basis of ‘availability’ [279, 286]. One of the benefits ascribed to the Delphi is the ability to bring together the responses of a geographically dispersed group without the need for physical proximity. This creates a virtual interaction, allowing the views of a wide range of participants to be represented.

The selection of the individual ‘expert’ and the resulting composition of an ‘expert’ panel have been questioned by a number of authors. Hassan et al. [259] suggest that a panel of ‘informed individuals’ is necessary, who have knowledge of the topic under investigation. They go on to question the definition of ‘expert’ status, however, wondering if one group can ever validly represent ‘expert’ opinion in a field. Again, the importance of involving motivated participants is identified, but with the warning caveat that while involving individuals with a strong interest in the subject is likely to increase the completion rate, it also risks partiality, bias and the introduction of vested interest. The concept of the ‘informed individual’ (as opposed to the ‘expert’) is also recognised by Beaumont [265]. Where the role of expertise is debated, this is often linked to the nature of the specific inquiry. Beatti and Mackway-Jones [286], in their Delphi study of performance indicators in emergency medicine, deliberately sought a wide range of views, including those of both traditionally recognised ‘experts’ and lay persons. Their panel included service providers, professional service users and patients. Ziglio [267] (as cited in Hardy
et al [270]), also identified the importance of non ‘expert’ participation in health related Delphi studies, recognising “the salience of both providers’ and receivers’ judgements of care because patient-defined criteria for care can be quite different from those identified by expert health care providers” (p97). Hardy et al [270] suggest that multiple panels, representing different stakeholder groups, may be necessary to ensure a more accurate reflection of unique stakeholder interests is achieved. If the issues under discussion are of general interest, Jones and Hunter [268] also support the inclusion of non clinical health professionals and lay persons.

The techniques available for panel selection include the use of self ratings for expertise [290, 303, 310]. Putative ‘experts’ are asked to identify their area of expertise with relation to the issues to be covered in the Delphi questionnaire. Where this is used, the ratings are then applied to ‘weight’ questions to compensate for greater or lesser degrees of expertise.

3.1.8 Panel size and homogeneity

There is no requisite number of members identified for the Delphi technique, with a number of ranges cited in the literature. Nathens et al. [299] and Burns et al. [278] suggest that the average panel is between 20-40 members; Hassan et al. [259] cite examples ranging from 15-60, and add that the greater the panel number, the greater the potential for data generation; Pollard and Pollard [307] suggest the usual range is between 10-20, and cite Delbecq, Van de Ven and Gustafson, [262] who state “few new ideas are generated within a homogenous group once the size exceeds 30 well chosen participants” (p89). Gordon [290] suggests a range of 15-34 while Roberts-Davis and Read [300] identify applications of the technique using less than 20 participants and others using more than 2,000. Often larger panel sizes are selected when a ‘blanket’ approach is used to address a question, and where rather than a criterion sample a broad purposive sample is approached. Examples of these can be seen when the initial approach to panel members is based on a census listing, usually related to profession or professional memberships. Thompson et al [311] identified their ‘expert’ participants by means of a computer generated, random sample of 300 members of the British Association of Sport and Exercise Medicine, while Annells et al. [275] invited all district nurses in the designated study area to participate, sending out 2,340 questionnaires. Studies approaching high numbers of potential participants are often undertaken on the expectation that the response rate will be relatively low. In the Annells et al. study, for example, there was only a 13.4% acceptance rate,
forming a panel of 321 members. Cross [260] suggests that sample size is dictated by the homogeneity of the group and nature of the investigation. A large sample is needed where diverse reference groups are involved.

There is disagreement in the literature over whether a homogenous or heterogenous sample should be used, and in what circumstances. Even within a professional grouping, the composition sub grouping must be considered. Individual members may well have differing viewpoints and opinions, yet are often assumed to be in ‘consensus’ from an outsider’s point of view. Campbell et al [266] acknowledge that the “composition of panels affects the ratings that are obtained. Panels of mixed physicians make different judgments from panels of single specialty physicians” (p. 964). Powell [312] draws on the work of Delbecq et al. [262], who first noted that there was a “higher proportion of high quality, highly acceptable solutions” generated by heterogenous groups that were characterised by panel members with a range of personality types and different perspectives on the problem than was possible from homogenous groups (p. 379).

Large heterogenous samples have been advocated as increasing the reliability of the results [270], while Keeney et al. [274] suggest that a heterogenous panel is both desirable and conventional in Delphi in order to ensure that the spectrum of opinion is accessed. In contrast to this, Van Zolingen and Klaassen, [313] suggest that in the Classic Delphi “a homogenous response group is composed disposing of specific expertise in the problem to be investigated” (p. 320), while in the Policy Delphi, a heterogenous response group is used to generate as many divergent ideas / opinions as possible. There is no ‘set formula’ for putting together a Delphi panel – the study questions will in part identify the type of panellist required. It should be acknowledged, however, that despite the criteria for ‘experts’ and the composition of the panel, the results rely on the opinions expressed by the participating panellists. Where the existing evidence is weak, the reliance is more strongly placed on opinion, which gives rise to the potential to tap into ‘collective error’ as much as ‘collective knowledge’ [314].

### 3.2 Application of the Delphi Technique

The first step in the Delphi technique is to determine whether this is the most appropriate method to use to address the question being asked. Given the apparent ‘ease’ of use, the Delphi is a popular research choice, however poor application of the technique and inappropriate use both contribute to criticisms about conceptual and methodological aspects of published Delphi. Hassan et al. [259] identified a broad range of ‘suitable’
problem types, which would benefit from the Delphi technique. These were based on the earlier works of Turoff (1970) and include the following:

- to explore or expose underlying assumptions or information leading to different judgements
- to seek out information which may generate a consensus on the part of the respondent group
- to correlate informed judgement on a topic spanning a wide range of disciplines
- to educate the respondent group as to the diverse and interrelated aspects of the topic

Ziglio [315] suggested that the Delphi should be used in situations where the primary source of information is informed judgment, defining this further as occurring when “there is uncertainty on both the nature of the problem under investigation and the possible policy measures for addressing it effectively and efficiently” (p. 21). Lofmark and Thorell-Ekstrand, [301] identify the Delphi as being “effective in areas where subjective judgements are requested, and for questions where there may be no definitive answers but about which consensus is desired” (p. 293)

Once the decision has been made that the Delphi is the appropriate approach to use, the ‘question’ or ‘issue’ needs to be defined and the selection process for the ‘expert panel’ commenced. The approach to potential panel members is discussed by several authors, and the problems associated with recruitment and retention outlined. Once the decision as to the desired composition of the panel has been made, individuals still need to be approached and formally invited to participate. A number of studies while acknowledging selection criteria, do not identify the means of approaching the potential participants, or fail to outline the recruitment and drop-out rate. Where recruitment is discussed, the most common approach is to send a letter of invitation by mail (often together with the first questionnaire) to identified individuals [301]. Other approaches include use of e-mail correspondence [307] or by personal contact (telephone or face to face).

Several authors suggest providing the participants with additional information, prior to commencement of the Delphi. This may include methodological detail, about the Delphi process in general and / or specific expectation associated with this particular study [259, 289, 306]. Other suggestions included providing participants with results from literature reviews around the topic of interest; key papers in the specialty; and article abstracts [299, 308, 314, 316]; giving access to web sites and on–line data [269, 278].
Time allocated for completion of each round varies, with suggestions ranging from one week to one month [299].

The first round of the Delphi is typically unstructured or semi structured, to allow free expression of ideas by the panel of experts [274, 285, 296, 299, 313]. This initial data can be gathered in face to face interviews, by telephone or post [300]. Face to face interviews have been described in relation to the first round of information gathering, but while identified as advantageous in terms of increased retention are also acknowledged to be time consuming and potentially subject to influence by the interviewer [259, 265]. Traditionally, this initial round is used to generate information around the topic of interest, which is then re structured and compressed into the questionnaire format used as the basis for the second and subsequent rounds. Keeney et al. [274] suggest that there is a degree of support for revising this approach, and making use of pre-existing information to structure the initial questions. This approach could potentially bias responses however, or limit the available options / ideas generated within the group [274, 313]. The idea of basing the initial questions on data sourced from the literature is also advocated by Stewart et al. [297], who acknowledge that this was used to reduce the potential number of rounds in the study, and thus to maximise participant retention. A similar approach is taken by Quintana et al. [317] who carried out an extensive literature search in the area of interest, and developed a series of clinical scenario’s from this. Fry and Burr [273] invited eight ‘experts’ to take part in a ‘brainstorming’ session, to generate the initial questions. These ‘experts’ were also invited to participate in the subsequent Delphi round.

Once the initial data is generated (either by means of the first Delphi round or through literature review or similar), this needs to be formulated into a questionnaire format. Some studies identify the use of a pilot process to check for ease of use and to allow any adjustment to wording or content [274, 312]. This modified presentation of the data is then submitted to the participants as round two, with questions presented for consideration and rating. The most common rating process is the use of Likert type scale, of varying length or a visual analogue scale, when participants are asked to indicate their agreement or otherwise with a given statement [300, 305, 317]. Hermann et al. [305] carried out a study to identify quality measures of mental health care, where each suggested measure was rated across seven domains using a nine point Likert scale, where 1-3 indicated agreement, 4-6 neither and 7-9 disagreement. The quality measures were assessed in terms of meaningfulness (three scales), including importance of the process to
the stakeholder group, the perceived gap between actual and optimal care and the perceived relationship between improved performance and patient outcomes. A further three feasibility scales were considered, these being an assessment of the clarity of specifications, the acceptability of data collection burden and the capacity to provide fair comparisons across healthcare organisations. The final scale was to assess overall whether the measure should be included in the core set. The overall significance of the study was described as including recognition that “by yielding quantitative assessments of meaningfulness, feasibility and degree of consensus among stakeholders, these results can inform ongoing national efforts to adopt common quality measures for mental healthcare” (p. 1246).

A number of additional statistical tests have been suggested as a means of enhancing the validity and credibility of the Delphi and its modifications. Graham et al. [276] used the Delphi technique as a method to elicit consensus for diagnostic criteria relating to carpal tunnel syndrome. Items were identified from a clinical history and physical examination list as potential diagnostic criteria, which were then submitted to a panel of experts who were asked to rate each item using a visual analog scale. This process was continued over two rounds, with increased homogeneity used as an indicator of consensus. Cronbach’s α was used to measure homogeneity, and was identified as a useful statistic for measuring the extent of consensus.

Kilner [271] carried out a Delphi study aimed at generating both qualitative and quantitative data concerning the desirable attributes of the ambulance technician, paramedic and clinical supervisor. Participants were asked to consider their responses within the framework of four distinct categories – attitudes and values, knowledge, intellectual skills, practical or psychomotor skills. These were based around the classic domains of learning: cognitive (knowledge and intellect), affective domain concerning attitudes and values and psychomotor (concerned with motor skills). Consensus was achieved on completion of the second round. Data relating to the occupational groups were subject to a Cronbach’s α coefficient to assess the internal consistency of the scale. To determine the level of agreement between members of the expert panel the data were analysed using the Kendall coefficient. The closer the score is to 1 the greater the positive correlation. The test also identifies the statistical significance (p) of the correlational coefficient.
Several authors utilised kappa scoring in their analysis to determine inter-rater reliability. Hermann et al. [305] notes that attributes requiring judgment (eg evidence) were subject to inter-rater reliability testing with kappa scores of 0.5 (moderate) to 1.0 (excellent); Campbell et al. [266] determined a kappa score of 0.58 indicating moderate agreement between managers and clinicians in their study examining the effect of panel membership and feedback on ratings within Delphi.

3.2.1 Determining Consensus

There is considerable debate over both the role and determination of consensus in the Delphi. There are no clear, established rules for determining consensus, and the range of modifications to the process further expands the options and opportunities. Some researchers provide detailed information about the methods by which consensus is determined and the rationale behind this; others simply identify a set percentage point at which consensus is assumed. Percentage scores vary between studies. McKenna [318] suggests that 51% responding to any given response category may indicate consensus, Bramwell and Hykawy [309] identify consensus at 75% agreement and Stewart et al [297] set an arbitrary figure of 95% agreement in round one of the Delphi as indicating that a particular item need not be included in subsequent ratings. Some authors focus on the degree of change over subsequent rounds [319] rather than a specific agreement target.

Baumann et al [308] carried out consensus research into the management of spontaneous pneumothorax. These authors used a priori definitions to determine consensus, and expressed their findings using summary decision rules that sought to quantify the level of consensus achieved, and the appropriateness of the management process identified. Management options were graded regarding appropriateness using the summary results of the Likert scale. Depending on the panel recommendations and level of consensus achieved the following terms were used within the recommendations: standards (must), guidelines (should) or options (may). A number of authors identified systems by which attrition could occur, thus limiting the final number of consensus items, as well as removing points of obvious contention or blocks to consensus. This obviously impacts on the final degree of ‘consensus’ that can be claimed for each study. Nathens et al. [299] only returned those items in the highest tertile following round three of their study for final consensus rating, but also asked participants to make a qualitative rating on a three point scale about the amount of research available in relation to the final items. Fry and Burr [273] suggest that consensus is not in fact always the aim of the Delphi.
3.2.2 Modifications to the Classic Delphi

A number of variations to the classic Delphi have been identified, including alterations to the format, means of distribution and response, panel size and selection criteria, the number of iterations, the need for the first question-generating round, degree of anonymity and the centrality of consensus as the aim. The modified Delphi follows the same basic structure as the classic Delphi (i.e., a series of rounds with selected experts). The most common modification is to begin the process with a set of pre-selected items. The item list is generated from a range of possible sources including existing reviews of the literature, interviews with content experts / key informants and in response to findings from previous research. Custer, Scarella and Stewart [320] suggest that the primary advantage of this type of modification is that it “(a) typically improves the initial round response rate, and (b) provides a solid grounding in previously developed work” (np). Modified forms are also criticised, however, typically for lack of rigour associated with poor identification of methodological details [259]. Hardy et al’s [270] statement illustrates this concern, with the authors noting that “lack of specificity hinders the replicability and assessment of the clinical and cultural validity and reliability of Delphi studies” (p. 95).

The traditional ‘classic’ Delphi involves distribution of the questionnaires by mail, with response facilitated by the inclusion of a post paid return envelope, with or without postal ‘reminders’ if the response is not received within the allocated time. A relatively recent modification to this has been the development of the on-line Delphi, involving the use of either e-mail or web based sites for data collection. The advantages of these modifications are that this is seen as being more cost effective, giving instant access to decision results, and providing a more efficient use of time and resources [277, 278, 299, 307]. Beaumont [265] carried out a study which combined classic and modified methods, using an initial in-depth telephone interview for the first round, followed by two e-mail questionnaire rounds. Deshpande [269] emphasises the potential increases in efficiency and effectiveness possible with a web based Delphi, suggesting the more traditional paper based processes are error prone.

One specialised form of the Delphi that has developed is that of the Policy Delphi, which was first identified as a specific application of and modification to the Classic Delphi as early as 1969 [321]. It was seen as offering a significantly different approach to that previously associated with the Delphi. Up until this point, the Delphi had been
recognised as a technique to address essentially technical issues, drawing on a homogenous panel of experts with the explicit intent of seeking consensus. In contrast, the Policy Delphi was described as actively seeking out divergence of opinions, with the intent of facilitating informed communication and where consensus was not the primary goal [321]. Collins et al. [322] describes the Policy Delphi in a similar manner, again noting that consensus is not the primary aim, but rather facilitated decision making. Baker, Moon and Bokowski [323] identify three specific intentions associated with the Policy Delphi:

1) To ensure that all possible options have been proposed for consideration; 2) To estimate the impact and consequences of any particular option; and 3) To examine and estimate the acceptability of any particular option.

While the Policy Delphi is generally identified in the literature as a method that does not actively seek consensus, some authors still suggest this is a viable and desired outcome [282]. Other types of Delphi that do not specifically seek consensus have been described, including the Argument Delphi [324, 325]. Another named variation is the Decision Delphi, which is described as differing from the Classic in several ways. This includes that while individual responses are anonymised, panel members are not, and that the outcomes that emerge from this form of Delphi are described as “prepared and supported decisions” rather than consensus (p. 117) [326]. Panellists for a Decision Delphi are selected specifically for their position and potential to enact change [327]. There are a number of additional descriptions and titles given to variants of the Delphi processes, highlighting its versatility and wide usage. Syed, Hjarnoe and Aro [328] cite four ‘core’ forms of the Delphi, based on Van Zoligen and Klaassen’s 2003 categorisation. These are summarised simply as: “…the Classical Delphi - to establish facts; the Policy Delphi -to generate ideas; the Decision Delphi -to make decisions; and the Group Delphi -for group discussion”.

3.2.3 Strengths and weaknesses

To summarise the current position of the Delphi in terms of its acceptability and utility, it is worthwhile reviewing its identified strengths and weaknesses. In general, the method is acknowledged as one which allows access to a geographically diverse sample, in a cost effective manner, while avoiding some of the common pitfalls associated with group interactions. It is seen as a tool for problem solving and identified as an effective means of moving a group decision towards consensus. The need to make written responses has been described as facilitating the participants’ ability to “thoroughly deliberate and reflect upon
all aspects of the problem” (p. 146) with the result that precise, deliberate and specific ideas are presented [307]. A strength that is consistently acknowledged is that it overcomes those problems associated with informal methods of reaching consensus. These include the tendency towards individual or ideological domination, interpersonal conflict, unequal representation and marginalisation of group members. Powell [312] suggests that the democratic, structured approach associated with the Delphi technique leads to “process gain”, in comparison to the “process loss” that may occur in a face to face meeting where group interaction may inhibit the resolution of ambiguous and conflicting issues (p. 377).

In addition to its conceptual and practical advantages, the Delphi is also seen as a fiscally responsible approach with the potential to generate consensus opinion without the expenses associated with some other methods.

Disadvantages are also cited in regard to the Delphi, and often represent an alternative interpretation of the same factors identified by other authors as advantages. For example, while proponents of the technique identify the anonymity offered as allowing individuals to make more measured, genuine responses other authors suggest that this may instead lead to a lack of accountability and the formulation of hasty decisions. Similarly, the benefit of achieving consensus can also be seen as a disadvantage, with the validity of the decision called into question. It has been suggested that the move toward consensus is not so much a result of increased knowledge and acceptance of alternative rationales as a normative effect [312]. It is unclear whether the convergence of individual opinion is a result of increased accuracy and perception. The underlying concept of consensus as desirable has also been questioned, with Rennie (1981, as cited in Powell 2003) [312] suggesting that consensus leads to a watered down version of the best opinion, stating that this has often led to “bland statements that represented the lowest common denominator” (p. 378). Several authors question whether there is evidence of reliability noting that there is no assurance the results are replicable as findings are highly dependable on the panel composition [268, 299, 309].

3.2.4 Rationale for choice of the Delphi

While acknowledging the range of opinion associated with this method, there remain strong points in favour of its application in regard to the proposed research. The central research question is one that lends itself well to the Delphi approach, seeking to clarify the perceptions of a group of experts in relation to a phenomenon that is not easily quantified. Recognition that there is insufficient evidence of consensus understanding around the
issues of ‘appropriateness’ underpins this thesis, and the Delphi technique is a recognised approach to generating consensus, particularly in regard to conceptual understandings.

Consideration was given to the use of other consensus methods, including focus groups, consensus conference and nominal group techniques, as well as combinations of these approaches. Disadvantages of these approaches in relation to this research project involved the geographical distribution of participants, and the associated costs and difficulties associated with bringing a group of this size together. The Delphi was selected on the basis of relevance, appropriateness to the health care setting and perceived efficiency of method. A modified Delphi structure was chosen, allowing the introduction of pre-formed questions at the commencement of the process.

In determining the level of consensus to be sought, consideration was given to the existing literature. However, there was no clear indicator or rationale to support any particular consensus level, and following discussion with supervisors an *a priori* definition of 70% as representative of consensus was designated. The literature examined had identified levels ranging from 52% to 95% as indicative of agreement, but with typically no justification for setting this. Percentages were rounded to the nearest whole number when making determinations. Consideration was also given to the nature and type of quantitative analysis possible. Following consultation with a statistician, it was decided to limit the analysis to simple descriptive statistics, given the nature of the questions. While it would be possible to use other statistical tests, it was determined that these would offer no practical benefit in relation to answering the central question. Additional thematic analysis was incorporated to allow qualitative interpretation of participants free text responses.

### 3.3 Summary

The Delphi technique is one of a number of research approaches aimed at generating agreement or consensus. It is particularly useful in situations where there is need to make decisions in the face of contradictory or insufficient information. When it is not possible to draw directly on an evidential base, consensus methods allow the synthesis of expert opinion to direct and influence outcomes and responses. The underlying assumption is that expert opinion is valid and valuable, and that the opinion of a group of experts, who are in agreement, is more likely to be accurate than that of a group of non experts.
Core characteristics associated with the Delphi include the presence of a panel of experts, anonymity of participants, iteration with controlled feedback, and identification of statistical group response on completion of the process. Critiques of the process include aspects of the method and recognition that the results are only as valid as the opinions of those who participated. It should also be remembered that even if consensus occurs, this is no guarantee of the ‘correctness’ of the outcome.
CHAPTER 4: STUDY DESIGN

4.1 Mixed Method Research

The Delphi Method has been associated with a number of research designs, including Mixed Methods [329, 330]. Creswell has described the research design as the plan or proposal to conduct research, suggesting that it involves “the intersection of philosophy, strategies of inquiry and specific methods” (p. 5)[331]. A Mixed Methods (MM) research position at its most basic involves the combining of both qualitative and quantitative approaches to data collection and analysis, although even this is debatable, with Gilbert, for example, proposing the application of MM within qualitative research[332]. While this approach has become more widely acknowledged and defined over the past decade, there remain differences in terms of definition and focus. The definitions given vary in terms of their specificity, and can be seen to consider the research approach from a number of perspectives. These include considering the nature of ‘mixing’ – whether at the level of paradigmatic understandings (including consideration of whether this can occur between or within existing paradigms)[330, 333, 334] [335], approaches to data collection and analysis[333] and the intention or purpose of the research approach[332, 336].

A range of definitions and descriptions of the common elements associated with the MM approach have been proposed[334, 337-339]. One such definition is that given by Johnson et al[340] which is used to provide the general framework within which this Delphi study is positioned. These authors suggests that MM research occurs when:

a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration (p.123)

4.1.1 MM research perspectives and paradigms

A number of authors have suggested various rationale for using MM, citing arguments relating to the relationship between qualitative and quantitative research strategies and approaches, and the potential benefits associated with ‘mixing’ elements of these approaches. Creswell and Tashakkori[334] identify four broad perspectives relating to MM research. These involve the potential to identify it from a method perspective; a methodological perspective; a paradigm perspective and a practice perspective.
The first of these perspectives conceptualises MM as a method, whereby the focus is on the process and outcomes of using both qualitative and quantitative research techniques and data. There is little explicit acknowledgment or discussion of underlying philosophies or paradigms and typically focuses on the means of integrating the data generated. The second uses a methodological perspective which positions MM as a “distinct methodology” (p303) incorporating aspects of the broader process of research including “worldview, questions, methods, and inferences or conclusions” (p303)[334]. This approach involves acknowledgment that methods cannot be separated from the overall research process, including consideration of philosophical assumptions. The suggestion is made that “methods follow research purposes and questions” (p305) and as such emerge from the context within which the researcher and participants are embedded.

The paradigm perspective allows researchers to consider questions related to the worldview within which the research is conducted, and more particularly focuses on questions of epistemology, the nature of reality and impact of historical and socio-political context[334]. The most commonly cited philosophical base for MM is pragmatism[334, 335, 341] although other options are also suggested[342], including the transformative paradigm[332, 343, 344]. The fourth category is that of the practice perspective. This is described as emerging from a ‘bottom-up’ approach, where the “researchers tend to embrace new methodological ideas when they can attach them, in some way, to their current forms of and preferences for research” (p306)[334]. In this way, the MM researcher uses whichever strategies best fit the research question, examples having been given of a MM approach to secondary analysis of survey data, conduct of a literature review, application in meta-analyses and in relation to collecting and analysing data from ethnography or experimental studies, amongst others[334].

4.1.2 The pragmatic paradigm

The pragmatic paradigm is most commonly associated with MM – referring to what has been described as a ‘pragmatic approach’ to selecting and combining research methods, rather than following the criteria associated with the qualitative or quantitative paradigms[345-348]. A paradigm has been defined in a number of ways, including reference to it as an “accepted model or pattern” (p23)[349], as recognition and application of philosophical understandings and intent[346] and in relation to the nature of reality and knowledge[332, 348]. Several authors have suggested that the Pragmatic paradigm allows an alternative to the traditional dichotomy seen in relation to the
qualitative and quantitative paradigms, and that it effectively brings elements that have been seen as oppositional together[345, 348, 350]. Feilzer[348] suggests this allows pragmatism to avoid some of these contentious issues, accepting that there are “singular and multiple realities that are open to empirical inquiry and orient itself toward solving practical problems in the ‘real world’” (p8). In a practical sense, this is seen as allowing recognition that “the consequences are more important than the process”[350] (p178), essentially providing researchers with a greater flexibility in selecting an approach that ‘works’.

4.1.3 Research typologies

A typology can be defined as “the systematic classification of types that have characteristics or traits in common”[351], or “the classification of a concept according to a given priority and to fixed ranges of the values of the defining properties”[352] and represents ways of categorising or grouping objects or ideas. Given the range of potential methods which can be used within MM research, a number of authors have developed typologies to assist in classifying these approaches[332, 336, 353, 354]. These involve identifying key characteristics, categorising in accordance with pre-set criteria such as sequencing; prioritising of method; number and nature of methods used; degree and nature of ‘mixing’[336]. Typologies have been described as allowing for a flexible organisational structure, providing examples of research designs, and giving direction to researchers when designing studies[353].

One such typology is that suggested by Creswell and Plano Clark, who identify four principle study designs used within MM[355]. These designs are specified as Concurrent (or Triangulation), Explanatory, Exploratory and Embedded[330, 331]. The specific MM design utilised here fits the definition of Concurrent Design, which allows the generation of different but complementary data about the central phenomenon under study. This category of design is described as involving “one phase of data collection gathered concurrently” (p103)[330], and involves the simultaneous collection of both qualitative and quantitative data, with each given equal priority. Hanson et al[344] identify three sub-types of concurrent design: concurrent triangulation; concurrent nested and concurrent transformative. The concurrent triangulation design is described as incorporating simultaneous collection of both qualitative and quantitative data, with equal priority given to both types of data, separate analysis of the data and with integration occurring at the interpretation stage[344]. In a similar manner, both types of data are collected in the
concurrent nested design, but here one type is usually assigned priority, with the suggestion that this is useful for “gaining a broader perspective on the topic at hand and for studying different groups, or levels, within a single study” (p229)[344]. The third type is differentiated by the purposeful use of an explicit advocacy lens, for example use of critical social or feminist perspective[344].

4.1.4 Rationale for use of MM

MM has been identified as particularly appropriate for use in exploring conceptualisations, and the construction of meaning[356, 357]. As such, it provides an effective approach for the exploration of the concept of appropriateness and its construction within the emergency medicine field. A MM research framework utilising the practice perspective, consistent with the pragmatist research paradigm, was identified as an appropriate scaffold within which to position this study. This allows focus on the research question, seeing this as the driver within the inquiry process rather than the methods used[356]. Glogowska[345] also acknowledges the increasing use of MM approaches in health services research, seeing this as linked to the “multidimensionality of factors influencing and affecting health and illness and the multidisciplinary nature of health services themselves” (p253). The Delphi research method can be argued as compatible with the Concurrent research design described by Creswell and Plano Clarke[355] – while incorporating elements of sequential data collection, each iteration presents the opportunity for concurrent collection of both qualitative and quantitative data, which is then subjected to independent analysis and subsequent integration.

4.2 Research Question

The formulation of the research question followed on from a series of research projects undertaken by the thesis author, aimed at exploring aspects of ED overcrowding, and targeting in particular the concept that some patients could be considered to have ‘inappropriate’ needs in regard to hospital level ED care. These initial projects helped clarify and refine the final hypothesis, leading to recognition that the central underlying question around consensus opinion needed to be addressed, before any specific responses could be developed.

4.3 Preliminary studies

Prior to undertaking the Delphi research central to this thesis, two pilot studies of related issues were undertaken, which enabled clarification of the central concepts and recognition of the significance of the research aim. These studies allowed the author to
refine the research question, and to build on the knowledge generated. The first of these studies was conducted in 2004, and sought to identify consensus within a broad group of health professionals around the concept of appropriateness. This involved a simple, single round survey involving individuals thought to have a role in the provision of emergency department care. The questions developed for this survey formed a starting point from which to consider the Delphi panel questions and statements. The failure to identify consensus either within or between the professionals groups represented in this study led to a more focused panel consisting only of medical and nursing practitioners in the subsequent Delphi process. It was hoped that by limiting the panel in this way, there would be a greater likelihood of consensus developing.

A further study was carried out in 2007 which explored issues related to patient choice and ED attendance, identifying whether alternative opportunities for care were feasible. This allowed clarification of the issues identified by members of the in relation to appropriate ED attendance, and thus further impacted on the development of the Delphi questions. Aspects of this study also considered the ability of health practitioners to predict likely outcomes of patient presentations. The inclusion of both prospective and retrospective assessments in this clinically based study highlighted concerns around the relative merits of each approach. As a result, it was recognised that these were significant aspects when considering the ability to determine appropriateness, and statements related to this were also incorporated into the Delphi study.

Findings from the first study have been published in the New Zealand Medical Journal[358], and subsequently cited in 14 other publications. The information generated has also been presented at a number of national and international conferences[359, 360], as well as informing the Canterbury Acute Care Opportunity study[361], and the Delphi study undertaken for this thesis. Findings from the 2007 study have been presented at numerous forums within the CDHB, and presented at professional conferences[362].

4.3.1 Health practitioners agreement study

The impetus to develop and disseminate the 2004 Health Practitioners ‘appropriateness’ pilot survey arose following increased awareness of overcrowding within the ED of Christchurch Hospital, NZ [358]. This ED is one of the largest in Australasia, at the time of the survey seeing an average of 65,000 patients per annum, and with an admission rate from ED of approximately 48%. While overall ED presentations had remained largely the same over the preceding five years, patient acuity and length of stay
was noted to have increased. Christchurch is a busy, single ED city, with no specialised children’s emergency facilities. At the time of the survey, there were a number of AHS available for less ‘urgent’ problems, as an alternative to ED based care. Many of these offered x-ray, plastering and suturing services, together with observation areas where patients could be monitored for several hours while interventions such as intravenous fluid (IV) infusion and / or IV antibiotics could be initiated. Treatment at these AHS facilities were on a fee-paying basis, although some patients with low incomes were eligible for community services cards, which provided a reduction in fee.

In order to assist in developing a focussed and evidence based response to the issues associated with overcrowding, the decision to survey local health practitioners was made. An initial demographic section allowed a profile of respondents to be developed. Two questions which aimed to determine whether participants believed there was a local issue with patients seeking care which could be provided elsewhere followed. This included identifying an estimated percentage of patients who could be treated appropriately in other settings, and a free text question asking the respondent to define ‘an inappropriate attender’. Additional questions asked respondents to determine whether a range of patient scenarios represented an appropriate key reason for seeking ED care. The final section posed a range of potential responses for dealing with identified ‘inappropriate patients’, which respondents were again asked to indicate whether they agreed, disagreed or were uncertain about these interventions.

4.3.2 Sample

A purposive sample of health professionals was sought, including ambulance staff, ED physicians, ED nurses, general practitioners and hospital managers. Inclusion criteria were that the participant was: a member of one of the designated professional groups; involved in the referral, transport, assessment or treatment of Christchurch ED patients; and willing to consent to participate. Potential ED and management participants were identified from staff lists, GPs were contacted through the largest local GP contracting organisation, and ambulance staff were approached when delivering or uplifting patients from the ED. Consultation occurred with ED and hospital managers, GP liaison officers, and the ambulance authority. A total of 210 surveys were distributed, 120 returned complete giving an overall response rate of 57%.
### Table 4.1: Pilot study

<table>
<thead>
<tr>
<th>Professional group</th>
<th>Number of surveys distributed</th>
<th>Number of surveys completed (% response rate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED medical staff</td>
<td>30</td>
<td>14 (47%)</td>
</tr>
<tr>
<td>ED nursing staff</td>
<td>70</td>
<td>35 (50%)</td>
</tr>
<tr>
<td>Managers</td>
<td>20</td>
<td>12 (60%)</td>
</tr>
<tr>
<td>Ambulance staff</td>
<td>50</td>
<td>32 (64%)</td>
</tr>
<tr>
<td>General Practitioners</td>
<td>40</td>
<td>27 (68%)</td>
</tr>
</tbody>
</table>

#### 4.3.3 Results

Response rates within each sub group varied from 47-68%. Gender distribution was relatively even overall with 53% male, but gender predominance was apparent in the sub groups; Ambulance, ED physicians and GPs each had higher percentages of male respondents, while ED nurses and management participants were predominantly female. The majority of respondents fell within the 30-39 and 40-49 year age groups, although the ED medical staff group had 36% of respondents in the 20-29yrs age group (these being junior house surgeons) and GPs had 32% of respondents in the 50-59yrs age group.

The survey respondents were initially asked if “some patients attending the ED could be more appropriately treated elsewhere (eg GP or After Hours Service)”. All of the ED doctors and management representatives agreed with this statement, as did most (97%) ambulance staff, ED nurses (97%) and GPs (93%). A second question asked whether “patients have the right to choose care from the ED, rather than elsewhere”. The majority of ED doctors, ED nurses and ambulance staff agreed with this statement (64%, 60% and 56% respectively), while relatively few GPs and managers did so (18% and 15%). Areas of broad agreement relating to statements presented included that it was appropriate to present to the ED if the patient believed their condition to be ‘serious’. Four of the five groups (all except ambulance), agreed that the patient’s perception of urgency was an appropriate reason to present, while all except GPs agreed that it was appropriate to present to ED with an acute psychiatric problem. There was over 50% agreement within each of the groups that it was inappropriate for a patient to attend ED because they did not have a regular GP, or needed to have blood tests taken. All groups except ED nurses agreed that it was inappropriate to present to ED for a second opinion. Over 50% of groups (except ambulance) felt it was inappropriate to present for care if the primary reason was (1) the patient required x-rays, (2) the patient could access the ED more easily than elsewhere; and (3) the patient has a chronic psychiatric problem.
There was greater disparity in relation to the remaining questions, including whether it was appropriate to attend the ED for social issues. Over 50% of ambulance, GPs and management respondents disagreed with this statement, while over 50% of ED doctors were in agreement with it, and ED nurses were conflicted. Ambulance staff, ED doctors and nurses agreed that subsequent admission to hospital was indicative of an appropriate presentation, but GPs and managers disagreed. Ambulance personnel and ED nurses did not agree that arrival by ambulance signified an appropriate presentation, while GPs, ED doctors, and managers felt that it was. Free text responses were also sought, with respondents asked to define inappropriateness. Following thematic analysis, responses were categorised as: service issues, generic condition description, specific condition identification, time dependent, financial costing, personal characteristics and comments which re-framed the question on the basis that no patient was ‘inappropriate’.

This study was significant in that it demonstrated there was no clear consensus overall in relation to the concept of ‘appropriateness’, either within or between the professional groups represented. The lack of clarity and agreement around the central issue of overcrowding and its relation to appropriateness suggested that a more focussed and specific approach might increase the opportunity of reaching consensus. This contributed to the development of a more explicit research question and to the decision to focus the subsequent Delphi panel to that of clinical practitioners working together within the Emergency Department setting. The intention of this was to develop a research model with the greatest possibility of reaching agreement. It was felt that if this were shown to be possible, the process could then expand to include wider representation of stakeholders.

A larger observational study was also undertaken in the same tertiary level teaching hospital. This was designed to identify the characteristics of patients presenting to the ED for care, and to identify whether alternative sources of care could have been utilised – the Canterbury Opportunities study.

4.3.4 The Canterbury Acute Care Opportunity study

In Canterbury, an ‘opportunities’ study undertaken at Christchurch Hospital ED sought to identify whether patients presenting during a study period could potentially have received appropriate care via an alternative pathway[361]. The findings from this research influenced the subsequent development of this thesis, highlighting the need to ensure understanding around key concepts. The key features of this study are outlined below:
Aim:

1. To review all patients presenting to the Christchurch Hospital Emergency Department (ED) on each of seven study days, with representative days of the week and all shifts covered.
2. To identify those patients who typically present to the ED with a view to determining whether ED based care was the most effective form of service delivery in each case.

Method:

- This study was undertaken over a five week period, with seven 24hr periods assessed.
- A total of 1,262 patients were included in the study, this represents a recruitment rate of 90% of possible participants.
- Data was collected from patients, nursing staff, ambulance staff by means of surveys, short answer questions and interviews while in the ED.
- Community Patient Management Systems were used to identify if the study participants were enrolled with a GP and to identify when they last consulted with that GP.
- Assessment relating to alternative service opportunities was carried out by nurse auditors and cross checked by a senior physician.
- A sub-sample of participants who were admitted also had an assessment of the need for admission carried out.

Findings:

- This study identified a number of process and patient flow issues that impact on the patient journey, including issues around gathering ethnicity data and communication problems associated with patient referrals.
- Overall 38% of patients were identified as possibly being suitable for an actual or potential alternative pathway. However, this figure includes patients who currently present to Psychiatric Emergency Service and Orthopaedic Out Patient Department, which is a recognised and appropriate path under current processes. A number of the service alternatives identified are still ‘potential’ rather than existing services. Potential services identified included Minor Injury Orthopaedic Services, Urgent Community based psychiatric service, Minor Injury Wound Care service, Enhanced Ambulance Assessment, and Community based observation units both with direct and indirect medical supervision.
- The most commonly identified alternative service was a Primary Care Consultation.
Patient perceptions were identified, and these were recognised as having significant impact on the patients’ rationale and choice of health service. Issues associated with perception of urgency, presence of pain, nature of the injury / illness, cost of alternative services, access to alternative services were raised.

Assessment was also made of Triage Nurses’ ability to identify at initial presentation likelihood of admission. This was shown to be on average 70% accurate, but ranging from 61 – 83% over the various study days.

This study sought to quantify the patient population presenting to Christchurch ED who might be suitable for alternative care pathways. In doing so, and as a result of a collaborative process involving medical (ED physicians and GPs) and nursing personnel it became apparent there were differences in conceptual perceptions, and that perhaps an earlier question needed first to be asked – what is appropriateness in relation to the ED? There were discrepancies between the clinical expert opinions and those of the patients presenting regarding urgency of condition and need for immediate access to emergency level care. This lack of agreement between health professionals and lay persons further supported the decision to focus the Delphi study on health professionals alone – again with the intention of maximising the opportunity for consensus.

4.4 Thesis study: Delphi Panel Selection
4.4.1 Criteria

The focus was on ascertaining the perceptions of senior staff working within major EDs. In line with the Delphi technique, a criterion based sample of ‘experts’ in the area of emergency care were sought, to form the expert panel. The criteria for inclusion in this panel were that the participant be a senior medical or nursing professional, currently working in the area of hospital based emergency medicine, recognised and nominated as an expert by peers. The sample was homogeneous, in that it was representative of the sub population of health care professionals working in the specialised area of emergency care (as opposed to a more diverse group of stakeholders), yet also had elements of heterogeneity in that within this population there were further identifiable sub groups, those of the nursing and medical professions.

In order to identify suitable ‘experts’ for inclusion on the panel, it was decided to identify those hospitals which saw the greatest number and range of ED patients. Selection of EDs was made with reference to the level of care provided and the annual throughput of patients. Within NZ there are six recognised levels of provision of emergency care services[363], which are as follows:
**Level One:** Primary Care / Remote Rural

**Level Two:** Sub-acute/Rural Hospital ED

**Level Three:** Secondary Hospital ED

**Level Four:** Major Secondary Hospital ED

**Level Five:** Tertiary Hospital ED

**Level Six:** Higher Level Tertiary Hospital ED

(Refer to appendix four for further definition of these categories)

In identifying appropriate service areas for recruitment of the expert panel, a ‘major’ ED was defined as being one that provided a level of emergency services that fell within the MoH designated ED levels 4, 5 or 6. Invitations to participate in the study were therefore extended to staff affiliated with a tertiary level hospital ED which had an average annual throughput of 30,000 ED patients or greater. The purpose of this was to ensure that panel members had had the opportunity to be exposed to a sufficiently large workload so that issues associated with overcrowding and high volume were likely to have been experienced, and that a wide range of potential patients with different degrees of acuity would have been encountered. By applying the initial workload criteria, the following hospitals were identified as potential sites for recruitment:

**Table 4.2: NZ Hospital EDs meeting inclusion criteria**

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Catchment area population</th>
<th>Average ED throughput per annum</th>
<th>ED level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auckland City Hospital</td>
<td>415,000</td>
<td>52,000</td>
<td>6</td>
</tr>
<tr>
<td>Christchurch Hospital</td>
<td>466,000</td>
<td>75,000</td>
<td>6</td>
</tr>
<tr>
<td>Dunedin Hospital</td>
<td>290,000</td>
<td>37,000</td>
<td>6</td>
</tr>
<tr>
<td>Hawkes Bay Hospital</td>
<td>150,000</td>
<td>36,500</td>
<td>5</td>
</tr>
<tr>
<td>Lower Hutt Hospital</td>
<td>135,000</td>
<td>39,500</td>
<td>4</td>
</tr>
<tr>
<td>Middlemore Hospital</td>
<td>459,000</td>
<td>77,000</td>
<td>6</td>
</tr>
<tr>
<td>North Shore Hospital</td>
<td>492,185</td>
<td>47,828</td>
<td>5</td>
</tr>
<tr>
<td>Palmerston North Hospital</td>
<td>160,000</td>
<td>36,000</td>
<td>5</td>
</tr>
<tr>
<td>Starship Children’s ED (Auckland City Hospital)</td>
<td>28,184</td>
<td>30,000</td>
<td>6</td>
</tr>
<tr>
<td>Tauranga Hospital</td>
<td>200,000</td>
<td>39,000</td>
<td>4</td>
</tr>
<tr>
<td>Waikato Hospital</td>
<td>330,000</td>
<td>53,000</td>
<td>6</td>
</tr>
<tr>
<td>Wellington Hospital</td>
<td>270,000</td>
<td>48,000</td>
<td>6</td>
</tr>
</tbody>
</table>

This resulted in ten sites in the North Island and two in the South Island, and included representation of the four major cities of Wellington, Auckland, Christchurch and Dunedin. In limiting participation to individuals associated with these hospital EDs, it is acknowledged that the data generated from the panel would be most applicable to urban
settings, and that the complexities of providing emergency care in rural and remote areas were not specifically represented. However, the possibility of reaching a consensus was thought to be enhanced if the initial study group had core similarities. Consideration of the views of other ED populations is an area for further exploration in future research studies.

4.4.2 Ethical approval

The proposed research was approved by the University of Otago Ethics Committee.

4.4.3 Sample and Recruitment

An initial letter of invitation was sent to the Medical and Nursing Directors of the identified EDs, requesting that up to five medical and five nursing staff be nominated for each location. It was initially envisaged that a single, cohesive panel be established, and as such specific pro rata selection of medical and nursing participants was not sought. It is acknowledged that there is a greater number of nursing staff working in EDs when compared to physicians, and once panel recruitment was complete the number of individuals in each group reflected this disparity. A total of 73 potential participants were identified through this process and formal invitations to participate were issued. From this list, 61 agreed to participate and 59 completed the first iteration of the Delphi process. This initial group included 23 physicians and 36 nurses.

4.4.4 Data collection

The Delphi was carried out by means of an on-line process, with questions and feedback provided utilising the survey design tool ‘Survey Monkey’. A series of three iterations occurred. Participants were contacted by e-mail and given instructions regarding the access and use of the on-line survey tool. Participants could then log in to the system and enter their responses directly. E-mails were sent individually to each participant to maintain confidentiality of respondents, advising of the commencement of each new round. Following the initial notification, up to three targeted reminders were sent to participants who had not completed the survey within the requested two weeks. These reminders were sent at approximately one week intervals. Data collection for each round was closed after one month. Individual specific feedback relating to degree of consensus between the respondent and other members of the panel was provided between rounds. Generic feedback was provided to the group regarding the statistical spread of responses at the commencement of each iteration.
Information relating to the intention of the study and about the Delphi process was included in the first round. It was acknowledged in the introductory section of the survey that the terms ‘appropriate’ or ‘inappropriate’ in relation to ED attendance are controversial, and that many health professionals consider the terms pejorative and unfair. It was stated, however, that for want of better terms ‘appropriate’ and ‘inappropriate’ would be used in the wording of the study. Those participants who felt strongly about the use of these terms were asked to make a note to that effect in the free text section of the questions. The suggestion was made that some participants may prefer to interpret the term ‘inappropriate’ as meaning – ‘would likely have been better served by seeking care elsewhere’.

### 4.4.5 Demographic data

In order to provide a clear picture of the ‘experts’ who participated in the Delphi process, a series of demographic questions were asked at the beginning of the first round. Specific data collected in this section related to:

- Gender
- Ethnicity
- Age
- Years of experience

In line with NZ ethics committee guidelines, data related to ethnicity was collected using the NZ Department of Statistics question framework.

### 4.4.6 Panel questions

Questions presented during the first Delphi round were of two types. An initial series of ‘free text’ response questions were presented to panel members, asking them the following:

- Are there specific conditions / situations currently seen in your area of practice that you feel would not require ED care? If so, please provide examples of these.
- How would you define an ‘appropriate’ reason for attending ED?
- How could you define an ‘inappropriate’ reason for attending ED?

These questions were designed to allow respondents to identify their own perceptions around the topic.

This was followed by three groups of statements which participants were asked to rank using a Likert scale. These were derived from the existing literature about
‘appropriateness’ of patient presentations to an ED setting. Respondents were informed that the intention of this round was to generate responses to key questions and concepts that had been identified as fundamental in determining ‘acceptability’ and ‘appropriateness’ beliefs. The three groups were in relation to the following:

- The role of ED
- Response to specific situational /descriptive statements
- Rating of specific conditions

The first group included the following 11 statements:

**Table 4.3: Set 1 statements: Role of the ED**

<table>
<thead>
<tr>
<th>Section 4 : Set 1 statement group (The role of ED)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Emergency departments (EDs) should be kept for ‘emergency’</td>
<td></td>
</tr>
<tr>
<td>2. Patients are capable of determining what conditions are suitable for ED care</td>
<td></td>
</tr>
<tr>
<td>3. Patients should see a general practitioner (GP) or After Hours Service before coming to the ED</td>
<td></td>
</tr>
<tr>
<td>4. Patients with non urgent health needs should not be seen in the ED</td>
<td></td>
</tr>
<tr>
<td>5. Only a doctor can determine the urgency of a health problem</td>
<td></td>
</tr>
<tr>
<td>6. If a patient states they can’t afford to go anywhere else, they should be seen in the ED</td>
<td></td>
</tr>
<tr>
<td>7. Seeing non urgent patients in the ED adversely affects the care of more seriously unwell patients</td>
<td></td>
</tr>
<tr>
<td>8. It is safe to refer some patients away from the ED</td>
<td></td>
</tr>
<tr>
<td>9. Not all patients who come to the ED need hospital level assessment</td>
<td></td>
</tr>
<tr>
<td>10. NZ EDs have a problem with ‘inappropriate’ patient attendances</td>
<td></td>
</tr>
<tr>
<td>11. All patients who present to an ED need to be assessed by a doctor</td>
<td></td>
</tr>
</tbody>
</table>

The second group included the following 13 statements:

**Table 4.4: Set 2 statements: Situational / descriptive**

<table>
<thead>
<tr>
<th>Section 4 : Set 2 statement group (Response to specific situational /descriptive statements)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. If a patient’s symptoms have remained unchanged for more than 72hrs before presentation, this can be considered an inappropriate attendance</td>
<td></td>
</tr>
<tr>
<td>2. If a patient has been referred by a GP or After Hours doctor this is an appropriate attendance</td>
<td></td>
</tr>
<tr>
<td>3. If a patient is transported to hospital by ambulance this represents an appropriate attendance</td>
<td></td>
</tr>
<tr>
<td>4. If a patient is discharged from ED with no further follow up, this is an inappropriate attendance</td>
<td></td>
</tr>
<tr>
<td>5. If a patient’s condition resulted from a road traffic accident this represents an appropriate attendance</td>
<td></td>
</tr>
<tr>
<td>6. If a patient is subsequently admitted to hospital this is an appropriate attendance</td>
<td></td>
</tr>
<tr>
<td>7. If a patient’s condition resulted from a work place accident, this represents an appropriate attendance</td>
<td></td>
</tr>
<tr>
<td>8. If a patient has received no investigations while in the ED, this is an inappropriate attendance</td>
<td></td>
</tr>
<tr>
<td>9. If a patient has received no treatment other than a prescription, bandage, sling dressing or steristrips this represents an inappropriate attendance</td>
<td></td>
</tr>
<tr>
<td>10. If a patient requires oxygen administration, this represents an appropriate attendance</td>
<td></td>
</tr>
<tr>
<td>11. If a patient requires a specialty consultation, this represents an appropriate attendance</td>
<td></td>
</tr>
<tr>
<td>12. If a patient requires prescription medications administered in ED (other than Tetanus or oral analgesics) this is an appropriate attendance</td>
<td></td>
</tr>
</tbody>
</table>
Section 4: Set 2 statement group (Response to specific situational/descriptive statements)

| #  | Patients triaged as category five (lowest category at triage, less urgent, to be seen within 120 minutes) have inappropriate reasons for presenting |

4.5 Data Analysis

4.5.1 Free text questions: Thematic analysis

Thematic analysis of the participant’s responses was undertaken. This is a method for identifying and analysing repeated patterns (themes) within text. The resulting analysis can move from the descriptive to the interpretive, and there are a number of approaches to this technique. This involves initially identifying the explicit or surface meanings of the text. The resulting description involves data being organised to show “patterns in semantic context” and then summarised[364] (p. 84). This is followed by interpretation, where the data is analysed and theoretical significance of patterns and their broader meanings is identified. An alternative approach involves a greater degree of analysis, looking beyond the semantic context of the data with identification of “underlying ideas, assumptions and conceptualisations”, acknowledging explicit and implicit ideologies, and theorising about the influence of these on the formation of the raw data[364] (p. 84).

In relation to the specific text generated by panel members, items of data were separated into individual concepts, similar statements grouped together into categories and labelled. Categories were examined for similarities and differences. Individual categories were then linked together where appropriate and represented as themes. A theme is defined as a representation of something important about the data, in relation to the research question. It represents a level of “patterned response or meaning within the data set”[364] (p. 82). Elements taken into consideration when determining themes include prevalence, strength of expression, and ‘richness’ of data. Themes can be determined using either a deductive or inductive approach, or a combination of both. An inductive or ‘bottom up’ technique involves the formation of themes derived extensively from the raw data itself. This means that the emerging themes are not driven by the researcher’s theoretical interests, and therefore there is no effort to fit the data to a pre determined coding framework. A deductive or ‘theoretical’ approach is more explicitly ‘analyst-driven’ and involves coding to a specific research question. The deductive approach allows for less overall ‘rich description’ of the data, but does provide the opportunity for more detailed, specific analysis[364].
The analysis carried out on the Delphi survey text was deductive, with specific theoretical constructs already considered and coding was informed by both the research question and existing literature. The level of analysis was semantic, with additional theorisation around influencing ideologies. Braun and Clarke’s six phases of thematic analysis were used to guide the analysis (see table 4.5).

<table>
<thead>
<tr>
<th>Phase</th>
<th>Description of the process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1: Data Familiarisation</td>
<td>Transcribing data (if necessary). Reading and re-reading the data, noting down initial ideas</td>
</tr>
<tr>
<td>Phase 2: Generating initial codes</td>
<td>Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code.</td>
</tr>
<tr>
<td>Phase 3: Searching for themes</td>
<td>Collating data into central themes, gathering all data relevant to each potential theme.</td>
</tr>
<tr>
<td>Phase 4: Reviewing themes</td>
<td>Checking if themes work in relation to the coded extracts (level 1) and the entire data set (level 2). Generating a thematic map.</td>
</tr>
<tr>
<td>Phase 5: Defining and labelling themes</td>
<td>Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells, generating clear definitions and names for each theme.</td>
</tr>
<tr>
<td>Phase 6: Producing the report</td>
<td>The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature.</td>
</tr>
</tbody>
</table>

4.5.2 Delphi Rated Statements

Panel members were given a series of statements and asked to grade their level of agreement with these, using a Likert scale. The set questions were grouped into sections, those that related to the role of the ED in health care provision, and those that related specifically to determinations of ‘appropriateness’. A list of ten conditions which were derived from the literature and had been identified as representing ‘inappropriate’ reasons for ED attendance were presented to panel members. They were again asked to use a Likert scale to indicate whether these were seen by the individual as ‘appropriate’ or not. The Likert scale provided allowed for a choice of five responses – from ‘strongly disagree’, ‘disagree’, ‘uncertain’, and ‘agree’ to ‘strongly agree. A final section provided the opportunity for participants to add any additional comments or identify any particular issues which they felt should be considered by the panel.

4.5.3 Simple statistical analysis

The nature of the survey and the number of participants, together with changes in each round lend themselves to simple descriptive statistics rather than any more detailed statistical analysis. In line with this, participants were provided with simple feedback
relating to mean, median and mode which they could then consider before re-assessing each statement or section of the survey. Findings from these are provided in simple graph format, so that general trends are apparent. The overall responses from the Delphi round are outlined in this manner, and followed by more detailed discussion which seeks to consider the implications of the findings and their likely significance within the NZ emergency care setting. An *a priori* determination of 70% as an indicator of consensus was made based on existing studies and literature.

Following expert advice, it was determined that statistical tests of trends would not be appropriate. Given the small sample size, it was also suggested that other standard tests for determining significance of difference in proportions would be of limited relevance. However, given that some comparisons were sought between the nursing and medical sub groups, a selection of these where significance might be identified were subject to further statistical assessment. Statistical tests of differences in proportion were conducted using Simple Interactive Statistical Analysis (SISA; http://www.quantitativeskills.com/sisa/), testing ordinal 2 x 5 tables and calculating chi-square values. Where this was undertaken, the results are presented following the standard descriptive comparison.

### 4.6 Summary

This study has developed within a Mixed Method design framework, positioned within the pragmatic paradigm. This allows focus on the practicalities of finding a solution or answer to a research question, combining elements of both qualitative and quantitative approaches. The research question emerged from the practice context and was influenced by several background studies that helped to refine both the issue and target population. The Delphi approach was determined to be an effective and efficient means of determining degree of consensus, and as a result the criteria for selecting an expert panel of ED clinicians were established. In line with the research design, both simple descriptive statistics and thematic analysis of textual responses were proposed.
CHAPTER 5: DELPHI ROUND ONE FINDINGS

5.1 Participant demographic profile

An initial seventy-three names were forwarded as potential members of the expert panel, of these, 61 individuals were able to be contacted and commenced round one of the Delphi process. Two participants provided demographic data only; these entries were not included in the final analysis. All 59 of the remaining respondents completed the demographic data section questions relating to age, gender and ethnicity.

5.1.1 Gender and profession

Distribution by gender showed a predominance of females, with 68% female \((n=40)\) and 32% male \((n=19)\) respondents. Given that the panel contained a larger cohort of nurses, and in view of the continuing prevalence of females within nursing, this is an expected ratio. In terms of profession, 23 participants had a medical background, 36 a nursing background. Traditional gender representations were evident within the participant group, with 17 of the doctors being male and six female. Within the nursing group, two were male and 34 female. While it is possible that gender may be linked to perspectives around appropriateness, there are no studies which have explored this possibility. Existing literature relating health professional expert opinion does identify professional affiliation (typically emergency physician, primary health care professional or nurse), but in relation to these gender is not typically reported or considered.

5.1.2 Ethnicity

Ethnicity data was provided by all respondents, and data collection utilised the NZ Department of Statistics Census ethnicity question. More than one ethnic group could be identified by a given individual. Forty-five respondents self identified as NZ European, seven as UK nationals (with listings as Irish, British and English), four as Maori and six identified with other ethnicities (Australian, European, Canadian, South African, Chinese). The range of ethnicities identified reflects in part the international make up of the healthcare professional workforce in NZ, and recognises that many professional staff in the field of emergency care have backgrounds outside of the NZ context. Participants were not asked where their professional education had been undertaken, or how long they had worked in NZ. It is likely that some will have had experience working in other health systems, and thus have differing understandings and expectations relating to ED overcrowding and the significance of appropriateness.
5.1.3 Age

Experience became apparent when looking at the questions determining age and years of emergency medicine and nursing employment. The majority (58%) of participants indicated that they were within the 40-49 age range \( (n=34) \); 29% indicated that they were aged between 30-39 \( (n=17) \) while 14% indicated that they were age 50 or over \( (n=8) \). This is as expected in identifying peer esteem and the determination of ‘expert’ status. In order to have gained sufficient experience, skill and qualifications to be recognised as having expertise in nursing or medicine, time spent in the profession is required.

5.1.4 Years of professional experience

Responses to this question matched the age ranges given above, with a similar spread of ED specific experience identified. Fifty six of the participants answered the question ‘how many years experience have you had working in emergency medicine / nursing’? Of these, only one identified less than five years experience and 11 between 5-10 years experience. The majority of participants \( (n=44) \) identified that they have had greater than ten years experience in ED \( (78\%) \). Four participants chose not to answer this question.

5.1.5 Participant characteristics by occupational grouping

Medical participants

Twenty-three of the panel had medical expertise. Of these, 17 were male, six female. Five were aged between 30-39; 15 aged between 40-49; three between 50-59. Twenty participants identified that they had more than ten years experience in the ED setting \( (87\%) \), one between 5-10 years, and two chose not to answer.

Nursing participants

Thirty six members of the panel had nursing expertise. The majority of these were female \( (n=34) \) and two were male. The average age range was slightly younger than the medical participants, with 12 aged between 30-39; 19 between 40-49; and five aged 50 or over. One respondent identified less than five years ED experience, ten between 5-10 years and 23 over ten years ED experience \( (64\%) \). Two respondents chose not to answer this question.

Overall, it can be seen that the members of the expert panel were predominantly NZ European, included more females than males, and the majority were aged between 40-49 and had more than ten years experience in the emergency care specialty. There was a greater representation of nurses than doctors, which may be indicative of the relative
numbers in each professional group, elements of the sample strategy, or of the willingness and available time to commit to taking part in the research.

5.2 Specific conditions

5.2.1 Free text analysis: question one

The first free text question asked panel members to consider whether they were currently aware of specific conditions / situations seen in their area of practice that may not require ED level of care. Fifty-seven of the panel provided a response.

As panel members wrote directly onto the electronic survey form, transcription of data was not a requirement. Participant responses were separated into concept statements and these then linked together to form themes. Each individual’s response could yield multiple concept statements. Concept and thematic coding maps were constructed (see maps 1 and 2). A sub analysis of the data set was carried out, allowing for comparison of findings between medical and nursing professions.

Six themes emerged from the analysis of the first question. Panel members’ responses were categorised into the following overarching themes, where $n =$ number of text fragments relating to the theme:

- minor illnesses ($n=86$)
- routine / non-urgent procedures ($n=42$)
- minor injuries ($n=28$)
- socio-political / contextual influences ($n=25$)
- inappropriate service role / recognition ($n=20$)
- chronic conditions ($n=19$)
Question 1: Identify specific conditions / situations that are inappropriate for ED care

Specific conditions
- Localised infections $n=9$
- Gastroenteritis $n=7$
- Wound care $n=14$
- Musculoskeletal problems $n=14$
- Resp / viral $n=23$
- URTI / viral $n=5$
- Flu type symptoms $n=7$
- Cold type symptoms $n=9$
- HEENT (Head, eye, ear, nose, throat) related conditions $n=19$
- Dental $n=5$
- Nose $n=3$
- Eye $n=3$
- Ear $n=3$
- Throat $n=5$
- Chronic conditions $n=19$
- Mental health $n=9$
- Access issues: no service alternative $n=7$
- Can only determine retrospectively $n=2$
- Lack of community resource / staff $n=2$
- Other $n=3$
- Knowledge deficit $n=3$
- Cost issues $n=8$
- Low acuity admission referrals $n=6$
- Pts wanting 2nd opinion $n=4$
- Other $n=7$

Specific situations
- Request for routine check ups / assessments $n=11$
- Medication / prescription requests $n=17$
- Documentation requests $n=4$
- Outpt / specialty appropriate $n=20$
- Socio-political / contextual factors $n=25$
- Referral to specialty service $n=3$

Other conditions $n=15$
- Localised infections $n=9$
- Gastroenteritis $n=7$
- Wound care $n=14$
- Musculoskeletal problems $n=14$
- Resp / viral $n=23$
- URTI / viral $n=5$
- Flu type symptoms $n=7$
- Cold type symptoms $n=9$
- HEENT (Head, eye, ear, nose, throat) related conditions $n=19$
- Dental $n=5$
- Nose $n=3$
- Eye $n=3$
- Ear $n=3$
- Throat $n=5$
- Chronic conditions $n=19$
- Mental health $n=9$
- Access issues: no service alternative $n=7$
- Can only determine retrospectively $n=2$
- Lack of community resource / staff $n=2$
- Other $n=3$
- Knowledge deficit $n=3$
- Cost issues $n=8$
- Low acuity admission referrals $n=6$
- Pts wanting 2nd opinion $n=4$
- Other $n=7$

Other $n=7$
Map 5.2: Thematic Coding Map - Round 1 Question 1

Are there specific conditions / situations currently seen in your area of practice that you feel would not require Emergency Department care?

- Socio-political / contextual influences  
  $n=25$
- Chronic conditions  
  $n=19$
- Minor injuries  
  $n=42$
- Minor illnesses  
  $n=86$
- Inappropriate service role / recognition  
  $n=20$
- Routine / non-urgent procedures  
  $n=42$
5.2.2 Minor illnesses

This was the largest section, including 86 statements. Categories identified in this theme included respiratory and viral illnesses (n=23), most commonly cold and flu type symptoms, with some mention of minor asthma and viral upper respiratory tract infections. The next largest group (n=19) was conditions related to Head, Eyes, Ears, Nose and Throat (HEENT). The two most often mentioned conditions here being ‘sore throat’ and ‘toothache’. A number of other conditions were identified including gastroenteritis, skin infections, mental health issues, sexually transmitted infections, drug and alcohol related presentations amongst others. Again, a number of the identified conditions were presented with modifiers, for example:

- Mental health patients with isolated MH problems, ie: no organic cause to rule out
- ...minor or simple bouts of illness, such as short periods of d&v [diarrhoea and vomiting] otherwise well
- Cold/flu like symptoms in otherwise healthy adults

5.2.3 Routine / non-urgent procedures

This represented the second largest theme, with 42 statements identified. Three subgroups were identified, these being medication / prescription requests (n=17), requests for routine / non-urgent ‘checkups’ or assessments (n=11) and requests for documentation (n=4). Medication and prescription requests were frequently mentioned, together with requests for IV administration of medications that could potentially be provided in a community setting (eg antibiotics). Requests for “health checks”, “routine check ups” and “second opinions” were also noted. Examples of responses coded to this theme include:

- ...forms filled out for work / school / periodic detention
- Patients who use the ED for health bureaucracy reasons such as sick notes, ACC number, insurance claims without needing acute management
- ...patients with conditions that are now able to be managed in the community eg cellulitis requiring iv antibiotics
- ...repeat prescriptions for chronic medications. Emergency contraceptive pill

5.2.4 Minor Injuries

Twenty-eight statements identified a range of minor injury related reasons for presentation as potentially ‘inappropriate’, predominantly minor wounds and musculoskeletal injuries. Examples given included minor sprains, simple fractures, minor lacerations, abrasions and back pain. Most of these examples were qualified with the terms
‘minor’ or ‘simple’ and several had specific time or related symptom caveats. Examples of this included “Limb injuries greater than five days old” and “sprains where weight bearing on lower limbs”. Other statements identified specific treatment or procedure actions associated with these conditions, rather than the injury itself, for example:

- Referrals to ED for X-Ray only
- ...removal of sutures, dressing changes
- ...minor traumatic injuries that require simple suturing

5.2.5 Socio-political / contextual influences

Statements that identified or challenged the reasons for potentially inappropriate ED visits were categorised as socio-political / contextual influences. Responses centred around the ability to determine appropriateness, issues associated with perceived and actual access barriers, the cost of alternative services, identification of ‘ideal’ as opposed to ‘real’ availability of resources and knowledge deficit amongst patients. Twenty-five respondent statements were identified as mapping to this theme. When asked whether there were specific, identifiable conditions / situations regarding patient attendances that do not require ED level care, some respondents emphasised the inability to determine this prospectively, or indicated their unwillingness to act on such assessments, with the following comments being made:

- There are some conditions which, in retrospect, do not require ED care. However this is not useful at the time eg coughs and colds
- No, everyone deserves the right to treatment
- The problem is you often don't know that the patient could go elsewhere until you have fully assessed them...
- Yes I feel that some presentations do not require ED but I don't believe that anyone should be "triaged out"

Other panel members identified potential causative factors and influences leading to ‘inappropriate’ presentations, including access, cost, service convenience and resource availability.

- The care of the elderly in private hospitals and rest homes has changed over the years. The lack of registered nurses and GP’s working in these facilities either because of inability to recruit staff or cost cutting measures has seen a big increase in the number of this group of patients to our ED
- I find that patients with 'minor' complaints use our service because they have no access (or believe that they do not have timely or cost effective access) to other health providers at the time they present
patients who state they realise they have a GP condition but cannot afford to pay

The concept identified most often in this section was in relation to cost, with eight respondents specifically identifying this, followed by concern regarding ‘access’ to health care (n=7).

5.2.6 Inappropriate service role / recognition

This theme encompassed statements made relating to inappropriate use of the ED as a conduit for specialty referrals, an alternative to outpatient clinics, for low acuity admission referrals and as a venue for patients who wished to seek a second opinion.

Examples of this included:

...arranged review or follow [up] of inpatient specialties [patients]; default admission unit (especially after hours)

Referrals for assessment from other healthcare providers that would be better served by outpatient assessment

...many pts [patients] from rest homes whose staff call ambulances for their pts because they do not want to get a Dr out to see them

...admissions to the hospital required after visits to clinics or radiology; transfers from in patient beds from other hospitals

5.2.7 Comparison between medical and nursing responses

While the same broad themes emerged from both the medical and nursing data sets, there were some minor variations in emphasis between the two groups. For example, isolated routine and non-urgent requests were identified as potentially inappropriate within both groups, but specific reference to administration related actions (eg completion of medical certificates) occurred within the medical group. Medical respondents emphasised chronic care conditions in their responses, while nurses included examples of specific minor injuries, such as wound care requests.

5.3 Defining an ‘appropriate’ presentation
5.3.1 Free text analysis: question two

This question asked panel members specifically how they might define an ‘appropriate’ reason for attending ED. Fifty-eight panel members provided responses. Initial coding of the responses involved identifying key concepts, terms and phrases evident within the definitions provided. Participant responses fell within three broad areas, condition specific responses, person specific responses and service specific responses. Four themes emerged from the data:
• urgency ($n=32$)
• severity ($n=15$)
• patient perception / belief ($n=26$)
• service aspects ($n=44$)

Most definitions provided included reference to more than one theme. Where only one theme was present in a definition, this was either ‘patient perception/belief’ or ‘service aspects’. Themes varied in prevalence from 15 examples to 44 examples, but each represented specific elements. Sub elements within the larger themes are identified, and a coding map attached as map 3. Thematic mapping is shown as map 4.

5.3.2 Urgency

The theme of ‘urgency’ was identified in 32 text fragments, and was presented in terms of necessary action and implications of failure to act. This appears congruent with existing literature which identifies ‘urgency’ as a “state or condition requiring immediate action ... raw emotion that motivates people to move away from something because of risk, fear or pain or to move toward something due to potential reward”[365] Respondents referred to “situational urgency”, described conditions requiring “urgent intervention”, and introduced time referents such as “within 4-6 hours of presentation” and “time critical”. The alternate expression of this theme was through recognition that failure to act was not an option, with use of phrases such as “impossible to wait” and “cannot wait”.

A sub category identified within this section is that of ‘acuity’ ($n=14$). Some respondents used the terms ‘urgency’ and ‘acuity’ together, eg “an acute illness or injury requiring urgent care” in a way that suggested a differentiation between the acute (unexpected / sudden) nature of the problem and the sense of ‘urgency’ (requiring immediate response) in regards to treatment or intervention. While references to urgency were generally not further explained or modified, those relating to ‘acuity’ were at times clarified with reference to a unit of time, for example

...acutely or semi-acutely could be defined as within minutes, hours or several days

A further aspect that was identified by panel members was the essentially undifferentiated nature of many ED presentations, and the presumption of an attendant ‘urgency’ to diagnose ($n=7$). This group of responses considered the ‘potential’ associated with patient conditions. An example of this was the definition
Development of an undifferentiated and/or severe acute illness / injury / exacerbation of chronic condition

5.3.3 Severity
The theme of ‘severity’ was also identified in 15 pieces of text, and commonly associated with reference to actual or imminent danger to ‘life and limb’, for example:

...emergency defined as life threatening – affecting life / limb or both, crisis of established disease process or new diagnosis

Terms commonly used in this category included ‘severe’, ‘life threatening’ and ‘serious’. Reference to ‘severity’ was found in combination with all other categories, but in particular with ‘urgency’.

5.3.4 Patient perception
Twenty-six segments of text made reference to aspects of patient perception or belief. In 11 of the participant responses, this was the only theme present. Examples of this category show the emphasis on the patient’s belief or understanding of what it means to have an ‘emergency’ problem, rather than a medical or nursing interpretation of the condition. This suggests an acknowledgment of prospective or anticipatory understanding, rather than a retrospective or informed decision following formal assessment and investigations. Examples of this category include:

...an emergency as defined by the patient

...if the patient thinks they require emergency or urgent care they are usually right

A person who feels that ED is the best place for them to be

If a patient or care-giver feel that the condition requires medical treatment that day then the attendance is appropriate
Map 5.3: Concept Coding Map - Round 1 Question 2

Question 2: How would you define an ‘appropriate’ reason for attending ED?

Condition specific parameters
- Acuity, n=14
- Urgency, n=18
- Undifferentiated nature of condition, n=7
- Severity, n=15

Person specific parameters
- Patient perception / belief, n=25

Service specific parameters
- Referral source, n=4
- Issues of cost and access opportunity, n=10
- Require specialty resources, n=9
- Most appropriate service choice, n=15
Map 5.4: Thematic Coding Map - Round 1 Question 2

How would you define an ‘appropriate’ reason for attending ED?

- Urgency
  \( n=32 \)

- Severity
  \( n=15 \)

- Patient perception / beliefs
  \( n=26 \)

- Service aspects
  \( n=44 \)
5.3.5 Service aspects

The largest category was that which identified aspects related to service provision. This included consideration of cost / access / opportunity issues \((n=10)\), recognition of most appropriate service site \((n=15)\), the need for specialty test, investigation or resource provision \((n=9)\) and referral source \((n=4)\). Examples of responses are given for the subcategories as follows.

Cost / access / opportunity issues:

...availability (including affordability) of alternative healthcare opinion is an important factor

...situations in which appropriate and timely alternative services are unable to be accessed by the patient for reasons of time of day/language/cost etc

...did not know of any other options for accessing care in a situation where their own GP was not available

Recognition of most appropriate service site:

A condition or symptom that is unable to be treated by a community based service to the same or better degree than within the hospital setting

...cannot reasonably be provided by a GP or other community based provider

Specialty tests / investigations / resources:

...assessment using tools (such as laboratory or radiology) not immediately available in the primary care setting

...likely to require the resources of an Emergency Department (with attendant resource (infrastructure & staffing) implications

Referral source:

The patient has been brought here by ambulance

...were referred by another doctor or community agency

5.3.6 Comparison between medical and nursing responses

There were no clear patterns of difference between the medical and nursing responses, with all four themes represented in both datasets.

5.4 Defining an ‘inappropriate’ presentation

5.4.1 Free text analysis: question three

This question asked participants to consider how they might define an ‘inappropriate’ reason for attending ED. This was included to allow a comparison between responses identifying key elements associated with the concepts of ‘appropriateness’ and
‘inappropriateness’, and to determine whether there was consistency in identifying core features. Fifty-eight respondents provided an answer to this question.

Panel responses again fell into the three broad areas of service, condition and patient specific determinants, but with the addition of a fourth area that captured responses that provided rationale for the inability to provide an answer to this question. The individual sub-coding that made up these sections varied in emphasis from those given to determine ‘appropriateness’, but still represented the same central themes (see maps 5 and 6):

- condition specific (n=24)
- service specific (n=16)
- patient perception / choice (n=23)
- inappropriateness unable to be determined (n=9)

The two largest sub-groups were those relating to the nature of the condition and to expressions of patient perception / choice. It could be argued that these two groups are most representative of the subjective nature / interpretation of the illness experience, and as such are specific to each individual patient’s contextual understanding.
Map 5.5: Concept Coding Map - Round 1 Question 3

Question 3: How could you define an ‘inappropriate’ reason for attending ED?
How could you define an ‘inappropriate’ reason for attending ED?

- Condition specific: n=19
- Patient perception / choice: n=17
- Service specific: n=16
- Unable to answer: n=8
5.4.2 Condition specific

The largest number of responses drew on aspects of the likely presenting complaint \((n=24)\). While these considered the ‘urgency’ and ‘acuity’ of the condition in a similar manner to the responses given for defining ‘appropriateness’, the emphasis was less explicit with only eight statements specifically identifying ‘non-urgent’ or ‘minor’ conditions:

...a condition that is non life-threatening

...require non-emergency follow-up eg dressing changes, removal of sutures...

The largest sub-group in this section involved statements referring to the nature of the condition as being non time or service specific \((n=11)\)

...patient could comfortably wait for GP appointment or attend after hours GP clinic.

An illness or condition that could easily be managed at home or in the community...

In addition to these, there were five statements made that identified management of stable chronic conditions as being inappropriate use of ED resources:

...long term established disease / illnesses requiring routine chronic management

...including chronic stable conditions

5.4.3 Patient perception / choice

The second largest theme was that which considered aspects of the patient perception / choice process \((n=23)\). Four coding groups were identified that contributed to this theme: finance, seeking an alternative to a GP service, recognition of non-emergency status and convenience. Four responses suggested the presence of a sub-group of patients who actively sought ED care as an alternative to utilising a GP service:

...reluctance to call or see their local doctor

...[depends on] what confidence they have in Primary Health care facility vs Emergency Department skill and expertise

Seven statements identified that patients presenting to ED with conditions that are not ED appropriate may do so in the knowledge that their condition is not ‘an emergency’. Examples included:

Individuals who are aware that they do not need ED care

...when the patient or care-giver believe that the condition can be adequately addressed over the next few days rather than just today
Attending ED to intentionally circumvent normal channels of health care provision
for non-urgent, stable chronic or minor conditions

Finance was also identified as a factor contributing to inappropriate presentations in
five statements, as seen in the following:

Where the only motivation for the attendance is based on not having to pay for the
service

A final sub-group identified in this theme was that of ‘convenience’, with seven text
fragments acknowledging this, for example;

Convenience- that is knowledge of other places but happened to be near the
hospital, or worked at the hospital, or has family who work at the hospital.”

...those who are otherwise well but are 'just passing' and thought they would get
their 6/12 old problem sorted out

5.4.4 Service specific

Sixteen statements referred to elements indicating the specific nature of the service
available, and using this as a determinant of ‘appropriateness’. The largest sub-group here
was those statements which considered the role of primary care or GP services, suggesting
that ‘GP appropriate’ was likely ‘ED inappropriate’. Five statements identified other
service options ‘in general’ that would provide more appropriate sources of care, with one
respondent specifically identifying the use of ED as a means of bypassing the formal
hospital admission processes.

Anyone using ED as a GP service. Anyone who could seek help in the appropriate
community areas such as dentists, Crisis teams, primary options.

Presenting with minor illness having given no consideration to seeking care
elsewhere and/or using ED as primary care provider

When referred by Primary Health Collectives for complaints they are able to tend to
however cannot ‘fit them in’ because practice is busy

Sent by private specialist to short cut admission to the public sector

5.4.5 Inappropriateness unable to be determined

A small but explicit theme emerged related to the viability of the central question,
providing rationale for why this could not in fact be answered. Nine responses addressed
this issue, considering aspects such as the role of the ED (n=1), the inability to
prospectively identify ‘inappropriateness’ (n=3) and the philosophical belief that there are
no inappropriate reasons for presenting to ED (n=5).

There are no inappropriate reasons for attending ED. Low priority patients will
wait, but they will be seen
I don’t believe that any attendance is inappropriate. Some may choose other options when offered them, but it is still appropriate for people to seek assistance for health issues from EDs.

This is an interesting question, as you don’t know what a patient’s problem is before you see them. Therefore how can you decide a priori that their presentation was inappropriate?

It is not an emergency department’s role to be the gate keepers of who should or should not be accessing community care from an acute setting. I believe this is the role of the Ministry ...

...with hindsight it would be easy to say those that were discharged after receiving no more investigations or treatment than a competent community provider (eg GP, pharmacy, sensible friend or neighbour!!) could have easily given. However at the time of decision to attend ED by pt the symptoms experienced by them would be hard to say this group would or wouldn’t be appropriate for ED.

5.5 Delphi rated questions

Panel members were informed that the questions included in this section were derived from the existing literature about ‘appropriateness’ of patient presentations to an ED setting. The first two questions included sets of statements which participants were asked to rate using a Likert scale that ranged from ‘strongly disagree’, ‘disagree’, ‘uncertain’, and ‘agree’ to ‘strongly agree’. The third set asked participants to rate a series of specific conditions / circumstances as to whether or not they were ‘appropriate’ for management in the ED. These had been previously identified as potentially ‘inappropriate’ for ED care in internationally published literature.

5.5.1 Findings Set 1 statements: Role of EDs

The first set of statements related specifically to the role of EDs in regard to the provision of emergency care. Eleven statements were presented, as listed below. The number of panel members who gave a response to each question is indicated within the brackets.

1. Emergency departments (EDs) should be kept for ‘emergency’ (N=59)
2. Patients are capable of determining what conditions are suitable for ED care (N=59)
3. Patients should see a general practitioner (GP) or After Hours Service before coming to the ED (N=59)
4. Patients with non urgent health needs should not be seen in the ED (N=59)
5. Only a doctor can determine the urgency of a health problem (N=59)
6. If a patient states they can’t afford to go anywhere else, they should be seen in the ED (N=59)
7. Seeing non urgent patients in the ED adversely affects the care of more seriously unwell patients (N=59)

8. It is safe to refer some patients away from the ED (N=59)

9. Not all patients who come to the ED need hospital level assessment (N=59)

10. NZ EDs have a problem with ‘inappropriate’ patient attendances (N=58)

11. All patients who present to an ED need to be assessed by a doctor (N=59)

Combined Delphi panel responses are given by percentage and number of responses for each question in table 5.1.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Uncertain</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency departments (EDs) should be kept for ‘emergency’</td>
<td>7% (n=4)</td>
<td>17% (n=10)</td>
<td>10% (n=6)</td>
<td>46% (n=27)</td>
<td>20% (n=12)</td>
<td>N=59</td>
</tr>
<tr>
<td>Patients are capable of determining what conditions are suitable for ED care</td>
<td>5% (n=3)</td>
<td>44.1% (n=26)</td>
<td>20% (n=12)</td>
<td>29% (n=17)</td>
<td>2% (n=1)</td>
<td>N=59</td>
</tr>
<tr>
<td>Patients should see a general practitioner (GP) or After Hours Service before coming to the ED</td>
<td>10% (n=6)</td>
<td>48% (n=28)</td>
<td>25% (n=15)</td>
<td>15% (n=9)</td>
<td>2% (n=1)</td>
<td>N=59</td>
</tr>
<tr>
<td>Patients with non urgent health needs should not be seen in the ED</td>
<td>5% (n=3)</td>
<td>20% (n=12)</td>
<td>24% (n=14)</td>
<td>37% (n=22)</td>
<td>14% (n=8)</td>
<td>N=59</td>
</tr>
<tr>
<td>Only a doctor can determine the urgency of a health problem</td>
<td>29% (n=17)</td>
<td>66% (n=39)</td>
<td>2% (n=1)</td>
<td>3% (n=2)</td>
<td>0% (n=0)</td>
<td>N=59</td>
</tr>
<tr>
<td>If a patient states they can’t afford to go anywhere else, they should be seen in the ED</td>
<td>2% (n=1)</td>
<td>19% (n=11)</td>
<td>22% (n=13)</td>
<td>36% (n=21)</td>
<td>22% (n=13)</td>
<td>N=59</td>
</tr>
<tr>
<td>Seeing non urgent patients in the ED adversely affects the care of more seriously unwell patients</td>
<td>15% (n=9)</td>
<td>39% (n=23)</td>
<td>9% (n=5)</td>
<td>25% (n=15)</td>
<td>11% (n=7)</td>
<td>N=59</td>
</tr>
<tr>
<td>It is safe to refer some patients away from the ED</td>
<td>7% (n=4)</td>
<td>24% (n=14)</td>
<td>15% (n=9)</td>
<td>48% (n=28)</td>
<td>7% (n=4)</td>
<td>N=59</td>
</tr>
<tr>
<td>Not all patients who come to the ED need hospital level assessment</td>
<td>0% (n=0)</td>
<td>3% (n=2)</td>
<td>2% (n=1)</td>
<td>66% (n=39)</td>
<td>29% (n=17)</td>
<td>N=59</td>
</tr>
<tr>
<td>NZ EDs have a problem with ‘inappropriate’ patient attendances</td>
<td>12% (n=7)</td>
<td>33% (n=19)</td>
<td>16% (n=9)</td>
<td>29% (n=17)</td>
<td>10% (n=6)</td>
<td>N=58</td>
</tr>
<tr>
<td>All patients who present to an ED need to be assessed by a doctor</td>
<td>19% (n=11)</td>
<td>63% (n=37)</td>
<td>9% (n=5)</td>
<td>9% (n=5)</td>
<td>2% (n=1)</td>
<td>N=59</td>
</tr>
</tbody>
</table>
Emergency departments (EDs) should be kept for ‘emergencies’
No consensus reached

This statement had been derived from discussion in the international literature, but also from public health messages disseminated within the NZ health care context. A number of NZ campaigns have been undertaken with the theme of ‘keeping emergency departments for emergencies’, involving endorsement from Ministry of Health and public education initiatives. There have been specific directives using this phrase from various District Health Boards, in the form of press releases and radio and media campaigns[55, 366-368]. Given that both the phrasing and the intent of this statement had been identified in professional and public forums, it could be seen as somewhat surprising that agreement was not evident within the expert panel.

All respondents provided a rating for this first statement, which read “Emergency departments (EDs) should be kept for ‘emergencies’”. Thirty-nine participants indicated that they either ‘agreed’ or ‘strongly agreed’ with this statement (66%). The most strongly represented response was ‘agree’. Ten participants chose ‘disagree’ and four ‘strongly disagree’ in response to the statement. If the responses were considered by profession, there was consensus within the medical cohort, with 74% selecting either ‘agree’ or strongly ‘agree’. It is unclear whether this agreement was influenced by the public health campaigns and media reporting which had been present, or whether this was linked to the medical definition of ‘emergency’ and the apparent self evident correlation between an emergency condition and an ED. There was no consensus within the nursing group, however, with only 61% indicating agreement. Again, it could be argued that there are variations in the definition of ‘emergency’ which may be linked to professional groups, or possibly the larger group of nurses who responded may have resulted in a naturally greater spread of responses. While the nursing cohort was larger, this group showed less uncertainty, with more individuals opting for a definite positive or negative response. Only 8% (n=3) of the nursing cohort selected the ‘uncertain’ response, compared to 13% (n=3) of the medical cohort. As a combined expert panel, consensus was not achieved.

A chi-square test was run and no significant difference was found between the groups in terms of the proportion of responses.
Patients are capable of determining what conditions are suitable for ED care

No consensus reached

There is on-going debate in the literature with regard to the role of ‘gate keeping’ and the ability of individuals to self determine the significance of their injury or illness. This is in part influenced by differing health systems and in particular variations in patient, third party or government level funding of services. Within the NZ context, there are several factors which can be seen to influence acceptance or otherwise of self determination. These include recognition that while there is no guaranteed access to a particular source of health care, that the NZ Code of Health and Disability Services Consumers’ Rights does have the capacity to enforce a duty to provide emergency care where this is ethically required[369]. However, this does not identify a location of care nor offer a definition of ‘emergency care’ in this context. Other sections of the Code which may affect understandings of individuals rights to self determine the severity of their condition include Right 4, the Right to services of an appropriate standard, and Right 7 Right to make an informed choice and give informed consent[370]. Of note is section 8 under Right 7, which acknowledges that every consumer has the right to express a preference as to who will provide services and have that preference met where practicable. In addition to the caveat ‘where practicable’, it is noted in the Code that provider compliance is considered in relation to ‘the circumstances’, which is defined as all relevant circumstances including clinical and resource factors[370].

All members of the panel offered a rating for this statement. Eighteen participants (31%) indicated that they either ‘agreed’ (n=17) or ‘strongly agreed’ (n=1) with the statement. The strongest single response category was ‘disagree’. Twenty-six participants rated the statement ‘disagree’ (44%) and three ‘strongly disagree’ (5%). While consensus was not reached by the panel or within the individual professions, there were differences
between the two professional groups. 25% of the nursing cohort selected ‘uncertain’ and 13% of the medical cohort. Only five of the nursing respondents (14%) gave a rating that indicated agreement, while 56% of the medical responses indicated either ‘agree’ ($n=12$) or ‘strongly agree’ ($n=1$). This suggests a possible variation on the popular perception of nurses as patient advocates (with the assumption that such advocacy would equate to recognition of patient right to self determination) and medical staff as paternalistic.

**Table 5.2: Patients are capable of determining what conditions are suitable for ED care (assessment for chi-square test)**

<table>
<thead>
<tr>
<th>Patients are capable of determining what conditions are suitable for ED care</th>
<th>Strongly disagree</th>
<th>disagree</th>
<th>uncertain</th>
<th>agree</th>
<th>strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursing cohort</td>
<td>3</td>
<td>19</td>
<td>9</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Medical cohort</td>
<td>0</td>
<td>7</td>
<td>3</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
<td>26</td>
<td>12</td>
<td>17</td>
<td>1</td>
</tr>
</tbody>
</table>

There was a significant difference between the proportion of responses across groups [$\chi^2(4) = 14.52, p < .00$].

**Figure 5.2: Pts can determine conditions suitability**

![Patients are capable of determining what conditions are suitable for ED care.]

Patients should see a general practitioner (GP) or After Hours Service before coming to the ED  
*No consensus reached*

The role of the GP is often positioned as a first response or gatekeeper, used to filter patient approaches to secondary and tertiary level care. This is again influenced by particular health care systems and policies, and the link to ED care evident in the wider literature. GPs are suggested as suitable for identifying non-urgent patients, and often used as the gold standard in retrospective patient reviews. The assumption is also made that GPs and Emergency Physicians are equally specialised in their roles, but that such roles
can be complimentary, and strategies put forward to incorporate the GP primary care focus into or alongside EDs. Within NZ, some GPs act in conjunction with EDs, provide after hours emergency care and some individuals will work across settings. This question drew on the response to GPs as a means of diverting or authorising patient access to ED, which is reflected in a number of NZ health initiatives, including the ‘1-2-3 who should I see?’ campaign which aimed to encourage individuals to see the GP as the first port of call in regard to healthcare needs[367].

All participants rated this statement. Seventeen percent of the panel (n=10) indicated agreement while 25% were uncertain (n=15). The single most commonly identified rating was ‘disagree’, with 28 participants selecting this (48%). Six respondents strongly disagreed with the statement (10%); 28% of the nursing cohort and 22% of the medical cohort selected ‘uncertain’ as their response. While consensus within the panel was not achieved, consensus was present within the medical cohort, with 82% either disagreeing (n=16) or strongly disagreeing (n=3) with the statement.

A chi-square test was run and no significant difference was found between the groups in terms of the proportion of responses.

**Figure 5.3: GP or AHS visit before ED**

![Bar chart showing responses to the statement](chart.png)

**Patients with non urgent health needs should not be seen in the ED**

*No consensus reached*

This statement was included as a counterpoint to the first question – whether EDs should be kept for ‘emergencies’. The intention was to see if there was an appropriate correspondence between the two statements, giving greater credibility should consensus have been achieved. The assumption was that if an individual agreed with the first statement, they would by default also be in agreement with this one. Interestingly, while consensus was not reached, there was a higher rate of agreement with the statement that EDs should be kept for emergencies than the corresponding view that, (if this was to be
achieved), patients with non-urgent health needs should not be seen in ED. The lack of congruence between the two sets of responses may reflect the impact of different wording, and the implications that the emotional or social overtones and implications of a statement can alter its perception.

All panel members rated this statement. The single most commonly selected response was ‘agree’ with 22 entries (37%), with 24% of participants remained uncertain as to their response (n=14). While consensus was not reached by the panel as a whole or by the professional sub-groups, a similar pattern was evident for both medical and nursing cohorts. 52% of the medical (n=12) and 50% of the nursing cohort (n=18) either agreed or strongly agreed with the statement.

Figure 5.4: Non-urgent Pts should not be seen in the ED

Only a doctor can determine the urgency of a health problem
Consensus reached: disagreement (95%).

While not directly linked, this statement was designed to be considered in relation to statement two which indicated that patients are capable of determining what conditions are suitable for ED care. While there are other groups who could potentially make the determination of urgency or suitability for ED care (such as family, friends, allied health workers), it was felt that the most likely candidates were medical staff or patients.

All respondents rated this question. A clear consensus both from the panel overall and from the individual professions was identified. 95% of panel members either disagreed (n=39) or strongly disagreed (n=17) with this statement. Emphasis was stronger within the nursing cohort, with 100% disagreement, which included 14 responses of ‘strongly disagree’ (39%) and 22 of ‘disagree’ (61%). Within the medical cohort, 87% disagreed with the statement (three strongly disagreed [13%] and 17 disagreed [74%]).
It is possible that the emphasis in the nursing response reflects concern that agreement with the statement suggests a nurse is unable to determine the urgency of a health problem. Individual responses may indicate a reluctance to see the medical role as so specialised that no one else is capable of recognising urgency. However, this does not necessarily imply recognition that others (such as patients) are seen as competent to make this determination (refer to responses to earlier statements). This would suggest that the way in which questions or statements are posed, the language and context are significant in determining the type of answers received.

**Figure 5.5: Only a doctor can determine urgency**

<table>
<thead>
<tr>
<th></th>
<th>Delphi panel</th>
<th>Nursing cohort</th>
<th>Medical cohort</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Disagree</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Uncertain</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Agree</td>
<td>40</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Strongly agree</td>
<td>30</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>

*Only a doctor can determine the urgency of a health problem*

If a patient states they can’t afford to go anywhere else, they should be seen in the ED

*No consensus reached*

This question was derived from concerns expressed regarding access to health care, and the potential impact on patients with non urgent care needs who may be deferred to other services. This is evident within the international literature, in particular that from the US, where the fee for service system has the potential to limit patient access and provider choice. In NZ, there is no fee associated with ED services, but GP care involves subsidised payment. As a result, there has been public debate over the potential impact of directing patients to attend other services where there may be financial barriers.

All panel members rated this statement. The mostly commonly occurring response was ‘agree’, at 36% (n=21). A further 13 respondents selected ‘strongly agree’ (22%). Six of the medical cohort selected ‘uncertain’ (26%) and seven from the nursing cohort (19%) giving a combined 22%. Consensus was not achieved at either the panel or professional sub-group level, and a similar distribution of responses was found between the nursing and medical cohort. This would suggest that there remains an uncertainty regarding the role of non medical factors in considering appropriateness.
Figure 5.6: Cost to pt

Seeing non urgent patients in the ED adversely affects the care of more seriously unwell patients

No consensus reached

A commonly held perception reported within the public arena is that non urgent patients contribute significantly to overcrowding, which in turn affects the function of the ED as a whole. In order to test whether this is a concern amongst the expert panel, participants were asked whether this impacted the care of the more seriously ill patients.

All panel members responded to this statement. Consensus was not reached at either the panel or individual profession levels. The most commonly selected response was ‘disagree’ at 39% (n=23) followed by ‘agree’ at 25% (n=15). Only 9% of respondents were undecided. The distribution pattern for the responses showed that although similar between the professional groups, with 53% of nursing representatives and 56% of medical either disagreeing or strongly disagreeing, there was a stronger sense of disagreement within the medical cohort. Twenty five percent of the medical cohort (n=6) strongly disagreed, compared to 8% of the nursing cohort (n=3).

There was a lower level of uncertainty expressed towards this statement, suggesting a greater polarisation of opinions. However, this diversity of opinion brings into doubt presumptions that non urgent patients have the potential to contribute to adverse outcomes in the ED, by adding workload pressure through increased numbers.
Figure 5.7: Seeing non-urgent pts adversely affects the more seriously unwell

It is safe to refer some patients away from the ED

No consensus reached

Linking explicitly to concerns around the implications of determining non urgency, the expert participants were all asked to consider whether at a generic level, it is safe to refer some patients away from the ED. This statement was derived from common threads within the international literature, which discussed the advantages and disadvantages of such strategies, and the increasing media coverage in NZ that suggested referral away may be necessary as a response to high patient numbers.

All panel members rated this statement. 54% of respondents indicated that they either agreed (n=28) or strongly agreed (n=4) with this statement. The most commonly occurring response was ‘agreed’ (48%). 14 panel members disagreed with the statement, and a further four ‘strongly disagreed’. A similar pattern of responses was identified between the medical and nursing cohort.

Figure 5.8: It is safe to refer some pts away from ED

Not all patients who come to the ED need hospital level assessment

Consensus reached: agreement (95%)

Following on from the previous statement, clarification was sought as to whether the panel believed all patients who present to ED have a requirement for this level of care. All
respondents rated this question. A clear consensus both from the panel overall and from the individual professions was identified. 95% of panel members (n=56) either agreed (n=39) or strongly agreed (n=17) with this statement. Similar levels of agreement were shown within the professional sub-groups, with the nursing cohort showing 94% agreement (67% agree, n=24; 28% strongly agree, n=10) and the medical cohort 96% agreement (65% agree, n=15; 30% strongly agree, n=7).

It is interesting to note that although there was clear agreement that not all patients needed the level of care offered by a hospital service, there was not a similar level of support, for the suggestion that some patients could be safely deferred to other care providers. Again, this could be considered to indicate that wider social factors were being considered in responding to these questions.

**Figure 5.9: Not all pts who come to ED need hospital assessment**

![Graph showing percentage of respondents' agreement with statement](image)

**NZ EDs have a problem with ‘inappropriate’ patient attendances**

No consensus reached

This statement was included to identify whether respondents thought inappropriateness of ED presentations was problematic within NZ. Again this should be considered within the context of professional body statements which suggest it is not, and media and policy responses which suggest it may be.

Fifty-eight panel members provided a rating for this statement. The most commonly recorded response was ‘disagree’ at 33% (n=19), with a further 13% recording ‘strongly disagree’ (n=7). The uncertainty rating was 16% (n=9) and 40% of respondents either agreed (n=17) or strongly agreed (n=6) with the statement. Consensus was not reached by the panel members, nor within the individual professional groups. However, there was a stronger tendency towards ‘agreement’ with the statement within the nursing cohort and a stronger tendency towards disagreement’ within the medical cohort. Of the nurses, 50% either agreed or strongly agreed compared to 22% of the doctors. 65% of the medical
cohort either disagreed or strongly disagreed with the statement compared to 31\% of the nursing cohort.

A potential factor which could have affected the professional group responses is that nurses are typically those who deal with patients at triage, and this may have influenced perceptions of the impact of inappropriate presentations. Although often not formally recorded or registered, some patients may be advised or informally redirected to other services at this point in their care. There is also evidence of nurses facing the impact of disgruntled or aggressive patients who have been defined as non urgent and who subsequently face longer waits before medical assessment.

<table>
<thead>
<tr>
<th>NZ EDs have a problem with 'inappropriate' patient attendances</th>
<th>Strongly disagree</th>
<th>disagree</th>
<th>uncertain</th>
<th>agree</th>
<th>strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursing cohort</td>
<td>3</td>
<td>8</td>
<td>6</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>Medical cohort</td>
<td>4</td>
<td>11</td>
<td>3</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>7</td>
<td>19</td>
<td>9</td>
<td>17</td>
<td>6</td>
</tr>
</tbody>
</table>

There was a significant difference between the proportion of responses across groups $[\chi^2(4) = 10.43, p < .05]$. 

**Figure 5.10: NZ EDs have a problem with 'inappropriate' attendances**

All patients who present to an ED need to be assessed by a doctor

*Consensus achieved: disagreement (81%)*

The final statement in this first section looked at appropriateness from another perspective, seeking to determine whether another care provider could potentially assess presenting patients. All panel members rated this question. The most commonly selected response was ‘disagree’ (63\%; $n=37$). Eleven participants selected ‘strongly disagree’ (19\%). Overall consensus was achieved at 81\% indicated either ‘disagree’ or ‘strongly disagree’. Nursing responses provided slightly more emphasis with 22\% ‘strongly
disagree’ compared to 13% of medical responses. The nursing cohort provided an 86% consensus rating, the medical cohort 74%.

**Figure 5.11: All pts who present to an ED need to be assessed by a doctor**

A summary of the findings from this first bank of statements is presented below (see table 11) which provides a breakdown of consensus by overall Delphi panel and also by the medical and nursing cohorts within this panel.
Table 5.4: Consensus Summary (Set 1) Role of the ED

<table>
<thead>
<tr>
<th>Statement</th>
<th>Delphi panel consensus</th>
<th>Nursing cohort consensus</th>
<th>Medical cohort consensus</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Emergency departments (EDs) should be kept for ‘emergency’</td>
<td>No consensus</td>
<td>No consensus</td>
<td>Agreement 74%</td>
</tr>
<tr>
<td>2. Patients are capable of determining what conditions are suitable for ED care</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>3. Patients should see a general practitioner (GP) or After Hours Service before coming to the ED</td>
<td>No consensus</td>
<td>No consensus</td>
<td>Disagreement 82%</td>
</tr>
<tr>
<td>4. Patients with non urgent health needs should not be seen in the ED</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>5. Only a doctor can determine the urgency of a health problem</td>
<td>Disagreement 95%</td>
<td>Disagreement 100%</td>
<td>Disagreement 87%</td>
</tr>
<tr>
<td>6. If a patient states they can’t afford to go anywhere else, they should be seen in the ED</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>7. Seeing non urgent patients in the ED adversely affects the care of more seriously unwell patients</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>8. It is safe to refer some patients away from the ED</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>9. Not all patients who come to the ED need hospital level assessment</td>
<td>Agreement 95%</td>
<td>Agreement 94%</td>
<td>Agreement 96%</td>
</tr>
<tr>
<td>10. NZ EDs have a problem with ‘inappropriate’ patient attendances</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>11. All patients who present to an ED need to be assessed by a doctor</td>
<td>Disagreement 81%</td>
<td>Disagreement 86%</td>
<td>Disagreement 74%</td>
</tr>
</tbody>
</table>

5.5.2 Findings Set 2 statements: Determinants of appropriateness.

The second set of statements related specifically to potential determinants of ‘appropriateness’ in regard to the provision of ED based care. These specific factors were based on parameters selected from the published guidelines and tools for identifying appropriateness of presentation.

Table 5.5: Summary of Panel Responses: Situational / descriptive

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Uncertain</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>If a patient’s symptoms have remained unchanged for more than 72hrs before presentation, this can be considered an inappropriate attendance</td>
<td>10% (n=6)</td>
<td>66% (n=38)</td>
<td>10% (n=6)</td>
<td>14% (n=8)</td>
<td>0% (n=0)</td>
<td>N=58</td>
</tr>
<tr>
<td>If a patient has been referred by a GP or After Hours doctor this is an appropriate attendance</td>
<td>0% (n=0)</td>
<td>32% (n=19)</td>
<td>17% (n=10)</td>
<td>39% (n=23)</td>
<td>12% (n=7)</td>
<td>N=59</td>
</tr>
<tr>
<td>If a patient is transported to hospital by ambulance this represents an appropriate attendance</td>
<td>10% (n=6)</td>
<td>58% (n=34)</td>
<td>14% (n=8)</td>
<td>17% (n=10)</td>
<td>2% (n=1)</td>
<td>N=59</td>
</tr>
<tr>
<td>Statement</td>
<td>Strongly disagree</td>
<td>Disagree</td>
<td>Uncertain</td>
<td>Agree</td>
<td>Strongly agree</td>
<td>Response Count</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>-------------------</td>
<td>----------</td>
<td>-----------</td>
<td>-------</td>
<td>----------------</td>
<td>----------------</td>
</tr>
<tr>
<td>If a patient is discharged from ED with no further follow up, this is an inappropriate attendance</td>
<td>20% (n=12)</td>
<td>66% (n=39)</td>
<td>10% (n=6)</td>
<td>3% (n=2)</td>
<td>0% (n=0)</td>
<td>N=59</td>
</tr>
<tr>
<td>If a patient’s condition resulted from a road traffic accident this represents an appropriate attendance</td>
<td>2% (n=1)</td>
<td>33% (n=19)</td>
<td>17% (n=10)</td>
<td>43% (n=25)</td>
<td>5% (n=3)</td>
<td>N=58</td>
</tr>
<tr>
<td>If a patient is subsequently admitted to hospital this is an appropriate attendance</td>
<td>0% (n=0)</td>
<td>15% (n=9)</td>
<td>14% (n=8)</td>
<td>56% (n=33)</td>
<td>15% (n=9)</td>
<td>N=59</td>
</tr>
<tr>
<td>If a patient’s condition resulted from a work place accident, this represents an appropriate attendance</td>
<td>3% (n=2)</td>
<td>53% (n=31)</td>
<td>17% (n=10)</td>
<td>24% (n=14)</td>
<td>3% (n=2)</td>
<td>N=59</td>
</tr>
<tr>
<td>If a patient has received no investigations while in the ED, this is an inappropriate attendance</td>
<td>12% (n=7)</td>
<td>67% (n=38)</td>
<td>16% (n=9)</td>
<td>5% (n=3)</td>
<td>0% (n=0)</td>
<td>N=57</td>
</tr>
<tr>
<td>If a patient has received no treatment other than a prescription, bandage, sling dressing or steristrips this represents an inappropriate attendance</td>
<td>15% (n=9)</td>
<td>58% (n=34)</td>
<td>9% (n=5)</td>
<td>17% (n=10)</td>
<td>2% (n=1)</td>
<td>N=59</td>
</tr>
<tr>
<td>If a patient requires oxygen administration, this represents an appropriate attendance</td>
<td>0% (n=0)</td>
<td>15% (n=9)</td>
<td>15% (n=9)</td>
<td>61% (n=36)</td>
<td>9% (n=5)</td>
<td>N=59</td>
</tr>
<tr>
<td>If a patient requires a specialty consultation, this represents an appropriate attendance</td>
<td>2% (n=1)</td>
<td>38% (n=22)</td>
<td>12% (n=7)</td>
<td>45% (n=26)</td>
<td>3% (n=2)</td>
<td>N=58</td>
</tr>
<tr>
<td>If a patient requires prescription medications administered in ED (other than Tetanus or oral analgesics) this is an appropriate attendance</td>
<td>2% (n=1)</td>
<td>56% (n=33)</td>
<td>14% (n=8)</td>
<td>27% (n=16)</td>
<td>2% (n=1)</td>
<td>N=59</td>
</tr>
<tr>
<td>Patients triaged as category five (lowest category at triage, less urgent, to be seen within 120 minutes) have inappropriate reasons for presenting.</td>
<td>14% (n=8)</td>
<td>66% (n=39)</td>
<td>10% (n=6)</td>
<td>10% (n=6)</td>
<td>0% (n=0)</td>
<td>N=59</td>
</tr>
</tbody>
</table>

If a patient’s symptoms have remained unchanged for more than 72hrs before presentation, this can be considered an inappropriate attendance.

Consensus achieved: disagreement (76%)

A number of protocols presented in the literature identify specific time frames that have been related to appropriateness. Commonly 24, 48 and 72 hour time intervals have been incorporated into discussion around length of symptoms – the decision to include the 72 hour was made on the basis that the longer length of time would most likely be least contentious.
Figure 5.12: If symptoms unchanged for > 72 hrs, this is an inappropriate attendance

![Graph showing responses](image)

Fifty-eight panel members rated this statement. Consensus was apparent with 75% of the nursing cohort and 77% of the medical cohort either entering ‘disagree or ‘strongly disagree’ in response to this statement. 10% of respondents indicated that they were ‘uncertain’ (n=6). While only one medical respondent indicated agreement with this statement (5%), a greater percentage of the nursing group did so (19%, n=5). No panel members rated this as ‘strongly agree’.

**If a patient has been referred by a GP or After Hours doctor this is an appropriate attendance.**

*No consensus reached.*

The role of the GP or community based physician is often presented in the literature as one of ‘gate keeping’, or managing access to the ED or hospital level services. While there is no current requirement within the NZ health system to gain ‘prior approval’ or referral from a GP, this has been advocated both nationally and internationally in various forums. This question was included to gauge the level of support for the concept that GPs can accurately identify appropriate patients for ED review.

All panel members rated this statement, with 51% of respondents either agreeing or strongly agreeing with the statement. When considered by profession, 61% of doctors (n=14) and 44% of nurses (n=16) showed agreement. Within the combined panel, 17% were uncertain, while 60% disagreed. No respondents strongly disagreed. 39% of nurses (n=14) and 22% of doctors (n=5) entered ‘disagree’. The most commonly selected response was ‘agree’ at 39% (n=23).
If a patient is transported to hospital by ambulance this represents an appropriate attendance

Consensus achieved: disagreement (70%)

Arrival methods as well as referral have commonly been cited as mediators of appropriateness. All panel members rated this statement. Overall the panel reached the threshold for a consensus judgement of ‘disagreement’ with 70% (n=41) either allocating a rating of disagree (n=35) or strongly disagree (n=6). When responses from the two professions were considered, there was consensus disagreement from the nursing cohort at 79% but the medical cohort consensus on disagreement was only 52%. The remaining medical cohort responses fell largely in the ‘uncertain’ category (22%, n=5) with four respondents in agreement with the statement (17%) and no one indicating ‘strong agreement’.

If a patient is discharged from ED with no further follow up, this is an inappropriate attendance.

Consensus achieved: disagreement (86%)

This statement was included for consideration based on its widespread use in reviews of patient records when retrospectively measuring appropriateness. All panel members rated this statement, consensus was achieved with 86% of respondents indicating either
‘disagree’ (n=39) or ‘strongly disagree’ (n=12). 80% of nurses and 96% of doctors indicated disagreement. 10% were uncertain (n=6). No medical staff rated agreement with the statement, two nurses selected ‘agree’, no one selected ‘strongly agree’.

Figure 5.15: If discharged from ED with no follow up, this is an inappropriate attendance

If a patient’s condition resulted from a road traffic accident this represents an appropriate attendance.
No consensus reached.

This statement was included as a result of reviews which have identified the impact of terminology on perceptions of ED role. The use of titles such as ‘Accident and Emergency’ and ‘Casualty’ have been associated with acceptance of specific mechanism of injuries as indicators of appropriateness, for example road traffic accidents (RTAs) and work place accidents. This allows consideration of causative factors rather than external social considerations or physiological parameters.

Fifty-eight panel members rated this statement. 17% of respondents selected ‘uncertain’ as their response (n=10). 48% indicated agreement with this statement (n=28) 54% of the nursing cohort (n=19) were in agreement compared to 39% of the medical cohort (n=9). The most common single response was ‘agree’ with 43% representation (n=25).
Figure 5.16: Road traffic accidents are ED appropriate

If a patient is subsequently admitted to hospital this is an appropriate attendance.

Consensus achieved: agreement (71%)

This statement has a similar role to that which considered whether discharge from ED with no follow up indicates appropriateness, both having been incorporated into retrospective assessments of appropriateness. All panel members provided a rating for this statement. Overall the panel reached consensus with 71% of members (n=42) either agreeing or strongly agreeing with the statement. When this was considered by profession, the nursing cohort provided an agreement level of 78%, with 21 selecting ‘agree; (58%) and a further seven selecting ‘strongly agree’ (19%). Within the medical cohort, the level of agreement reached 61% (n=14), with 22% disagreeing (n=5) and no one ‘strongly disagreeing’.

Figure 5.17: If admitted to hospital, this is an appropriate attendance

If a patient’s condition resulted from a work place accident, this represents an appropriate attendance.

No consensus reached.

This statement also seeks to explore the historic acceptance of the role of A&E services, tying into the traditional understanding of what constitutes an ‘accident’ or ‘casualty’. All panel members rated this statement. The single most commonly selected
response was ‘disagree’ (53%, $n=31$), with 20% of respondents selecting ‘uncertain’ ($n=10$).

Figure 5.18: Work place accidents are ED appropriate

If a patient has received no investigations while in the ED, this is an inappropriate attendance.

Consensus achieved: disagreement (80%)

This is the third of the statements linked to retrospective assessments and determinations of appropriateness. Fifty-seven of the panel members rated this statement. One doctor and one nurse chose not to respond. Overall consensus of disagreement with this statement was reached with 80% of respondents either disagreeing ($n=38$) or strongly disagreeing ($n=7$). When further analysed from the perspective of the two professional groups, the nursing cohort failed to reach consensus, with a disagreement level of 69% ($n=45$). The balance of responses within this group fell with 22.8% indicating ‘uncertain’ ($n=8$) and 9% agreeing ($n=3$). No one in the nursing cohort selected ‘strongly agree’. The medical cohort reached a consensus of disagreement at 95%. The single most commonly selected response from the panel was ‘disagree’ at 67% ($n=38$).

Figure 5.19: If no investigations while in ED, this is an inappropriate attendance.
If a patient has received no treatment other than a prescription, bandage, sling dressing or steristrips this represents an inappropriate attendance.

*Consensus achieved: disagreement (73%)*

This was drawn from an existing measurement tool, used to assess patient presentations. All respondents rated this statement. The most commonly selected response was ‘disagree’ at 58% (n=34). Consensus was reached overall (73%). Within the sub groups, the medical cohort failed to reach consensus with 69% rating either ‘disagree’ or ‘strongly disagree’, 9% ‘uncertain’ (n=2) and 22% identifying ‘agree’ (n=5). No one within the medical cohort selected ‘strongly agree’. Within the nursing cohort, 75% rated the statement either ‘disagree’ or ‘strongly disagree’.

A chi-square was run and no significant difference was found between the groups in terms of the proportion of responses.

**Figure 5.20: If limited treatment, this is an inappropriate attendance.***

If a patient requires oxygen administration, this represents an appropriate attendance.

*Consensus achieved: agreement (70%)*

Specific treatments and interventions including oxygen administration have been listed in the published guidelines as indicators of appropriateness. All respondents rated this statement, and while consensus was reached overall with 70% of panel members rating either ‘agree’ 61% (n=36) or ‘strongly agree’ 9% (n=5), consensus was not reached within the medical cohort (responses indicating agreement were 65%, with 17% each for ‘uncertain’ and ‘disagree’, n=3). The nursing cohort reached a consensus of ‘agree’ or ‘strongly agree’ at 72%. Overall, ‘agree’ was the single most commonly selected response.
Figure 5.21: If requires oxygen administration, this represents an appropriate attendance.

![Bar chart showing responses](image1)

If a patient requires a specialty consultation, this represents an appropriate attendance.

*No consensus reached.*

The need for specialty referral or consultation was cited in some studies as contributing to the need for ED assessment and subsequent hospital level care. Fifty-eight panel members rated this statement, one nurse not providing a rating. Consensus was not able to be reached, with 40% of respondents indicating ‘disagree’ or ‘strongly disagree’ and 48% either ‘agree’ or ‘strongly agree’. The nursing cohort, while divided, was definite in their opinions, with no one indicating ‘uncertain’. 30% of the medical cohort (n=7) selected this response. Overall, the single most commonly selected response was ‘agree’ at 45% (n=26).

Figure 5.22: If a specialty consultation required, this is an appropriate attendance.

![Bar chart showing responses](image2)

If a patient requires prescription medications administered in ED (other than Tetanus or oral analgesics) this is an appropriate attendance.

*No consensus reached.*

All panel members rated this question. The single most commonly selected response was ‘disagree’ at 56% (n=33). 58% and 56% respectively for the nursing and medical cohorts entered ‘disagree’ or ‘strongly disagree. A similar distribution pattern was evident between the professional groups.
Patients triaged as category five (lowest category at triage, less urgent, to be seen within 120 minutes) have inappropriate reasons for presenting.

Consensus achieved: disagreement (80%)

This statement was included as a result of the use of triage scales and categories to both retrospectively and prospectively identify appropriateness in the international health setting. All respondents rated this statement. Consensus disagreement was reached overall (80%) and within the professional sub groups (nursing 72%; medical 91%). The single most commonly rated response was ‘disagree’ with 66% of the panel selecting this option ($n=39$).

Figure 5.24: Pts triaged as category 5 have inappropriate reasons for presenting.
Table 5.6: Consensus Summary (Set 2) Situational/descriptive

<table>
<thead>
<tr>
<th>Statement</th>
<th>Delphi panel consensus (Combined medical and nursing responses)</th>
<th>Nursing cohort consensus</th>
<th>Medical cohort consensus</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. If a patient’s symptoms have remained unchanged for more than 72hrs before presentation, this can be considered an inappropriate attendance</td>
<td>Consensus disagreement 75%</td>
<td>Consensus disagreement 75%</td>
<td>Consensus disagreement 77%</td>
</tr>
<tr>
<td>2. If a patient has been referred by a GP or After Hours doctor this is an appropriate attendance</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>3. If a patient is transported to hospital by ambulance this represents an appropriate attendance</td>
<td>Consensus disagreement 70%</td>
<td>Consensus disagreement 79%</td>
<td>No consensus Disagreement 52%</td>
</tr>
<tr>
<td>4. If a patient is discharged from ED with no further follow up, this is an inappropriate attendance</td>
<td>Consensus disagreement 86%</td>
<td>Consensus disagreement 80%</td>
<td>Consensus disagreement 96%</td>
</tr>
<tr>
<td>5. If a patient’s condition resulted from a road traffic accident this represents an appropriate attendance</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>6. If a patient is subsequently admitted to hospital this is an appropriate attendance</td>
<td>Consensus agreement 71%</td>
<td>Consensus agreement 78%</td>
<td>No consensus Agreement 61%</td>
</tr>
<tr>
<td>7. If a patient’s condition resulted from a workplace accident, this represents an appropriate attendance</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>8. If a patient has received no investigations while in the ED, this is an inappropriate attendance</td>
<td>Consensus disagreement 80%</td>
<td>Consensus disagreement 69%</td>
<td>No Consensus disagreement 95%</td>
</tr>
<tr>
<td>9. If a patient has received no treatment other than a prescription, bandage, sling dressing or steristrips this represents an inappropriate attendance</td>
<td>Consensus disagreement 73%</td>
<td>Consensus disagreement 75%</td>
<td>No Consensus disagreement 69%</td>
</tr>
<tr>
<td>10. If a patient requires oxygen administration, this represents an appropriate attendance</td>
<td>Consensus agreement 70%</td>
<td>Consensus agreement 72%</td>
<td>No Consensus agreement: 65%</td>
</tr>
<tr>
<td>11. If a patient requires a specialty consultation, this represents an appropriate attendance</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>12. If a patient requires prescription medications administered in ED (other than Tetanus or oral analgesics) this is an appropriate attendance</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>13. Patients triaged as category five (lowest category at triage, less urgent, to be seen within 120 minutes) have inappropriate reasons for presenting</td>
<td>Consensus disagreement 80%</td>
<td>Consensus disagreement 72%</td>
<td>Consensus disagreement 91%</td>
</tr>
</tbody>
</table>
5.5.3 Findings Set 3 statements: Rating of conditions

Participants were informed that some authors have identified specific conditions or circumstances which suggest an avoidable ED presentation. A selection of these were presented to panel members, who were then asked to rate them, using the same Likert scale as in previous questions. The conditions selected are used in various ‘tools’ as part of inclusion / exclusion criteria for determining appropriateness of ED presentation. They were chosen for initial inclusion in the Delphi round on the grounds that they were relatively ‘simple’ and unlikely to be subject to issues of interpretation. These conditions were to be viewed as the primary reason for seeking ED care, other factors or potential criteria were not specified. The condition presented included:

1. Allergy or hayfever
2. Constipation, 3 days or less
3. Dental problems
4. Lice or scabies
5. Mouth Ulcers
6. Nausea or vomiting
7. Painless urethral discharge
8. Pregnancy testing
9. Prescription refill
10. Attending for a second opinion

The specific instructions given to respondents in regard to rating this question were:

*Please indicate whether you agree that the listed criteria represent an identifiable inappropriate reason for presentation.*

Fifty-eight panel members provided a rating for each condition listed. One member of the nursing cohort did not provide a rating for any condition in this section.

**Allergy or Hayfever**

*No consensus reached*

Consensus was not reached in regard to this statement, with 48% of respondents either disagreeing or strongly disagreeing, 35% (n=28) agreeing or strongly agreeing (n=20), and 17% uncertain (n=10). The single most commonly selected response was ‘disagree’ with 23 panel members selecting this (40%). There were no specific trends identifiable at the level of professional group analysis.
Constipation, three days or less.

No consensus reached

No consensus was reached either within the professional groups of from the Delphi panel as a whole. The single most common response overall was ‘agree’ with 20 panel members selecting this (35%). A similar distribution pattern amongst the responses was noted for the two professional groups.
Dental problems.

No consensus reached

No consensus was reached within either professional group or from the panel as a whole. A similar distribution between overall agreement (43%) and disagreement (41%) was apparent, with 16% of respondents uncertain. Mirroring this was the presence of two equally selected ‘most common’ responses with ‘agree’ and ‘disagree’ each representing 35% of responses (n=20).
Lice or Scabies

Consensus achieved: agreement (71%)

Consensus agreement was reached from the panel as a whole, with 41 respondents selecting either ‘agree’ (43%, n=25) or ‘strongly agree’ (28%, n=16). When looked at by the professional groups, there was agreement from the nursing group with 74% (n=26) but agreement was not reached within the medical cohort with only 65% indicating either agree or strongly agree (n=15). Of the medical respondents, two were ‘uncertain’ and six either disagreed or strongly disagreed. Overall, the single most commonly selected response was ‘agree’.

Figure 5.31: Lice or scabies (combined panel)

Mouth ulcers

No consensus reached

Consensus was not reached by the panel as a whole, nor within the individual professional groups. The single most commonly selected response was ‘disagree’ with 17 responses (30%). When looked at from the perspective of the two sub groups, the medical cohort were more inclined towards disagreement, with 48% either disagreeing (43%, n=10) or strongly disagreeing (4%, n=1) while the nursing cohort inclined towards agreement with 51% either selecting ‘agree’ (29%, n=10) or ‘strongly agreeing’ (23%, n=8).
Nausea or vomiting.
Consensus achieved: disagreement (77%)

A consensus of disagreement was reached by both the panel as a whole (77%) and within the individual professions. The single most commonly selected response was ‘disagree’ with 37 participants selecting this (64%). Agreement was reached within the nursing cohort at 74% and within the medical cohort at 83%.
Figure 5.36: Nausea and vomiting

Painless urethral discharge.

No consensus reached

Consensus was not reached by the panel. The single most common response selected was ‘agree’ at 36% (n=21). Both the medical and nursing cohorts tended towards agreement, with 51% of the nursing and 43% of the medical cohorts indicating either ‘agree’ or ‘strongly agree’. A higher percentage of the medical cohort selected ‘uncertain’ (26%, n=6) compared to the nursing cohort (11%, n=4).

Figure 5.37: Painless urethral discharge (combined panel)

The presence of a painless urethral discharge as the primary complaint is inappropriate for ED care.

35% disagreement
17% uncertain
48% agreement

Figure 5.38: Painless urethral discharge
**Pregnancy testing.**

*Consensus achieved: agreement (72%)*

**Figure 5.39: Pregnancy testing (combined panel)**

![Pregnancy testing (combined panel)](image)

Consensus agreement was reached by the panel at 72% \( (n=42) \), although within the professional groups the nursing cohort failed to reach consensus with an agreement rating of 69% \( (n=24) \). 23% of the nurses selected either ‘disagree’ or ‘strongly disagree’ \( (n=8) \). The medical cohort were in agreement at 78% \( (n=18) \). The single most commonly selected response was ‘strongly agree’ at 40% \( (n=23) \)

**Figure 5.40: Pregnancy testing**

![Pregnancy testing](image)

**Prescription refill.**

*Consensus achieved: agreement (79%)*

Consensus agreement was reached both within the wider panel and within the sub groups. Agreement within the nursing cohort reached 77% \( (n=27) \) and within the medical cohort reached 83% \( (n=19) \). The single most commonly selected response was ‘strongly agree’ at 53% \( (n=31) \).
Figure 5.41: Prescription refill (combined panel)

Attending for a second opinion.

No consensus reached

Consensus was not reached by the Delphi panel, or within the individual professional groups. The single most commonly selected response was ‘disagree’ at 35% (n=20). Within the medical cohort, there was a tendency towards disagreement with 52% selecting either ‘disagree’ or ‘strongly disagree’ (n=12), and only 35% (n=8) in agreement. Within the nursing cohort there was a tendency towards agreement with 49% either selecting ‘agree’ or ‘strongly agree’ and only 29% disagreeing (n=10).

Figure 5.42: Prescription refill

Figure 5.43: Attending for a second opinion. (combined panel)
Figure 5.44: Attending for a second opinion.

Table 5.7: Summary of Panel Responses: Specific conditions

<table>
<thead>
<tr>
<th>Condition</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Uncertain</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allergy or hay fever</td>
<td>9% (n=5)</td>
<td>40% (n=23)</td>
<td>17% (n=10)</td>
<td>29% (n=17)</td>
<td>5% (n=3)</td>
<td>N=58</td>
</tr>
<tr>
<td>Constipation, 3 days or less</td>
<td>9% (n=5)</td>
<td>28% (n=16)</td>
<td>19% (n=11)</td>
<td>35% (n=20)</td>
<td>10% (n=6)</td>
<td>N=58</td>
</tr>
<tr>
<td>Dental problems</td>
<td>7% (n=4)</td>
<td>35% (n=20)</td>
<td>16% (n=9)</td>
<td>35% (n=20)</td>
<td>9% (n=5)</td>
<td>N=58</td>
</tr>
<tr>
<td>Lice or scabies</td>
<td>3% (n=2)</td>
<td>17% (n=10)</td>
<td>9% (n=5)</td>
<td>43% (n=25)</td>
<td>28% (n=16)</td>
<td>N=58</td>
</tr>
<tr>
<td>Mouth ulcers</td>
<td>3% (n=2)</td>
<td>29% (n=17)</td>
<td>21% (n=12)</td>
<td>28% (n=16)</td>
<td>19% (n=11)</td>
<td>N=58</td>
</tr>
<tr>
<td>Nausea or vomiting</td>
<td>14% (n=8)</td>
<td>64% (n=37)</td>
<td>16% (n=9)</td>
<td>7% (n=4)</td>
<td>0% (n=0)</td>
<td>N=58</td>
</tr>
<tr>
<td>Painless urethral discharge</td>
<td>7% (n=4)</td>
<td>28% (n=16)</td>
<td>17% (n=10)</td>
<td>36% (n=21)</td>
<td>12% (n=7)</td>
<td>N=58</td>
</tr>
<tr>
<td>Pregnancy testing</td>
<td>3% (n=2)</td>
<td>16% (n=9)</td>
<td>9% (n=5)</td>
<td>33% (n=19)</td>
<td>40% (n=23)</td>
<td>N=58</td>
</tr>
<tr>
<td>Prescription refill</td>
<td>5% (n=3)</td>
<td>7% (n=4)</td>
<td>9% (n=5)</td>
<td>26% (n=15)</td>
<td>53% (n=31)</td>
<td>N=58</td>
</tr>
<tr>
<td>Attending for a second opinion</td>
<td>3% (n=2)</td>
<td>35% (n=20)</td>
<td>19% (n=11)</td>
<td>28% (n=16)</td>
<td>16% (n=9)</td>
<td>N=58</td>
</tr>
</tbody>
</table>
Table 5.8: Consensus Summary (Set 3)  Specific conditions

<table>
<thead>
<tr>
<th>Statement</th>
<th>Delphi panel consensus (Combined medical and nursing responses)</th>
<th>Nursing cohort consensus</th>
<th>Medical cohort consensus</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Allergy or hay fever</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>2. Constipation, 3 days or less</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>3. Dental problems</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>4. Lice or scabies</td>
<td>Consensus agreement 71%</td>
<td>Consensus agreement 74%</td>
<td>No consensus agreement 65%</td>
</tr>
<tr>
<td>5. Mouth ulcers</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>6. Nausea or vomiting</td>
<td>Consensus disagreement 78%</td>
<td>Consensus disagreement 74%</td>
<td>Consensus disagreement 83%</td>
</tr>
<tr>
<td>7. Painless urethral discharge</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>8. Pregnancy testing</td>
<td>Consensus agreement 73%</td>
<td>No consensus agreement 69%</td>
<td>Consensus agreement 78%</td>
</tr>
<tr>
<td>9. Prescription refill</td>
<td>Consensus agreement 79%</td>
<td>Consensus agreement 77%</td>
<td>Consensus agreement 83%</td>
</tr>
<tr>
<td>10. Attending for a second opinion</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
</tbody>
</table>

5.6  Analysis Final Free Text Questions

Finally two open ended questions were presented to participants offering them the opportunity to comment on the questions presented in the Delphi round, and then asking if there were any additional issues related to the concept of ‘inappropriateness’ that they wished to be considered by the panel. Forty-six participants entered a response to the first question and 42 to the second.

Question 1: Any additional comments or responses?
The first question asked participants to “Please make any additional comments or responses related to the questions presented”. This was intended to provide panel members with a further opportunity to clarify, justify or evidence any of their responses, or to identify concerns with the methodology or process. Overall the responses could be linked to the following themes:

- Specific conditions / situations (n=30)
- Need for further assessment / information (n=18)
- Potential barriers to service access (n=11)
- Age specific comments (n=7)
The largest group of responses related to issues of potentialities associated with specified conditions or situations. A key theme to emerge was the sense of unease when given a specific but isolated situation or condition to consider. Most responses alluded to the need to be able to carry out an examination and to gain a thorough history before determining ‘appropriateness’ of a patient’s presentation to ED. This was presented in terms of general comments, including:

All of the listed conditions may be emergencies in some circumstances

How do you know what is wrong with the patient before they are assessed?...more information is required before a safe decision on management is made

Many of those conditions may be symptomatic of more serious illness

...conditions that have been listed can be the tip of the iceberg for other related issues...

...you cannot determine from a listed symptom what the persons health needs are and the options they have available to them...

Each patient presentation has to be assessed on an individual basis taking into consideration previous medical history and their clinical picture on arrival

Other responses were geared towards specific situations or conditions that were presented to panel members, providing further explanation for responses. Issues that were discussed included the following items: seeking ED care by patients for the primary reasons of pregnancy testing, mouth ulcers, constipation, allergy, lice/scabies and dental problems. Concerns raised included the following:

Coming to ED for a pregnancy test could be the woman’s first step in seeking help for bigger problems such as family violence...

Dental problems for patients with a history of Rheumatic fever as a child poses a definite risk

...allergy could include intolerable urticaria, dental problems could include abscess requiring admission, mouth ulcers in children could be associated with no oral intake and dehydration, scabies may be associated with secondary infection...

Constipation may be bowel obstruction (I have even seen it turn out to be perforated bowel secondary to chicken bone ingestion)

Age was specifically identified as a potential variance that would impact on potential responses to the situations and conditions presented. Comments made included:

...mouth ulcers in a child may become a significant issue re hydration
...constipation can be very significant if elderly

...in a child with scabies you would need to be sure none were infected, and there were no social issues eg neglect

...for the paediatric patient painless urethral discharge and pregnancy testing are important issues that would need to be seen in ED and possibly referred to Child Protection or Police

Comments were also made about the difficulty of accessing alternative services, patient perceptions of these, and potential barriers to health care.

...many factors which influence whether or not a persons attendance is appropriate or not and some of these relate to what community based facilities are available

The key is having a place that they can go to that is affordable and accessible

I think it all depends on where you live in NZ

The ED is in rare cases the only option for patients to access healthcare i.e the ED may be the only source for a medication particularly at weekends

Several respondents commented on issues related to the wider provision of health care within NZ society and the ethical issues associated with provision of emergency care.

In my opinion there is no such thing as an inappropriate attendance, ED should be a catalyst for health care, and instead of labelling them as such should be able to further the patient to other services ...

...often families present after no results with treatments prescribed by GP. If child is in pain or distress families may seek support from hospital after hours or in desperation, it would be morally wrong to turn these families away. Primary healthcare providers vary in their competence and confidence with child health and it is reasonable for caregivers to seek additional advice

A final section provided comments on aspects associated with the methodology of the study, for example:

I feel that some of the questions could be better phrased

...the questions and the answers sometimes strangulate your response

Question 2: Are there any other issues related to appropriateness you would like considered?

The second of the free text questions in this section asked participants to consider whether there were any issues related to the concept of 'appropriateness' not raised already that they wished to be considered by the panel. Rather than presenting specific additional concerns / areas of interest, the respondents offered additional commentary and explanation relating to aspects of the concept. These were grouped into the following six themes:
- Issues related to health service access and barriers to this \( n=27 \)
- Implications of ‘appropriateness’ for patient flow \( n=8 \)
- Implications of assessment for ‘inappropriateness’ \( n=7 \)
- Patient perspectives \( n=7 \)
- The role and nature of patients allocated a triage 5 code \( n=6 \)
- Concern with assessing ‘appropriateness’ \( n=4 \)

5.6.1 Issues relating to health service access and barriers to this

The single largest theme to emerge was in relation to concerns with access and barriers to health service. Three sub themes were apparent within this group of responses, with both medical and nursing panel members contributing to these. These sub themes were:

- Regional variation
- Cost factors
- Nature / quality of options

5.6.2 Regional variation

16 text fragments related to regional variation in service availability, including geographical, resource and timeliness of service provision. Examples of responses included:

...in my current catchment area there are no GPs available after 10pm so ALL medical comes to ED by default...

...from our ED perspective time of day of presentation plays a big part in appropriateness eg no outside radiology service available after hours so is appropriate to come to ED for this

...‘appropriateness’...likely to be influenced by the availability of alternative, affordable and accessible healthcare and the socio-economic climate and structure of the health system

...will vary geographically according to population needs and availability of local alternative services (especially for vulnerable and socially disadvantaged groups)

Auckland had many A&M [Accident and Medical] clinics. Westport may have none. What is appropriate to a large urban ED is different to a small rural ED

5.6.3 Cost factors

Seven comments were made specifically linked to the cost of health service alternatives and the implications of these.
The cost of the GP is becoming prohibitive for many; this does not make them ‘inappropriate’

What about the issue of costs / payments? Patients may consider ED appropriate because they are poor and treatment here is free

Some conditions may be more appropriate out of hours when patients have to pay out of hours GP consults and they know they will need to come into hospital as well

Cost to attend is a big factor with some after hours services charging $100+ in addition to script charge

5.6.4 Nature and quality of service provision

Six comments related to the perceived quality or ‘appropriateness’ of service alternatives, rather than whether they were present as viable alternatives.

…it depends how confident the community is about the service at the after hours clinics

If you have a crap GP that either you have no confidence in or who always sends you to ED anyway then why would you go there and get charged $40+ for the pleasure?

…patients only become classed as ‘inappropriate’ when the service they require doesn’t meet their needs; hence ED is only as good as the services that support it

A final comment was made from a participant who saw the role of ED as directly impacted on by shortcomings in the wider health system, noting that:

Serious elective conditions fail to get on wait lists so being soft on ‘appropriateness’ for ED’s protects the public from feeling the need to ‘change’ the health funding priorities

5.6.5 Implications of ‘appropriateness’ for patient flow

Recognition was given to the potential link between ‘appropriateness’ and patient flow within the ED and wider hospital. The eight statements that contributed to this section all rejected the presence of ‘inappropriate’ attenders as a causative factor in impaired patient flow.

…minor injuries are quick to sort out and certainly do not clog the department as much as some other groups (such as medical admissions)

…the traditional inappropriate attenders don’t actually cause the delays for appropriate attenders – more the other way round. It’s the patients waiting in ED for a hospital bed that cause the delays to be seen for all patients...

I do not believe this is the main reason for poor ED performance in New Zealand

GP patients or patients with non-urgent conditions are NOT a cause of access block in ED nor are they a cause of substandard care for people who need to be in ED/hospital
Non urgent cases do not contribute greatly to overall ED workload since they are generally quick / easy to sort out. ED overload is much more likely to be due to overall hospital dysfunction than the numbers of new cases arriving

5.6.6 Implications of assessment for ‘inappropriateness’

Concerns were raised here in regard to the potential ethical and medical legal issues which might result from what (in retrospect) could be determined to be an inadequate or inaccurate patient assessment. Reference was also made to public opinion and societal expectations as well as the potential impact of raising public awareness of ‘inappropriateness’ of ED presentation.

No presenting condition can be deemed inappropriate in isolation. Age, mental well-being and co-morbidities must also be considered

...how do you know what’s wrong with the patient before they are assessed? It is not safe to assume that there is nothing wrong as has been demonstrated in NZ clearly over the last few years

...the medico-legal implications of ‘triaging out’ are huge

I find a significant number of patients who delay coming to ED when they really need to come because they have been bombarded with advertising telling them not to come to ED

5.6.7 Patient perspectives

Acknowledgement was made of the patient perspective and the potential variance between this and the health professionals level of understanding. Cultural interpretations were also considered.

Medical professionals with their skills and experience need to remember that patients may not have this knowledge and what may seem insignificant or ‘inappropriate’ to us may be a life altering and very stressful event for them

Appropriateness is culturally derived and shaped. Different professional, gender, social and ethnic groups will apply a different meaning

Socio economic factors play a large part in our inappropriate attendances, also social customs

It is the patients choice to come to ED and they are the ones who’s opinion matters most – if they chose to come to ED then it was clearly appropriate to them in that particular circumstance

5.6.8 The role and nature of patients allocated a triage 5 code

Specific discussion occurred in relation to the patient who is allocated a triage 5 code (i.e who is determined as being safe to wait for two hours before assessment / treatment commences). This group have been targeted at times as being potentially better suited for ‘primary care’ services, and a specific question related to this was included in Set 2
statement 13. Panel consensus was reached in rejecting this as criteria for determining appropriateness, with 72% and 91% disagreement respectively from the nursing and medical cohorts. Comments given by participants related to the nature and role of triage as well as the potential outcomes for patient allocated a triage 5:

*Triage establishes safe time to wait before being seen. This means a patient with tendon damage to a finger that requires surgery is safe to be a triage 5 and safe to wait*

*Being a ‘5’ does not necessarily mean that they have attended inappropriately, it just means that their problem is less urgent and therefore they will have a longer wait*

*...about 5% of our triage 5’s are subsequently admitted. Triage category merely signifies the urgency the patient needs to be first seen by a doctor or advanced practice nurse. It is not a measure of severity of illness / injury*

### 5.6.9 Concern with assessing ‘appropriateness’

A number of respondents indicated their concern with the concept of ‘appropriateness’ and whether it was possible to determine this, and in particular whether it is possible to identify this prospectively at the point of triage. Examples included:

*...prospective criteria is important, not retrospectively where the patient has already had investigations or admissions*

*...most decisions on ‘appropriateness’ are either made with too little information at triage, or retrospectively when all history / exam / tests are available*

### 5.7 Summary

Fifty-nine participants completed the first Delphi round, 40 of whom were female. Twenty-three were medical and 36 were nursing practitioners, with the most commonly selected age bracket being 40-49. Forty-four of the participants identified greater than 10 years of ED experience. When asked to identify conditions or circumstances that did not require ED care, the responses could be grouped into the following categories: minor illness, minor injuries, non urgent presentations and contextual factors including misunderstanding of the role of EDs. Descriptions given of appropriate reasons for ED visits could be grouped in terms of urgency, severity, patient perception and service specific needs.

Of the 11 statements presented to the panel regarding the role of the ED, only three reached consensus. The panel disagreed with two of these – that only a doctor can determine appropriateness, and that all patients who present to ED need to be seen by a doctor. Agreement was reached with the statement that not all patients who present to ED
need hospital level treatment. A further 13 statements outlining potential criteria for determining appropriateness were considered, with consensus reached for eight of these. In the case of six of the statements, the consensus was to disagree with the criteria presented. The two descriptions that the panel agreed with were that subsequent admission to hospital and requirement for the administration of oxygen indicated an appropriate ED presentation. The panel were then provided with a list of conditions which others had indentified as inappropriate, and asked to give their response – there was a consensus for agreement in three cases (isolated presence of lice or scabies; pregnancy testing; prescription refill) and consensus disagreement with a fourth (nausea and vomiting).

The opportunity was also given for respondents to add in any additional thoughts or concerns regarding ‘appropriateness’, with the findings from these two questions used to generate additional questions for inclusion in the second round.
CHAPTER 6: DELPHI ROUND TWO FINDINGS

6.1 Initial information and feedback

All participants were given general feedback regarding the first round of the Delphi, including a summary of participant demographics, acknowledgment that gathering responses had taken longer than originally anticipated, and informing them that each individual member would receive an e-mail with their responses from round one to allow for comparison to the group findings presented. All 59 panel members initially entered the survey site for round two, however three of the nursing cohort entered no further responses to any of the questions. These three initial entrants were removed from the final analysis, leaving an expert panel of 56. This represents a 5% attrition rate between completion of round one and round two.

Participants were advised that this round of the Delphi survey was set out a little differently to the first. Any questions which had not reached consensus in the first round were re-presented, and listed individually. These were preceded by measures of central tendency related to the panel responses in round one. Participants were given the rate of agreement, disagreement, uncertainty and the most commonly selected response from round one prior to re-rating each statement.

The final section of this round of the survey introduced an international assessment tool, which participants were asked to consider. The panel members were informed that this was not being proposed as suitable for use in NZ, but included as an example of how such a tool might look. Participants were asked to consider the various elements associated with this tool, and to provide a rating of these.

6.1.1 Set 1 statements: Role of Emergency Departments

Eight of the original 11 statements relating to the role of EDs in regard to the provision of emergency care were re-presented to the panel. These were re-rated by participants, and combined panel results are summarised in table 6.1. A response count identifying number of panel members (N) who offered a rating is included, together with individual responses (n) listed in brackets beside the % figure.
Table 6.1: Summary of Panel Responses: Re-presented Set 1 statements

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Uncertain</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency departments (EDs) should only be used for patients with ‘emergency’ level problems</td>
<td>5% (n=3)</td>
<td>21% (n=12)</td>
<td>4% (n=2)</td>
<td>64% (n=36)</td>
<td>5% (n=3)</td>
<td>N=56</td>
</tr>
<tr>
<td>Patients are capable of determining what conditions are suitable for ED care</td>
<td>4% (n=2)</td>
<td>55% (n=31)</td>
<td>5% (n=3)</td>
<td>36% (n=20)</td>
<td>0% (n=0)</td>
<td>N=56</td>
</tr>
<tr>
<td>Patients should see a general practitioner (GP) or After Hours Service before coming to the ED</td>
<td>13% (n=7)</td>
<td>67% (n=37)</td>
<td>11% (n=6)</td>
<td>7% (n=4)</td>
<td>2% (n=1)</td>
<td>N=55</td>
</tr>
<tr>
<td>Patients with non urgent health needs should not be seen in the ED</td>
<td>4% (n=2)</td>
<td>24% (n=13)</td>
<td>6% (n=3)</td>
<td>55% (n=30)</td>
<td>13% (n=7)</td>
<td>N=55</td>
</tr>
<tr>
<td>Only a doctor can determine the urgency of a health problem</td>
<td>29% (n=17)</td>
<td>66% (n=39)</td>
<td>2% (n=1)</td>
<td>3% (n=2)</td>
<td>0% (n=0)</td>
<td>N=59</td>
</tr>
<tr>
<td>If a patient states they can’t afford to go anywhere else, they should be seen in the ED</td>
<td>2% (n=1)</td>
<td>16% (n=9)</td>
<td>9% (n=5)</td>
<td>58% (n=32)</td>
<td>15% (n=8)</td>
<td>N=55</td>
</tr>
<tr>
<td>Seeing non urgent patients in the ED adversely affects the care of more seriously unwell patients</td>
<td>16% (n=9)</td>
<td>42% (n=23)</td>
<td>6% (n=3)</td>
<td>33% (n=18)</td>
<td>4% (n=2)</td>
<td>N=55</td>
</tr>
<tr>
<td>It is safe to refer some patients away from the ED</td>
<td>6% (n=3)</td>
<td>16% (n=9)</td>
<td>2% (n=1)</td>
<td>71% (n=39)</td>
<td>6% (n=3)</td>
<td>N=55</td>
</tr>
<tr>
<td>Not all patients who come to the ED need hospital level assessment</td>
<td>0% (n=0)</td>
<td>3% (n=2)</td>
<td>2% (n=1)</td>
<td>66% (n=39)</td>
<td>29% (n=17)</td>
<td>N=59</td>
</tr>
<tr>
<td>NZ EDs have a problem with ‘inappropriate’ patient attendances</td>
<td>11% (n=6)</td>
<td>44% (n=24)</td>
<td>7% (n=4)</td>
<td>33% (n=18)</td>
<td>6% (n=3)</td>
<td>N=55</td>
</tr>
<tr>
<td>All patients who present to an ED need to be assessed by a doctor</td>
<td>19% (n=11)</td>
<td>63% (n=37)</td>
<td>9% (n=5)</td>
<td>9% (n=5)</td>
<td>2% (n=1)</td>
<td>N=59</td>
</tr>
</tbody>
</table>

Emergency departments (EDs) should only be used for patients with ‘emergency’ level problems.

Round 1: No consensus

Round 2: Consensus agreement 70%

The original wording Emergency departments (EDs) should be kept for ‘emergency’, was amended slightly to read: Emergency departments (EDs) should only be used for patients with ‘emergency’ level problems. Fifty-six panel members re-rated this question. The lower threshold of consensus was reached, with ‘agreement’ increased from 56% (n=32) to 70% (n=39) in round two.
Figure 6.1: Round 2 ED should only be for ‘emergencies’ (combined)

![Bar chart showing consensus distribution for the combined Delphi panel across rounds 1 and 2.]

**Nursing cohort**

**Figure 6.2: Round 2 ED should only be for ‘emergencies’ (nursing)**

![Bar chart showing consensus distribution for the nursing cohort across rounds 1 and 2.]

There was little change in percentage distribution of answers, with an increase from 61% \((n=22)\) to 64% \((n=21)\) agreement across the rounds.

**Medical cohort**

**Figure 6.3: Round 2 ED should only be used ‘emergencies’ (medical)**

![Bar chart showing consensus distribution for the medical cohort across rounds 1 and 2.]

Consensus agreement with the statement given remained and was marginally strengthened, moving from 74% \((n=17)\) to 78% \((n=18)\).
Patients are capable of determining what conditions are suitable for ED care.

Round 1: No consensus
Round 2: No consensus

The wording of this statement remained unchanged, with 56 panel members offering a second rating. Consensus was not reached within the panel as a whole, although there was a lessening of ‘uncertainty’. Overall disagreement moved from 49% \( (n=29) \) in round one to 59% \( (n=33) \) in round two. General levels of agreement shifted from 31% \( (n=18) \) to 36% \( (n=20) \).

**Figure 6.4: Round 2 Pts can determine condition suitability (combined)**

Nursing Cohort Responses

**Figure 6.5: Round 2 Pts can determine condition suitability (nursing)**

Nursing consensus was achieved, with 76% either disagreeing (70%, \( n=23 \)) or strongly disagreeing (6%, \( n=2 \)). Movement was evident from a 25% \( (n=9) \) rating of ‘uncertain’ in the first round to a 0 rating in the second round. Agreement moved from 14% \( (n=5) \) to 24% \( (n=8) \). 12 of the nursing cohort altered their rating between the first and second rounds.
Medical Cohort Responses

Figure 6.6: Round 2 Pts can determine condition suitability (medical)

Consensus was not reached within the medical cohort. Whilst the overall percentages within each category remained similar, the individual respondents making up these figures altered. Seven respondents altered their rating in the second round. One altered the emphasis, moving from ‘strongly agree’ to ‘agree’; two participants moved from ‘uncertain’ to agree, and two further participants shifted from ‘agree’ and ‘disagree’ respectively to ‘uncertain’. Two participants altered their rating from ‘agree’ to ‘disagree’.

Patients should see a general practitioner (GP) / After Hours Service before coming to the ED

Round 1: No consensus

Round 2: Consensus disagreement 80%

The wording of this statement was unchanged. Fifty-five panel members re-rated this question. Consensus was reached within the panel as a whole, and also within the two sub groups. The percentage of participants who either ‘disagreed’ or ‘strongly disagreed’ shifted from 58% (n=34) in round one to 80% (n=42) in round two. Agreement rates fell from 17% (n=10) to 9% (n=6), and uncertainty from 25 (n=15) to 11% (n=5). 25 individuals changed their rating between rounds one and two.

Figure 6.7: Round 2 GP/AHS visit before ED (combined)
Nursing Cohort Responses

Consensus disagreement was reached within the nursing cohort at 85% (disagree 78%, \(n=12\); strongly disagree 6%, \(n=2\)). Seventeen of the nursing panel members altered their rating.

**Figure 6.8: Round 2 GP/AHS visit before ED (nursing)**

![Bar chart showing responses of nursing cohort](image1)

Medical Cohort Responses

Consensus disagreement was reached within the medical cohort with 74% either disagreeing (52%, \(n=12\)) or strongly disagreeing (22%, \(n=5\)). Eight medical panel members altered their responses

**Figure 6.9: Round 2 GP/AHS visit before ED (medical)**

![Bar chart showing responses of medical cohort](image2)

Patients with non-urgent health needs should not be seen in the ED

**Round 1: No consensus**

**Round 2: No consensus**

The wording of this statement was unchanged. Fifty-five panel members re-rated this question. Consensus was not reached within the panel as a whole, although there was a lessening of ‘uncertainty’ both within the panel and within the two sub-groups. Overall disagreement remained similar, shifting slightly from 26% (\(n=15\)) in round one to 26% (\(n=14\)) in round two. Percentage of panel members rating ‘uncertain’ lessened, moving
from 24% \((n=12)\) to 6\% \((n=3)\) in round 2. General levels of agreement shifted from 51% \((n=30)\) to 67% \((n=37)\).

**Figure 6.10: Round 2 Non-urgent pts should not be seen in ED (combined)**

![Combined Panel Responses](#)

**Nursing Cohort Responses**

While consensus was not reached within this sub-group, there was a shift in agreement from 50\% \((41.6\% \text{ ‘agree’, } n=15; 8\% \text{ ‘strongly agree’ } n=3)\) to 69% agreement \((63\% \text{ ‘agree’, } n=20; 6\% \text{ ‘strongly agree’, } n=2)\). Twelve members of the nursing cohort changed their rating.

**Figure 6.11: Round 2 Non-urgent pts should not be seen in ED (nursing)**

![Nursing Cohort Responses](#)

**Medical Cohort Responses**

Consensus was not reached but there was an increased level of agreement, moving from 62\% \((n=12)\) to 30\% \((n=7)\) ‘agree’; 22\% ‘strongly agree’, \(n=5\) which increased to 65\% \((n=15)\) in round two \((43\% \text{ ‘agree’ } n=10; 22\% \text{ ‘strongly agree’ } n=5)\). Ten members of the medical cohort altered their responses.
Only a doctor can determine the urgency of a health problem

Round 1: Consensus disagreement 95%

If a patient states they can’t afford to go anywhere else, they should be seen in the ED

Round 1: No consensus

Round 2: Consensus agreement 73%

The wording of this statement remained the same in the second round. 55 panel members re-rated this question. Consensus was reached within the panel as a whole, and also within the two sub groups. Percentage of panel members rating ‘uncertain’ lessened, moving from 22% (n=13) to 9% (n=5) in round two. General levels of agreement shifted from 58% (n=34) to 73% (n=40). Levels of disagreement shifted from 20% (n=12) to 19% (n=10). 40 panel members changed their rating between rounds one and two. Consensus agreement was reached both by the panel as a whole and within the professional sub-groups.

Nursing Cohort Response

Consensus agreement was achieved at 75%, showing a movement from 62% agreement in round one. Fifteen members of the nursing cohort altered their rating responses.
Consensus agreement was achieved at the threshold with 70% agreement expressed, an increase from 52% in round one. Eleven respondents changed their ratings in this round.

**Seeing non urgent patients in the ED adversely affects the care of more seriously unwell patients**

*Round 1: No consensus*

*Round 2: No consensus*

Consensus was not reached within the panel as a whole, although there was a lessening of ‘uncertainty’, moving from 9% (n=5) to 6% (n=3). Fifty-five panel members re-rated this statement, and although the overall distribution of responses remained similar across rounds, 27 individuals altered their ratings. Disagreement remained similar, at 54% (n=32) in round one and 58% (n=32) in round two. General levels of agreement shifted from 37% (n=22) to 36% (n=20).
Nursing Cohort Responses

Although consensus was not reached, overall disagreement increased moving from 54% (n=19) in round one to 66% in round two (n=21). Sixteen of the nursing panel members altered their rating.

Medical Cohort Responses

In round one more medical participants indicated disagreement (56%) than agreement (30%); this shifted to an even distribution in round two with 48% and 48% respectively indicating disagreement and agreement. Eleven of the medical respondents altered their rating.
Figure 6.18: Round 2 Seeing non-urgent pts affects the seriously unwell (medical)

![Medical Cohort Responses](image1)

**It is safe to refer some patients away from the ED**

*Round 1: No consensus*

*Round 2: Consensus agreement: 76%*

Consensus agreement was reached by the panel. Fifty-five participants re-rated this statement. Twenty-one panel members altered their initial response. Levels of agreement moved from 54% \((n=32)\) to 76% \((n=42)\). 15% \((n=9)\) of respondents selected ‘uncertain’ in round one, which dropped to 1% \((n=1)\) in round two. Levels of disagreement shifted from 32% \((n=18)\) in round one to 22% \((n=12)\) in round two.

Figure 6.19: Round 2 It is safe to refer some pts away from ED (combined)

![Combined panel responses](image2)

**Nursing Cohort Responses**

Figure 6.20: Round 2 It is safe to refer some pts away from ED (nursing)

![Nursing Cohort Response](image3)
Consensus was reached at 77% agreement (72% agree, n= 23; 6% strongly agree, n=2). This showed movement from 53% agreement in round one. Thirteen of the nursing panel members altered their responses in round two.

Medical Cohort Responses

Consensus agreement was reached at 74% (69.5% ‘agree’, n=16; 4% ‘strongly agree’, n=1), moving from an initial agreement score of 56% in round one. Eight members of the medical cohort altered their responses from the first round.

**Figure 6.21: Round 2 It is safe to refer some pts away from ED (medical)**

Not all patients who come to the ED need hospital level assessment

*Round 1: Consensus disagreement 95%*

NZ EDs have a problem with ‘inappropriate’ patient attendances

*Round 1: No consensus*

*Round 2: No consensus*

The wording of this statement remained the same. Fifty-five participants re-rated this statement. Consensus was not reached within the panel, although there was a lessening of ‘uncertainty’ both within the panel and within the two sub-groups. Overall disagreement increased, shifting from 45% (n=26) in round one to 55% (n=30) in round two. General levels of agreement remained similar, shifting from 40% (n=23) to 38% (n=21).
Nursing Cohort Response

Consensus was not reached within the nursing cohort, although the level of uncertainty reduced, moving from 17% \((n=6)\) in round one to 6% \((n=2)\) in round two. This resulted in an increase in overall ‘disagreement’, from 31%, \((n=1)\) to 44% \((n=30)\). Level of agreement remained the same at 50% in both rounds. Seventeen respondents changed their rating in this round.

Medical Cohort Response

The overall ‘agreement’ and ‘disagreement’ rates showed little change between the rounds (agreement remained at 22% round one and two; disagreement at 65% round one and 70% round two). Seven participants changed their rating between the first and second rounds.
Figure 6.24: Round 2 NZ EDs have a problem with ‘inappropriate’ attendances (medical)

All patients who present to an ED need to be assessed by a doctor

Round 1: Consensus disagreement 81%

Table 6.2: Consensus Summary: Re-presented Set 1 statements

<table>
<thead>
<tr>
<th>Statement number</th>
<th>Statement</th>
<th>Delphi panel consensus</th>
<th>Nursing cohort consensus</th>
<th>Medical cohort consensus</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Round 1: Emergency departments (EDs) should be kept for ‘emergency’</td>
<td>No consensus</td>
<td>No consensus</td>
<td>Agreement 74%</td>
</tr>
<tr>
<td></td>
<td>Round 2: Emergency departments (EDs) should only be used for patients with ‘emergency’ level problems</td>
<td>Agreement 70%</td>
<td>Disagreement 64%</td>
<td>Agreement 78%</td>
</tr>
<tr>
<td>2</td>
<td>Round 1: Patients are capable of determining what conditions are suitable for ED care</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td></td>
<td>Round 2: Patients are capable of determining what conditions are suitable for ED care</td>
<td>No consensus</td>
<td>Disagreement 76%</td>
<td>No consensus</td>
</tr>
<tr>
<td>3</td>
<td>Round 1: Patients should see a general practitioner (GP) or After Hours Service before coming to the ED</td>
<td>No consensus</td>
<td>No consensus</td>
<td>Disagreement 82%</td>
</tr>
<tr>
<td></td>
<td>Round 2: Patients should see a general practitioner (GP) or After Hours Service before coming to the ED (consensus of disagreement reached in round 2)</td>
<td>Disagreement 80%</td>
<td>Disagreement 85%</td>
<td>Disagreement 74%</td>
</tr>
<tr>
<td>4</td>
<td>Round 1: Patients with non urgent health needs should not be seen in the ED</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td></td>
<td>Round 2: Patients with non urgent health needs should not be seen in the ED</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>5</td>
<td>Round 1: Only a doctor can determine the urgency of a health problem (consensus of disagreement reached in round 1)</td>
<td>Disagreement 95%</td>
<td>Disagreement 100%</td>
<td>Disagreement 87%</td>
</tr>
<tr>
<td>6</td>
<td>Round 1: If a patient states they can’t afford to go anywhere else, they should be seen in the ED</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>Statement number</td>
<td>Statement</td>
<td>Delphi panel consensus</td>
<td>Nursing cohort consensus</td>
<td>Medical cohort consensus</td>
</tr>
<tr>
<td>------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>------------------------</td>
<td>--------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>7</td>
<td>Round 1: Seeing non urgent patients in the ED adversely affects the care of more seriously unwell patients</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td></td>
<td>Round 2: Seeing non urgent patients in the ED adversely affects the care of more seriously unwell patients</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>8</td>
<td>Round 1: It is safe to refer some patients away from the ED</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td></td>
<td>Round 1: It is safe to refer some patients away from the ED</td>
<td>Agreement 76%</td>
<td>Agreement 77%</td>
<td>Agreement 74%</td>
</tr>
<tr>
<td>9</td>
<td>Round 1: Not all patients who come to the ED need hospital level assessment (consensus of agreement reached in round 1)</td>
<td>Agreement 95%</td>
<td>Agreement 94%</td>
<td>Agreement 96%</td>
</tr>
<tr>
<td>10</td>
<td>Round 1: NZ EDs have a problem with ‘inappropriate’ patient attendances</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td></td>
<td>Round 2: NZ EDs have a problem with ‘inappropriate’ patient attendances</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>11</td>
<td>Round 1: All patients who present to an ED need to be assessed by a doctor (consensus of disagreement reached in round 1)</td>
<td>Disagreement 81%</td>
<td>Disagreement 86%</td>
<td>Disagreement 74%</td>
</tr>
</tbody>
</table>

6.1.2 **Set 2 statements: Determinants of appropriateness.**

The second set of statements presented to panel members related specifically to ‘appropriateness’ of ED based care. Thirteen statements were initially presented, seven reached consensus on the first round, and six were re-presented to the panel.

1. If a patient’s symptoms have remained unchanged for more than 72hrs before presentation, this can be considered an inappropriate attendance \((N=58; \text{consensus round 1})\)

2. If a patient has been referred by a GP or After Hours doctor this is an appropriate attendance \((N=55)\)

3. If a patient is transported to hospital by ambulance this represents an appropriate attendance \((N=54)\)

4. If a patient is discharged from ED with no further follow up, this is an inappropriate attendance \((N=59; \text{consensus round 1})\)
5. If a patient’s condition resulted from a road traffic accident this represents an appropriate attendance \( (N=55) \)

6. If a patient is subsequently admitted to hospital this is an appropriate attendance \( (N = 59; \text{ consensus round 1}) \)

7. If a patient’s condition resulted from a work place accident, this represents an appropriate attendance \( (N = 55) \)

8. If a patient has received no investigations while in the ED, this is an inappropriate attendance \( (N = 57; \text{ consensus round 1}) \)

9. If a patient has received no treatment other than a prescription, bandage, sling dressing or steristrips this represents an inappropriate attendance \( (N = 59; \text{ consensus round 1}) \)

10. If a patient requires oxygen administration, this represents an appropriate attendance \( (N = 59; \text{ consensus round 1}) \)

11. If a patient requires a specialty consultation, this represents an appropriate attendance \( (N = 54) \)

12. If a patient requires prescription medications administered in ED (other than Tetanus or oral analgesics) this is an appropriate attendance \( (N = 54) \)

13. Patients triaged as category five (lowest category at triage, less urgent, to be seen within 120 minutes) have inappropriate reasons for presenting \( (N = 59; \text{ consensus round 1}) \)
Table 6.3: Summary of Panel Responses: Re-presented Set 2 statements

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Uncertain</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>If a patient has been referred by a GP or After Hours doctor this is an appropriate attendance</td>
<td>0% (n=0)</td>
<td>31% (n=17)</td>
<td>11% (n=6)</td>
<td>49% (n=27)</td>
<td>9% (n=5)</td>
<td>N=55</td>
</tr>
<tr>
<td>If a patient is transported to hospital by ambulance this represents an appropriate attendance</td>
<td>6% (n=3)</td>
<td>59% (n=32)</td>
<td>7% (n=4)</td>
<td>26% (n=14)</td>
<td>2% (n=1)</td>
<td>N=54</td>
</tr>
<tr>
<td>If a patient’s condition resulted from a road traffic accident this represents an appropriate attendance</td>
<td>0% (n=0)</td>
<td>26% (n=14)</td>
<td>9% (n=5)</td>
<td>60% (n=33)</td>
<td>6% (n=3)</td>
<td>N=55</td>
</tr>
<tr>
<td>Injuries from workplace accidents should be assessed and treated in an ED</td>
<td>2% (n=1)</td>
<td>67% (n=37)</td>
<td>11% (n=6)</td>
<td>18% (n=10)</td>
<td>2% (n=1)</td>
<td>N=55</td>
</tr>
<tr>
<td>If a patient requires a specialty consultation, this represents an appropriate attendance</td>
<td>2% (n=1)</td>
<td>56% (n=30)</td>
<td>9% (n=5)</td>
<td>32% (n=17)</td>
<td>2% (n=1)</td>
<td>N=54</td>
</tr>
<tr>
<td>If a patient requires prescription medications administered in ED (other than Tetanus or oral analgesics) this is an appropriate attendance</td>
<td>6% (n=3)</td>
<td>70% (n=38)</td>
<td>4% (n=2)</td>
<td>20% (n=11)</td>
<td>0% (n=0)</td>
<td>N=54</td>
</tr>
</tbody>
</table>

If a patient’s symptoms have remained unchanged for more than 72hrs before presentation, this can be considered an inappropriate attendance.

*Consensus achieved round 1: disagreement (76%)*

If a patient has been referred by a GP or After Hours doctor this is an appropriate attendance.

*Round 1: No consensus reached.*

*Round 2: No consensus reached.*

The wording of this statement was unchanged. Fifty-five panel members rated this statement. The percentage of respondents who either agreed or strongly agreed with this statement increased from 51% (n=30) to 58%. The level of uncertainty shifted from 20% (n=10) to 11% (n=6). Levels of disagreement shifted from 32% (n=19) to 58% (n=32). Twenty-eight individuals changed their rating between the rounds, 14 from each of the medical and nursing cohorts.
Nursing cohort response

While 14 of the nursing cohort altered their ratings of this statement, overall the distribution of responses remained similar. Of the respondents in round one, 44% and 50% in round two indicated agreement with the statement. 39% and 38% respectively selected ‘disagree’ in rounds one and two, with no one choosing ‘strongly disagree’. The single most commonly selected rating shifted from ‘disagree’ \((n=14)\) to ‘agree’ \((n=13)\) between the rounds.

Medical Cohort response

The lower threshold for consensus agreement was reached, with agreement ratings moving from 61\% in round one to 70\% in round two; disagreement remained at 22\%. There was a lessening of overall ‘uncertainty’ in the medical cohort responses.
If a patient is transported to hospital by ambulance this represents an appropriate attendance

Round 1: No consensus reached (disagree 68%)
Round 2: No consensus reached (disagree 65%)

The wording of this statement remained unchanged. Fifty-four respondents provided a rating. Overall levels of disagreement shifted from 68% (n=40) to 65% (n=35). Uncertainty moved from 14% (n= 8) to 7% (n=4), and agreement from 19% (n=11) to 28% (n=15). The most commonly recorded response remained ‘disagree’, with 58% (n=34) in round one and 59% (n=32) in round two. Nineteen panel members altered their responses.

Nursing cohort response

Thirty-one nursing panel members re-rated this statement. The nursing cohort had given a consensus disagreement rating of 78% (n=30) with this statement in round one; this reduced to 71% (n= 22) in round two. Twelve nursing respondents altered their rating.
Consensus was not reached. The level of disagreement moved from 52% in round one to 56% in round two. Uncertainty lessened from 22% to 13% and agreement moved from 17 to 30%. Seven medical respondents altered their rating.

If a patient is discharged from ED with no further follow up, this is an inappropriate attendance.

Consensus achieved round 1: disagreement (86%)

If a patient’s condition resulted from a road traffic accident this represents an appropriate attendance.

Round 1: No consensus reached.
Round 2: No consensus reached.
The wording of this statement remained unchanged, 55 panel members re-rated this statement. Overall agreement in round two increased from 48% \((n=28)\) to 66% \((n=36)\). The level of disagreement shifted from 35% \((n=20)\) to 26% \((n=14)\). Uncertainty shifted from 17% \((n=10)\) to 9% \((n=5)\).

**Nursing cohort response**

Consensus agreement within the nursing cohort was reached in relation to this statement at 72% in round two. 54% of the nursing cohort had indicated agreement in round one. Eleven respondents in this group changed their rating. Disagreement levels remained similar with 29% \((n=10)\) and 25% \((n=8)\) for the two rounds.

**Figure 6.32: Round 2 Road Traffic Accidents are ED appropriate (nursing)**

![Nursing cohort response chart]

**Medical cohort response**

Consensus was not reached within the medical sub group. Levels of agreement did increase, moving from 39% \((n=9)\) to 56% \((n=13)\). Disagreement ratings shifted from 43% \((n=10)\) in round one to 26% \((n=6)\) in round two. Uncertainty ratings remained the same at 17% \((n=4)\).

**Figure 6.33: Round 2 Road Traffic Accidents are ED appropriate (medical)**

![Medical cohort response chart]
If a patient is subsequently admitted to hospital this is an appropriate attendance.
Consensus achieved round 1: agreement (71%)

Injuries from workplace accidents should be assessed and treated in an ED.
Round 1: No consensus reached.
Round 2: No consensus reached.

Figure 6.34: Round 2 Workplace accidents are ED appropriate (combined)

Fifty-five panel members re-rated this statement. The wording of this statement was altered to read: “Injuries from workplace accidents should be assessed and treated in an ED”. Previous wording was: If a patient’s condition resulted from a workplace accident, this represents an appropriate attendance. Consensus was not reached in this round, although the overall level of disagreement came close to the minimum threshold, increasing from 56% (n=33) to 69% (n=38). Levels of agreement decreased from 56% (n=33) to 20% (n=11).

Nursing cohort response
Consensus was not reached, while overall distribution of responses remained similar between the rounds, with disagreement levels increasing from 56% (n=20) to 66% (n=21), and agreement moving from 33% (n=12) to 25% (n=8). Ten individuals altered their rating

Figure 6.35: Round 2 Workplace accidents are ED appropriate (nursing)
Medical cohort response

Figure 6.36: Round 2 Workplace accidents are ED appropriate (medical)

Consensus disagreement was reached at 74% \((n=17)\), up from 57\% \((n=13)\). The level of uncertainty dropped from 26\% \((n=6)\) to 13\% \((n=3)\), and agreement shifted from 17\% \((n=4)\) to 13\% \((n=3)\). Seven individuals altered their rating.

If a patient has received no investigations while in the ED, this is an inappropriate attendance.
*Consensus achieved round 1: disagreement (80\%)*

If a patient has received no treatment other than a prescription, bandage, sling dressing or steristrips this represents an inappropriate attendance.
*Consensus achieved round 1: disagreement (73\%)*

If a patient requires oxygen administration, this represents an appropriate attendance.
*Consensus achieved round 1: agreement (70\%)*

If a patient requires a specialty consultation, this represents an appropriate attendance.

Round 1: No consensus reached.
Round 2: No consensus reached.

Fifty-four respondents re-rated this statement. The wording was not altered. While consensus was not reached during this round, there was a movement towards increased disagreement, with a shift from 40\% \((n=22)\) to 58\% \((n=31)\). Rates of overall agreement fell from 48\% \((n=28)\) to 33\% \((n=18)\), uncertainty decreased from 12\% \((n=7)\) to 9\% \((n=5)\). The most commonly selected response shifted from ‘agree’ in round one at 45\% \((n=26)\) to ‘disagree’ in round two at 56\% \((n=30)\).
Nursing cohort response

The nursing cohort showed movement away from ‘agreement’, with 35.4% indicating agreement in round two ($n=11$), down from 56% in round one ($n=20$). This resulted in a corresponding increase in levels of disagreement, moving from 43% ($n=15$) in round one to 58% ($n=18$) in round two.

Medical cohort response

Responses from medical cohort participants indicated a lessening of uncertainty, with only 13% ($n=3$) selecting this option, down from 30% ($n=7$) in round one. This move towards a definite opinion resulted in an increase in disagreement, moving to 57% ($n=13$) from an original 35% ($n=8$).
If a patient requires prescription medications administered in ED (other than Tetanus or oral analgesics) this is an appropriate attendance.

Round 1: No consensus reached.

Round 2: Consensus disagreement 76%. Fifty-four panel members rated this statement. Consensus disagreement was reached, with an increase from 40% (n=34) of respondents indicating ‘disagree’ or ‘strongly disagree’ in round one to 76% (n=41) in round two. 29% (n=17) originally indicated agreement, this fell to 20% (n=11).

Nursing Cohort Response
The level of disagreement increased, moving from 58% (n=21) to a consensus of 71% (n=22), while the number of respondents who were ‘uncertain’ decreased from n=3 to n=0. Agreement decreased from 33% (n=12) to 29% (n=9).

**Medical Cohort Response**

Uncertainty reduced between the rounds, with consensus disagreement reached at 83% (n=19), an increase from 56% (n=13) in round one. Levels of uncertainty and agreement both decreased between the rounds, each moving from 22% (n=5) to 9% (n=2).

**Figure 6.42: Round 2 Prescription medications (medical)**

Patients triaged as category five (lowest category at triage, less urgent, to be seen within 120 minutes) have inappropriate reasons for presenting.

*Consensus achieved round 1: disagreement (80%)*

**Table 6.4: Consensus Summary: Re-presented Set 2 statements**

<table>
<thead>
<tr>
<th>No.</th>
<th>Statement</th>
<th>Delphi panel consensus</th>
<th>Nursing cohort consensus</th>
<th>Medical cohort consensus</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Round 1: If a patient’s symptoms have remained unchanged for more than 72hrs before presentation, this can be considered an inappropriate attendance</td>
<td>Consensus disagreement 75%</td>
<td>Consensus disagreement 75%</td>
<td>Consensus disagreement 77%</td>
</tr>
<tr>
<td>2</td>
<td>Round 1: If a patient has been referred by a GP or After Hours doctor this is an appropriate attendance</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td></td>
<td>Round 2:</td>
<td>No consensus</td>
<td>No consensus</td>
<td>Consensus agreement 70%</td>
</tr>
<tr>
<td>3</td>
<td>Round 1: If a patient is transported to hospital by ambulance this represents an appropriate attendance</td>
<td>Consensus disagreement 68%</td>
<td>Consensus disagreement 79%</td>
<td>No consensus Disagreement 52%</td>
</tr>
<tr>
<td></td>
<td>Round 2:</td>
<td>Consensus disagreement 65%</td>
<td>Consensus disagreement 71%</td>
<td>No consensus (Disagreement 57%)</td>
</tr>
<tr>
<td>No.</td>
<td>Statement</td>
<td>Delphi panel consensus</td>
<td>Nursing cohort consensus</td>
<td>Medical cohort consensus</td>
</tr>
<tr>
<td>-----</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------------------------</td>
<td>--------------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>4</td>
<td>Round 1: If a patient is discharged from ED with no further follow up, this is an inappropriate attendance</td>
<td>Consensus disagreement 86%</td>
<td>Consensus disagreement 80%</td>
<td>Consensus disagreement 96%</td>
</tr>
<tr>
<td>5</td>
<td>Round 1: If a patient’s condition resulted from a road traffic accident this represents an appropriate attendance</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td></td>
<td>Round 2:</td>
<td>No consensus</td>
<td>Consensus agreement 72%</td>
<td>No consensus</td>
</tr>
<tr>
<td>6</td>
<td>Round 1: If a patient is subsequently admitted to hospital this is an appropriate attendance</td>
<td>Consensus agreement 71%</td>
<td>Consensus agreement 78%</td>
<td>No consensus (Agreement 61%)</td>
</tr>
<tr>
<td>7</td>
<td>Round 1: If a patient’s condition resulted from a work place accident, this represents an appropriate attendance</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td></td>
<td>Round 2:</td>
<td>No consensus</td>
<td>No consensus</td>
<td>Consensus disagreement 74%</td>
</tr>
<tr>
<td>8</td>
<td>Round 1: If a patient has received no investigations while in the ED, this is an inappropriate attendance</td>
<td>Consensus disagreement 80%</td>
<td>No Consensus (disagreement 69%)</td>
<td>Consensus disagreement 95%</td>
</tr>
<tr>
<td>9</td>
<td>Round 1: If a patient has received no treatment other than a prescription, bandage, sling dressing or steristrips this represents an inappropriate attendance</td>
<td>Consensus disagreement 73%</td>
<td>Consensus disagreement 75%</td>
<td>No Consensus (disagreement 69%)</td>
</tr>
<tr>
<td>10</td>
<td>Round 1: If a patient requires oxygen administration, this represents an appropriate attendance</td>
<td>Consensus agreement: 70%</td>
<td>Consensus agreement: 72%</td>
<td>No Consensus (agreement 65%)</td>
</tr>
<tr>
<td>11</td>
<td>Round 1: If a patient requires a specialty consultation, this represents an appropriate attendance</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td></td>
<td>Round 2:</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>12</td>
<td>Round 1: If a patient requires prescription medications administered in ED (other than Tetanus or oral analgesics) this is an appropriate attendance</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td></td>
<td>Round 2:</td>
<td>Consensus disagreement 76%</td>
<td>Consensus disagreement 70.9%</td>
<td>Consensus disagreement 83%</td>
</tr>
<tr>
<td>13</td>
<td>Patients triaged as category five (lowest category at triage, less urgent, to be seen within 120 minutes) have inappropriate reasons for presenting</td>
<td>Consensus disagreement 80%</td>
<td>Consensus disagreement 72%</td>
<td>Consensus disagreement 91%</td>
</tr>
</tbody>
</table>
6.2 Condition descriptors: rating of Set 3

Participants were asked to re-rate specific conditions or circumstances which have been suggested as indicating an avoidable ED presentation.

Allergy or Hayfever.

Round 1: No consensus reached

Round 2: No consensus reached

Fifty-four participants re-rated this condition. Consensus was not reached, with 39% (n=21) of respondents either disagreeing or strongly disagreeing, 59% (n=32) agreeing or strongly agreeing (n=20), and 2% uncertain (n=1). With fewer participants selecting an ‘uncertain’ response, the single most commonly selected response shifted from ‘disagree’ in round one to ‘agree’ in round two, with 21 panel members selecting this (52%).

Figure 6.43: Round 2 Allergy or hayfever (combined)

Nursing cohort response

Figure 6.44: Round 2 Allergy or hayfever (nursing)

No consensus was reached within the nursing cohort. Thirty-two participants re-rated this question, with a movement towards agreement ratings. 59% (n=19) indicated agreement with this condition as an inappropriate reason for presenting to ED, compared to 37% (n=12) in round one. Uncertainty reduced, with only one participant selecting this response (3%), compared to five (14%) in the first iteration. Disagreement was also
lowered, moving from 49% \((n=17)\) to 37% \((n=12)\). The single most common response moved from ‘disagree’ (37% in round one) to ‘agree’ (59% in round two).

**Figure 6.45: Round 2 Allergy or hayfever (medical)**

Medical Cohort Response

![Graph showing medical cohort response](image)

No consensus was reached within the medical cohort, but there was a shift in responses towards agreement. 57% \((n=13)\) indicated agreement in round two, increased from % \((n=7)\). No respondents indicated uncertainty in this round and disagreement fell from 48% \((n=11)\) to 39% \((n=9)\).

**Constipation, 3 days or less.**

*Round 1: No consensus reached*

*Round 2: No consensus reached*

No consensus was reached either within the professional sub groups or from the Delphi panel as a whole. The single most common response overall remained ‘agree’. A similar distribution pattern amongst the responses was noted for the two professional groups.
Nursing Cohort Response

While consensus was not reached within the nursing cohort, there was a lessening of ‘uncertainty’ and an increase in responses indicating ‘agreement’. Agreement responses increased from 49% \((n=17)\) to 59% \((n=19)\).

Medical Cohort Response

Consensus was not reached within the medical cohort, but there was a movement towards increased agreement with this statement. Responses of agreement increased from 39% \((n=9)\) to 57% \((n=13)\).
Dental problems.
Round 1: No consensus reached
Round 2: No consensus reached

No consensus was reached within either professional group or from the panel as a whole, although there was some movement towards greater agreement with this as an ‘inappropriate’ reason to present to ED. 58% \((n=32)\) of respondents indicated agreement, 36% \((n=20)\) indicated disagreement and 6% \((n=3)\) remained ‘uncertain’.

Figure 6.49: Round 2 Dental problems (combined)

The ‘most common’ response selected was now ‘agree’, at 49% \((n=27)\). ‘Agree’ and disagree’ had been equally represented in the first round as ‘most common’ choice.

Nursing cohort response

Figure 6.50: Round 2 Dental problems (nursing)

There was a slight increase in agreement with this statement, but overall the nursing cohort responses maintained a similar distribution to that presented in round one.
Medical Cohort Response

**Figure 6.51: Round 2 Dental problems (medical)**

Consensus was not reached, but there was a clear shift towards agreement status, with a lessening of both ‘disagreement’ and ‘uncertainty’. Agreement statements increased from 39% (n=9) to 65% (n=15).

**Lice or Scabies.**

*Round 1: Consensus achieved: agreement (71%)*

**Mouth ulcers.**

*Round 1: No consensus reached*

*Round 2: No consensus reached*

**Figure 6.52: Round 2 Mouth ulcers (combined)**

Consensus was not reached by the panel as a whole, nor within the individual professional groups. The single most commonly selected response shifted from ‘disagree’ with 17 responses (30%) in round one to ‘agree’ with 21 responses (39%). Uncertainty fell from 21% (n=12) to 6% (n=3).
Nursing Cohort Response

Figure 6.53: Round 2 Mouth ulcers (nursing)

Consensus was not reached but there was a lessening of uncertainty amongst responses. Uncertainty reduced from 26% (n=9) to 6% (n=2) and overall agreement increased from 51% (n=18) to 59% (n=19). Disagreement also increased, moving from 23% (n=8) to 34% (n=11).

Medical Cohort Response

Figure 6.54: Round 2 Mouth ulcers (medical)

There was minimal change in overall distribution of responses from within the medical cohort.

Nausea or vomiting.
Round 1: Consensus achieved: disagreement (77%)

Painless urethral discharge.
Round 1: No consensus reached
Round 2: Consensus achieved: agreement 71%
Consensus agreement was reached that painless urethral discharge as a primary reason for presentation did not demonstrate an appropriate reason to seek ED care. The single most common response selected was ‘agree’ at 60% (n=33).

**Nursing Cohort Response**

Consensus was reached within the group at 75% agreement that this was an inappropriate primary reason for presentation. Uncertainty and disagreement levels were reduced.

**Medical Cohort Responses**

Consensus at a sub group level was not reached, with 65.1% (n=15) indicating agreement (an increase from 43%, n=9) and 30% indicating disagreement (n=7), which was the same overall degree of disagreement as recorded in round one, but with a lessening of emphasis. One respondent remained uncertain, compared to five in the first round.
Pregnancy testing.
Round 1: Consensus achieved: agreement (72%)

Prescription refill.
Round 1: Consensus achieved: agreement (79%)

Attending for a second opinion.
Round 1: No consensus reached
Round 2: No consensus reached

Consensus was not reached by the Delphi panel, or within the individual professional groups. The single most commonly selected response shifted from ‘disagree’ at 35% \((n=20)\) in round one to ‘agree’ at 40% \((n=22)\). Uncertainty was reduced from 19% \((n=11)\) to 9% \((n=5)\).
Nursing Cohort Responses

Overall levels of disagreement remained the same, but uncertainty lessened and agreement increased. Eight individuals in round one (23%) and four in round two (13%) selected ‘uncertain’. The level of agreement increased from 49% \((n=17)\) to 59% \((n=19)\).

Medical Cohort Responses

Responses from the medical cohort showed only minimal change, with two fewer participants selecting ‘uncertain’ and one additional rating for ‘disagreement’. Levels of agreement remained the same.
### Table 6.5: Summary of Panel Responses: Re-presented Set 3 statements

<table>
<thead>
<tr>
<th>Descriptor</th>
<th>Round</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Uncertain</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>N=</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allergy or hay fever</td>
<td>1</td>
<td>9% (n=5)</td>
<td>40% (n=23)</td>
<td>17% (n=10)</td>
<td>29% (n=17)</td>
<td>5% (n=3)</td>
<td>58</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>4% (n=2)</td>
<td>35% (n=19)</td>
<td>2% (n=1)</td>
<td>52% (n=28)</td>
<td>7% (n=4)</td>
<td>54</td>
</tr>
<tr>
<td>Constipation, 3 days or less</td>
<td>1</td>
<td>9% (n=5)</td>
<td>28% (n=16)</td>
<td>19% (n=11)</td>
<td>35% (n=20)</td>
<td>10% (n=6)</td>
<td>58</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>6% (n=3)</td>
<td>27% (n=15)</td>
<td>9% (n=5)</td>
<td>49% (n=27)</td>
<td>9% (n=5)</td>
<td>55</td>
</tr>
<tr>
<td>Dental problems</td>
<td>1</td>
<td>7% (n=4)</td>
<td>35% (n=20)</td>
<td>16% (n=9)</td>
<td>35% (n=20)</td>
<td>9% (n=5)</td>
<td>58</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>6% (n=3)</td>
<td>31% (n=17)</td>
<td>6% (n=3)</td>
<td>49% (n=27)</td>
<td>9% (n=5)</td>
<td>55</td>
</tr>
<tr>
<td>Lice or scabies</td>
<td>1</td>
<td>3% (n=2)</td>
<td>17% (n=10)</td>
<td>9% (n=5)</td>
<td>43% (n=25)</td>
<td>28% (n=16)</td>
<td>58</td>
</tr>
<tr>
<td>Mouth ulcers</td>
<td>1</td>
<td>3% (n=2)</td>
<td>29% (n=17)</td>
<td>21% (n=12)</td>
<td>28% (n=16)</td>
<td>19% (n=11)</td>
<td>58</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>6% (n=3)</td>
<td>33% (n=18)</td>
<td>56% (n=3)</td>
<td>39% (n=21)</td>
<td>17% (n=9)</td>
<td>54</td>
</tr>
<tr>
<td>Nausea or vomiting</td>
<td>1</td>
<td>14% (n=8)</td>
<td>64% (n=37)</td>
<td>16% (n=9)</td>
<td>67% (n=4)</td>
<td>0% (n=0)</td>
<td>58</td>
</tr>
<tr>
<td>Painless urethral discharge</td>
<td>1</td>
<td>7% (n=4)</td>
<td>28% (n=16)</td>
<td>17% (n=10)</td>
<td>36% (n=21)</td>
<td>12% (n=7)</td>
<td>58</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>6% (n=3)</td>
<td>22% (n=12)</td>
<td>2% (n=1)</td>
<td>60% (n=33)</td>
<td>11% (n=6)</td>
<td>55</td>
</tr>
<tr>
<td>Pregnancy testing</td>
<td>1</td>
<td>3% (n=2)</td>
<td>16% (n=9)</td>
<td>9% (n=5)</td>
<td>33% (n=19)</td>
<td>40% (n=23)</td>
<td>58</td>
</tr>
<tr>
<td>Prescription refill</td>
<td>1</td>
<td>5% (n=3)</td>
<td>7% (n=4)</td>
<td>9% (n=5)</td>
<td>26% (n=15)</td>
<td>53% (n=31)</td>
<td>58</td>
</tr>
<tr>
<td>Attending for a second opinion</td>
<td>1</td>
<td>3% (n=2)</td>
<td>35% (n=20)</td>
<td>19% (n=11)</td>
<td>28% (n=16)</td>
<td>16% (n=9)</td>
<td>58</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>7% (n=4)</td>
<td>35% (n=19)</td>
<td>9% (n=5)</td>
<td>40% (n=22)</td>
<td>9% (n=5)</td>
<td>55</td>
</tr>
</tbody>
</table>
### Table 6.6: Consensus Summary: Re-presented Set 3 statements

<table>
<thead>
<tr>
<th>Statement</th>
<th>Round</th>
<th>Delphi panel consensus (Combined medical and nursing responses)</th>
<th>Nursing cohort consensus</th>
<th>Medical cohort consensus</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Allergy or hay fever</td>
<td>1</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>2. Constipation, 3 days or less</td>
<td>1</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>3. Dental problems</td>
<td>1</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>4. Lice or scabies</td>
<td>1</td>
<td>Consensus agreement 71%</td>
<td>Consensus agreement 74%</td>
<td>No consensus</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Agreement: 65%</td>
</tr>
<tr>
<td>5. Mouth ulcers</td>
<td>1</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>6. Nausea or vomiting</td>
<td>1</td>
<td>Consensus disagreement 78%</td>
<td>Consensus disagreement 74%</td>
<td>Consensus disagreement 83%</td>
</tr>
<tr>
<td>7. Painless urethral discharge</td>
<td>1</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Consensus agreement 71%</td>
<td>Consensus agreement 75%</td>
<td>No consensus</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Agreement: 65%</td>
</tr>
<tr>
<td>8. Pregnancy testing</td>
<td>1</td>
<td>Consensus agreement 73%</td>
<td>No consensus</td>
<td>Consensus agreement 78%</td>
</tr>
<tr>
<td>9. Prescription refill</td>
<td>1</td>
<td>Consensus agreement 79%</td>
<td>Consensus agreement 77%</td>
<td>Consensus agreement 83%</td>
</tr>
<tr>
<td>10. Attending for a second opinion</td>
<td>1</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
</tbody>
</table>

#### 6.2.1 Additional criteria suggested by participants (set 4)

Additional parameters were suggested by survey participants as potentially indicating ‘inappropriate’ reasons for ED attendance (N=25). These were presented to the panel and each rated using the same Likert scale. Results identified a number of areas of agreement.
### Table 6.7: Summary of Panel Responses: Additional criteria

<table>
<thead>
<tr>
<th>Combined Panel responses</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Unsure</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>N=</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routine medical check up</td>
<td>6% (n=3)</td>
<td>0% (n=0)</td>
<td>0%</td>
<td>34% (n=18)</td>
<td>60% (n=32)</td>
<td>53</td>
</tr>
<tr>
<td>Request for medical certificate without requiring emergency care</td>
<td>6% (n=3)</td>
<td>0% (n=0)</td>
<td>0%</td>
<td>42% (n=22)</td>
<td>53% (n=28)</td>
<td>53</td>
</tr>
<tr>
<td>Request for ACC certificate without requiring emergency care</td>
<td>6% (n=3)</td>
<td>2% (n=1)</td>
<td>2%</td>
<td>40% (n=21)</td>
<td>51% (n=27)</td>
<td>53</td>
</tr>
<tr>
<td>Healthcare documentation without the need for emergency care (eg forms for school, periodic detention, insurance)</td>
<td>6% (n=3)</td>
<td>2% (n=1)</td>
<td>0%</td>
<td>28% (n=15)</td>
<td>64% (n=34)</td>
<td>53</td>
</tr>
<tr>
<td>Prescription for emergency contraception pill</td>
<td>4% (n=2)</td>
<td>34% (n=18)</td>
<td>8% (n=4)</td>
<td>38% (n=20)</td>
<td>17% (n=9)</td>
<td>53</td>
</tr>
<tr>
<td>Routine suture removal</td>
<td>4% (n=2)</td>
<td>6% (n=3)</td>
<td>0%</td>
<td>56% (n=29)</td>
<td>35% (n=18)</td>
<td>52</td>
</tr>
<tr>
<td>Referrals to ED for x-rays only</td>
<td>4% (n=2)</td>
<td>19% (n=10)</td>
<td>17% (n=9)</td>
<td>48% (n=25)</td>
<td>12% (n=6)</td>
<td>52</td>
</tr>
<tr>
<td>Plaster cast checks</td>
<td>4% (n=2)</td>
<td>28% (n=15)</td>
<td>11% (n=6)</td>
<td>47% (n=25)</td>
<td>9% (n=5)</td>
<td>53</td>
</tr>
<tr>
<td>Injuries requiring simple suturing</td>
<td>6% (n=3)</td>
<td>43% (n=23)</td>
<td>9% (n=5)</td>
<td>38% (n=20)</td>
<td>4% (n=2)</td>
<td>53</td>
</tr>
<tr>
<td>Requests for dressing changes</td>
<td>8% (n=4)</td>
<td>6% (n=3)</td>
<td>8% (n=4)</td>
<td>51% (n=27)</td>
<td>28% (n=15)</td>
<td>53</td>
</tr>
<tr>
<td>Minor lacerations to limbs</td>
<td>4% (n=2)</td>
<td>40% (n=21)</td>
<td>12% (n=6)</td>
<td>37% (n=19)</td>
<td>8% (n=4)</td>
<td>52</td>
</tr>
<tr>
<td>Isolated mental health problems (no organic cause to be ruled out)</td>
<td>8% (n=4)</td>
<td>37% (n=19)</td>
<td>15% (n=8)</td>
<td>31% (n=16)</td>
<td>10% (n=4)</td>
<td>52</td>
</tr>
<tr>
<td>Routine care of stable medical conditions</td>
<td>4% (n=2)</td>
<td>8% (n=4)</td>
<td>8% (n=4)</td>
<td>60% (n=31)</td>
<td>21% (n=11)</td>
<td>52</td>
</tr>
<tr>
<td>Request for assessment of chronic condition (no acute changes)</td>
<td>4% (n=2)</td>
<td>4% (n=2)</td>
<td>2% (n=1)</td>
<td>62% (n=33)</td>
<td>28% (n=15)</td>
<td>53</td>
</tr>
<tr>
<td>Non-acute alcohol and drug detox</td>
<td>4% (n=2)</td>
<td>17% (n=9)</td>
<td>2% (n=1)</td>
<td>58% (n=30)</td>
<td>19% (n=10)</td>
<td>52</td>
</tr>
<tr>
<td>Otitis media</td>
<td>6% (n=3)</td>
<td>35% (n=18)</td>
<td>14% (n=7)</td>
<td>40% (n=21)</td>
<td>6% (n=3)</td>
<td>52</td>
</tr>
<tr>
<td>Viral URTI</td>
<td>6% (n=3)</td>
<td>36% (n=19)</td>
<td>13% (n=7)</td>
<td>42% (n=22)</td>
<td>4% (n=2)</td>
<td>53</td>
</tr>
<tr>
<td>Nappy dermatitis</td>
<td>6% (n=3)</td>
<td>17% (n=9)</td>
<td>10% (n=5)</td>
<td>52% (n=27)</td>
<td>15% (n=8)</td>
<td>52</td>
</tr>
</tbody>
</table>
## Table 6.8: Consensus Summary (Set 4) Additional criteria

<table>
<thead>
<tr>
<th>Condition</th>
<th>Delphi panel consensus (Combined medical and nursing responses)</th>
<th>Nursing cohort consensus</th>
<th>Medical cohort consensus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routine medical check up</td>
<td>Consensus agreement 94%</td>
<td>Consensus agreement 93%</td>
<td>Consensus agreement 96%</td>
</tr>
<tr>
<td>Request for medical certificate without requiring emergency care</td>
<td>Consensus agreement 94%</td>
<td>Consensus agreement 93%</td>
<td>Consensus agreement 96%</td>
</tr>
<tr>
<td>Request for ACC certificate without requiring emergency care</td>
<td>Consensus agreement 91%</td>
<td>Consensus agreement 93%</td>
<td>Consensus agreement 87%</td>
</tr>
<tr>
<td>Healthcare documentation without the need for emergency care (eg forms for school, periodic detention, insurance)</td>
<td>Consensus agreement 93%</td>
<td>Consensus agreement 93%</td>
<td>Consensus agreement 91%</td>
</tr>
<tr>
<td>Prescription for emergency contraception pill</td>
<td>No consensus</td>
<td>No consensus (agreement 60%)</td>
<td>No consensus (agree/disagree 48%)</td>
</tr>
<tr>
<td>Routine suture removal</td>
<td>Consensus agreement 90%</td>
<td>Consensus agreement 87%</td>
<td>Consensus agreement 96%</td>
</tr>
<tr>
<td>Referrals to ED for x-rays only</td>
<td>No consensus</td>
<td>No consensus (agreement 57%)</td>
<td>No consensus (agreement 64%)</td>
</tr>
<tr>
<td>Plaster cast checks</td>
<td>No consensus</td>
<td>No consensus (agreement 57%)</td>
<td>No consensus (agreement 57%)</td>
</tr>
<tr>
<td>Injuries requiring simple suturing</td>
<td>No consensus</td>
<td>No consensus (agreement 47%)</td>
<td>No consensus (disagreement 57%)</td>
</tr>
<tr>
<td>Requests for dressing changes</td>
<td>Consensus agreement 79%</td>
<td>Consensus agreement 77%</td>
<td>Consensus agreement 83%</td>
</tr>
<tr>
<td>Minor lacerations to limbs</td>
<td>No consensus</td>
<td>No consensus (agreement 50%)</td>
<td>No consensus (disagreement 52%)</td>
</tr>
<tr>
<td>Condition</td>
<td>Delphi panel consensus (Combined medical and nursing responses)</td>
<td>Nursing cohort consensus</td>
<td>Medical cohort consensus</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------</td>
<td>--------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>Isolated mental health problems (no organic cause to be ruled out)</td>
<td>No consensus</td>
<td>No consensus (disagreement 48%)</td>
<td>No consensus (agreement 46%)</td>
</tr>
<tr>
<td>Routine care of stable medical conditions</td>
<td>Consensus agreement 81%</td>
<td>Consensus agreement 72%</td>
<td>Consensus agreement 91%</td>
</tr>
<tr>
<td>Request for assessment of chronic condition (no acute changes)</td>
<td>Consensus agreement 91%</td>
<td>Consensus agreement 90%</td>
<td>Consensus agreement 96%</td>
</tr>
<tr>
<td>Non-acute alcohol and drug detox</td>
<td>Consensus agreement 77%</td>
<td>Consensus Agreement 79%</td>
<td>Consensus agreement 74%</td>
</tr>
<tr>
<td>Otitis media</td>
<td>No consensus</td>
<td>No consensus (agree/disagree 40%)</td>
<td>No consensus (agreement 55%)</td>
</tr>
<tr>
<td>Viral URTI</td>
<td>No consensus</td>
<td>No consensus (agreement 43%)</td>
<td>No consensus (agreement 48%)</td>
</tr>
<tr>
<td>Nappy dermatitis</td>
<td>No consensus</td>
<td>Consensus (agreement 72%)</td>
<td>No consensus (agreement 61%)</td>
</tr>
<tr>
<td>Routine childhood illness: chickenpox</td>
<td>No consensus</td>
<td>No consensus (agreement 60%)</td>
<td>No consensus (agreement 52%)</td>
</tr>
<tr>
<td>Superficial cuts and abrasions</td>
<td>No consensus</td>
<td>No consensus (agreement 69%)</td>
<td>No consensus (agreement 70%)</td>
</tr>
<tr>
<td>Longstanding musculoskeletal problems (no acute exacerbation)</td>
<td>Consensus agreement 87%</td>
<td>Consensus agreement 87%</td>
<td>Consensus agreement 87%</td>
</tr>
<tr>
<td>Diarrhoea and vomiting in otherwise well patient</td>
<td>No consensus</td>
<td>No consensus (agreement 67%)</td>
<td>No consensus (agreement 44%)</td>
</tr>
<tr>
<td>Eczema</td>
<td>Consensus agreement 73%</td>
<td>Consensus agreement 79%</td>
<td>No consensus (agreement 64%)</td>
</tr>
<tr>
<td>Sprain but still weight bearing</td>
<td>No consensus</td>
<td>No consensus (agreement 67%)</td>
<td>No consensus (agreement 52%)</td>
</tr>
<tr>
<td>Cold or Flu symptoms in otherwise well person</td>
<td>Consensus agreement 70%</td>
<td>Consensus agreement 77%</td>
<td>No consensus (agreement 61%)</td>
</tr>
</tbody>
</table>

### 6.2.2 Clarification of service availability

It was evident from participant free text responses during round one that there was considerable variation in perceived access to services at differing times of the day and during what were described as ‘after hours’ periods. To gain a greater understanding around this, participants were asked to indicate the availability of a range of services in their practice area. This list was generated from consideration of the literature around ED overcrowding, and in particular in relation to the type of conditions often described as being suitable for alternative service providers to manage. Participants had indicated in round one that access to and availability of service options influenced their beliefs around ‘appropriateness’ of patient presentations. It is clear from the resulting responses to this
question that there is considerable variation in service provision within geographical areas that host major EDs.

<table>
<thead>
<tr>
<th>Service type</th>
<th>normal working hrs (08.30-17.30)</th>
<th>after hours (17.30-23.00)</th>
<th>overnight (23.00-08.30)</th>
<th>statutory holidays</th>
<th>weekends</th>
<th>N=</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacy access</td>
<td>89% (n=47)</td>
<td>94% (n=50)</td>
<td>8% (n=4)</td>
<td>83% (n=44)</td>
<td>93% (n=49)</td>
<td>53</td>
</tr>
<tr>
<td>Non ED based psychiatric services</td>
<td>98% (n=50)</td>
<td>65% (n=33)</td>
<td>49% (n=25)</td>
<td>59% (n=30)</td>
<td>61% (n=31)</td>
<td>51</td>
</tr>
<tr>
<td>Primary Health care services</td>
<td>96% (n=51)</td>
<td>62% (n=33)</td>
<td>38% (n=20)</td>
<td>49% (n=26)</td>
<td>62% (n=33)</td>
<td>53</td>
</tr>
<tr>
<td>Accident and medical clinic</td>
<td>96% (n=47)</td>
<td>94% (n=46)</td>
<td>59% (n=29)</td>
<td>86% (n=42)</td>
<td>90% (n=44)</td>
<td>49</td>
</tr>
<tr>
<td>Community based x-ray facility</td>
<td>98% (n=51)</td>
<td>69% (n=36)</td>
<td>19% (n=10)</td>
<td>50% (n=26)</td>
<td>67% (n=35)</td>
<td>52</td>
</tr>
<tr>
<td>Dental services</td>
<td>98% (n=52)</td>
<td>45% (n=24)</td>
<td>13% (n=7)</td>
<td>34% (n=18)</td>
<td>47% (n=25)</td>
<td>53</td>
</tr>
<tr>
<td>Sexual health clinic</td>
<td>100% (n=51)</td>
<td>2% (n=1)</td>
<td>0% (n=0)</td>
<td>0% (n=0)</td>
<td>8% (n=4)</td>
<td>51</td>
</tr>
</tbody>
</table>

6.2.3  Non clinical factors that influence perceptions of appropriateness

A further set of parameters were presented to panel members, again derived from feedback gained during the first round. These were non-clinical factors that participants identified as influencing their beliefs. The same rating system was utilised. Participants were asked whether, in the absence of clinical indicators for emergency care, they would take the following into account when determining appropriateness of ED presentation.
<table>
<thead>
<tr>
<th>Combined Panel responses</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Unsure</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>N=</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient's perception of urgency</td>
<td>4% (n=2)</td>
<td>15% (n=8)</td>
<td>2% (n=1)</td>
<td>72% (n=38)</td>
<td>8% (n=4)</td>
<td>53</td>
</tr>
<tr>
<td>Patient's level of distress</td>
<td>2% (n=1)</td>
<td>6% (n=3)</td>
<td>0% (n=0)</td>
<td>74% (n=39)</td>
<td>19% (n=10)</td>
<td>53</td>
</tr>
<tr>
<td>Patient's concern with cost of alternative service</td>
<td>2% (n=1)</td>
<td>11% (n=6)</td>
<td>15% (n=8)</td>
<td>64% (n=34)</td>
<td>8% (n=4)</td>
<td>53</td>
</tr>
<tr>
<td>Patient's stated inability to access regular GP</td>
<td>4% (n=2)</td>
<td>21% (n=11)</td>
<td>9% (n=5)</td>
<td>60% (n=32)</td>
<td>6% (n=3)</td>
<td>53</td>
</tr>
<tr>
<td>Patient's preference for ED care</td>
<td>13% (n=7)</td>
<td>57% (n=30)</td>
<td>9% (n=5)</td>
<td>19% (n=10)</td>
<td>2% (n=1)</td>
<td>53</td>
</tr>
<tr>
<td>Patient's lack of knowledge regarding alternative care services</td>
<td>8% (n=4)</td>
<td>34% (n=18)</td>
<td>11% (n=6)</td>
<td>43% (n=23)</td>
<td>4% (n=2)</td>
<td>53</td>
</tr>
<tr>
<td>Convenience to patient of ED location</td>
<td>25% (n=13)</td>
<td>65% (n=34)</td>
<td>4% (n=2)</td>
<td>2% (n=1)</td>
<td>4% (n=2)</td>
<td>52</td>
</tr>
<tr>
<td>Convenience to patient of not needing to make an appointment</td>
<td>25% (n=13)</td>
<td>62% (n=33)</td>
<td>2% (n=1)</td>
<td>9% (n=5)</td>
<td>2% (n=1)</td>
<td>53</td>
</tr>
<tr>
<td>Inability of the patient to access specialist care in a timely fashion</td>
<td>4% (n=2)</td>
<td>45% (n=24)</td>
<td>17% (n=9)</td>
<td>30% (n=16)</td>
<td>4% (n=2)</td>
<td>53</td>
</tr>
<tr>
<td>Availability of alternative services</td>
<td>2% (n=1)</td>
<td>6% (n=3)</td>
<td>8% (n=4)</td>
<td>76% (n=40)</td>
<td>9% (n=5)</td>
<td>53</td>
</tr>
<tr>
<td>Availability of social support / supervision</td>
<td>4% (n=2)</td>
<td>6% (n=3)</td>
<td>15% (n=8)</td>
<td>68% (n=36)</td>
<td>8% (n=4)</td>
<td>53</td>
</tr>
</tbody>
</table>
Table 6.11: Consensus Summary (Set 5) Non clinical factors

<table>
<thead>
<tr>
<th>Condition</th>
<th>Delphi panel consensus (Combined medical and nursing responses)</th>
<th>Nursing cohort consensus</th>
<th>Medical cohort consensus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient's perception of urgency</td>
<td>Consensus agreement 78%</td>
<td>Consensus agreement 73%</td>
<td>Consensus agreement 91%</td>
</tr>
<tr>
<td>Patient's level of distress</td>
<td>Consensus agreement 92%</td>
<td>Consensus agreement 93%</td>
<td>Consensus agreement 91%</td>
</tr>
<tr>
<td>Patient's concern with cost of alternative service</td>
<td>Consensus agreement 72%</td>
<td>Consensus agreement 73%</td>
<td>Consensus agreement 70%</td>
</tr>
<tr>
<td>Patient's stated inability to access regular GP</td>
<td>No consensus</td>
<td>No consensus agreement 67%</td>
<td>No consensus agreement 65%</td>
</tr>
<tr>
<td>Patient's preference for ED care</td>
<td>Consensus disagreement 70%</td>
<td>Consensus disagreement 73%</td>
<td>No consensus disagreement 65%</td>
</tr>
<tr>
<td>Patient's lack of knowledge regarding alternative care services</td>
<td>No consensus</td>
<td>No consensus agreement 47%</td>
<td>No consensus agreement 48%</td>
</tr>
<tr>
<td>Convenience to patient of ED location</td>
<td>Consensus disagreement 90%</td>
<td>Consensus disagreement 90%</td>
<td>Consensus disagreement 91%</td>
</tr>
<tr>
<td>Convenience to patient of not needing to make an appointment</td>
<td>Consensus disagreement 87%</td>
<td>Consensus disagreement 87%</td>
<td>Consensus disagreement 87%</td>
</tr>
<tr>
<td>Inability of the patient to access specialist care in a timely fashion</td>
<td>No consensus</td>
<td>No consensus disagreement 47%</td>
<td>No consensus disagreement 52%</td>
</tr>
<tr>
<td>Availability of alternative services</td>
<td>Consensus agreement 85%</td>
<td>Consensus agreement 87%</td>
<td>Consensus agreement 83%</td>
</tr>
<tr>
<td>Availability of social support / supervision</td>
<td>Consensus agreement 76%</td>
<td>Consensus agreement 70%</td>
<td>Consensus agreement 83%</td>
</tr>
</tbody>
</table>

6.2.4 International appropriateness tool

There are several tools for determining ‘appropriateness’ of patient presentation to ED that have been published in the international literature. A discussion of these has highlighted some of the concerns in applying these within a NZ setting, without first determining whether NZ clinicians agree about the underlying concepts. Despite this, it was considered worthwhile presenting one of the internationally validated tools to participants for consideration. Responses from participants identified that they had found this tool difficult, confusing and unlikely to be of use within the NZ context.

Participants were informed that the tool presented was developed in the US, and had been published internationally. The specific tool was that developed by Derlet, Kinser, Ray, Hamilton, and Mc Kenzie[239] (1995). Participants were advised that this tool was not intended to represent an actual or potential outcome of the current Delphi study, but that it was included to illustrate how such a tool might look. The specific tool included
four criterion sections which needed to be assessed before a judgment of ‘appropriateness’
could be made. In order to be considered in the 'non emergency' category, persons would
need to meet all four criteria: presence of vital signs within specific ranges, absence of
high-risk conditions, absence of significant pathology on focused screening examination,
and presence of minor complaint on non-emergency list. Each of these sections included a
‘menu’ of inclusion / exclusion type criteria. Participants were asked to consider each of
these and to rate them, using a simplified scale. This scale gave the options ‘agree’
‘uncertain’ and ‘disagree’ in relation to each criteria presented. Participants were then
asked to comment on the relative utility of the tool as a whole.

Criteria Set 1: vital signs

Participants were presented with the range of vital signs determined by the tool’s
authors as being indicative of ‘non emergency’ adult patient presentations. Panel members
were asked to indicate if they agreed with these, and reminded that these criteria were
designed to be considered in relation to the other three criteria categories. Vital sign
parameters were given as follows:

- Temperature: 35-38.5 Celsius (38.3 for >60yrs)
- Respirations: 12-20 breaths per minute
- Blood pressure: 90-160 systolic
- Blood pressure: 60-118 diastolic
- Pulse: 60-110 beats per minute(100 if >60)

Forty-seven of the panel members chose to rate this section of the tool. Only one of
these criteria reached consensus when rated by the NZ panel members, this was
‘Respirations: 12-20 breaths per minute’, which received 81% agreement (n=38). The
remaining criteria received ratings of less than 55%.

Criteria Set 2: exclusionary clinical indicators

In addition to having vital signs within the given parameters, patients needed to have
the absence of the following clinical indicators:

- Severe pain
- Chest or abdominal pain
- Younger than 16 years of age
- Inability to walk
Patient volunteers a high risk condition

Forty-seven of the panel members chose to rate this section of the tool. There was greater than 70% agreement that the clinical parameters ‘severe pain’, chest or abdominal pain’ and ‘patient volunteers a high risk condition’ would exclude a patient from the ‘non emergency’ category. Agreement was not reached on the age related category and ‘inability to walk’.

**Criteria Set 3: focussed screening exam**

This involved each patient receiving a thorough ‘focussed screening exam’, with the following guidelines given for triage assessments:

- Ear pain: then requires examination of ear
- Head and neck: Inspection of face mouth throat
- Respiratory: Auscultation of lungs
- Skin/wound complaint: Inspection of problem / area of skin
- Joints: Inspection, palpation, joint ROM
- Back: Inspection of back, overall appearance of patient, observation of gait
- Feet: Inspection of feet, observation of gait

Consensus agreement was reached in regard to the screening criteria guidelines for all but the first two criteria, which received 66 and 68% agreement respectively.

**Criteria Set 4: Minor complaints list**

The fourth criteria set included a list of ‘minor’ complaints. In order to be considered in the ‘non emergency’ category, a patient would need to have vital signs within the clinical parameters given; absence of clinical factors identified in criteria two; a negative focussed triage screening assessment at triage (no abnormalities identified in the given categories); be presenting with one of the listed ‘minor’ complaints. A number of these complaints had been incorporated into the first round of the Delphi survey.

These conditions included:

- allergy or hay fever
- diarrhoea (not orthostatic)
- constipation, 3 days or less
- dysuria, mild female
- minor contusion or abrasion
- mild eye irritation without signs of infection
- mild cough without haemoptysis or respiratory impairment
- ear pain
- chronic, recurrent haematuria
- sexual disease exposure
- hepatitis exposure or symptoms
- chronic sinusitis
- minor skin sores, not infected
- joint pain
- sore throat
- lice or scabies
- sleep disorder
- mouth blisters
- suture removal
- muscle aches
- localised sunburn without blisters
- nausea or vomiting
- trauma follow up (minor injury treated elsewhere)
- neck pain (no history of acute trauma)
- URTI except pt with diabetes, CHF renal failure Ca)
- physical examination requests
- vaginal discharge
- pregnancy testing
- weakness – appears well
- prescription refill
- work release or disability form completion
- pruritis without rash
- wound checks
simple, localised rash

Conditions excluded from panel assessment due to errors in formatting, rendering analysis inconclusive:

1. chronic dizziness
2. mild back pain, able to walk without assistance
3. drug or alcohol detox
4. dental problems
5. foot problems (blisters, pain, ingrown toenails, plantar warts)
6. minor headache without neurological impairment
7. minor rectal pain or itching
8. immunisations and gamma globulin requests
9. painless urethral discharge
10. vaginal bleeding (minor (one pad in last 6 hrs)

Forty-six panel members offered ratings for this section. Responses to this section were varied, and complicated by an error in formatting which rendered some responses unreliable. Of the 44 conditions presented, ten were excluded from the analysis due to formatting concerns. Of the remaining 34, ten reached consensus. These conditions were found by 70% of participants to indicate conditions that, in conjunction with findings within the ‘normal’ range from the first three criteria sets, were NOT seen as appropriate for ED presentation (ie were consistent with ‘non emergency’ according to the terminology used by this tool).
Table 6.12: International tool condition criteria: Panel consensus findings

<table>
<thead>
<tr>
<th>Does this condition represent an ED appropriate presentation?</th>
<th>Agree</th>
<th>Uncertain</th>
<th>Disagree</th>
<th>N=</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor contusion or abrasion</td>
<td>22% (n=10)</td>
<td>7% (n=3)</td>
<td>72% (n=33)</td>
<td>46</td>
</tr>
<tr>
<td>Mild cough without haemoptysis or respiratory impairment</td>
<td>13% (n=6)</td>
<td>4% (n=2)</td>
<td>82% (n=37)</td>
<td>45</td>
</tr>
<tr>
<td>Lice or scabies</td>
<td>17% (n=8)</td>
<td>7% (n=3)</td>
<td>76% (n=35)</td>
<td>46</td>
</tr>
<tr>
<td>Suture removal</td>
<td>22% (n=10)</td>
<td>2% (n=1)</td>
<td>76% (n=35)</td>
<td>46</td>
</tr>
<tr>
<td>Localised sunburn without blisters</td>
<td>20% (n=9)</td>
<td>2% (n=1)</td>
<td>78% (n=36)</td>
<td>46</td>
</tr>
<tr>
<td>Physical examination requests</td>
<td>20% (n=9)</td>
<td>7% (n=3)</td>
<td>74% (n=34)</td>
<td>46</td>
</tr>
<tr>
<td>Pregnancy testing</td>
<td>24% (n=11)</td>
<td>7% (n=3)</td>
<td>70% (n=32)</td>
<td>46</td>
</tr>
<tr>
<td>Prescription refill</td>
<td>17% (n=8)</td>
<td>9% (n=4)</td>
<td>74% (n=34)</td>
<td>46</td>
</tr>
<tr>
<td>Work release or disability form completion</td>
<td>20% (n=9)</td>
<td>0% (n=0)</td>
<td>80% (n=37)</td>
<td>46</td>
</tr>
<tr>
<td>Wound checks</td>
<td>22% (n=10)</td>
<td>9% (n=4)</td>
<td>70% (n=32)</td>
<td>46</td>
</tr>
<tr>
<td>Simple, localised rash</td>
<td>20% (n=9)</td>
<td>11% (n=5)</td>
<td>70% (n=32)</td>
<td>46</td>
</tr>
</tbody>
</table>

6.2.5 International tool: General comments

Twenty-one panel members entered comments in relation to the international tool presented, 12 nurses and nine doctors. The general feedback indicated that the tool as presented would be difficult to apply, was seen as too non-specific, and would essentially involve a major assessment of the patient. Issues were identified around time necessary to carry out the assessments and screening, and whether this was a ‘triage’ appropriate review. Examples of respondents’ comments included:

*I find some of these categories interesting in that the hospital that I work at does not do this type of information gathering at triage, but more at the initial assessment. We would not have time for example to examine backs, other than a cursory glance or examine ears. Quite frankly if we were going to the trouble of doing all of this you may as well book the patient in to see the Dr.*

*(nursing participant)*

*I read as the focussed assessment was being done by the Triage nurse & I believe that the role of the triage nurse is to assess the timeliness of need for assessment, not to do limited exams with the consequent delay in triaging the rest of the waiting room so do not believe that these focussed exams can be part of a triage decision of non-emergent case.*

*(medical participant)*

Comments were also made regarding the potential to misinterpret patient conditions, due to the inherent limitations in determining the patients underlying diagnosis. Examples included:
My problem is that a presenting complaint is not a diagnosis - you have to assess the patient fully to be sure it is not a serious problem eg patient in waiting room with neck pain who has subarachnoid haemorrhage, back pain which is AAA, vomiting which is MI, the minor rash that turns out to be meningococcal disease - experienced ED staff will have pulled all these people from the waiting room, yet they might have been sent away following the criteria you discuss.

(medical participant)

Some of these criteria would also need further defining - e.g. neck pain. Personally have come across 2 people who presented with non specific neck pain but actually had a cardiac problem, joint pain with no history of trauma could also be a slipped upper femoral epiphysis or in South Auckland another cardiac problem such as Rheumatic fever.

(nursing participant)

Respondents also considered the potential implications of utilising such a tool, including whether this constituted ‘referral away’ from ED care.

...assumes that the triaging health professional will then redirect pts away to other facilities. Triage out is incredibly dangerous and even following a full diagnostic work up we have all seen the health and disability reports about pts discharged from ED and dying. Setting physiological symptoms and parameters does not answer some of the major barriers to accessing health care - cost, availability, after hours service, walk in centres.

(nursing participant)

Adherence to criteria 3 (focussed screening at triage) depends n the clinical skills & interpretation ability by nurse.

(medical participant)

The general sense of responses regarding the presented tool can be summed in the comment by one of the medical participants:

to assess all these criteria and factors the patient has already been SEEN AND TREATED (original emphasis).

A final opportunity was provided to respondents to offer any additional comments in relation to the issues raised in the survey. Respondents included eight nursing and five medical participants. Comments made included identification of difficulties associated with attempting to rate the international tool, and a number of responses presented views on the implications and underlying ideology associated with the concept of ‘appropriateness’ in relation to ED.

Comments identifying aspects specific to an individual’s context included:

ALL medical care defaults to ED at 2100 as there are no practices open or on call GPs. This alone makes all presentations somewhat appropriate irrespective of actual presenting complaint.
Some of the answers to questions in the first 3 sections are somewhat ideological; e.g. should we really see patients that cannot afford to go anywhere else or should that problem be shifted onto primary care; my feeling is that it is a primary care problem, but at the end of the day the patient’s wellbeing is at stake and I will just see the patient anyway

Aspects of the health system and triage priorities were also discussed, as were considerations of the gap between the ideal and the practical realities of emergency care.

...the ethico-legal implications of triaging away and the term ‘inappropriate attenders’ are huge, particularly in this country where top level health care is expected by a tiny population funding a (relatively) geographically large infrastructure

Emergency departments are increasingly overworked and ultimately many patients could have been managed elsewhere...Adverse outcomes could occur due to high patient numbers but I think that they are more likely to occur due to multiple unwell patients being seen ...or due to unfortunate triage decisions where a significant illness is not recognised rather than non-emergent patients clogging up resources. Use of the tool for non-emergent cases is not a replacement I believe for good triage & the gestalt of clinical acumen

6.3 Summary

Fifty six of the 59 participants completed the second Delphi round. The eight statements from set 1 relating to the role of ED that had not reached agreement in round 1 were represented to the panel, with a further four reaching consensus. One statement was disagreed with (that patients should see a GP before attending ED) while three reached agreement; that EDs should only be used for emergency level problems (reworded from the original), if a patient states they can’t afford care elsewhere, they should be seen in ED (wording unchanged) and it is safe to refer some patients away from ED (wording unchanged).

Six criteria for appropriateness from the second set were re-presented, only one of which reached consensus. This statement suggested that if a patient required prescription medicines administered in ED, then this was an appropriate presentation; however the NZ panel consensus was to disagree with this criteria. The six specific conditions from set three that had not reached consensus were also re-presented; only one reached consensus amongst the panel –this was that painless urethral discharge was not an inappropriate reason to present to ED.
Based on participant feedback at the end of round 1, a further 25 conditions suggested as ‘inappropriate’ for ED care were presented to the panel. Twelve of these reached a consensus. Of these, the panel agreed routine medical check up; routine documentation requests (including for ACC and medical certificate); minor procedures such as routine suture removal and dressing changes; management of stable and chronic conditions (including longstanding musculoskeletal conditions and eczema) and together with requests for non acute drug and alcohol detox and treatment for cold or flu symptoms in someone who is otherwise well, were conditions agreed to be inappropriate for ED care.

It was apparent from panel member comments, responses and explanations that despite inclusion criteria relating to the type of ED participants were recruited from, there was considerable variation in terms of locally available services and support programmes. To clarify this further, participants were asked to identify what they understood to be the available adjuncts to ED and hospital based care. This generated a range of responses, highlighting the significance of local context and understandings in decision making around appropriateness. As a final section, the participants were asked to consider an internationally used tool which was designed to allow prospective determination of appropriateness. This tool did not reach consensus agreement in terms of its potential application to the NZ setting, although an additional five specific conditions were agreed as inappropriate for ED. These were: bruises or contusions; pregnancy testing; simple localised rash; mild cough and localised sunburn.
CHAPTER 7: DELPHI ROUND THREE FINDINGS

7.1 Final Round

This Delphi survey was designed to run over three rounds, with the assumption that this would be the maximum time allocation busy professionals would agree to contribute. Based on the literature, it was determined that potential consensus on core statements could be generated within this timeframe. The second round of the process proved more time consuming than originally intended for participants, and taking this into account, the third round was confirmed as the ‘final’ round in this study.

7.1.1 Panel composition

Panel members had reduced to 49 for round three. This was represented by 27 nursing participants (a reduction from the initial 36 respondents) and 22 medical participants (a reduction from the initial 23 respondents). This gave an overall retention rate of 84% (attrition rate of 16%; n=10), which represents a strong completion rate when compared to other published consensus studies.

7.1.2 Existing consensus

Participants were advised of those statements which had reached the predetermined consensus level of 70% agreement generated from the combined medical and nursing ratings. The statements which had already reached this point were:

Statements that are DISAGREED with by the panel:

- Only a doctor can determine the urgency of a health problem
- All patients who present to an ED need to be assessed by a doctor
- If a patient’s symptoms have remained unchanged for more than 72hrs before presentation, this can be considered an inappropriate attendance
- If a patient is discharged from ED with no further follow up, this is an inappropriate attendance
- If a patient has received no investigations while in the ED, this is an inappropriate attendance
- If a patient has received no treatment other than a prescription, bandage, sling dressing or steristrips this represents an inappropriate attendance
- Patients triaged as category five (lowest category at triage, less urgent, to be seen within 120 minutes) have inappropriate reasons for presenting
If a patient requires prescription medications administered in ED (other than Tetanus or oral analgesics) this is an appropriate attendance

**Statements that are AGREED with**

- Emergency departments (EDs) should only be used for patients with ‘emergency’ level problems
- Not all patients who come to the ED need hospital level assessment
- If a patient is subsequently admitted to hospital this is an appropriate attendance
- If a patient requires oxygen administration, this represents an appropriate attendance
- If a patient states they can’t afford to go anywhere else, they should be seen in the ED
- It is safe to refer some patients away from the ED

**7.1.3 Specific conditions which reached consensus**

A number of specific conditions, in the absence of other illness or injury, were identified as indicative that treatment could appropriately be provided other than at an ED. The following isolated conditions / treatment requests reached the 70% or greater level of consensus from the panel:

- Lice or scabies
- Pregnancy testing
- Prescription refill
- Painless urethral discharge
- Routine medical check up
- Request for medical certificate without requiring emergency care
- Request for ACC certificate without requiring emergency care
- Healthcare documentation without the need for emergency care (eg forms for school, periodic detention, insurance)
- Routine suture removal
- Routine care of stable medical conditions
- Request for assessment of chronic condition (no acute changes)
- Non-acute alcohol and drug detox
- Longstanding musculoskeletal problems (no acute exacerbation)
- Eczema
- Minor contusion or abrasion
- Mild cough without haemoptysis or respiratory impairment
- Foot problems: blisters, pain, ingrown toenails, plantar warts
- Localised sunburn without blisters

A number of non clinical factors were identified as positively influencing participants’ assessment of patient appropriateness. Those which reached a consensus agreement within the panel were:

- Patient’s perception of urgency
- Patient’s level of distress
- Patient’s concern with cost of alternative service
- Availability of alternative services
- Availability of social support / supervision

In addition, a range of non clinical factors were identified as negatively influencing perceptions of appropriateness. Three of these reached consensus within the panel as being indicative of non-urgent or ‘inappropriate’ factors influencing ED presentation.

- Convenience to patient of not needing to make an appointment
- Convenience to patient of ED location
- Patient’s preference for ED care

7.1.4 Re-presented questions

Questions from the initial rounds which had not reached consensus to date were re-presented to participants for a final time. In order to gain maximum likely consensus, only questions which indicated a potential for consensus were re-presented. The criterion for determining this was at least 55% agreement in previous rounds, but less than 70%. Wording was altered on some questions, in response to feedback received, with the intention of clarifying the statement.

‘Patients are able to determine if their condition is suitable for ED care’

Round 3: Consensus disagreement 71%

Wording of this statement was altered from the original “Patients are capable of determining what conditions are suitable for ED care”. The single most commonly selected rating in round three was ‘disagree’, at 65% (n=32). While the panel as a whole reached consensus with 71% of respondents either disagreeing or strongly disagreeing with
this statement, there was considerable variation between the professional sub groups. The nursing cohort showed very strong levels of disagreement at 93% \((n=25)\) while the medical sub group failed to reach consensus, with 46% \((n=10)\) each identifying ‘agree’ and ‘disagree’ respectively; one member participant selecting ‘strongly disagree’ and one ‘uncertain’.

Figure 7.1: Round 3 Pts can determine condition suitability (combined)

Figure 7.2: Round 3 Pts can determine condition suitability (nursing)

Figure 7.3: Round 3 Pts can determine condition suitability (medical)
‘Patients with non urgent health needs are more appropriately seen by health services other than ED’

Round 3: Consensus agreement 88%

Wording of this statement was altered between rounds, from the original “patients with non urgent health needs should not be seen in the ED”. All panel members rated this statement. A strong level of consensus agreement was reached by the panel as a whole at 88% (n=43), with similar levels of agreement within both professional cohorts. The nursing group reached consensus at 89% (n=24) agreement and the medical group at 86% (n=19).

Figure 7.4: Round 3 Non-urgent pts could be seen elsewhere (combined panel)

Figure 7.5: Round 3 Non-urgent pts could be seen elsewhere (nursing)

Figure 7.6: Round 3 Non-urgent pts could be seen elsewhere (medical)
‘Treating non urgent patients in the ED disadvantages more seriously unwell patients’.

Round 3: No consensus

Wording of this statement was altered from the original “Seeing non urgent patients in the ED adversely affects the care of more seriously unwell patients”. Consensus was not reached by the panel overall, with a disagreement rating of 69% ($n=34$). At the level of the professional sub groups, consensus disagreement at 70% ($n=19$) was reached within the nursing group, with a level of disagreement below that of consensus reached within the medical group, at 68% ($n=15$).

Figure 7.7: Round 3 Seeing non-urgent pts disadvantages the more unwell (combined)

Figure 7.8: Round 3 Seeing non-urgent pts disadvantages the more unwell (nursing)

Figure 7.9: Round 3 Seeing non-urgent pts disadvantages the more unwell (medical)
‘Provision of ED care in NZ is affected by the presence of a population group who could safely receive care from alternative services’.

Round 3: No consensus

Wording of this statement was altered from the original, which read: “NZ EDs have a problem with ‘inappropriate’ patient attendances”. All panel members rated this statement. Consensus was not reached by the panel as a whole, nor within the sub groups. The amended wording gave rise to a greater level of uncertainty within both sub groups. Within the nursing cohort, ‘agreement’ responses were most commonly selected at 42% ($n=12$), while the medical cohort came close to a consensus with 68% ($n=15$) indicating a ‘disagreement’ rating.

Figure 7.10: Round 3 ED care in NZ is affected by non-urgent pts (combined)

Figure 7.11: Round 3 ED care in NZ is affected by non-urgent pts (nursing)
Figure 7.12: Round 3 ED care in NZ is affected by non-urgent pts (medical)

![Provision of ED care in NZ is affected by a population group who could safely receive care from alternative services](image)

‘Referral by a medical practitioner (GP or After Hours dr) always indicates an appropriate patient attendance’.

Round 3: No consensus

Wording of this statement was altered from the original: “If a patient has been referred by a GP or After Hours doctor this is an appropriate attendance”. All respondents rated this statement. Consensus was not achieved at the panel or sub group levels. The nursing cohort were more inclined towards disagreement with this statement, 63% (n=17). The medical cohort inclined towards agreement, at 59% (n=13).

Figure 7.13: Round 3 GP / AHS referrals indicate appropriateness (combined)

![Referral by a medical practitioner (GP or AHS dr) always indicates an appropriate attendance](image)

Figure 7.14: Round 3 GP / AHS referrals indicate appropriateness (nursing)

![Referral by a medical practitioner (GP or AHS dr) always indicates an appropriate attendance](image)
Any patient with injuries resulting from a road traffic accident should be assessed and treated in ED.

Round 3: No consensus

Wording of this statement was altered from the original: “If a patient’s condition resulted from a road traffic accident this represents an appropriate attendance”. All respondents rated the statement. There was a shift away from the levels of agreement which the previous wording had reached, within the panel as a whole and also across the sub groups.

Figure 7.15: Round 3 GP / AHS referrals indicate appropriateness (medical)

Figure 7.16: Round 3 Road traffic accident are ED appropriate  (combined)

Figure 7.17: Round 3 Road traffic accident are ED appropriate  (nursing)
Transport by ambulance indicates that patient requires ED level care.

Round 3: Consensus disagreement 86%

Wording changed for this statement, from the original: “If a patient is transported to hospital by ambulance this represents an appropriate attendance”. All respondents provided a rating. A high level of consensus was reached within the panel as a whole 86% (n=42) and also with the sub groups. The nursing cohort reached consensus disagreement at 89% (n=24) and the medical cohort at 77% (n=17).

Figure 7.19: Round 3 Ambulance transportation indicates ED appropriateness (combined)

Figure 7.20: Round 3 Ambulance transportation indicates ED appropriateness (nursing)
‘Any injury which occurs in the workplace needs to be assessed and treated in an ED’.

Round 3: Consensus disagreement 94%

This statement was re-worded across the three rounds, allowing greater focus on the core element of whether workplace accidents met the criteria for review in an A&E type setting. The phrasing was changed from the original ‘if a patient’s condition resulted from a workplace accident, this represents an appropriate attendance”, which was felt to increase the focus while not significantly altering the content, and as a result consensus was reached across the combined panel and sub groups.
A patient who needs a speciality consultation should be seen in ED.

Round 3: consensus disagreement 86%

Rephrasing the statement led to the combined panel and sub groups reaching consensus disagreement, with the medical cohort reaching 82% (n=18) and the nursing cohort 93% (n=25).

Figure 7.25: Round 3 If a specialty consultation required, this is ED appropriate (combined)

Figure 7.26: Round 3 If a specialty consultation required, this is ED appropriate (nursing)
Figure 7.27: Round 3 If a specialty consultation required, this is ED appropriate (medical)

Table 7.1: Re-presented questions from rounds 1 and 2

<table>
<thead>
<tr>
<th>Statement</th>
<th>Delphi panel consensus</th>
<th>Nursing cohort consensus</th>
<th>Medical cohort consensus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Round 1: Patients are capable of determining what conditions are suitable for ED care</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>Round 2: Patients are capable of determining what conditions are suitable for ED care</td>
<td>No consensus</td>
<td>Disagreement 76%</td>
<td>No consensus</td>
</tr>
<tr>
<td>Round 3: Patients are able to determine if their condition is suitable for ED care.</td>
<td>Consensus disagreement 71%</td>
<td>Consensus disagreement 93%</td>
<td>No consensus Disagreement 51%</td>
</tr>
<tr>
<td>Round 1: Patients with non urgent health needs should not be seen in the ED</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>Round 2: Patients with non urgent health needs should not be seen in the ED</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>Round 3: Patients with non urgent health needs are more appropriately seen by health services other than ED.</td>
<td>Consensus agreement 88%</td>
<td>Consensus agreement 89%</td>
<td>Consensus agreement 86%</td>
</tr>
<tr>
<td>Round 1: Patients with non urgent health needs should not be seen in the ED</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>Round 2: Patients with non urgent health needs should not be seen in the ED</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>Round 3: Treating non urgent patients in the ED disadvantages more seriously unwell patients.</td>
<td>No consensus Disagreement 69%</td>
<td>Consensus Disagreement 70%</td>
<td>No consensus Disagreement 68%</td>
</tr>
<tr>
<td>Round 1: NZ EDs have a problem with ‘inappropriate’ patient attendances</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>Round 2: NZ EDs have a problem with ‘inappropriate’ patient attendances</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>Round 3: Provision of ED care in NZ is affected by the presence of a population group who could safely receive care from alternative services.</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>Round 1: If a patient has been referred by a GP or After Hours doctor this is an appropriate attendance</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>Round 2: If a patient has been referred by a GP or After Hours doctor this is an appropriate attendance</td>
<td>No consensus</td>
<td>No consensus</td>
<td>Consensus agreement: 70%</td>
</tr>
<tr>
<td>Statement</td>
<td>Delphi panel consensus</td>
<td>Nursing cohort consensus</td>
<td>Medical cohort consensus</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>------------------------</td>
<td>--------------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>Round 3: Referral by a medical practitioner (GP or After Hours dr) always indicates an appropriate patient attendance.</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>Round 1: If a patient’s condition resulted from a road traffic accident this represents an appropriate attendance</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>Round 2: If a patient’s condition resulted from a road traffic accident this represents an appropriate attendance</td>
<td>No consensus</td>
<td>Consensus agreement 72%</td>
<td>No consensus</td>
</tr>
<tr>
<td>Round 3: Any patient with injuries resulting from a road traffic accident should be assessed and treated in ED.</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>Round 1: If a patient is transported to hospital by ambulance this represents an appropriate attendance</td>
<td>Consensus disagreement 68%</td>
<td>Consensus disagreement 79%</td>
<td>No consensus Disagreement 52%</td>
</tr>
<tr>
<td>Round 2: If a patient is transported to hospital by ambulance this represents an appropriate attendance</td>
<td>No consensus Disagreement 65%</td>
<td>Consensus disagreement 71%</td>
<td>No consensus Disagreement 57%</td>
</tr>
<tr>
<td>Round 3: Transport by ambulance indicates that patient requires ED level care.</td>
<td>Consensus disagreement 86%</td>
<td>Consensus disagreement 89%</td>
<td>Consensus disagreement 77%</td>
</tr>
<tr>
<td>Round 1: If a patient’s condition resulted from a workplace accident, this represents an appropriate attendance</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>Round 2: If a patient’s condition resulted from a workplace accident, this represents an appropriate attendance</td>
<td>No consensus</td>
<td>No consensus</td>
<td>Consensus disagreement 74%</td>
</tr>
<tr>
<td>Round 3: Any injury which occurs in the workplace needs to be assessed and treated in an ED.</td>
<td>Consensus disagreement 94%</td>
<td>Consensus disagreement 96%</td>
<td>Consensus disagreement 91%</td>
</tr>
<tr>
<td>Round 1: If a patient requires a specialty consultation, this represents an appropriate attendance</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>Round 2: If a patient requires a specialty consultation, this represents an appropriate attendance</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>Round 3: A patient who needs a specialty consultation should be seen in ED.</td>
<td>Consensus disagreement 86%</td>
<td>Consensus disagreement 92%</td>
<td>Consensus disagreement 82%</td>
</tr>
</tbody>
</table>

7.1.5 Recognising appropriateness of presentation at time of arrival

Drawing on responses from previous rounds, an additional series of 14 statements were presented. These sought to clarify participants’ beliefs about the ability to prospectively determine appropriateness of ED presentation, together with actual and potential processes relating to this.

Participants were asked to rate the following statements using the existing Likert scale:
1. It is possible to determine at Triage if a patient needs to be seen in ED (By history only)

2. It is possible to determine at Triage if a patient needs to be seen in ED (By history taking and focussed physical assessment)

3. If a patient's condition is non urgent and they are prepared to wait they should be seen in ED.

4. I would be prepared to advise a patient of alternative services they could access if their condition was non urgent.

5. I would be prepared to refer a patient away from ED if their condition was non urgent.

6. If a patient is aware of alternative services but wishes to be seen in ED for a non urgent problem this is their right.

7. In order to determine severity of a patient's condition they need a physical examination.

8. If a patient has been physically assessed and found to have a non urgent condition, they might as well stay and be treated in ED.

9. I believe it is only possible to identify patients who could have been treated elsewhere retrospectively.

10. I believe it is possible to identify patients who could be treated elsewhere prospectively (before medical assessment and diagnostics).

11. I believe it is possible to identify the characteristics that represent an appropriate patient presentation to ED.

12. I do not believe that a check list approach to determining appropriateness is possible.

13. The development of a tool for determining patient 'appropriateness' would not assist patient flow.

14. The development of a tool for measuring levels of patient 'appropriateness' within a specific ED would assist with departmental responses to patient flow.
1) It is possible to determine at Triage if a patient needs to be seen in ED (By history only)
No consensus

2) It is possible to determine at Triage if a patient needs to be seen in ED (By history taking and focussed physical assessment)
No consensus

The options of determination at triage focus on prospective assessment, and the two parameters for assessment are based on history only or history and focussed physical assessment. Both of these have been identified in the international literature as offering sufficient data for an evaluation of appropriateness, using different tools. While there was no consensus reached in relation to either of these, there was a greater tendency to disagree with the statement suggesting history only was sufficient, and to agree with the statement linking history and physical assessment. Within the group, there remained opposing opinions however suggesting polarisation of individual responses.

There was stronger support for disagreement with the first statement from medical staff, who reached consensus at the sub group level (76%, n=16) whereas the nursing cohort reached 57% disagreement (n=15). When considering the second statement, whether adding in an opportunity for focussed physical assessment would affect ability to determine appropriateness, the combined response and sub group findings were much similar, all indicating agreement between 62-63%.

Figure 7.28: Identification at triage (history alone)
3) If a patient's condition is non urgent and they are prepared to wait they should be seen in ED.

No consensus

The range of responses to this statement was similar across all three groups, and indicative of the issues identified throughout this thesis. There remains no consensus, with clear divergence of opinion in relation to the central issue, with 45% selecting ‘agree’ within the combined group and each sub group. When including the more emphatic responses of strongly agree and strongly disagree, there was a greater level of overall agreement than disagreement within the nursing cohort (48% \( n=10 \) compared to 37%, \( n=13 \)) while the medical cohort was evenly split with 45% (\( n=9 \)) in each category.

4) I would be prepared to advise a patient of alternative services they could access if their condition was non urgent.

Consensus reached: agreement 93%

This statement reached consensus across the combined panel, with strong agreement from both the medical and nursing cohorts at 90 and 93% respectively.
5) I would be prepared to refer a patient away from ED if their condition was non urgent.
No consensus

While there was clear consensus that the majority of participants would be prepared to provide advice to patients regarding alternative services, willingness to act on this in the form of referring a patient away from ED was much more controversial. Agreement levels reached 54% across the combined panel, with more medical than nursing staff uncertain (24%, n=5 compared to 11%, n=3) while more nurses than doctors disagreed or strongly disagreed with the statement (37%, n=10 compared to 19%, n=4).

6) If a patient is aware of alternative services but wishes to be seen in ED for a non urgent problem this is their right.
No consensus

Participants did not reach consensus agree with this statement, with a combined panel levels of agreement reaching 54%, and within the sub groups there was stronger support within the nursing cohort at 67% (n=18), with a lower level of agreement from the medical cohort at 38% (n=8). More doctors indicated disagreement than agreement, with
43% \((n=9)\) either disagreeing or strongly disagreeing, while only 11% \((n=3)\) of nurses did so.

**Figure 7.33: Pts right to be seen in ED**

7) **In order to determine severity of a patient's condition they need a physical examination.**

*No consensus*

The combined panel level of disagreement reached 40% \((n=17)\) and of agreement 46% \((n=22)\). Within the medical cohort, the distribution was even between statements of agreement and disagreement with both reaching 43% \((n=9)\). The nursing cohort showed a slightly higher level of agreement than disagreement, at 48% \((n=17)\) compared to 37% \((n=22)\).

**Figure 7.34: Assessment of a patient's condition**

8) **If a patient has been physically assessed and found to have a non urgent condition, they might as well stay and be treated in ED.**

*No consensus*

Overall there was a higher level of disagreement than agreement with this statement, but at a sub level, there was more disagreement expressed by the nursing cohort at 63% \((n=17)\) than the medical cohort with 43% \((n=9)\).
Figure 7.35: If assessed and non urgent, may as well be treated in ED

9) I believe it is only possible to identify patients who could have been treated elsewhere retrospectively.

No consensus

10) I believe it is possible to identify patients who could be treated elsewhere prospectively (before medical assessment and diagnostics).

No consensus

Responses to these statements suggest that while consensus was not reached by the panel as a whole, there was a degree of support for the ability to prospectively identify inappropriate attenders. Participants who agreed to one of these statements did not necessarily disagree with the other, with several indicating ‘uncertainty’ to the corresponding statement. Overall, 58% of the combined panel disagreed that only retrospective assessment of patients could determine who could be treated elsewhere, which would logically suggest that they therefore agree that prospective assessment is possible. The combined panel response to statement ten did show 58% agreement that prospective assessment was possible, however this did not comprise the same individual participants.

Figure 7.36: Prospective identification
11) I believe it is possible to identify the characteristics that represent an appropriate patient presentation to ED.

*No consensus*

Participants were unable to reach consensus in relation to this statement, with the combined panel showing 52% agreement (n=24), 30% disagreement (n=14) with 17% uncertain (n=8).

12) I do not believe that a check list approach to determining appropriateness is possible.

*No consensus*

No consensus was reached by the combined panel or sub groups. Nursing participants were more likely to agree with this statement (59%, n=16) with 15% (n=4) indicating disagreement; however 26% were uncertain (n=7).
13) The development of a tool for determining patient 'appropriateness' would not assist patient flow.

*No consensus*

14) The development of a tool for measuring levels of patient 'appropriateness' within a specific ED would assist with departmental responses to patient flow.

*No consensus*

Consensus was not able to be reached with regard to either of these statements, and results show no single response reached more than 42%. In reply to statement 13 there were similar levels of response within the groups overall, while statement 14 showed more variation. When asked to consider whether an appropriateness assessment tool might assist with patient flow, there were similar levels of disagreement within both medical and nursing cohorts (38%, $n=8$ and 40%, $n=11$ respectively) but higher levels of agreement within the medical group at 38%, $n=8$ compared with 26%, $n=7$.

**Figure 7.40: Determination of appropriateness and pt flow**
Figure 7.41: Determination of appropriateness and pt flow in a specific ED

The development of a tool for determining levels of 'appropriateness' within a specific ED would assist with departmental responses to patient flow.

Table 7.2: Summary of Panel Responses: Prospective determination of appropriateness

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>disagree</th>
<th>uncertain</th>
<th>agree</th>
<th>strongly agree</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is possible to determine at Triage if a patient needs to be seen in ED. (By history only)</td>
<td>2% (n=1)</td>
<td>60% (n=29)</td>
<td>13% (n=6)</td>
<td>25% (n=12)</td>
<td>0% (n=0)</td>
<td>N=48</td>
</tr>
<tr>
<td>It is possible to determine at Triage if a patient needs to be seen in ED. (By history taking and focussed physical assessment)</td>
<td>2% (n=1)</td>
<td>21% (n=10)</td>
<td>15% (n=7)</td>
<td>63% (n=30)</td>
<td>0% (n=0)</td>
<td>N=48</td>
</tr>
<tr>
<td>If a patient's condition is non urgent and they are prepared to wait they should be seen in ED.</td>
<td>6% (n=3)</td>
<td>34% (n=16)</td>
<td>13% (n=6)</td>
<td>45% (n=21)</td>
<td>2% (n=1)</td>
<td>N=47</td>
</tr>
<tr>
<td>I would be prepared to advise a patient of alternative services they could access if their condition was non urgent.</td>
<td>2% (n=1)</td>
<td>4% (n=2)</td>
<td>2% (n=1)</td>
<td>77% (n=37)</td>
<td>15% (n=7)</td>
<td>N=48</td>
</tr>
<tr>
<td>I would be prepared to refer a patient away from ED if their condition was non urgent.</td>
<td>4% (n=2)</td>
<td>25% (n=12)</td>
<td>17% (n=8)</td>
<td>50% (n=24)</td>
<td>4% (n=2)</td>
<td>N=48</td>
</tr>
<tr>
<td>If a patient is aware of alternative services but wishes to be seen in ED for a non urgent problem this is their right.</td>
<td>13% (n=6)</td>
<td>13% (n=6)</td>
<td>21% (n=10)</td>
<td>50% (n=24)</td>
<td>4% (n=2)</td>
<td>N=48</td>
</tr>
<tr>
<td>In order to determine severity of a patient's condition they need a physical examination.</td>
<td>4% (n=2)</td>
<td>35% (n=17)</td>
<td>14.6% (n=7)</td>
<td>46% (n=22)</td>
<td>0% (n=0)</td>
<td>N=48</td>
</tr>
<tr>
<td>Statement</td>
<td>Strongly disagree</td>
<td>disagree</td>
<td>uncertain</td>
<td>agree</td>
<td>strongly agree</td>
<td>Response Count</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>-------------------</td>
<td>----------</td>
<td>-----------</td>
<td>-------</td>
<td>----------------</td>
<td>----------------</td>
</tr>
<tr>
<td>If a patient has been physically assessed and found to have a non urgent condition, they might as well stay and be treated in ED.</td>
<td>2% (n=1)</td>
<td>52% (n=25)</td>
<td>10% (n=5)</td>
<td>33% (n=16)</td>
<td>2% (n=1)</td>
<td>N=48</td>
</tr>
<tr>
<td>I believe it is only possible to identify patients who could have been treated elsewhere retrospectively.</td>
<td>2% (n=1)</td>
<td>56% (n=27)</td>
<td>17% (n=8)</td>
<td>21% (n=10)</td>
<td>4% (n=2)</td>
<td>N=48</td>
</tr>
<tr>
<td>I believe it is possible to identify patients who could be treated elsewhere prospectively (before medical assessment and diagnostics).</td>
<td>6% (n=3)</td>
<td>21% (n=10)</td>
<td>15% (n=7)</td>
<td>58% (n=28)</td>
<td>0% (n=0)</td>
<td>N=48</td>
</tr>
<tr>
<td>I believe it is possible to identify the characteristics that represent an appropriate patient presentation to ED.</td>
<td>2% (n=1)</td>
<td>28% (n=13)</td>
<td>17% (n=8)</td>
<td>52% (n=24)</td>
<td>0% (n=0)</td>
<td>N=46</td>
</tr>
<tr>
<td>I do not believe that a check list approach to determining appropriateness is possible.</td>
<td>0% (n=0)</td>
<td>25% (n=12)</td>
<td>21% (n=10)</td>
<td>44% (n=21)</td>
<td>10% (n=5)</td>
<td>N=48</td>
</tr>
<tr>
<td>The development of a tool for determining patient 'appropriateness' would not assist patient flow.</td>
<td>2% (n=1)</td>
<td>25% (n=12)</td>
<td>31% (n=15)</td>
<td>29% (n=14)</td>
<td>13% (n=6)</td>
<td>N=48</td>
</tr>
<tr>
<td>The development of a tool for measuring levels of patient 'appropriateness' within a specific ED would assist with departmental responses to patient flow.</td>
<td>6% (n=3)</td>
<td>33% (n=16)</td>
<td>29% (n=14)</td>
<td>29.2% (n=14)</td>
<td>2.1% (n=1)</td>
<td>N=48</td>
</tr>
</tbody>
</table>
Table 7.3: Consensus Summary (Set 6) Prospective determination of appropriateness

<table>
<thead>
<tr>
<th>Statement</th>
<th>Combined panel</th>
<th>Medical cohort</th>
<th>Nursing cohort</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is possible to determine at Triage if a patient needs to be seen in ED. (By history only)</td>
<td>No consensus</td>
<td>Consensus disagreement 76%</td>
<td>No consensus</td>
</tr>
<tr>
<td>It is possible to determine at Triage if a patient needs to be seen in ED. (By history taking and focussed physical assessment)</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>If a patient's condition is non urgent and they are prepared to wait they should be seen in ED.</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>I would be prepared to advise a patient of alternative services they could access if their condition was non urgent.</td>
<td>Consensus agreement 92%</td>
<td>Consensus agreement 93%</td>
<td>Consensus agreement 91%</td>
</tr>
<tr>
<td>I would be prepared to refer a patient away from ED if their condition was non urgent.</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>If a patient is aware of alternative services but wishes to be seen in ED for a non urgent problem this is their right.</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>In order to determine severity of a patient's condition they need a physical examination.</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>If a patient has been physically assessed and found to have a non urgent condition, they might as well stay and be treated in ED.</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>I believe it is only possible to identify patients who could have been treated elsewhere retrospectively.</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>I believe it is possible to identify patients who could be treated elsewhere prospectively (before medical assessment and diagnostics).</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>I believe it is possible to identify the characteristics that represent an appropriate patient presentation to ED.</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>I do not believe that a check list approach to determining appropriateness is possible.</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>The development of a tool for determining patient ‘appropriateness’ would not assist patient flow.</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
<tr>
<td>The development of a tool for measuring levels of patient ‘appropriateness’ within a specific ED would assist with departmental responses to patient flow.</td>
<td>No consensus</td>
<td>No consensus</td>
<td>No consensus</td>
</tr>
</tbody>
</table>

7.2 Summary

Forty-nine of the original 59 participants completed the third round of the Delphi. This included 22 medical and 27 nursing experts. Participants were reminded of all statements which had received consensus so far. In order to maximise the opportunity for consensus, questions which had reached a minimum of 55% consensus (but less than 70%) were re-presented to the panel. Of these nine statements, a further five moved to a minimum 70% consensus, some following revision of wording. Four of these were for a negative consensus with the content, and included disagreement with the statements that:
patients are able to determine if their condition is suitable for ED care, transport by ambulance indicates the need for ED care, any injury that occurs in the workplace needs to be assessed and treated in ED, a patient who needs a specialty consultation should be seen in ED. The statement that reached agreement was: that patients with non urgent health needs are more appropriately seen by health services other than ED.

A number of responses from participants had suggested a concern with potential the application of any appropriateness definition. In response to this, a final set of 14 statements relating to the potential for prospective identification of appropriateness (for example, at time for presentation to triage) were put before the panel. Only one statement reached consensus, this being an acknowledgment of individual willingness to advise patients of alternative services if their condition was non urgent.
CHAPTER 8: DISCUSSION

8.1 Interpretation and synthesis

The initial round of the Delphi processes sought to clarify participants’ general responses to the idea of ‘appropriateness’ as it relates to ED practice. Anecdotal evidence together with descriptive and viewpoint literature within NZ indicates a professional concern regarding overcrowding and the potential contribution made by ‘inappropriate attenders’[46] [371]. Initial free text questions gave participants the opportunity to present their own perspectives, unprompted by the trigger statements included with subsequent Likert scale ratings. Thematic analysis identified many of the same concerns apparent in the anecdotal, national and international discussions. These included difficulties expressed in identifying the core factors that contribute to a definition of appropriateness, and the ways in which these could be presented. There was evidence of disagreement in the free text exploration of definitions of both appropriateness and inappropriateness, and these could be seen in the choice of definition approaches (for example, whether these should be positioned in terms of clinical parameters, person specific or service specific parameters). This highlighted contradictory positions between individuals, despite coming from similar professional backgrounds, and is also reflected in findings from the international literature[191, 199]. Similarly, there was evidence of disagreement in regards to whether the concept of appropriateness was even a significant issue, or if it should be one considered by health practitioners[206].

A significant element within the quantitative data collection was the potential to amend the structure and sharpen the focus of statements and questions as the Delphi progressed. The process of re-wording the questions and statements between rounds, together with the reminder of previous individual and group responses was included to maximise the opportunity for consensus development. In this way, the feedback from participants was used to more accurately reflect the reported concerns of the panel members, and to develop the questions in ways that may be more acceptable to the group. This system of sequential refinement served to strengthen the study design. The fact that overall consensus was still not achieved across the range of material presented indicated a positive finding – that consensus was not in fact possible, rather than that it was simply not identified.
8.1.1 The role of ED

The conflicting views typically found in the wider literature were replicated within this study, for example some participants were unwilling to identify any patient or condition as ‘inappropriate’, while others were prepared to quantify and define these concepts[206, 372, 373]. This suggests potential difficulties if, as is currently the case in NZ, policy and protocols are being developed that rely on a unified understanding of the role of the ED[374-377]. Potential implications associated with use of terminology and the assumption that agreeing to the concept of inappropriateness implies a willingness to actively manage this was apparent. These responses are likely to reflect, in part, competing ethical stances and interpretations of the core role and purpose of emergency medicine and nursing care.

The role of the ED in wider society, professional obligations and standards of practice were represented as were perceptions about patient education and societal awareness of the ED’s purpose. These again highlighted a range of conflicting views. Some aligned professional practice with the need to provide an open access service without restrictions while others took a more utilitarian response, focussing on the greater good to the wider community of restricting access and resources to those most in need. Concern was expressed by some panel members in relation to the potential for altered practices following acknowledgment of inappropriateness. Where there is potential conflict between an individual’s belief system and organisational or professional requirements, there is the potential for moral dilemmas to arise. This suggests there is potential for moral distress within the area of emergency medicine and nursing, and consequent impact on ED functioning[378-382]. Fundamental differences in understanding about the social role and expectations of services and individuals inevitably coloured participant responses. It became clear that while there was some movement across and within belief systems, that these differing paradigms significantly structured expectations and responses.

8.1.2 Medical and nursing comparisons

There was no clear dichotomy between male / female or nursing / medical responses, despite suggestions of gender or profession based preferences in approaches to healthcare[383-385]. There was no evidence of linkage between the traditional medical or nursing models (and the stereotypical distinction of positivist biomedical and holistic practice) with a willingness to identify ‘appropriateness’. This may indicate a greater degree of responsiveness between medical and nursing practice within the emergency care
setting, or simply acknowledgment that practitioners from both professions have varied individual philosophies of practice. Previous literature has also suggested a greater reluctance on the part of nurses to become actively involved in the identification of ‘appropriateness’, most often linked to medico-legal concerns associated with ‘triaging away’ of patients from the ED. This is evidenced in a number of formal statements from nursing organisations which specifically state that ‘triage away’ and related practices are not supported[386]. Similar concerns are also seen in the wider literature about rationing of health care in general[387]. No distinct pattern of professional response emerged, with some nurses and doctors expressing concern with the concept of restricting access to care, while others identified a readiness to engage in this process.

8.1.3 Identification of specific conditions

Specific examples were provided by the expert panel of conditions or situations that could be deemed ‘inappropriate’. Reference to ‘minor’ injuries and illnesses and non urgent requests predominated. This corresponds with the international literature, where similar patterns were also recognised[225, 388]. While many of the definitions and examples offered were mediated by reference to urgency or other forms of time sensitivity, these concepts were not specifically described. As a result, while individual participants used similar terminology, there was limited clarity as to essential meaning and concern as to relative comparability. In line with expectations, there was an initial lack of consensus which is reflected in findings from the international literature[240, 389]. This variance in the NZ expert opinion formed the basis from which to present more specific statements and questions, with the intent of triggering conscious and explicit critical thinking around the topic.

The examples provided by participants reflected findings from the international literature. These included references to minor injuries and illnesses, with the assumption that these were, by default, suitable for review and treatment in a facility other than an ED. Even where specific examples were given, there was an implied patient assessment prior to the decision making process, with staff identifying additional parameters such as “otherwise well” or limiting the condition or injury to certain ‘safe’ parameters that would allow exclusion of more serious conditions. The expectation was that in order to make a reliable, prospective assessment, the participants would need to have first invested time and potentially exclusionary diagnostics, in supporting the determination of inappropriateness. This was supported by statements suggesting it was easier to determine
in hindsight which patient presentations did not require the level of expertise offered in an ED, but this was difficult to determine without that period of assessment. The implication was made that, having spent this amount of time and effort, it was more efficient in terms of resource, staff and patient time and expediency to carry on and complete any required treatment than to redirect or exclude patients from ED care. A much smaller group of patients, those who present solely for administrative or clerical purposes (for example, requests for ‘sick notes’, prescriptions or health checks) were identified as inappropriate by most respondents. Again, this is mirrored in international literature, but while this group may appear highly visible in an individual sense, there is little to suggest that they present a significant contribution to the ED workload.

8.1.4 Significance of local context

For some participants it was not possible to consider the initial conceptual questions in isolation from local context, or expectations relating to the wider political response to ED overcrowding. Local or regional service opportunities were cited as factors that could effectively alter the definition of appropriateness, and thus potentially invalidate any generic definition developed. Acknowledgment or recognition of appropriateness was assumed to indicate a willingness to respond in some way to this knowledge. As a result, some responses clearly signalled that it was the wider political response to overcrowding that they were seeking to distance themselves from, perceiving that a willingness to define appropriateness could be seen as a willingness to engage in rationing of health care and acceptance of an ED ‘gate keeping’ role. There is some merit in this response, given that it is not uncommon to see efforts at measurement of appropriateness used to provide the rationale for subsequent interventions. What this fails to recognise, however, is that such efforts at quantification can also be used to clarify or refute the suggestion that a specified sector of the population represents a ‘problem’ in terms of ED management or patient flow.

There was recognition that the patient perspective is often missing from discussion around appropriateness, with reflections on the difficulty for lay people to determine medically mediated parameters such as urgency and severity. This again diverted some respondents from considering a core definition to identifying the need for wider public education and understanding about the role of health services in NZ. It was clear that a number of issues were associated with attempts at defining the concept, and that perhaps even earlier questions remained unclear, such as understanding of the legal, moral and
social position of the ED. The ethics of individual rights versus greater good of the overall community were certainly alluded to, although with no clear preference or compelling argument to support any particular perspective.

8.1.5 Conflicting interpretations

There were a range of opinions expressed, in some instances derived from the same underlying evidence. This brings into doubt the presumed neutrality or independence of ‘factual’ data often used to support particular points of view. A clear example of this is in regard to discussion around the role of individual financial constraints or drivers as a rationale for seeking use of ED services. While the neutral data may be that healthcare costs are influential in determining source of care sought, this was variously interpreted as being an appropriate reason to present (due to hardship and perception of no viable alternative) but equally seen as evidence of inappropriateness, given that cost could be argued as outside of the medical definition of need, or was simply seen as evidence of trying to gain from the wider ‘system’. Similar competing responses could be seen in relation to arguments around resources (does lack of easy access or non fee related alternative services equate to appropriateness, or inappropriateness?) and the role of patient self perceptions of need.

In an effort to clarify some of the concepts associated with the definitions offered, a series of more specific questions were also presented, derived from a review of the literature and recognition of issues identified within the international emergency arena. The first of these related to the professionals’ beliefs around the role of the ED. It was assumed that this might influence the responses provided, and account for some of the conflicting viewpoints. A number of questions sought to identify the same key element, but were asked in differing ways to see whether views expressed were essentially coherent. In general, consistency was apparent across themes. For example, questions seeking to identify the role of medical professionals in relation to ED showed that a consensus of disagreement was reached by respondents on both the statement that “Only a doctor can determine the urgency of a health problem” and that “All patients who present to the ED need to be assessed by a doctor”. This could be interpreted as suggesting that the medical role may not be definitive in terms of either gate-keeping (in relation to access determination) or to provision of onsite assessment following presentation. However, other discrepancies were apparent. While it was agreed that a doctor’s pre assessment was not required in determining urgency of health care need, it was not agreed that patients
were capable of making the decision to present to ED. Similarly, while an overall consensus was not reached in regard to role of GP or AHS as a pre presentation requirement, the medical staff as a sub group did agree this would be appropriate. This suggests that while individual ED staff did not necessarily see a personal role in authorising access (which was implied in additional comments) there was still active consideration of some form of screening or prior approval implicit in the responses. Despite this, in the subsequent statement relating to specific process issues, neither nursing nor medical cohorts felt that referral from a GP or AHS was necessarily evidence of an appropriate presentation. There was no agreement relating to the most appropriate external source for determining an ED relevant condition. This raises further concern for enacting public education and the perceived need to provide clear guidelines – as several respondents advocated – if the health professionals do not clearly identify the ‘right person’ (whether at pre hospital or hospital consultation level), how can targeted education be developed? In a similar manner, there is doubt over the viability of a national, standardised approach if regional and local variations in service provision are seen as altering the fundamental definition and conceptual basis surrounding this issue.

8.1.6 Response to international definitions and criteria

In order to clarify ideas around specific reasons for appropriateness of presentation, a series of examples derived from the international literature were provided. The reported research identified a range of ideas relating to temporal, physical and resource parameters identified by medical personnel as being indicative of levels of appropriateness. These were taken from existing definitions and tools, and presented to the participants for consideration. While these statements were based on ‘agreement’ from the reported research, they did not reach a uniform consensus agreement from the NZ experts. This could be a result of taking elements from various different definitions, tools and research findings, which may have been more convincing if grouped in different ways or in combination with other specific findings. It is also possible that this is reflective of differing health system directives and ethical beliefs in relation to emergency medicine or to differing cultural imperatives across countries. Having a larger ‘expert’ group – most of the identified studies used smaller reference groups for determining agreement and ‘gold standard’ responses – may also have introduced a greater degree of variance in opinion. While several studies included both medical and nursing representatives, the nursing voice was often minimal in these and this may also have influenced results from the NZ experts.
Where consensus was reached by the NZ group, this was as likely to be in the form of consensus disagreement with the statement presented, so that not only did the participants fail to uphold the view presented to them, they actively agreed to dismiss it as an acceptable category or parameter for determining appropriateness. There was a tendency to look beyond the simple statement, to want additional information or context before acceptance could occur.

This was also evident in relation to the series of specific conditions offered as evidence of non-urgent or inappropriate reasons to present to EDs. There was an unwillingness to accept the statements or individual conditions as indicative of general categories, with participants offering ‘what if…’ scenarios for several, identifying that while the basic situation might be ‘safe’, there were a number of potentialities that could move even the most mundane of situations into a higher category of concern. Again, the implication was made that in order to exclude such possibilities, time needed to be invested in an initial assessment process. The locally available specialty or resource focus also influenced responses, for example those working in paediatric settings demonstrated a different reaction to conditions such as constipation, and those with a focus on oncology or haematology patients saw additional potentials with diagnoses such as ‘mouth ulcer’. The only ‘inappropriate’ conditions that the panel reached agreement on were for the isolated presence of lice or scabies as a primary reason to present or where the sole reason to attend was for a prescription refill or a pregnancy test. Even with the ‘lice and scabies’ question, however, despite overall consensus being achieved, concerns were expressed as to what else this might signal, in terms of social or psychological needs that may not have been identified or issues of neglect or abuse. Nausea and vomiting in the absence of other signs and symptoms was identified within the international literature as a ‘minor’ condition that could be assessed and treated other than through an ED, but the Delphi group formed consensus disagreement with this suggestion, identifying many potential underlying or associated issues with this. The remaining conditions identified from other studies as being of a sufficiently ‘safe’ status to be treated more appropriately elsewhere failed to reach consensus.

The overall response in the form of clarifying comments and caveats was in relation to the need for further assessment and an acknowledgment of the possible alternative (if unlikely) diagnoses. Many personal examples from clinical practice were provided to highlight unanticipated outcomes associated with ‘simple’ conditions. This was also linked
to the ‘retrospective’ nature of some statements, which looked at patient outcomes as a factor in determining need for ED care. Comments were made suggesting that while investigations might produce negative results or the patient might require only minimal final treatment and intervention, these could not be used to determine appropriateness at time of initial presentation.

Several statements included in this round were intended to explore the expectations and assumptions around process factors, and again were derived from studies identifying their role in defining appropriate attendance. These include consideration of the role of the ED, for example use of the term A&E (accident and emergency) which is still prevalent in the public mind, although no longer part of the formal title of NZ EDs. This title has been interpreted suggesting that any ‘accident’ is an appropriate reason to present, and this was addressed with statements relating to road traffic, workplace or industrial accidents, and transportation by ambulance. While these factors have previously been linked to appropriate attendance, they were not accepted by the Delphi group. Other NZ studies suggest perceptions around the title of a department can influence attendance choice[371] with re-designation of titles often combined with public education campaigns used as a trigger for reconsideration of the ED role[148].

8.1.7 Additional factors

Participants were invited to identify any additional issues or concerns in relation to the concept of appropriateness and to offer rationale or justifications for their responses. The nature of these responses reflected issues debated in the wider literature, suggesting that despite a different context there remain core areas of concern and controversy. These included reference back to issues of specific context and the difficulties of applying generic criteria across multiple settings and the impact of associated factors such as access to care, patient age and resource availability. A range of arguments were presented to explain patient presentations, often linked to socio-political factors such as poverty, implications of waiting lists and rationing of access to secondary care services, cultural directives and expectations. These explanations were presented to clarify reasons for presenting, but were not necessarily seen as justifications for this. Further discussion related to implications of defining and potentially measuring appropriateness. There was diversity of opinion regarding the impact this potential patient group might have in terms of ED overcrowding and therefore the relative significance of identifying and seeking to manage this population. This reflected the earlier failure to agree whether there was ‘a
problem’ in NZ EDs with inappropriate load, and if such patients were present, whether they affected the wider patient flow and care available in the ED.

The first Delphi round showed that participant concerns were broadly similar to those in the international literature, but that individual aspects of tools and research findings were not endorsed at this point by the NZ experts. There was little initial consensus at this stage, and where consensus was reached, this was as likely to be of an exclusionary nature as acceptance of appropriateness parameters. Following the Delphi protocol, questions were represented in subsequent rounds with indications of the group responses and opportunity to further clarify or rephrase statements. Given the concern participants expressed in looking at individual items from tools, it was decided to present one tool in total, although this was recognised as adding significantly to the length and complexity of the second Delphi round.

Rephrasing of questions occurred at times in an effort to more accurately reflect the comments or concerns raised by the participants, with a view towards allowing a greater level of agreement. There was some additional shift identified in the first bank of questions, with rephrasing of the first question leading to a consensus agreement that EDs should only be used for ‘emergency’ level problems. The agreement here was at the bottom level of the consensus threshold, (69.7% rounded to 70% consensus), suggesting that there was still concern with this concept. Taken in conjunction with the move to consensus agreement that it is safe to refer some patients away from ED and the previously agreed statement that not all patients presenting to ED need hospital level assessment, this suggests growing clarification about the role of EDs. This was not matched however with a clearer understanding of the parameters or definitions necessary to identify the specifics of appropriate presentation.

Of the conditions identified from published tools and initially presented in round one, only one additional descriptor reached consensus. This was presentation with the sole symptom being painless urethral discharge. While this reached an overall consensus at the lower margin (70.9%), consideration of the sub groups showed the medical cohort only reached agreement of 65%. An additional 25 conditions or prompts for ED presentation were identified from the free text feedback that participants provided, and these were also presented to the panel. A number of these were in relation to ‘administrative’ or clerical request, and these were more likely to reach consensus than the condition specific options presented. As a result, agreement was reached that documentation only requests (such as
routine medical assessment, medical certificate endorsement, ACC certification, school health forms, insurance forms and periodic detention healthcare forms) in the absence of specific symptoms were acknowledged as indicating an inappropriate presentation. While individuals identified these as examples of inappropriate attendances in their own areas of practice (which was then ratified by the panel as a whole) there was no indication of frequency or demand levels associated with these presentations. The other situations that reached consensus agreement were those linked to minor task based requests (eg dressing changes, routine suture removal) or where the assessment and treatment was associated with long term and essentially stable conditions. This suggests emphasis on the acute, urgent and undifferentiated conditions as being appropriate, together with complex conditions open to multiple differential diagnoses. However, again this was evident at the generic level, rather than at a more quantifiable, specific level which might allow the development of a set of guidelines or identifying factors.

Given that a number of participants in round one indicated that any definition would be influenced by local or regional service specifications or by non physical parameters such as social circumstances or patient interpretation of events, these aspects were also explored further in the second round. Despite the fact that all the EDs sourced for inclusion in the study represent ‘major’ tertiary level facilities, there was considerable variation evident in terms of available services. Of particular note was the perception that in many areas, after hours or overnight access to facilities or community based alternative services was limited. This supports the responses of those staff who argued that appropriateness did not apply so much to the patient’s presenting complaint, as to the locally available services at any given time. Thus, definitions of what was considered appropriate might vary not only regionally, but also within a specific location dependent on time of day. This would inevitably add to the confusion associated with attempts to educate patients regarding a core response to perceived urgent health care needs. It also raises the question of whether some of those patients presenting in the absence of immediate alternative services were safe to wait until such services were available (for example the following morning), and if so, whether identification and allocation of an appointment time at an alternative service is a reasonable response. This question, however, was not specifically asked of the panel, and would require further analysis of service usage, access to following day appointments, and individual staff ability to accurately determine urgency and potential outcome of delayed care. This would again
move the discussion away from definition of immediate presentation to identifying responses to an as yet unproven ‘problem’ work load. If workload overnight, and in the absence of alternative service options, is not sufficiently problematic, the need to determine appropriateness as compared to simple expediency and efficiency of immediate assessment would need to be considered.

Participants were also asked to identify whether they were aware of applying non clinical parameters to patient assessment situations. This is significant in regard to responses to identification of appropriateness, as many of the current tools suggested specifically avoid such factors, concentrating purely on perceptions of clinical need. If current NZ practice does involve consideration of other factors, then this has the potential to render use of a more medically focussed definition or criteria set problematic. The Delphi participants identified five non clinical parameters that they agreed influenced perceptions of appropriateness and that were considered as part of the patient assessment process. The patient’s level of distress was identified as the single most important factor, with 92.5% of participants agreeing that this is a relevant factor. Following this was an 84.9% agreement that the availability of alternative services should be considered, and more than 70% also agreed that the patient’s own perception of urgency, the availability of social support and concern over cost of alternatives were also factors routinely considered. Additional non clinical factors which have been identified within the international literature as being of relevance to patient decisions to present to ED which were dismissed by the panel included perceived convenience of the ED location, not needing to make an appointment, and patients personal preference to be cared for in ED as opposed to use of other services. It is clear that some consideration of non clinical circumstances is usually part of the NZ expert determination of patient need and appropriateness.

Following on from this, participants were asked to consider a ‘complete’ appropriateness assessment tool. The Derlet et al tool was selected on the basis of previous use in a number of settings and published validation studies. Consideration of this was problematic, due in part to the length of this round and exacerbated by unforeseen formatting errors which rendered several statements unclear and which were subsequently excluded from the analysis. This tool combines four criteria sets which incorporate vital sign parameters, absence of ‘high risk’ factors, focussed screening examination findings and an identified primary ‘minor’ complaint. While various elements of the tool were agreed with, there was no overall consensus as to its application for identifying
appropriateness in the NZ setting. Of the 34 specific conditions that were rated by participants, consensus was only reached regarding ten. The general comments offered in relation to this tool suggest that even where agreement could be reached – that is, in less than one third of the suggested scenarios – that the amount of assessment and time which would need to be invested to reach that decision would make it an unrealistic option. Discussion suggested that the tool would not be transferable to a NZ setting. Participants indicated that the degree of assessment required would not normally occur at the triage stage of ED patient flow, and reliance on a presenting complaint was not sufficient as the ultimate diagnosis could be quite different. It appears that this tool would not be acceptable for use in NZ as it currently exists, and any adaptation would need to account for non clinical parameters, regional variation and options for context specific variations.

The third and final round of the Delphi process presented the findings to date, both those statements agreed or disagreed with by the majority of participants, as well as representing those statements where no consensus had been reached. Several statements were re-phrased. By this point, the expert panel had reduced somewhat, which may have improved the likelihood of consensus being obtained, by providing a more uniform remaining group. It is possible that those who withdrew may have had differing opinions; the expert panel is representative of the individuals who remained and generalisations need to be approached with caution.

8.1.8 Potential for prospective assessment

The final section introduced discussion around the concept of prospective assessment of appropriateness, and the implications of such assessments in terms of patient flow and service development. These 14 statements were derived from the suggested responses offered in the literature related to actively managing inappropriate or non-urgent patient presentations, and involve consideration of staff roles as well as conceptual beliefs relating to patient management. Of these, only one statement reached a consensus. This was where 93.7% of respondents agreed that they would be prepared to advise a patient of alternative services they could access if their condition was non urgent. No further agreement was reached, however, suggesting an unwillingness to indicate a clear preference or direction for actualising abstract consideration of appropriateness assessments.
8.2 New Zealand specific appropriateness criteria: (70%) agreement

The following are those points which achieved a 70% agreement threshold within the panel responses and which in combination could be seen to represent a NZ specific criteria set for determining appropriateness:

Patients presenting with any of the following as an isolated cause of presentation, who are otherwise well, do not have appropriate conditions for ED care:

- Lice or scabies
- Pregnancy testing
- Prescription refill
- Painless urethral discharge
- Routine medical check up
- Request for medical certificate without requiring emergency care
- Request for ACC certificate without requiring emergency care
- Healthcare documentation without the need for emergency care (eg forms for school, periodic detention, insurance)
- Routine suture removal
- Routine care of stable medical conditions
- Request for assessment of chronic condition (no acute changes)
- Non-acute alcohol and drug detox
- Longstanding musculoskeletal problems (no acute exacerbation)
- Eczema
- Minor contusion or abrasion
- Mild cough without haemoptysis or respiratory impairment
- Foot problems: blisters, pain, ingrown toenails, plantar warts
- Localised sunburn without blisters

Any listed criteria, such as that identified above, essentially look at conditions in isolation, not underlying reasons for presentations. In doing so, there is a separation of the supposedly objective medical criteria from the subjective social elements. Yet it appears that the ‘objectivity’ of medical criteria is not straight forward, with a lack of consensus around any but the most basic of conditions. The more subjective criteria are acknowledged as problematic and impacted by individual values, so that the ability to
combine these elements is likely to prove difficult. Agreement was expressed by the consensus group around several statements relating to social or non clinical parameters of care.

In addition to the clinical medical / diagnostic criteria, the following three statements were also agreed on:

- If a patient is subsequently admitted to hospital this is an appropriate attendance
- If a patient requires oxygen administration, this represents an appropriate attendance
- If a patient states they can’t afford to go anywhere else, they should be seen in the ED

All of the above statements were presented to the panel as a result of being extracted from existing international tools and publications where they had been presented as positive indicators for appropriateness. Despite their acceptance by the panel, there are remaining issues with these statements, and areas for further debate and discussion. There is a significant body of literature, for example, that identifies an increase not in inappropriate ED attendances, but in inappropriate hospital admissions[390-392]. This suggests that the criteria of hospital admission may not in fact be a reliable indicator of need, but at times a reaction to external factors such as perceived social support or lack of community resources[393]. It is also a retrospective assessment, so potentially of limited use if the intention is to identify and respond to patients when they present. The need for oxygen administration was seen as an indicator of appropriateness, but taken in isolation does not consider the underlying cause or options for home, community or GP level assessment and administration. Of continuing interest are factors relating to costs and patients’ ability to access care. While the Delphi group reached overall agreement relating to response to patients who state they are unable to access care elsewhere due to cost constraints, there remained some extremes of opinion, with other members of the group continuing to disagree with this statement. The wider literature, as well as that within NZ, indicates that issues of cost and access remain some of the most problematic in determining appropriateness[36]. The concern with access to emergency health care in NZ, especially in relation to ‘after hours’ options, has been acknowledged by the Ministry of Health[394], as well as through anecdotal and media reports[395, 396].
8.3 Risk recognition

Factors that are likely to have influenced participants’ responses include the specific framework of NZ healthcare. There appears to be a reluctance to make a definite commitment to some aspects of a definition, and comments associated with respondents’ feedback suggest a concern with the ethical and medico-legal implications of formulating a consensus definition. This reflects the close links identified between achieving a definition and the potential use to which such a definition could be put. This may involve awareness of personal responsibility and concerns related to accountability and liability, as well as professional body reactions to proposed interventions. There is a growing sense of risk aversion within NZ healthcare, and concerns related to public and professional reaction to clinical errors in judgment.

The ED environment is an inherently risky setting, with potential for clinical, professional, ethical and legal risk, amongst others[397-399]. Boreham, Shea and Mackway-Jones define risk as “an avoidable increase in the probability of an adverse outcome for a patient”[400] It has been suggested that any patient presenting to ED represents a potential situation of risk. This includes risk associated with the disease or injury process, failure to identify this and issues associated with management. Clinical risk assessment is described as a system for identifying the probability that harm would be caused by an identified hazard. Interventions or actions are then directed towards minimising this risk, utilising a combination of resources including clinical skills and diagnostic aids. There are clear risks associated with strategies suggested to manage patients who are designated as ‘inappropriate’ and it is reasonable that staff who may potentially be placed in a position of enacting any such strategies express concern regarding this. The risks that are identified have implications in terms of existing professional directives and the lack of current social mandate has seen considerable public dismay at perceived situations of mismanagement of patients, often involving failure to identify more serious clinical conditions that have subsequent negative outcomes for the patient.

Current practice within most NZ EDs involves the triage role being undertaken by a senior registered nurse. Where systems of deferral have been identified in the international literature, this is usually initiated by the staff member performing the triage function. This shifts the onus of professional and ethical responsibility onto the nurse, a responsibility that has been unequivocally rejected by the NZ College of Emergency Nurses [CENZ]. In a
submission to the District Health Boards of New Zealand it was noted that the College “does not support ‘Triaging Away’ of people seeking health care” and that “determining what is Primary Care and what is Emergency Care is a subjective task that any two health care practitioners may not be able to agree to”[49]. The Australasian College of Emergency Medicine (ACEM) likewise states that the “Australasian Triage Scale is not a validated tool for triage out of the emergency department to alternative care providers … care will not be declined or patients actively referred out of any emergency department solely on the basis of an Australasian Triage Scale rating ... [and] Emergency departments will assess all patients who present for care, and will not refuse clinically necessary care to any patient.”[401]

These views continue to be supported by the recently appointed NZ Ministry of Health group ‘Shorter Stays in ED’ which states in their Guidance Paper that “The process of triage in ED is designed and validated as an acuity tool. Triage does not accurately determine the appropriateness of a patient’s condition for presentation at either the ED or primary health care. Therefore, patients should not be ‘triaged away’ from the ED”[375]. Despite fairly clear policy and guidance statements, there remains concern regarding the potential roles that may be assigned to medical and nursing staff, in regard to actions that could follow identification of non urgent patients. The impact of ‘mistakes’ and clinical errors has been highlighted in the media and through other social networking sites, and resulted in concerns around individual identification and apportioning of blame in a highly visible manner. Awareness of these responses would be expected within such an expert group as that assembled for the Delphi round, and is likely to have had an impact on individual responses to questions and statements.

8.4 Study Limitations

8.4.1 Sample size and generalisability

While the sample size is appropriate for a Delphi survey, it does limit the ability to generalise and to draw inferences to the wider population of ED clinicians. The findings are reflective of the opinions of a group of peer nominated ‘experts’, working in the field of emergency medicine and nursing at the time of this study. It cannot be assumed that the views represented are shared by all personnel working in these areas, or within smaller or rural EDs. It is further possible that as societal expectations and needs continue to change and challenges of limited health care funding become more prevalent, that the opinions of the ‘experts’ expressed here may change.
8.4.2 Delphi technique and attrition

There are limitations associated with the Delphi methodology and its application, which are discussed in greater detail in chapter three. Regrettably, errors in formatting rendered subsections of one question invalid (the external measures of appropriateness), however despite this there was a clear concern expressed by many participants about the limitations of an imposed hierarchy of ‘appropriateness’. When asking individuals to commit to a long term process, there is a risk of attrition, as interest wanes or other commitments take priority. Survey fatigue is therefore a potential issue, however the overall ‘drop out’ rate in this study was low, and extension of deadlines and use of follow up and reminder e-mails was used effectively to minimise this.

8.4.3 Consensus and accuracy

Consensus processes, whether by a Delphi panel or otherwise, cannot guarantee the accuracy of a finding, only represent the common understanding and agreement within a particular group at a given time. However, as far as consensus processes are concerned the Delphi methodology is well established and well regarded for seeking a consensus view. This study used the methodology successfully. Comparison with other relevant studies using Delphi methodology shows that this study had a good panel in terms of both size and composition, had good ongoing participation and achieved clear iterative progress towards a degree of consensus.

8.5 Summary

Despite a single, centralised health system with associated national standards and policy, it is evident that NZ physicians and nurses working in the field of emergency medicine experience many of the same concerns as their international colleagues. The findings from this study indicate the NZ study members had difficulty reaching agreement in relation to the conceptual underpinnings of ED appropriateness. This is in line with international literature, where there is a lack of clarity about how measurements and definitions relating to appropriateness should be made. Participants were divided in terms of whether such definitions should rest with clinical, individual patient or service parameters.

A limited degree of consensus was able to be reached relating to NZ derived factors, and while individual aspects of an international tool were agreed on the tool as a whole was seen as unwieldy and inappropriate for use in NZ. A key criticism of this tool was the anticipated amount of work required to formulate an assessment of appropriateness, and
the implication that if this much needed to be done, it would be more efficient to then complete the patient review and treatment.
CHAPTER 9: CONCLUSIONS AND RECOMMENDATIONS

9.1 Conclusions

9.1.1 Overview

This thesis has examined how NZ emergency medicine and nursing experts conceptualise patients with inappropriate or non-urgent care needs. In doing so, through use of the Delphi process, the opportunity to form a core of consensus around defining appropriateness was explored. The outcomes from the Delphi process have identified areas of consensus amongst the panel of NZ experts, but have also highlighted areas where there is no agreement. Given the robust process and interventions designed to maximise the possibility of reaching consensus, it seems unlikely that such agreement can be reached. If, despite such findings, there is an intention to respond to the potential problems associated with a population of ‘inappropriate attenders’ the identified areas of discord and uncertainty need resolution.

The importance of addressing issues related to patient flow and ED overcrowding are acknowledged within NZ at both professional and political levels. However, the temptation to be ‘seen to be doing something’ seems at times to override the importance of establishing a sound base from which to enact considered responses. The degree of consensus generated through the Delphi process is limited, and any NZ specific tool derived from this would be similarly restricted. This is a significant finding in terms of current and future policies that are predicated on the assumptions that:

a) inappropriate attenders form part of the ED patient population;

b) such individuals can be prospectively identified;

c) following such identification, alternative care plans can be put in place;

d) this would have sufficient impact on the issue of overcrowding in EDs to make this an effective and viable option.

The research process presented in this thesis demonstrates the difficulty in forming a consensus definition. In recent years there has been increasing acknowledgment of the complexity associated with determining appropriateness for ED services. Despite this, initiatives continue which derive from the fundamental assumption that agreement around the core concepts and their use exists. Within NZ, increasing responses to the issue of overcrowding are emerging, many of which draw on these underlying assumptions.
Despite the conflicting views around ED overcrowding, there remains an expectation that by addressing highly publicised issues, such as potentially inappropriate usage, the problems associated with crowding can be addressed. If responses such as deferral of care and triage away from the ED are seen as viable alternatives (or even essential remedies) then the discussion of appropriateness must be one that receives attention not only within the professional arena but also at a societal level.

9.1.2 Conceptual and theoretical implications

Reviews of the international literature, taken in conjunction with the national and international context around emergency care have highlighted on-going concerns. It is apparent that societal changes and in particular the impact of ageing populations, increased use of technology and the changing expectations of individuals have impacted on the need for, and provision of, emergency care. EDs provide a specialised and complex system of care processes, yet increasing constraints in the form of fiscal and resource limitations together with growing patient volumes have resulted in the phenomena of ED overcrowding, access block and the conceptualisation of the ‘inappropriate attender’. Much discussion, research and policy development has occurred, with the intention of addressing the issues associated with these processes.

Despite extensive reference to the concrete expression of these phenomena, in the form of increasing patient numbers, acuity and workload, there is little corresponding clarification of the underlying concepts. Failure to explore the theoretical base has led to widespread acceptance of a series of assumptions and generalisations. Many of these are the result of unconscious assimilation rather than critical assessment and recognition.

9.1.3 Practice implications

It would seem reasonable that before implementing practice changes, a core definition of appropriateness needs to be identified. Despite a lack of evidence that this currently exists, or is being developed, a number of practice changes and service developments have been introduced in the NZ emergency setting since the commencement of this thesis. These have included examples of staff being asked to ‘refer away’ selected patients[377]. Three hospitals have instigated a form of ‘redirection’, wherein a triage nurse, after a more thorough assessment of the patient than traditional triage, will encourage some patients to see a GP instead of waiting to see a doctor in the ED. However, access to an ED doctor will not be denied if requested by the patient. One other hospital has a co-located primary care facility, with triage performed by staff from the primary care
facility and a decision made by these staff as to which service (ED or primary care) will see the patient (personal communication, National Clinical Director of ED Services). While there has been no academic material to date published examining the impact of such systems, there continues to be debate within the media[377, 402, 403].

The question remains, in order for successful change in patient processes to occur: does there needs to be a minimum level of agreement amongst key stakeholders? If there is no existing agreement about the criteria and practice parameters being introduced amongst the core health professional groups of medicine and nursing, what are the implications for others professionals and lay people? A central definition and agreement to abide by this is essential to enable other health professionals who refer patients to ED, such as GPs, ambulance service personnel, allied health, complementary health care workers, primary care nurses, Nurse Practitioners, community services agents and rest home / private hospital staff to act in accordance with policy changes. Similarly, patients and the wider public need to have a clear understanding of what constitutes an appropriate reason to present for care, and where this might be best sourced. The current lack of such central consensus raises issues in relation to the more complex task of incorporating these wider viewpoints into a socially agreed mandate for emergency care. Concern with local and regional variations of any definition includes increased confusion and lack of consistency, which with an increasingly mobile population is likely to lead to misunderstandings and unwillingness to adhere to protocols.

As many of the participants indicated in their responses, it is difficult to separate the conceptual discussion from consideration of the practical implications associated with defining appropriateness. Inevitably, development of a centralised set of appropriateness criteria could be used to quantify the population of patients who do not require ED level assessment and care. However, it could also be used to identify the significance of the issue, and potentially to demonstrate that this population has limited impact on overall ED processes. Concerns were expressed about the potential to link criteria for appropriateness to policies around rationing and denial of care, yet it appears that this restriction of access is already occurring. Many respondents identified process issues in applying any such criteria, including concerns over who would have the responsibility for making this decision, how to apply any criteria and the amount of time needed to make a specific assessment. Wider health service issues were also raised, with discussions highlighting
variation in access to care and limited resources in regard to both geographical and
temporal parameters.

9.1.4 National significance

The issue of overcrowding in NZ EDs has come somewhat later than similar
concerns expressed internationally, and as such there is an opportunity to learn from
existing responses. However, there is also a need to be aware of existing limitations and
potential errors in processes, and to use these as a beginning rather than an end point.
There has been very little NZ specific research looking at the fundamental questions
around appropriateness – the definition, potential measurement opportunities and
identification of this group of patients. Despite the need to clarify these issues, responses
have already been put into place in an effort to control and manage a problem that remains
largely anecdotal as to size and nature. While it is an understandable reaction, to want to
be proactive rather than reactive, it is more important to ensure that any interventions have
a clear impact on the clinical issues.

A pivotal factor in determining appropriateness of presentation is the individual’s
interpretation of the role of the ED. This recognition of a social mandate and the
subsequent social construction of the ED impacts on the expectations of health
practitioners and patients alike. While there are a range of titles used internationally to
refer to emergency services, the term ‘Emergency Department’ is used nationally in NZ.
This, together with the national standards and demarcation of different levels of ED service
provide a theoretical framework for understanding the intent and scope of a particular
service. There is a clear implication that medical urgency and clinical emergency constitute
the central function of these services. This then suggests that the core business of these
units includes patients with medically acute or undifferentiated needs. From this
perspective, a number of researchers and clinical experts have focussed on presenting
medical definitions of appropriate ED conditions and clinical scenarios suitable for ED
care and use of higher level resources. It is evident from panel members’ responses that
delineation of the role of EDs, in line with the Ministry of Health’s 2003 Service
Specifications[363], is not necessarily sufficient to determine appropriateness of match
between patient and service.

Application of service specifications, based on access to resources and personnel,
implies an ability to identify clinical situation and need in isolation from social context,
and to allow the bracketing out of any incidental information. This is in contrast with
views expressed by the panel members, which suggest that the clinical definition cannot be applied in isolation, and that societal expectations are changing with regard to the role and place of emergency services in the health system. In particular, concerns with alternative access and the ‘safety net’ concept have been widely expressed, suggesting that a broader understanding, including consideration of these aspects, needs to be applied to any definition of appropriateness.

While there are clear arguments regarding the negative impact of overcrowding, the question is raised as to whether there is sufficient evidence that ‘inappropriate’ or ‘primary care’ patients are a significant contributor to this. Without a consensus definition of ‘appropriateness’ and the development of a nationally accepted tool to measure this phenomenon, it is not possible to attribute relative influence. If this fundamental data is missing, then there is insufficient support or rationale to justify the development of a formal approach to dealing with the ‘problem’. The current ‘informal’ responses to this group of patients are even less justified, as without the underlying consensus, issues of inequality, individual bias and regional variation are likely.

The completed Delphi process demonstrates the difficulty in formulating widespread consensus on what constitutes an appropriate or inappropriate ED presentation, even within the discreet culture of ED medicine and nursing. To engage the public in any process that might lead to a more effective management of lower acuity ED patients, there would need to be awareness of and agreement about the core concepts around appropriateness. The concern is that where well educated and knowledgeable health care staff struggle to agree around the meaning and application of appropriateness, the likelihood of engaging a wider and more diverse group of stakeholders (such as managers, healthcare clients, associated health professionals) becomes daunting.

9.2 Recommendations

The research carried out in this project has enabled a clearer understanding of the difficulties associated with developing a consensus definition around the concept of appropriateness. While there has only been a limited agreement and criteria set emerge from this process, it is significant in that the unspoken assumptions around agreement have been identified and shown to be flawed. There is no existing agreement around the core aspects of appropriateness, and as such this brings into contention the validity of a unified approach and response to the supposed problem of this patient population group.
That overcrowding is a growing concern within NZ EDs seems clear, but responses to this need to be evidence based and sustainable rather than superficial and reactive. In line with this, the following recommendations are presented with a view to furthering an understanding of appropriate patient presentations and the implications associated with any definition or quantification of this group.

9.2.1 Research recommendations

While a widespread consensus could not be reached within this particular study population, there remain a number of areas that would benefit from further research. This includes consideration of additional research approaches, exploration of the issues within different professional populations, greater understanding of the implications for lay people and audit of new processes introduced to address ‘appropriateness’. The specific recommendations in this section are as follows:

1. Further research is recommended to explore expectations of the role of the ED in society, from the perspective of both health professionals and lay people.

2. It is recommended that the Delphi study be repeated, looking at the expert practitioner population of smaller urban and rural EDs.

3. Further research is recommended to explore health professionals’ beliefs around appropriateness through other research methodologies, such as interview and focus group.

4. Further research is recommended to explore the outcomes of processes designed to manage inappropriate patient populations (particularly when there is restriction of access).

5. Further research is recommended to identify the perceptions and decision making processes of patients relating to appropriate use of the ED.

9.2.2 Practice recommendations

The current lack of consensus amongst NZ ED experts needs to be acknowledged and taken into consideration when policies and protocols relating to management of ‘inappropriate’ or ‘non urgent’ patients are proposed. In line with this, the following recommendations are made:

1. It is recommended that barriers to alternative service use be explored and area specific responses developed.

2. It is recommended that quality processes including regular audit of any service innovations introduced to manage overcrowding and non-urgent patient populations be introduced.
3. Awareness of moral distress and risk aversion should be considered when looking at ED staff recruitment and retention.

9.2.3 Policy recommendations

It is unclear whether inappropriate attenders represent a significant (as opposed to simply a visible) aspect of overcrowding, and so justification for focussing on this group remains uncertain. Coordinated policy development and a national approach to managing overcrowding is needed, which gives rise to the following recommendations:

1. Greater emphasis needs to be placed on a ‘whole systems’ approach to ED crowding, with prioritisation of contributing factors.

2. If responses to ED crowding include targeting of ‘inappropriate’ or ‘non urgent’ attenders, clarification of the extent of the problem needs to be provided.

3. If barriers to ED access or provision of care are identified which necessitate rationing of services, then development of a national consensus is a prerequisite to change.

4. The potential for variance and inequality of access to EDs should be explored in relation to current policy, on a national basis.

5. Opportunity exists to develop responsive and unique reactions to ED overcrowding, drawing on existing learning and fitting this to the NZ context. This should be encouraged, and a collaborative approach utilised.

9.3 Future projections

While this study has explored the specifics of NZ expert responses to inappropriate ED patient presentations, it has also identified the wider context within which overcrowding is positioned. A number of NZ specific responses have been suggested, and some implemented, in recent years. To date there has been little formal review of the outcomes from such interventions.

9.3.1 Constructing responses

There are a number of approaches being developed and trialled within emergency services in NZ, to counter increased patient volumes. Many of these are designed to impact on the population of non urgent patients, including those who are deemed ‘primary care appropriate’. Some of these follow the processes of identification and re-referral of patients at the point of entry into the ED, while others attempt to recognize and address barriers to remaining in the community or accessing alternative services before this point is reached. It is likely that variants of such developments will continue in the foreseeable future.
Re-referral of patients out of EDs has developed in response to local rather than national policy, reflecting specific population needs and organisational concerns. Despite statements from healthcare professional bodies indicating concern with such practices, these continue to be developed. The outcomes and impact of such systems in NZ have yet to be evaluated in peer reviewed literature. There have been varied anecdotal responses reported, both in favour and against the process. In order for such innovations to work effectively, there needs to be support within the primary health sector, robust alternate systems identified, and public acceptance of the process. An alternative approach is to identify these patients at point of entry, but rather than referring away, to ‘stream’ them to onsite alternatives such as GP led primary care units or nurse led minor injuries services. Again, there needs to be a willingness to engage in such processes, not just by staff but also by patients, together with sufficient resource capacity.

There have been a number of interventions aimed at influencing patient decision making and identifying alternative options for medical or social care. This has included public education about appropriate processes, access to health advice via telephone services, increased availability of ‘after hours’ services (often through Primary Health Organisations), and increased community care support packages. Expansion of alternative health professional roles, included those of ambulance paramedics, allied health and advanced nurse practitioners are providing innovative responses to patient needs. Local and regional examples of practice development are evident, with national recognition of roles and expansion of scope of practice likely.

9.3.2 Imposed consensus

In the absence of professionally derived consensus it is likely that more arbitrary or politically motivated definitions and criteria could be imposed. This highlights the importance of developing dialogue at personal, professional and public levels, raising awareness of the issues of health care rationing and clarifying expectations around the role of the ED. If policies designed to counter ED crowding focus on the non-urgent patient population, it is likely that the definition and criteria for determining such a population will be externally imposed rather than emerging from a consensus process. While such processes are not unusual in health care, there is the potential for resulting conflict of beliefs, ethical dilemmas and moral distress.
9.3.3 Shifting focus

Given the difficulty in forming agreement around the concepts associated with appropriateness, it is likely that NZ responses to overcrowding will incorporate a range of approaches. Central to any re-balancing of patient load within the health system is the need for collaborative responses and a potential to re-think the primary-secondary interface. Patients are increasingly mobile, informed and expect to be directly involved in their healthcare and the decision making associated with this. Continued development in terms of infrastructure, policy and processes is needed to facilitate appropriate and timely care for patients, in areas best suited to their needs. This can be seen in developments such as electronic, shared databases for patient information; recognition of the potential to develop specialised pathways or streams for patients with chronic conditions, and the implementation of standardised care plans and protocols.

Recognition of the underlying concepts associated with managing acute health care demand and the interaction between service provision and social expectation needs to be considered as part of any policy planning. It must be acknowledged that agreement is not always present, or possible, and the implications of this discussed at professional, political and social levels. A range of potential responses can be implemented, but the temptation to import overseas ‘answers’ to questions that not have been explored in the NZ setting, need to be approached with caution.

9.4 Summary

This study has explored the issue of ‘appropriateness’ in relation to ED patient attendance, within the context of overcrowding. There is conflicting international evidence concerning the significance as well as the definition of ‘appropriateness’ and this is also reflected in the limited NZ literature available. Recognition of the underlying assumptions that form the basis for much of the research around overcrowding has been highlighted, and the subsequent need to address the core questions of definition and consensus.

Use of the Delphi method has allowed a structured approach to seeking consensus, with application of techniques such as statement re-wording, iteration, return of measures of central tendency and opportunity to alter responses adding to this. Despite deliberate selection of a focussed expert panel, only limited consensus was generated. This suggests a degree of disparity within the NZ ED workforce to similar that identified in the international literature. There are individuals with strong beliefs at each end of the continuum of appropriateness, from those who see definition and measurement as a simple
clinical decision to those who see the socio-political influence creating a context wherein ‘appropriateness’ is itself an inappropriate concept. If, as indicated from this study, consensus within NZ is unlikely to be generated, the impact of acting in the absence of this must be recognised.

The ‘non-urgent’ patient, while potentially a highly visible target, may not in fact be the best focus for healthcare attention. Without clear evidence that a population of inappropriate patients exists and is a direct and meaningful drain on ED services, it is likely that resources could be more effectively spent elsewhere. There are opportunities to learn from the international experiences, while creating a NZ specific response that emerges from an evidential base and identifiable social mandate. ED overcrowding is a significant concern, but it may be that systems-wide constraints, including access block and limited community capacity have a greater potential for intervention than management of the inappropriate attender.
REFERENCES


[49] New Zealand College of Emergency Nurses. Submission to District Health Board's of New Zealand on: Seeking a system capable of delivering an ideal interface between the public requiring urgent health care and the health system. A process and sorting tool to assist people to access the most appropriate urgent health care. 2007 [cited 14/10/11]; Available from: http://www.nzno.org.nz/LinkClick.aspx?fileticket=ZC%2FCh11vyzw%3D&tabid=511


[77] Lynn RE. Christchurch Hospital Emergency Department Survey. Christchurch: Primary Care Unit, Canterbury Hospital Board; 1986.


Rodgers T, Ross N, Spooner D. Evaluation of a "see and treat" pilot study introduced to an emergency department. Accident & Emergency Nursing. 2004;12:24-7


[319] Ambrosiadou B-V, Goulis DG. The DELPHI method as a consensus and knowledge acquisition tool for the evaluation of the DIABETES system for insulin administration. Medical Informatics and the Internet in Medicine 1999;24(4):257-68.


Topham-Kindley L. Rural GPs holding after hours 'baby'. New Zealand Doctor. 2010.

Cameron A. Balclutha GP sticks to guns in ED debate. New Zealand Doctor. 2011.


## APPENDICES

### APPENDIX 1: SYSTEMATIC REVIEW. ARTICLES INCLUDED: INAPPROPRIATE / NON-URGENT ED USE

<table>
<thead>
<tr>
<th>Author</th>
<th>Year published</th>
<th>Setting</th>
<th>Method</th>
<th>Sample</th>
<th>Findings</th>
<th>% non-urgent</th>
<th>Level of evidence</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Abdallat, Al-Smadi, Abbadi</td>
<td>2000</td>
<td>Jordan Military Hospital ER</td>
<td>Review of 1 month patient register details Data from: 1997</td>
<td>2841</td>
<td>Found majority or patients presented with non urgent conditions. Study shows “an abuse and overuse of emergency services” (p1126)</td>
<td>91%</td>
<td>IV</td>
<td>Eastern Mediterranean Health Journal</td>
</tr>
<tr>
<td>2. Afilalo, Gutman, Colacone,</td>
<td>1995</td>
<td>Canada Urban ED, adult patients</td>
<td>14 day survey of the ED to examine appropriate and inappropriate use, using physician assigned categories. Data from 1990</td>
<td>Convenience sample of 849 pts selected to represent a 1 week period Cat I 516 patients Cat II 204 Cat III 129 186 Cat II &amp; III patients interviewed</td>
<td>Majority of patients seen in the 2 week period required ED specific care Mis-users account for only a small proportion of visits</td>
<td>69%</td>
<td>IV</td>
<td>Journal of Emergency Medicine</td>
</tr>
<tr>
<td>3. Afilalo, J., Marinovich, A., Afilalo, M., Colacone, A., Leger, R., Unger, B., et al.</td>
<td>2004</td>
<td>Canada 5 academic tertiary care centres Adult patients 18yrs+</td>
<td>Secondary analysis of data collected from a prospective observational study Data from 1999-2000 convenience sample 454 non urgent patients 1,329 urgent or semi urgent patients</td>
<td>Identified significant differences between the non urgent and other groups in terms of characteristics. Multiple reasons for not seeking primary care.</td>
<td>Hospital 1: 18.2% 2: 17.5% 3: 9.4% 4: 22.3% 5: 32.7%</td>
<td>IV</td>
<td>Academic Emergency Medicine</td>
<td></td>
</tr>
<tr>
<td>Author</td>
<td>Year published</td>
<td>Setting</td>
<td>Method</td>
<td>Sample</td>
<td>Findings</td>
<td>% non-urgent</td>
<td>Level of evidence</td>
<td>Reference</td>
</tr>
<tr>
<td>------------------------------</td>
<td>----------------</td>
<td>----------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
<td>---------------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>--------------</td>
<td>-------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>6. Baker &amp; Baker [166]</td>
<td>1994</td>
<td>US</td>
<td>Used data from National Medical Expenditure Survey (NMES) to study difference in charge for ED and other setting visits for non urgent conditions Data from 1987</td>
<td>Survey data drawn from 35,000 individuals in 4,000 US households 3,305 episodes beginning in non-emergency department settings 779 episodes beginning in emergency departments</td>
<td>Found a 2-3 fold increase in cost for ED vs other non urgent visit Looked at individual visits and also episodes Findings: Significant excess expenditure using ED for non urgent care Policies to make alternative care available and encourage use of same may achieve savings</td>
<td>10% of emergency department initiated episodes deemed to be 'non urgent'</td>
<td>V</td>
<td>Health Affairs</td>
</tr>
<tr>
<td>Author</td>
<td>Year published</td>
<td>Setting</td>
<td>Method</td>
<td>Sample</td>
<td>Findings</td>
<td>% non-urgent</td>
<td>Level of evidence</td>
<td>Reference</td>
</tr>
<tr>
<td>------------------------</td>
<td>----------------</td>
<td>-------------------------------</td>
<td>------------------------------------------------------------------------</td>
<td>---------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------</td>
<td>-------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Ballard, Price, Fung, Brand et al [242]</td>
<td>2010</td>
<td>US</td>
<td>Longitudinal study to validate NYU ED visit severity scale</td>
<td>2,257,445 commercial and 261,091 medicare members of an integrated delivery service</td>
<td>Examined the association between the individual patient visit severity (based on the ICD-9 code and its association with one of the severity categories) and subsequent hospitalisation of death NYU algorithm not appropriate for use as a triage tool as based on end of visit diagnoses</td>
<td>Non emergent: 47.8%</td>
<td>IV</td>
<td>Medical Care</td>
</tr>
<tr>
<td>Bianco, Pileggi &amp; Angellilo [231]</td>
<td>2002</td>
<td>Italy Public Hospital ED Adult patients 15 +yrs</td>
<td>Cross sectional study, stratified sample. Use of survey questionnaire Data from: 2001</td>
<td>541</td>
<td>Aimed to determine predictive characteristics of patients requiring non urgent care, findings suggest age and gender are predictive, as are absence of medical referral and longer duration of problem.</td>
<td>19.6%</td>
<td>III</td>
<td>Public Health</td>
</tr>
<tr>
<td>Bohland, [224]</td>
<td>1984</td>
<td>US</td>
<td>5% sample of all patients treated in 4 nominated hospitals</td>
<td>38,130 primary care visits from 91,599</td>
<td>Demonstrated proximity and socioeconomic status influenced utilization levels “…residents from lower-income neighbourhoods rely more heavily on ERs for primary care than do those from higher status neighbourhoods” p1225</td>
<td>33%, 42%, 43%-53% across 4 hospitals average: 41.6%</td>
<td>IV</td>
<td>Social Science and Medicine</td>
</tr>
<tr>
<td>Author</td>
<td>Year published</td>
<td>Setting</td>
<td>Method</td>
<td>Sample</td>
<td>Findings</td>
<td>% non-urgent</td>
<td>Level of evidence</td>
<td>Reference</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>----------------</td>
<td>---------</td>
<td>--------</td>
<td>--------</td>
<td>----------</td>
<td>-------------</td>
<td>-------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td>10. Buesching, Jablonowski, Vesta, Dilts, Runge, Lund, &amp; Porter [225]</td>
<td>1985</td>
<td>US</td>
<td>Community Hospitals</td>
<td>Cross sectional survey. Retrospective chart review from 3 hospitals, a reviewer from each hospital assessed one set from a hospital other than his/her own. Data from: 1983</td>
<td>3130 visits to three community hospitals</td>
<td>Identified patient characteristics associated with inappropriate ED use. Inability to identify a personal physician was the most pervasive influence on inappropriate ED visits</td>
<td>10.8% averaged from 3 hospitals reviewed: 9.5%, 1.6% and 15.6%</td>
<td>IV</td>
</tr>
<tr>
<td>11. Calnan [238]</td>
<td>1984</td>
<td>UK</td>
<td>A&amp;E attached to local district hospital</td>
<td>Aim to examine the role of social circumstances in influencing pt decision to go to A &amp; E Patients interviewed in own home as soon as possible post ED visit Data from: Not stated</td>
<td>1:50 random sample, total of 637 pts over 1 year (all hours) Full interview with 575 (90%) some info for 628 (99%)</td>
<td>Social circumstances may be an important influence on pt demand for hospital service 4% no GP 22% tried to contact a GP</td>
<td>Of 59% cases patient thought required ‘emergency treatment’, only 6% doctor determined as emergencies Overall: 94% ‘non emergency’</td>
<td>IV</td>
</tr>
<tr>
<td>12. Carret, Fassa &amp; Kawachi [146]</td>
<td>2007</td>
<td>Brazil</td>
<td>Urban ER use, adult patients</td>
<td>Cross sectional study Urgency of presenting complaint was defined according to the Hospitals Urgencies Appropriateness Protocol (HUAP) Data from: 2004</td>
<td>1,647 patients interviewed over a consecutive 13 day sampling period.</td>
<td>Inappropriate ER use inversely associated with age, longer stay in the waiting room, longer duration of symptoms and morning shift. Determinants of inappropriate use differed with age.</td>
<td>24.2% (95% CI 22.1-26.3)</td>
<td>IV</td>
</tr>
<tr>
<td>13. Coleman, Irons &amp; Nicholl [119]</td>
<td>2001</td>
<td>UK</td>
<td>Adult patients</td>
<td>Questionnaire survey and notes review Data from: 1997</td>
<td>267 adults (full data for 255) chosen from lowest two triage categories*</td>
<td>55% could have been treated elsewhere, but of these 24% ED was not first point of contact for the problem. Considering objective assessment and pts reason for attending, only 7% (20 of the 255) of non-urgent pts likely to seek other service in similar circumstances.</td>
<td>55% (but only 7% when taking into consideration patient perspective)</td>
<td>IV</td>
</tr>
<tr>
<td>Author</td>
<td>Year published</td>
<td>Setting</td>
<td>Method</td>
<td>Sample</td>
<td>Findings</td>
<td>% non-urgent</td>
<td>Level of evidence</td>
<td>Reference</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>----------------</td>
<td>----------------------------------------------</td>
<td>------------------------------------</td>
<td>---------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-----------------------</td>
<td>---------------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>14. Cook, Thakore, Morrison, Meikle, [201]</td>
<td>2010</td>
<td>UK NHS 24 referral patient group</td>
<td>Retrospective observational study</td>
<td>170 NHS 24 referral forms reviewed</td>
<td>Reviewed patients referred to ED via NHS 24 service and identified how many of these were seen as appropriate by an expert panel (GP and ED sub groups)</td>
<td>GP panel: 53% alternative disposal, ED panel: 40% alternative disposal</td>
<td>V</td>
<td>Emergency Medicine Journal</td>
</tr>
<tr>
<td>15. Crombie [167]</td>
<td>1959</td>
<td>UK Casualty Department of General Hospital</td>
<td>Patient survey</td>
<td>410 (1 in 3 of patients presenting over a 1 week period)</td>
<td>Identified that 328 patients could have been treated by either a nurse alone (n=8) or a GP (n=320)</td>
<td>90% could have received care at a GP surgery</td>
<td>IV</td>
<td>J.Coll.Gen.Pract</td>
</tr>
<tr>
<td>16. Dale, Green, Reid &amp; Glucksman [249]</td>
<td>1995</td>
<td>UK A&amp;E Inner city teaching hospital</td>
<td>Prospective study comparing characteristics of non urgent patients</td>
<td>5658 Stratified random sample</td>
<td>Identified characteristics of primary care attenders, also found that 9.7% of primary patients were referred to on call specialists and a further 8.9% referred to fracture clinic or directed to return to ED for follow up.</td>
<td>40.9% could have been seen in primary care</td>
<td>IV</td>
<td>British Medical Journal</td>
</tr>
<tr>
<td>17. Davison, Hildrey &amp; Floyer [232]</td>
<td>1983</td>
<td>UK Urban teaching hospital A&amp;E</td>
<td>Prospective identification of patients who were neither “accident nor emergency” patients</td>
<td>587 new patients</td>
<td>Identified patient characteristics of patients whose condition was neither “accident nor emergency”.</td>
<td>39% neither accident nor emergency</td>
<td>V</td>
<td>Journal of the Royal Society for Medicine</td>
</tr>
<tr>
<td>18. Davies [193]</td>
<td>1986</td>
<td>UK Urban Accident &amp; Emergency Department</td>
<td>Questionnaire</td>
<td>92 patients registered with a GP service that provides minor trauma services but who presented to ED</td>
<td>Identified that 67 of 92 patients could have been treated at their usual GP service, reasons for not attending GP included: 26% didn’t want to bother GP, 52% felt problem not suitable for GP. Of these groups, 39% more convenient, 47% thought it was quicker to go to ED</td>
<td>73 % could have been treated at GP practice</td>
<td>V</td>
<td>British Medical Journal</td>
</tr>
<tr>
<td>Author</td>
<td>Year published</td>
<td>Setting</td>
<td>Method</td>
<td>Sample</td>
<td>Findings</td>
<td>% non-urgent</td>
<td>Level of evidence</td>
<td>Reference</td>
</tr>
<tr>
<td>------------------------------</td>
<td>----------------</td>
<td>----------------------------------------</td>
<td>------------------------------------------------------------------------</td>
<td>---------------</td>
<td>--------------------------------------------------------------------------</td>
<td>--------------</td>
<td>-------------------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td>Derlet, Kinser, Ray et al</td>
<td>1995</td>
<td>US University ED, adult patients 16+yrs</td>
<td>Census study – all patients presenting to ED aged over 16 yrs Prospective identification and triage out of non emergency patients Data from: 1988-1993</td>
<td>176,074</td>
<td>A subset of patients with non emergency problems can be prospectively identified and triaged out of the ED without significant adverse outcomes provided there is community support for follow up care</td>
<td>18% non emergency (31,165)</td>
<td>IV</td>
<td>Annals of Emergency Medicine</td>
</tr>
<tr>
<td>Driscoll, Vincent &amp; Wilkinson</td>
<td>1987</td>
<td>UK University College Hospital A&amp;E department Prospective identification of inappropriate patients Data from: 1986</td>
<td>836 patients who presented to A&amp;E within 1 week</td>
<td>836 patients who presented to A&amp;E within 1 week</td>
<td>“there is probably no practical way of reducing inappropriate attendance that does not involve risk to a proportion of patients: p77 Duration of condition shown as not effective criteria for inappropriateness</td>
<td>40% inappropriate to ED (35% were GP suitable, 5% required no medical input)</td>
<td>V</td>
<td>Archives of Emergency Medicine</td>
</tr>
<tr>
<td>Franco, Mitchell &amp; Buzon</td>
<td>1997</td>
<td>US Paediatric population 0-13yrs</td>
<td>Prospective cohort compared to historical cohort, based on chart reviews. Data from: 1991 current group 1981 historic cohort</td>
<td>364 ED visits in current cohort (7.6% of clinic population) compared to 283 in historic cohort (10.1% of clinic population)</td>
<td>Authors state that results indicate that ED gatekeeping and 24hr access to a primary care physician can effectively reduce inappropriate ED visits</td>
<td>Inappropriate visit rate declined from 41% 10yrs earlier (1981) to 8% during this study (1991)</td>
<td>IV</td>
<td>Clinical Pediatrics</td>
</tr>
<tr>
<td>Griffiths, King &amp; Preston</td>
<td>1967</td>
<td>UK Urban Casualty Dept</td>
<td>Patient survey Data from:1966-1967 Sample size not given (all new patients presenting between October 1966 and January 1967)</td>
<td>Sample size not given (all new patients presenting between October 1966 and January 1967)</td>
<td>Identified reasons for casual ED attendance: 1) no local GP; 2) convenience; 3) no appointment at GP available; patient was visitor to the area; already under care of hospital for other condition 6) wanting a second opinion</td>
<td>Identifies 28% casual attenders</td>
<td>IV</td>
<td>British Medical Journal</td>
</tr>
<tr>
<td>Author</td>
<td>Year published</td>
<td>Setting</td>
<td>Method</td>
<td>Sample</td>
<td>Findings</td>
<td>% non-urgent</td>
<td>Level of evidence</td>
<td>Reference</td>
</tr>
<tr>
<td>--------</td>
<td>----------------</td>
<td>---------</td>
<td>--------</td>
<td>--------</td>
<td>----------</td>
<td>-------------</td>
<td>------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>Gill, Reese &amp; Diamond [200]</td>
<td>1996</td>
<td>US Urban teaching hospital ED</td>
<td>Retrospective chart review by 8 health professionals (2 emergency physicians, 2 family physicians, 4 emergency nurses)</td>
<td>Convenience sample of 266 patients</td>
<td>Even when using the same criteria, health professionals frequently disagree about the urgency of care in ED patients. When retrospective reviewers disagree with a prospective assessment of urgency, the potential exists for denial of payment or even lawsuits</td>
<td>Different reviewers retrospectively identified between 11% - 63% of same cohort as representing urgent patient presentation, ie between 89 – 37% non-urgent.</td>
<td>IV</td>
<td>Annals of Emergency Medicine</td>
</tr>
<tr>
<td>Green &amp; Dale [245]</td>
<td>1992</td>
<td>UK 1 urban A&amp;E 14 General Practices</td>
<td>Comparative survey of attenders at A&amp;E and GP attenders with new problem. Prospective identification.</td>
<td>A&amp;E sample: 855 GP patients: 277</td>
<td>Patients attending A&amp;E and GP surgeries similar in terms of socio-economic circumstances but problems were not typical of GP workload and were in different circumstances</td>
<td>42% primary care problems</td>
<td>IV</td>
<td>Social Science and Medicine</td>
</tr>
<tr>
<td>Guterman, Franaszek, Murdy &amp; Gifford [226]</td>
<td>1985</td>
<td>US 24 hospital EDs, included urban, suburban and rural</td>
<td>Nationwide, prospective, self administered patient and physician survey Feb 1980 – March 1980 from 24 EDs</td>
<td>10,253 questionnaires collected (87% compliance rate)</td>
<td>60% of patient respondents believed they had an ‘emergency problem’ Compared prospective and retrospective assessments: ED residents underestimated the urgency of need for medical care 6.7% of the time, 3.7% for career emergency doctors</td>
<td>Physician assessments: 69% could been treated elsewhere</td>
<td>IV</td>
<td>Annals of Emergency Medicine</td>
</tr>
<tr>
<td>Hau, Ionaiddis, Masaoutis &amp; Verma [404]</td>
<td>2008</td>
<td>UK A&amp;E of major Eye Hospital</td>
<td>Prospective questionnaire based survey</td>
<td>560 questionnaires</td>
<td>Identified a significant number of patients presented with non urgent conditions which could have been treated in the community by specialist trained GPs or optometrists</td>
<td>30.6% non urgent</td>
<td>IV</td>
<td>Emergency Medicine Journal</td>
</tr>
<tr>
<td>Author</td>
<td>Year published</td>
<td>Setting</td>
<td>Method</td>
<td>Sample</td>
<td>Findings</td>
<td>% non-urgent</td>
<td>Level of evidence</td>
<td>Reference</td>
</tr>
<tr>
<td>--------</td>
<td>----------------</td>
<td>---------</td>
<td>--------</td>
<td>--------</td>
<td>----------</td>
<td>-------------</td>
<td>-------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>27. Hauswald [234]</td>
<td>2004</td>
<td>US Urban teaching Hospital ED</td>
<td>Retrospective review of random chart selection Data from: Not stated</td>
<td>650 patient charts</td>
<td>Few ED patients would be seen more efficiently in an off site clinic. EDs are actually very efficient places to manage many problems that are not immediately life or limb threatening</td>
<td>3.9% non acute problems</td>
<td>IV</td>
<td>American Journal of Emergency Medicine</td>
</tr>
<tr>
<td>28. Kelly &amp; Birtwhistle [145]</td>
<td>1993</td>
<td>Canada Urban hospital</td>
<td>Prospective assessment of patient, nurse and doctor perceptions of urgency Data from: 1991</td>
<td>300 consecutive self referred patient charts: stamped for patient, nurse, doctor assessment of urgency 198 analysed</td>
<td>140 of 192 patients (73%) perceived visit could not have waited 12-24 hrs Nurses assessed 183 saw as urgent 93 cases (51%) Physicians assessed 121 charts saw as urgent 62 High agreement between doctor and nurse Role for patient education around urgency Patient perspective: 24% could wait Nurse perspective: 49% non urgent Medical perspective: 49% non urgent</td>
<td>IV</td>
<td>Canadian Family Physician</td>
<td></td>
</tr>
<tr>
<td>29. Lang, Davido, Diakite et al [227]</td>
<td>1996</td>
<td>France Medical ED of 2 university hospitals Adult patients 15yrs +</td>
<td>Cross sectional study Data from: 1993-4</td>
<td>594: Paris group 614: Besançon group Random selection of 40 x 12 hr time intervals, all patients presenting invited to participate. Interviews before and after treatment.</td>
<td>Groups using the department for primary care and/or non-urgent care were mostly young and socially fragile, with no regular source of health care. Their poor health condition suggests a need for a structure providing primary care both inside and outside ‘normal’ working hours.</td>
<td>Paris group: 35% non urgent Besançon group : 29% non urgent</td>
<td>IV</td>
<td>J Epidemiol Community Health</td>
</tr>
<tr>
<td>30. Lavenhar, Ratner &amp; Weinerman [183]</td>
<td>1968</td>
<td>US Urban hospital Emergency Service</td>
<td>Review of data subset collected as part of a larger study. Based on patient medical records and interviews. Data from: 1964</td>
<td>402 patients. Subsample from previous study (this group had additional detailed socioeconomic and occupational data collected)</td>
<td>The relative importance of various demographic, socioeconomic and medical care variables in influencing the recourse to the emergency facility for non urgent medical problems to be evaluated.</td>
<td>56%</td>
<td>IV</td>
<td>Medical Care</td>
</tr>
<tr>
<td>Author</td>
<td>Year published</td>
<td>Setting</td>
<td>Method</td>
<td>Sample</td>
<td>Findings</td>
<td>% non-urgent</td>
<td>Level of evidence</td>
<td>Reference</td>
</tr>
<tr>
<td>----------------------</td>
<td>----------------</td>
<td>-----------</td>
<td>------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------</td>
<td>-------------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>31. Law &amp; Yip</td>
<td>2002</td>
<td>Hong Kong</td>
<td>Retrospective study of ED utilisation to consider possible impact of user-fee policy</td>
<td>Used data from yr 2000 figures not given</td>
<td>Non emergency use is the major cause of over utilisation A user fee policy would act as a deterrent to inappropriate use May result in cost shifting however as divert to other health providers</td>
<td>More than 70%</td>
<td>V</td>
<td>Hong Kong Medical Journal</td>
</tr>
<tr>
<td>32. Lee, Lau,</td>
<td>1999</td>
<td>Hong Kong</td>
<td>Cross sectional sample of Hong Kong hospitals</td>
<td>2,410 pts to enable a representative sample of low, med &amp; high utilization periods</td>
<td>57% GP cases, higher proportion of younger pts, high use of ED reflects the lack of a well coordinated primary care service and interfacing with secondary care</td>
<td>57% GP cases</td>
<td>IV</td>
<td>International Journal of Health Care Quality Assurance</td>
</tr>
<tr>
<td>&amp; Hazlett et al</td>
<td>1999</td>
<td>Hong Kong</td>
<td>4 EDs</td>
<td>Data from: 1997</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33. Liu, Sayre, &amp;</td>
<td>1999</td>
<td>US</td>
<td>Describe and compare National trends based on National Hospital Ambulatory Medical Care Survey (NHAMCS)</td>
<td>National trends in ED use 1992-1996 135,723 ED visits</td>
<td>Non-urgent visits clearly linked to socio-demographic factors Social as well as financial barriers Can’t differentiate urgent / non urgent without a thorough evaluation</td>
<td>1995 54.7 % non urgent 1996 54.1% non urgent</td>
<td>V</td>
<td>Academic Emergency Medicine</td>
</tr>
<tr>
<td>Carleton</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Author</td>
<td>Year published</td>
<td>Setting</td>
<td>Method</td>
<td>Sample</td>
<td>Findings</td>
<td>% non-urgent</td>
<td>Level of evidence</td>
<td>Reference</td>
</tr>
<tr>
<td>------------------------</td>
<td>----------------</td>
<td>--------------------------</td>
<td>-------------</td>
<td>--------------------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
<td>--------------</td>
<td>-------------------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td>Lowe, Bindman, Ulrich et al [229]</td>
<td>1994</td>
<td>US Public Hospital ED</td>
<td>Observational design, historical cohort using previously collected data. Independent variable – whether the patient met published triage guidelines for refusing care. Dependent variable – whether the ED visit was appropriate or not. Explicit and implicit criteria for appropriateness determined. Data from: 1990</td>
<td>Potential sample of 727. 496 (68%) participated</td>
<td>Identified 106 patients who could have been refused care based on published guideline, however further application of explicit and implicit criteria showed that 35 (33%) of these patients had appropriate visits, including 4 patients who were hospitalised. The triage guidelines were not sufficiently sensitive to identify patients who needed ED care. Broad application of these guidelines may jeopardize the health of some patients. Using the previously published triage guidelines: 21.7% inappropriate when explicit and implicit criteria applied to this group, only 14.5% deemed ‘avoidable’.</td>
<td></td>
<td>IV</td>
<td>Annals of Emergency Medicine</td>
</tr>
<tr>
<td>Lowe &amp; Bindman [247]</td>
<td>1997</td>
<td>US Public hospital ED</td>
<td>Cross sectional design using previously collected data. 7 indicators of “inappropriate” ED visits used: 2 determined by the patient; 2 based on the triage nurse’s assessment; 3 determined retrospectively, by chart review. Data from: 1990</td>
<td>596 ED patients aged 18+. Mentally competent, not triage and consent to participate presenting in 1990. Initial group of 927</td>
<td>Decisions as to which ED visits are appropriate depend heavily on the criteria used. Limiting patients’ access to EDs without the aid of a valid and reliable standard for what constitutes an appropriate ED visit could create harmful barriers to care. Little agreement about specific visits Calls into doubt consensus of definition, underlying concept</td>
<td></td>
<td>IV</td>
<td>American Journal of Emergency Medicine</td>
</tr>
<tr>
<td>Author</td>
<td>Year published</td>
<td>Setting</td>
<td>Method</td>
<td>Sample</td>
<td>Findings</td>
<td>% non-urgent</td>
<td>Level of evidence</td>
<td>Reference</td>
</tr>
<tr>
<td>--------</td>
<td>----------------</td>
<td>---------</td>
<td>--------</td>
<td>--------</td>
<td>----------</td>
<td>--------------</td>
<td>-------------------</td>
<td>----------</td>
</tr>
<tr>
<td>Lowy, Kohler, Nicholl [246]</td>
<td>1994</td>
<td>UK 16 A&amp;E departments Adult patients 16 yrs +</td>
<td>Retrospective chart audit. Compared 3 methods of assessment, validated against the pooled perceptions of a group of 5 GPs Data from:1989-91</td>
<td>Dataset A: random sample of 6439 notes of self referred patients Dataset B: random sample of 2976 notes of self referred patients at first attendance</td>
<td>Method 1: NPHT method: identified high numbers of “inappropriate” Attendees tendency to misclassify inappropriateness shown. Method 2: ICD diagnosis: showed reasonable agreement with GP opinion, however poor sensitivity makes it a weak method for estimating levels of ‘unnecessary’ attendances Method 3: Process: Showed highest rate of agreement. Found 15-33% of attenders at 16 hospitals were inappropriate. Suggest for an A&amp;E with approx 40,000 new attenders per annum, 25 unnecessary attendances per day</td>
<td>54%</td>
<td>IV</td>
<td>Journal of Public Health Medicine</td>
</tr>
<tr>
<td>Myers [237]</td>
<td>1982</td>
<td>UK District General Hospital A&amp;E</td>
<td>Retrospective assessment of 1,000 case notes to determine need for ED presentation, survey of 150 non urgent patients about decision to attend ED rather than GP, survey of 50 GPs re minor procedures use Data from: Not stated</td>
<td>1000 retrospective review of case note 150 survey pts 50 survey GPs</td>
<td>Patient reasons for ED care: 1000 population, 814 with less serious problems, 509 (63%) GP suitable 47% thought GP couldn’t provide required care; 21% couldn’t wait for an appt; 9% referred (but not by GP) 5% second opinion3% no GP, 2% in the hospital anyway; miscellaneous: convenience, don’t like GP etc)</td>
<td>54%</td>
<td>IV</td>
<td>Journal of the Royal Society of Medicine</td>
</tr>
<tr>
<td>Author</td>
<td>Year published</td>
<td>Setting</td>
<td>Method</td>
<td>Sample</td>
<td>Findings</td>
<td>% non-urgent</td>
<td>Level of evidence</td>
<td>Reference</td>
</tr>
<tr>
<td>--------</td>
<td>----------------</td>
<td>---------</td>
<td>--------</td>
<td>--------</td>
<td>----------</td>
<td>-------------</td>
<td>-----------------</td>
<td>-----------</td>
</tr>
<tr>
<td>O'Brien, Shapiro, Woolard, O'Sullivan &amp; Stein [240]</td>
<td>1996</td>
<td>US University based teaching Hospital ED Ambulatory adult patients</td>
<td>Historical cohort design based on retrospective chart review 3 methods of assessment of a 90 question pt survey Data from: 1994</td>
<td>892 eligible respondents</td>
<td>Only moderate agreement between different methods of determining appropriateness of ED use. 4,415 pts during study period – 3,140 (71%) excluded. Pt triaged to resus excluded, inj to writing arm, handcuffed prisoner, non English speaking, inability to complete form independently</td>
<td>852 (50%) non urgent Abdo pain 71% non urgent Chest pain 41% non urgent Asthma 23% non urgent</td>
<td>IV</td>
<td>Academic Emergency Medicine</td>
</tr>
<tr>
<td>Parboosingh &amp; Larsen [173]</td>
<td>1987</td>
<td>Canada Acute General Hospital ER 65 yrs +</td>
<td>Prospective study using structured questionnaire and review of patient notes Data from: Not stated</td>
<td>Random sample of 75 individuals</td>
<td>Findings suggested that elderly ED users are more likely to present ‘appropriately’ (nearly 50%) than younger age groups, and that that educational interventions by family physicians could improve this rate.</td>
<td>53.3%</td>
<td>IV</td>
<td>Medical Care</td>
</tr>
<tr>
<td>Pereira, e Siva, Quintas et al [153]</td>
<td>2001</td>
<td>Portugal Adult patients 13yrs +</td>
<td>Cross sectional, prospective study Data from: 1998</td>
<td>5 818 adult patients</td>
<td>Majority of visits were deemed appropriate; inappropriate attendance not the greatest contributor to overcrowding in Portuguese EDs</td>
<td>31.3%</td>
<td>IV</td>
<td>Annals of Emergency Medicine</td>
</tr>
<tr>
<td>Petersen, Burstin, O’Neill et al [228]</td>
<td>1998</td>
<td>US 5 urban teaching hospital EDs Adult patients</td>
<td>Cross sectional Observational study Data from: 1993</td>
<td>1,696 patients with the following chief complaints: Abdo painn 763 (45%) Chest pain 546 (32%) Asthma 387 (23%)</td>
<td>Absence of a relationship with a regular physician was an independent correlate of presentation for a nonurgent emergency department visit. 14% of non urgent patients admitted</td>
<td>852 (50%) non urgent Abdo pain 71% non urgent Chest pain 41% non urgent Asthma 23% non urgent</td>
<td>IV</td>
<td>Medical Care</td>
</tr>
<tr>
<td>Author</td>
<td>Year published</td>
<td>Setting</td>
<td>Method</td>
<td>Sample</td>
<td>Findings</td>
<td>% non-urgent</td>
<td>Level of evidence</td>
<td>Reference</td>
</tr>
<tr>
<td>--------</td>
<td>----------------</td>
<td>---------</td>
<td>--------</td>
<td>--------</td>
<td>----------</td>
<td>--------------</td>
<td>------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>42. Prenville, Nasser &amp; McGettrick [405]</td>
<td>2008</td>
<td>Ireland Ophthalmic A&amp;ED of major hospital</td>
<td>Prospective data collection, physician and nurse assessment and review of patient notes Data from: 2006</td>
<td>345 patients</td>
<td>Identified a high proportion of non acute patient presentations, and recommended changes to limit access to only those with a history of acute injury, or symptoms of severe pain and/or significant vision or visual field loss</td>
<td>73% non-urgent presentations, neither accidents nor emergencies</td>
<td>IV</td>
<td>Irish Medical Journal</td>
</tr>
<tr>
<td>43. Prince &amp; Worth [256]</td>
<td>1992</td>
<td>UK Paediatric A&amp;E 0-14yrs</td>
<td>Representative sample of children attending a paediatric ED. Accompanying adults interviewed and review of medical records. Data from: 1989</td>
<td>274 patients</td>
<td>Nearly a third (30.1 per cent) of the patients studied were subsequently considered to be inappropriate attenders to this department. This proportion was highest amongst younger children, those from families of lower social class and those living closest to the hospital. 'Inappropriate' attendance was not found to relate to the availability of general practitioners. The reasons stated for choosing to attend the AED suggested that these attendances resulted from perceptions of the adult(s) accompanying the children to the department.</td>
<td>30.1% inappropriate attendances</td>
<td>IV</td>
<td>Journal of Public Health Medicine</td>
</tr>
<tr>
<td>Author</td>
<td>Year published</td>
<td>Setting</td>
<td>Method</td>
<td>Sample</td>
<td>Findings</td>
<td>% non-urgent</td>
<td>Level of evidence</td>
<td>Reference</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>----------------</td>
<td>--------------------------------</td>
<td>------------------------------------------------------------------------</td>
<td>-------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------</td>
<td>-------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>Redstone, Vancura, Barry &amp; Kutner [248]</td>
<td>2008</td>
<td>US Adult patients 18yrs +</td>
<td>Cross sectional, self administered, anonymous survey 18 yrs +, primary care provider, respond in English, triaged as non urgent</td>
<td>240 patients Convenience sample</td>
<td>213 (92%) felt they could not wait 1-2 days for evaluation Week Day days (WDD) 45% (25) felt their problem too complex for primary care; 28% (48) NWDD. 19% (11) WDD saw GP prev week; 23% (41) NWDD WDD 55% (32) called GP prior to coming to ED; 30% (53) NWDD; 49% (29)WDD advised to go to ED 70% of WDD would have been happy to see GP High level of self perceived urgency of need for treatment High percentage pts told to go to ED by primary care provider</td>
<td>92%</td>
<td>IV</td>
<td>Journal of Ambulatory care management</td>
</tr>
<tr>
<td>Rubin &amp; Bonnin [406]</td>
<td>1995</td>
<td>US Urban level 1 trauma centre ED</td>
<td>Prospective collection of data from all patients entering the ED over 5 non consecutive 24hr periods Data from: Not stated</td>
<td>507 patients registered during the study period, 188 deemed as non urgent</td>
<td>This study examined the use of EDs for minor complaints and the distribution of patients according to mode of payment. ED utilization is not, as previously believed, higher in patients with the inability to pay primary care providers.</td>
<td>37%</td>
<td>IV</td>
<td>Journal of Emergency Medicine</td>
</tr>
<tr>
<td>Sempere-Selva, Peiro, Sendra-Pina, Martinez-Espin, Lopez-Aguilera [154]</td>
<td>2001</td>
<td>Spain Adult patients</td>
<td>Concurrent review of a random sample of 2,980 adult medical patients’ visits to the A&amp;ED Used the HUAP Data from:1996-7</td>
<td>Random sample of 2980 adult medical patients</td>
<td>Inappropriate use represents an important percentage of A&amp;ED presentations; associated with identifiable variables, most common reason is patient preference (and the convenience and accessibility) of these services compared with primary care</td>
<td>29.6%</td>
<td>IV</td>
<td>Annals of Emergency Medicine</td>
</tr>
<tr>
<td>Author</td>
<td>Year published</td>
<td>Setting</td>
<td>Method</td>
<td>Sample</td>
<td>Findings</td>
<td>% non-urgent</td>
<td>Level of evidence</td>
<td>Reference</td>
</tr>
<tr>
<td>------------------</td>
<td>----------------</td>
<td>--------------------------------</td>
<td>------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------</td>
<td>-------------</td>
<td>-------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>Shesser, Kirsch, Smith, Hirsch [192]</td>
<td>1991</td>
<td>US University Hospital ED</td>
<td>Excluded paediatric and geriatric patients</td>
<td>Observational, case-control study; Interviewed to determine socioeconomic factors reasons for ED use, perception of urgency; Data from: 1989</td>
<td>325 adult, non-geriatric patients with minor illnesses between 9am-6pm; Comparison control group 224 ED pts</td>
<td>No major differences in ED use for minor illness patients from different racial, educational and economic backgrounds; Study GP lower frequency of chronic illness and often no established health care provider; Choose ED because of ease of access and wide scope of available care</td>
<td>Approx 15% of department patient volume minor illness</td>
<td>III</td>
</tr>
<tr>
<td>Smadi, Odeh &amp; Tarshihi [158]</td>
<td>2005</td>
<td>Jordan</td>
<td>Every 5th patient over 4 month period evaluated by physician interview</td>
<td>Data from: 2004</td>
<td>3,200 pts evaluated as either urgent or non urgent</td>
<td>Non urgent patients contribute to inappropriate utilisation of hospital resources and expertise, prolonged waiting times and staff stress; Risk to pts of over treatment and fragmentation of care. Higher rates than Western hospitals despite little contribution by identified factors such as alcohol and homelessness</td>
<td>83.1% considered non urgent</td>
<td>V</td>
</tr>
<tr>
<td>Author</td>
<td>Year published</td>
<td>Setting</td>
<td>Method</td>
<td>Sample</td>
<td>Findings</td>
<td>% non-urgent</td>
<td>Level of evidence</td>
<td>Reference</td>
</tr>
<tr>
<td>--------</td>
<td>----------------</td>
<td>---------</td>
<td>--------</td>
<td>--------</td>
<td>----------</td>
<td>--------------</td>
<td>------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>Stewart, Savage, Scott &amp; McClure [235]</td>
<td>1989</td>
<td>UK - Urban paediatric A&amp;E</td>
<td>Random sample of paediatric patients (4% of expected attendances) with parental interview/questionnaire Data from: 1984</td>
<td>853 paediatric patients</td>
<td>Parental preference and accessibility were the main reasons given for choosing to attend the department with the latter significantly higher among out-of-hours attendances. The level of demand for the accident and emergency department, together with the attitudes of those who attend, make it unlikely that a more rational use of resources will be achieved in the foreseeable future.</td>
<td>33.9% inappropriate</td>
<td>IV</td>
<td>Ulster Medical Journal</td>
</tr>
<tr>
<td>Stein, Harzheim, Costa, Busnello &amp; Rodrigues [147]</td>
<td>2002</td>
<td>Brazil</td>
<td>Cross sectional interview based survey Data from: Not stated</td>
<td>553 patients</td>
<td>Suggests need for strategies at the primary care level to reduce non urgent ED use.</td>
<td>39% elective presentations</td>
<td>IV</td>
<td>Family Practice</td>
</tr>
<tr>
<td>Sturm, Hirsch, Lee et al [244]</td>
<td>2010</td>
<td>US - Paediatric ED</td>
<td>Retrospective analysis of primary care practice patients use of paediatric ED Data from: 2007</td>
<td>31 076 patient visits</td>
<td>Likelihood of Non urgent utilisation of the paediatric ED by specific primary care practice patients can be predicted based on practice characteristics, some of which can be modifiable.</td>
<td>47% non urgent</td>
<td>IV</td>
<td>Academic Paediatrics</td>
</tr>
<tr>
<td>Sucov &amp; Clark [243]</td>
<td>1999</td>
<td>US</td>
<td>Retrospective study Database review Data from: 1994-5</td>
<td>1994-5 patients with specified discharge diagnosis 2,025 pts</td>
<td>Insurance company determination retrospectively of appropriateness is 'inappropriate' Presenting complaints not significantly different from rest of ED pop. Often longer LOS and more investigations before final discharge diagnosis</td>
<td>79% 'inappropriate' chief complaint code entered at discharge</td>
<td>V</td>
<td>Journal of Emergency Medicine</td>
</tr>
<tr>
<td>Author</td>
<td>Year published</td>
<td>Setting</td>
<td>Method</td>
<td>Sample</td>
<td>Findings</td>
<td>% non-urgent</td>
<td>Level of evidence</td>
<td>Reference</td>
</tr>
<tr>
<td>------------------------</td>
<td>----------------</td>
<td>-------------------------------</td>
<td>---------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------------</td>
<td>-------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Vertesi [142]</td>
<td>2004</td>
<td>Canada Urban referral hospital ED</td>
<td>Retrospective data base audit.</td>
<td>Data from: 2003</td>
<td>Non urgent patients consume only a small proportion of stretcher and acute care resources. Strategies aimed at diverting non urgent pts unlikely to improve access for more urgent pts. Using triage to determine appropriateness is measurably unsafe and will lead to inappropriate refusal of care.</td>
<td>30%</td>
<td>IV</td>
<td>CJEM Journal of the Canadian Association of Emergency Physicians.</td>
</tr>
<tr>
<td>Ward, Huddy, Hargreaves, Touquet, Hurley &amp; Fothergill [236]</td>
<td>1996</td>
<td>UK Urban hospital A&amp;E</td>
<td>Prospective survey over 6 week period</td>
<td>Data from: not stated</td>
<td>Study demonstrated sufficient demand for primary care in the A&amp;E to support introduction of GP service in A&amp;E for first visit patients Suggests that discouraging first attendance is unrealistic but can use this opportunity to educate patients and return to care of community subsequently.</td>
<td>16.6%</td>
<td>IV</td>
<td>Journal of Accident and Emergency Medicine</td>
</tr>
<tr>
<td>Washington, Stevens, Shekelle, Henneman &amp; Brook [141]</td>
<td>2002</td>
<td>US Public Hospital ED</td>
<td>Randomised Controlled Trial Aim to determine the effects on health status and access to care of systematically referring patients with non acute conditions to other settings</td>
<td>Data from: Not stated</td>
<td>Clinically detailed standardized screening criteria can safely identify pts at public hospital EDs for referral top next day care Patients assigned to deferred care were given next day appointments at specified times in the study site’s primary care clinic 52% of eligible patients agreed to take part Only sampled patients during weekdays, 7am-3pm</td>
<td>421 of 1176 met deferred care criteria (36%) – 299 met study criteria</td>
<td>I</td>
<td>Annals of Internal Medicine</td>
</tr>
</tbody>
</table>
# APPENDIX 2: SYSTEMATIC REVIEW. ARTICLES EXCLUDED: INAPPROPRIATE / NON-URGENT ED USE

<table>
<thead>
<tr>
<th>Author, Year, Setting</th>
<th>Method</th>
<th>Findings</th>
<th>% non-urgent</th>
<th>Level of evidence</th>
<th>Reference</th>
<th>Reason for exclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Akbulut, Tatar, Cetinyurek &amp; Tatar[407], 2008</td>
<td>Turkey University Hospital ED, Adult patients</td>
<td>Cross-sectional study utilising a specifically designed survey instrument. 8am-12am, 15 day ED attendances, with 341 non urgent patients identified</td>
<td>Definition of urgency differs for patients and health professionals. 2/3 patients perceived their problem as urgent. Urgency influenced by pain and duration of complaint</td>
<td>300 patients considered non urgent by physicians; 66.7% of patients self assessed their problem as ‘urgent’</td>
<td>V</td>
<td>Journal of Management &amp; Marketing in Healthcare</td>
</tr>
<tr>
<td>2. Bernstein, &amp; Asplin[408], 2006</td>
<td>US</td>
<td>Review of previous articles and reports Reviews process for measuring ED crowding</td>
<td>1990’s saw nonurgent as cause of crowding, now seen as access block.</td>
<td>Not specified</td>
<td>V</td>
<td>Emergency Medicine Clinics of North America</td>
</tr>
<tr>
<td>3. Bernstein [169], 2006</td>
<td>US</td>
<td>Review of previous studies, opinion piece editorial</td>
<td>The notion of the “inappropriate” ED user is largely apocryphal Frequent ED users come to the hospital because they need care.</td>
<td>Not specified</td>
<td>V</td>
<td>Annals of Emergency Medicine</td>
</tr>
<tr>
<td>4. Bowling et al [409], 1987</td>
<td>UK Paediatric ED</td>
<td>Survey of random sample of paediatric ED patients over 1 year (retrospective chart analysis) (938 patients) Interview with sample of children’s parents 1210 parent questionnaires</td>
<td>Aim to examine reason for presenting to ED and frequency of attendance Parent responses: 44% already seen by GP for the presenting complaint, only 17% referred to ED by GP Reasons for bypassing GP: 27% Dr closed 22% A&amp;E more appropriate 14% Already under hospital specialist 10% Dissatisfied with GP</td>
<td>Not specified</td>
<td>IV</td>
<td>Family Practice</td>
</tr>
<tr>
<td>5. Brousseau, Bergholte &amp; Gorelick[165], 2004</td>
<td>US Paediatric ED 6th-12yrs</td>
<td>Case-control study 366 cases 353 controls</td>
<td>Non-urgent: present 8am-12 Minorities, female, younger, poor health status, lower caregiver education &amp; income, less likely to have Primary Care Provider (PCP) “parental report of previous difficulty receiving medical care</td>
<td>366 pre determined non-urgent cases</td>
<td>III</td>
<td>Arch Pediatr Adolesc Med</td>
</tr>
<tr>
<td>Author</td>
<td>Year</td>
<td>Setting</td>
<td>Method</td>
<td>Findings</td>
<td>% non-urgent</td>
<td>Level of evidence</td>
</tr>
<tr>
<td>-------------------------</td>
<td>------</td>
<td>-----------------------------</td>
<td>-------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>6. Burnet, &amp; Grover[253]</td>
<td>1996</td>
<td>Canada Tertiary care hospital Adult patients</td>
<td>Patient survey, 200 patients</td>
<td>Self administered survey to explore patients with non urgent conditions reasoning and knowledge base in relation to potential alternatives. Many of these patients deemed non urgent were referred to ED by physician. All 200 patients in the sample were pre identified as non urgent based on triage category. 60% of patients in study felt ED most appropriate source of care.</td>
<td>60%</td>
<td>IV</td>
</tr>
<tr>
<td>7. Cohen [410]</td>
<td>1987</td>
<td>UK</td>
<td>Opinion / editorial</td>
<td>Acknowledges variation in definitions of ‘minor problems’ Issues affecting non GP use include: Hours and accessibility. Reviews several other studies for GP suitable patients: Crombie 64-89% Lamont 58% Blackwell 35% Fry 66% Davidson, Hildrey &amp; Floyer 39%.</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td>8. Chan, Galaif, Kushi et al[411]</td>
<td>1985</td>
<td>US Walk-in clinic of urban General Hospital ED</td>
<td>Referral system evaluation. ED walk in pt data for April 1981 gathered. Data on outpatient and community service use from April 1 -1981 – April 30 1982. 2,998 pts from Walk-In ED clinic included</td>
<td>For referred patients, sharp increase in neighbourhood health centre utilization from 18 visits per 100 pers to 101 per 100. Non referred group increased from 5 to 10 per 100. The anticipated reduction in the use of ED for non urgent care was not realised. 421 of 2,998 walk in patients (14%) Suitable for referral away to neighbourhood health centres. Low referral number as only 7 of 50 centres involved in the study.</td>
<td>421/2,998</td>
<td>IV</td>
</tr>
<tr>
<td>9. Field &amp; Lantz[29]</td>
<td>2006</td>
<td>Canada Urban Health Sciences Centre ED</td>
<td>Cross sectional patient survey</td>
<td>Focus on understanding non urgent patient reason for presentation. Identified that most non urgent patients required a specific service, offered by the ED, perceived their problem as urgent or were referred by a community agency</td>
<td>Not specified</td>
<td>IV</td>
</tr>
<tr>
<td>10. Foldes, Fischer &amp;</td>
<td>1994</td>
<td>US</td>
<td>Retrospective medical record review, 2</td>
<td>Dramatic divergence regarding the designation of visits as</td>
<td>Not specified</td>
<td>V</td>
</tr>
<tr>
<td>Author</td>
<td>Year</td>
<td>Setting</td>
<td>Method</td>
<td>Findings</td>
<td>% non-urgent</td>
<td>Level of evidence</td>
</tr>
<tr>
<td>----------------------------</td>
<td>------</td>
<td>--------------------------</td>
<td>------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------</td>
<td>--------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Kaminsky[199]</td>
<td>199</td>
<td>2 Urban hospital EDs</td>
<td>physicians making judgments re urgency and appropriate location for care 219 patients records</td>
<td>“emergencies” and the appropriate treatment location. No correlation between patient perceptions and either physician judgment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Gentile, Vignally, Durand et al [412]</td>
<td>2010</td>
<td>France Adult urban hospital</td>
<td>Prospective Cross sectional study 85 patients completed questionnaire</td>
<td>Identified characteristics of non urgent ED patients Suggested a willingness by patient to be reoriented towards use of a primary care unit</td>
<td>Not specified</td>
<td>IV</td>
</tr>
<tr>
<td>12. Gifford, Franaszek &amp; Gibson[194]</td>
<td>1980</td>
<td>24 Hospitals</td>
<td>Prospective collection of patient questionnaire asking for urgency rating and retrospective physician assessment following allocation of discharge diagnosis</td>
<td>Findings suggest that patients presenting to EDs needed care more urgently than previous studies identified. 12% of patients rated their urgency lower than the physician rating.</td>
<td>Not specified</td>
<td>IV</td>
</tr>
<tr>
<td>14. Hunt, Weber, Showstack et al[170]</td>
<td>2006</td>
<td>US Adult patients</td>
<td>49,603 frequent ED users interviewed by phone Identified using 2000-2001 Community Tracking Study Household Survey</td>
<td>Frequent use defined as 4 + visits per year Found the majority of adult frequent users were more likely to be in poor health and require medical attention than non frequent users.</td>
<td>Population not found to be inappropriate</td>
<td>IV</td>
</tr>
<tr>
<td>15. Krug[373]</td>
<td>1999</td>
<td>US</td>
<td>Discussion paper</td>
<td>Reviews history of ED overcrowding, identifies a 600% increase in patient presentations over the previous 45 years. Identifies contributing factors to non urgent presentations.</td>
<td>Looks at general issues rather than specific percentage of inappropriate patients</td>
<td>V</td>
</tr>
<tr>
<td>16. Lee, Lau,</td>
<td>2000</td>
<td>Hong Kong</td>
<td>Cross sectional case</td>
<td>2,410 pts to enable a representative 57% GP cases</td>
<td>57% GP cases</td>
<td>IV</td>
</tr>
<tr>
<td>Author</td>
<td>Year</td>
<td>Setting</td>
<td>Method</td>
<td>Findings</td>
<td>% non-urgent</td>
<td>Level of evidence</td>
</tr>
<tr>
<td>-------------------------</td>
<td>------</td>
<td>--------------------------</td>
<td>----------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Hazlett et al[388]</td>
<td>2008</td>
<td>EDs</td>
<td>Control study</td>
<td>Sample of low, med &amp; high utilization periods. Examined reasons for non urgent ED use, identified these as complex, noted use by higher socio-economic group, suggests cost not primary factor. Limitations in availability and accessibility of primary health care services.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lega &amp; Mengoni[414]</td>
<td>2008</td>
<td>Italy</td>
<td>Comparison of non-urgent A&amp;ED patients with Primary Care patients</td>
<td>A&amp;ED and primary care patients look for different characteristics as diagnostic and therapeutic potentialities, empathy and confidence, quick access or long lasting relationship.</td>
<td>Not specified</td>
<td>IV</td>
</tr>
<tr>
<td>Liggins[160]</td>
<td>1993</td>
<td>UK</td>
<td>Literature review</td>
<td>Identified range of literature which talks about inappropriateness, reasons for non urgent ED use and characteristics of the patient population.</td>
<td>Not specified</td>
<td>V</td>
</tr>
<tr>
<td>Larson[415]</td>
<td>2002</td>
<td>US</td>
<td>Editorial</td>
<td>Presents an overview of issues associated with deferral of patients from the ED service.</td>
<td>Not specified</td>
<td>V</td>
</tr>
<tr>
<td>Lowe, Young Reinke et al [416]</td>
<td>1991</td>
<td>US</td>
<td>Discussion of the impact of indigent health care on EDs</td>
<td>Socioeconomic status is a crucial influence on access to medical services Introduction of refusal to see “non emergency” pts, amb diversion ED care as last resort for the uninsured Impacts on ability to provide training to staff</td>
<td>Not specified</td>
<td>V</td>
</tr>
<tr>
<td>Author</td>
<td>Year</td>
<td>Setting</td>
<td>Method</td>
<td>Findings</td>
<td>% non-urgent</td>
<td>Level of evidence</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>------</td>
<td>---------------</td>
<td>------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
<td>--------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Mayer, Villaire &amp; Connell</td>
<td>2005</td>
<td>US</td>
<td>Outline of Institute for Healthcare Advancement’s 10 recommendations for reducing unnecessary ED visits</td>
<td>Suggests nonurgent use is cited as the primary cause for overcrowding; but also nursing shortage and uninsured</td>
<td>Not specified</td>
<td>V</td>
</tr>
<tr>
<td>Pane, Farner &amp; Salness</td>
<td>1991</td>
<td>US</td>
<td>Self administered survey Designed to identify access to service issues 1,000 consecutive stable walk-in patients over 48 days between 12 and midnight.</td>
<td>25% (213) of participants used ED as usual source of care 33.3% (304) had delayed seeking needed medical care in past year 20.6% (186) had delayed seeking care or were refused care for their current illness Low income and public aid/self pay insurance patients found more likely to use ED as routine source of care and to delay seeking care</td>
<td>Not specified</td>
<td>IV</td>
</tr>
<tr>
<td>Sanders [418]</td>
<td>2000</td>
<td>UK</td>
<td>Systematic Review of British published research / articles relating to appropriateness</td>
<td>Discusses historical changes in ED attendance, discrepancies in definition of urgency and implications of introduction of Minor Injuries Units</td>
<td>Not specified</td>
<td>V</td>
</tr>
<tr>
<td>Williams [419]</td>
<td>1984</td>
<td>UK</td>
<td>Randomised retrospective review of 1027 pt cards</td>
<td>Aim to identify utilisation patterns of A&amp;E. More males than females 12.7% (130) had symptoms longer than 24 hrs 12.4% (124) referred by GP</td>
<td>Not specified</td>
<td>V</td>
</tr>
<tr>
<td>Wise [420]</td>
<td>1997</td>
<td>UK</td>
<td>Overview of literature and opinion</td>
<td>Discusses difficulty defining appropriateness and looks at a range of potential responses to non urgent workload, considers role of the GP and Nurse Practitioner.</td>
<td>Not specified</td>
<td>V</td>
</tr>
<tr>
<td>Author</td>
<td>Year</td>
<td>Setting</td>
<td>Method</td>
<td>Findings</td>
<td>% non-urgent</td>
<td>Level of evidence</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>------</td>
<td>--------------------------</td>
<td>---------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>26. Williams, O’Rourke &amp; Keogh [254]</td>
<td>2009</td>
<td>Australia, Paediatric ED</td>
<td>Prospective questionnaire based survey</td>
<td>Examined motivation and actions of parents who present to a paediatric ED with children experiencing non urgent injury or illness. Identified the accuracy of ‘parental triage’ and highlighted deficiencies in accessing primary care services.</td>
<td>Not specified</td>
<td>IV</td>
</tr>
</tbody>
</table>
# APPENDIX 3: CRITERIA USED IN MEASURING ‘APPROPRIATENESS’

<table>
<thead>
<tr>
<th>Authors</th>
<th>Criteria set</th>
<th>Basis for criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdal1at, Al-Smadi &amp; Abbadi (2000) [230]</td>
<td><strong>Generic criteria:</strong> Patients assigned to one of the following categories (not further defined) - Life threatening - Urgent - Non urgent - Trivial</td>
<td><strong>Criteria development:</strong> No justification or rationale regarding criteria development</td>
</tr>
</tbody>
</table>
| Afilalo, Guttman, Colacone, Dankoff, Tselios, Beaudet & Lloyd (1995) [144] | **Specific criteria set applied**  
**Category 1:** patients who could only be cared for in the ED  
Triage code 1 or 2 - Code 1 patients require immediate attention. The illness or injury threatens life or limb in the immediate future. - Code 2 patients require attention within 20 minutes. The illness or injury is acute and severe and may threaten patients life or limb.  
Referral to the ED - Patients were referred to the ED by an outside physician, nurse or by any prehospital emergency care system.  
Emergency investigation in the ED - Patients required a minimum of 2 blood tests: CBC, SMA-7 (Na, K, Cl, CO2, glucose, blood urea nitrogen, creatinine) in addition to one other test such as urinalysis, radiography or ecg.  
Emergency treatment in the ED - Patients require treatment not available through other services such as IV fluid or medication administration, indwelling foley catheter, rapid tranquilization, gastric lavage, decompression etc  
Observation and reassessment in the ED - Patient had an ED stay greater than 4hrs. The time spent in the ED was based on the period between entering the examination cubicle and the disposition decision.  
Emergency consultation or admission  
**Category II:** patients who should have been assessed in the ED or any other adequately equipped outpatient facility within 6 hours of presentation. - Acute and severe discomfort - Acute and severe psychosocial distress - Potential emergency in the differential diagnosis  
**Category III:** patients who could have waited to be assessed in the ED 6hrs or longer - None of the above criteria | **Criteria development:** No justification or rationale regarding criteria development | **Assessor:** Physician  
Patients allocated one of three categories:  
Cat 1 status assigned while patient in the department  
Cat II & III assigned retrospectively based on 3 ED doctors independent review (need at least 2 in agreement to allocate category) |
<p>| Afilalo, Marinovich, Afilalo, et al. | <strong>Generic Criteria: Triage Code</strong> | <strong>Criteria development:</strong> |</p>
<table>
<thead>
<tr>
<th>Authors</th>
<th>Criteria set</th>
<th>Basis for criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2004)[163]</td>
<td><strong>Terminology used:</strong> Non urgent Used Canadian Emergency Department Triage and Acuity Scale (CTAS) categories: &lt;br&gt; Code 1: requires immediate medical assessment or resuscitation &lt;br&gt; Code 2: emergency conditions that is essentially a threat to life, limb or function requiring medical intervention within 15 minutes &lt;br&gt; Code 3: an urgent condition that could potentially progress to a serious problem within 30 minutes &lt;br&gt; Code 4: a condition that is related to age, distress and potential for deterioration or complications and can wait up to one hour to be seen &lt;br&gt; Code 5: a non urgent patient who can wait up to 2 hours before being seen by a physician</td>
<td>Urgency was assessed using the CTAS scale, with triage code 2, 3, &amp; 4 labelled urgent or semi urgent (USU) and triage 5 code labelled non urgent (NU). “We limited the NU group to code 5 on the basis of the CTAS definition and the recommendation that those patients could potentially be referred to and treated in primary care centres” (p.1304).</td>
</tr>
<tr>
<td>Akbulut, Tatar, Cetinyurek &amp; Tatar (2008) [407]</td>
<td><strong>Terminology used:</strong> Non urgent <strong>Criteria set used but not defined</strong>&lt;br&gt; Refers to “14 urgency criteria” used in determination but these not provided.</td>
<td>Criteria development: No identified standard for determining the urgency of ED use. States criteria used based on previously published criteria, but this was not clarified.</td>
</tr>
<tr>
<td>Anantharaman (2008) [148]</td>
<td><strong>Terminology used:</strong> Non emergency <strong>Specific criteria set applied</strong>&lt;br&gt; PACS Patient Acuity Categorization Scale &lt;br&gt;(4 Tier Triage System) &lt;br&gt; 1: resuscitative care &lt;br&gt; 2: rapid care &lt;br&gt; 3: urgent care in an ambulatory setting &lt;br&gt; 4: non urgent care</td>
<td>Criteria development: PACS drawn up and periodically revised by the Emergency Medicine Services Committee, Singapore as a guide for emergency departments to make decisions on acuity and dispositions.</td>
</tr>
<tr>
<td>Baker &amp; Baker (1994) [166]</td>
<td><strong>Terminology used:</strong> Non urgent <strong>Specific criteria set applied</strong>&lt;br&gt; Criteria for non urgent case based on ICD-9 coded conditions: &lt;br&gt; <strong>Non urgent:</strong> &lt;br&gt; Superficial injuries &lt;br&gt; Uncomplicated fracture of digit or metacarpal &lt;br&gt; Pharyngitis &lt;br&gt; Upper respiratory tract infection &lt;br&gt; Gastroenteritis &lt;br&gt; Skin disorders &lt;br&gt; Head and back aches &lt;br&gt; Miscellaneous symptoms eg conjunctivitis, earwax, hiccoughs, heartburn</td>
<td>Criteria development: Based on National Medical Expenditure Survey (NMES) visit files and linked to specified ICD-9 patient condition codes. Acknowledges 1 previous study by Haddy, Schmaler &amp; Epting (1987) ‘Nonemergency Emergency Room use in patients with and without primary care physicians’ The Journal of Family Practice 24(4) 389-392 which also uses ICD codes to determine non urgency.</td>
</tr>
<tr>
<td>Authors</td>
<td>Criteria set</td>
<td>Basis for criteria</td>
</tr>
<tr>
<td>---------</td>
<td>--------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Ballard, Price, Fung, Brand et al (2010) [242]</td>
<td>Excluded if: Arrived by ambulance Received stitches, subsequently admitted, more than 15 visits per episode Diagnosed with more than 1 condition</td>
<td>Specific criteria set applied New York University Emergency Department (NYU ED) visit severity algorithm</td>
</tr>
<tr>
<td>Terminology used: Inappropriate</td>
<td></td>
<td>Process: Patients with ICD-9 code included. Excluded patients with only mental health, substance abuse or alcohol diagnoses. Under the algorithm assigned to one of the following categories: • Emergency • Non emergent • Intermediate severity</td>
</tr>
<tr>
<td>Bianco, Pileggi &amp; Angellilo (2003) [231]</td>
<td>Generic criteria</td>
<td>Extreme emergency: • The patient should be seen promptly by a physician in the ED to assess and treat life threatening conditions and immediate care is necessary within 24 hours to avoid severe consequences for the patient Emergency: • The patient required care within 24-48 hours or the technical equipment for the hospital had to be used for diagnosis or therapeutic purposes Emergency as perceived by the patient: • The patient was worried by the appearance or recent worsening of symptoms (eg a left arm pain or chest pain which could be related to a myocardial infarction), although the vital or functional prognosis was not threatened within 24 hrs. The patients condition is suitable for referral to a general or subspecialty clinic Non urgent case • The patient has no active symptoms or they were recent and minor, without any feeling of emergency and he/she desires a check up, a prescription refill or a return to work release.</td>
</tr>
<tr>
<td>Birnbaum et al (1994) [255]</td>
<td>Specific criteria set applied Explicit criteria (3 criteria to be met) Non urgent chief complaint 1. back pain</td>
<td></td>
</tr>
<tr>
<td>Authors</td>
<td>Criteria set</td>
<td>Basis for criteria</td>
</tr>
<tr>
<td>---------</td>
<td>--------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Bohland (1984) [224]</td>
<td><strong>Specific criteria set applied</strong></td>
<td>urgent problem were met</td>
</tr>
</tbody>
</table>

- **Vital sign inclusion criteria**
  - B/P 90-160 systolic
    - 60-110 diastolic
  - Pulse 60-110 bpm if <60
    - 60-100 bpm if >60
  - Temperature 35-38.8 if <60
    - 35-38.3 if > 60
  - Resp rate 12-20 breaths per min

- **Patients excluded if any of the following:**
  - Severe pain
  - Chest or abdominal pain
  - Arrival by ambulance
  - Inability to walk
  - Vital signs outside established range

Terminology used: **Non urgent / Primary care**

All non urgent cases reviewed and classified on the basis of a list of primary care services developed by Farrow et al. These were not provided in the article but reference to the original source identified the following:

- Therapeutic injection
- Ear irrigation
- Prescribing medication
- Taking a patient’s history
- Examination of the soft tissues of the mouth
- Dressing a burn or wound
- Lab blood test for haematology, chemistry
- Pap smear
- Urinalysis
- Pelvic examination


Primary care was defined in terms of the types of diagnostic or treatment services provided to the patient rather than the facility or personnel providing the care.

**Assessor:** Physician determined
<table>
<thead>
<tr>
<th><strong>Authors</strong></th>
<th><strong>Criteria set</strong></th>
<th><strong>Basis for criteria</strong></th>
</tr>
</thead>
</table>
  - Physical exam for entering school  
  - Pregnancy testing  
  - TB skin test  
  - Routine obstetric care  
  - Patient counselling  
  - Well baby care  
  - Urine culture  
  - Urine microscopy  
  - Breast exam and screening  
  - Vision testing  
  - Suture removal  
  - Taking B/P as screening procedure  
  - Teaching diabetic to inject insulin  
  - Dietary counselling  
  - Simple diagnostic x-ray  
  - Sickle cell test screening  
  - Family planning counselling  
  - Glaucoma screening |

Each case coded as either primary or specialised care. If this was not clear from these criteria, “a small panel of physicians not associated with any of the hospitals was used”

Most common: fevers, chills, minor stomach disorders, headaches, influenza, colds ‘just not feeling well’

<table>
<thead>
<tr>
<th><strong>Specific criteria set applied</strong></th>
<th><strong>Criteria development:</strong></th>
</tr>
</thead>
</table>
| **Non-urgent:**  
  - pharyngitis without difficulty swallowing or breathing  
  - Runny nose  
  - Cough  
  - Nonbloody diarrhoea  
  - Rash for longer than 2 days (eg diaper rash, ringworm or tinea capitis)  
  - Mild ear pain  
  - Insect bite  
  - Chronic constipation  
  - Thrush  
  - Vomiting and diarrhoea with normal urination  
  - Nosebleeds less than 10 minutes |
| **Urgent:** |

Based on a combination of previously published guidelines, opinion of a panel of expert nurses, general paediatricians and emergency medicine physicians

From published guidelines (Kerr, HD 1989 *Ann Emerg Med* 18 274-277)

Assessor: patients identified at triage if met criteria set
### Authors

**Criteria set**
- Fracture with deformity
- Laceration requiring repair
- New onset seizure
- Motor vehicle accident with arrival by ambulance
- Altered mental status
- Head trauma with loss of consciousness or vomiting
- Anaphylaxis
- Foreign body aspiration
- Loss of vision
- Cyanosis

**NB numerous children did not fit into either category**

**Criteria development:**
- Based on the ACEP guidelines:

**ACEP definition:**
*A patient has made an appropriate visit to an ED when: an unforeseen condition of a pathophysiological or psychological nature develops which a prudent lay person, possessing an average knowledge of health and medicine, would judge to require urgent and unscheduled medical attention most likely available, after consideration of possible alternatives, in a hospital emergency department.*

This definition stresses the patients perception and availability of alternative care sources, rather than disease process or “threat to life or limb” criteria

**Assessor:** category determined by the 3 authors

### Specific criteria set applied

#### Appropriate:

1. Admission to a hospital or nursing home
2. Paramedic run
3. Interhospital transfer requiring stabilisation of vital signs to avert serious morbidity or mortality
4. Fever in adults <38.8°C and present < 72hours
5. Fever in children >39.4°C and present <72hrs
6. Chest pain as chief complaint
7. Significant haemorrhage, defined as volume enough to cause concern for pts emotional well being or vital functions
8. Referred by a physician to the ED
9. Sudden onset of an acute condition after office hrs or on the weekend
10. Acute condition < 72 hrs
11. Acute exacerbation <72hrs of a chronic condition and unsuccessfully attempted to contact a physician

#### Inappropriate:

1. Symptoms present for more than 72hrs without change and for which a pt did not attempt to contact a personal physician

### Generic Criteria: Triage Code

**Red:** most severe category, life threatening requiring immediate treatment. Examples given: anaphylaxis, respiratory distress, acute heart failure

**Yellow:** conditions that need to be treated within 1 hour. Examples given: acute abdominal pain with

**Criteria development:**
- Based on Canadian Triage system codes, rationale for this that the lower two categories of triage do not require urgent care.

**Assessor:** Triage nurse
<table>
<thead>
<tr>
<th>Authors</th>
<th>Criteria set</th>
<th>Basis for criteria</th>
</tr>
</thead>
</table>
| Carret, Fassa & Kawachi (2007) [146] | Severe distress, eye injuries with visual disturbance  
**Green & Blue**: assigned top patients with non urgent problems such as localised cellulitis, cold and flu symptoms, migraines and joint pain without trauma. | **Criteria development:**  
|                       | **Specific criteria set applied**                                           | **Terminology used:**  
**Inappropriate / non urgent** |
|                       | Must meet at least one of the following criteria:                           | **Criteria development:**  
|                       | 1. **Criteria of severity**                                                 | **Terminology used:**  
**Inappropriate / non urgent** |
|                       | 1.1 Patients with the following conditions (sudden or very recent onset):   | **Criteria development:**  
|                       | (a) loss of consciousness; (b) disorientation; (c) coma; (d) sensory loss;  | **Terminology used:**  
**Inappropriate / non urgent** |
|                       | (e) sudden loss of sight or hearing                                           | **Criteria development:**  
|                       | 1.2 Patients with one of the following conditions:                         | **Terminology used:**  
**Inappropriate / non urgent** |
|                       | (a) pulse rate alteration <50 or >140 bpm; (b) arrhythmia; (c) blood pressure | **Criteria development:**  
|                       | alterations (not including patients with chronic alterations of these       | **Terminology used:**  
**Inappropriate / non urgent** |
|                       | parameters) (e) persistent fever – 5 days or more not controlled after      | **Criteria development:**  
|                       | treatment in primary care (f) active haemorrhage; (g)sudden loss of         | **Terminology used:**  
**Inappropriate / non urgent** |
|                       | functional capacity of any part of the body                                 | **Criteria development:**  
|                       | 2. **Criteria for treatment**                                               | **Terminology used:**  
**Inappropriate / non urgent** |
|                       | One of the following procedures:                                            | **Criteria development:**  
|                       | (a) intravenous drugs administration (except to maintain IV access); (b)    | **Terminology used:**  
**Inappropriate / non urgent** |
|                       | oxygen administration; (c) setting with plaster casts – except for bandaging| **Criteria development:**  
|                       | (d) surgical intervention or procedure                                       | **Terminology used:**  
**Inappropriate / non urgent** |
|                       | 3. **Criteria for diagnostic intensity**                                     | **Criteria development:**  
|                       | One of the following: (a) monitoring of vital signs every 2 hours; (b)     | **Terminology used:**  
**Inappropriate / non urgent** |
|                       | radiology of any type; (c) laboratory tests – except blood sugar in diabetic| **Criteria development:**  
|                       | patients seeking care for reasons other than diabetes and glycaemia tests | **Terminology used:**  
**Inappropriate / non urgent** |
|                       | with glucose sticks; (d) ecg – except in patients with chronic cardiac     | **Criteria development:**  
|                       | disease who presented for unrelated problems                                 | **Terminology used:**  
**Inappropriate / non urgent** |
|                       | 4. **Other criteria**                                                       | **Criteria development:**  
|                       | one of the following: (a) patient has been under observation in the ED for  | **Terminology used:**  
**Inappropriate / non urgent** |
|                       | 12 hrs or more; (b) patient is admitted to hospital or transferred to       | **Criteria development:**  
|                       | another hospital or dies in ER                                               | **Terminology used:**  
**Inappropriate / non urgent** |
|                       | 5. **Criteria used only for those patients who self referred**              | **Criteria development:**  
|                       | One of the following: (a) had an accident (traffic, work related, in public | **Terminology used:**  
**Inappropriate / non urgent** |
|                       | place) and needs to be examined; (b) symptoms suggesting vital emergency   | **Criteria development:**  
|                       | eg chest pain, dyspnoea with rapid onset, acute abdominal pain; (c) patients| **Terminology used:**  
**Inappropriate / non urgent** |
|                       | with a known condition which usually leads to hospitalisation; (d) the     | **Criteria development:**  
|                       | patients physician advised that he/she needed to go to the emergency room  | **Terminology used:**  
**Inappropriate / non urgent** |
|                       | if symptoms appeared; (e) patients who required quick medical attention    | **Criteria development:**  
|                       | and the hospital was the closest centre; (f) other circumstances in self    | **Terminology used:**  
**Inappropriate / non urgent** |
|                       | referred patients, - specify.                                               | **Criteria development:**  
| Coleman, Irons & Nicholl (2001) [119] | **Specific criteria set applied**                                           | **Terminology used:**  
**Inappropriate / non urgent** |
|                       | **GP suitable criteria:**                                                   | **Criteria development:**  
|                       | • Self referred                                                             | **Terminology used:**  
**Inappropriate / non urgent** |
|                       | • Registered with GP                                                        | **Criteria development:**  
<table>
<thead>
<tr>
<th>Authors</th>
<th>Criteria set</th>
<th>Basis for criteria</th>
</tr>
</thead>
</table>
| Cook, Thackore, Morrison & Meikle (2010) [201] | **Minor Injury Unit (MIU) suitable** criteria: applying NP protocols used in nearest MIU  
- Not an accident except at home  
- No treatment other than a prescription, dressing, sling, bandage, steristrip or advice  
- No investigations  
- Discharged home or to GP | **Assessor:** patients initially identified by entry at triage into one of the two low priority treatment streams |
| Dale, Green, Reid & Glucksman (1995) [249] | **Walk in Centre:** as for MIU but without x-ray  
- Not referred to other hospital service on day of attendance  
- Availability of MIU on day of attendance | **Assessor:** Triage Nurse with minimum of 6 months experience and who underwent training including practical supervision and awareness of |
| | **NHS Direct:** where process of care suggested self care advice sufficient  
- Self referred  
- Access to a telephone at home if the health problem occurred at home  
- No investigations or prescriptions for medicine  
- No treatment other than advice  
- No known barriers (language or health problems) prohibiting the use of telephone  
- Discharged home | **Criteria development:** Based on expert panel, 3 ED and 3 GP and consideration given to consensus level of agreement |
| | **Subjective assessment**  
Review by experts to determine relative agreement with referral to ED process via NHS 24.  
Consensus within groups and levels of agreement were calculated. | **Assessor:** 3 ED and 3 GP physicians |
| Terminology used: **Appropriateness** | **Specific criteria set applied:**  
Patients identified prospectively at triage as fitting either primary care or accident and emergency attender categories. | **Criteria development:** not specified |
<table>
<thead>
<tr>
<th>Authors</th>
<th>Criteria set</th>
<th>Basis for criteria</th>
</tr>
</thead>
</table>
| **Primary care attenders** | **Primary care attender:**  
- Self referred patients with symptoms likely to be caused by conditions not in need of immediate resuscitations or urgent care, and unlikely to require hospital admission.  
- Self referred patients with non urgent complications of chronic conditions  
**Accident and Emergency attender:**  
- All patients referred by letter or phone by a GP  
- All emergency presentations requiring immediate care or likely to require hospital admission  
- Trauma requiring urgent hospital assessment (eg fractures and dislocations, head injuries with loss of consciousness) | primary care services available in local area |
| Davies (1986)[193] | **Author subjective assessment**  
- Patient records assessed for predetermined minor injury capable GP service  
- Any patient who had a fracture or was admitted to hospital was deemed appropriate  
- Author and senior partner of the GP practice reviewed patient records to determine whether patient could have been treated at the GP practice | **Criteria development:** No specific criteria identified  
**Assessor:** Author assessment with review by senior GP partner of patients own GP registered practice |
| Davison, Hildrey & Floyer (1983)[232] | **Assessors subjective assessment**  
Physician assessment of patient presentation to determine if accident or emergency,  
All trauma cases (however minor) were classified as accidents.  
Emergencies included “cases in which the symptoms suggested an acute medical or surgical emergency” (p.37) | **Criteria development:** No specific criteria identified  
**Assessor:** casualty officer |
| Derlet, Kinser, Ray et al [239] (1995) | **Specific criteria set applied**  
Patient must meet all 4 criteria (vital signs, absence of high risk conditions, absence of significant pathology on focussed screening examination, presence of minor complaint on non emergency list)  
**Criteria 1: Non emergency category must have vital signs within the following limits**  
- Temp: 35-38.5 (38.3 for >60yrs)  
- Resp: 12-20  
- Blood pressure: 90-160 systolic  
60-118 diastolic  
- Pulse: 60-110 (100 if >60)  
**Criteria 2: High risk indications must be absent**  
9.4.1.1.1 Severe pain | **Criteria development:** Specific criteria set identified, but no basis or justification for the development of this provided.  
**Assessor:** triage nurse |
<table>
<thead>
<tr>
<th>Authors</th>
<th>Criteria set</th>
<th>Basis for criteria</th>
</tr>
</thead>
</table>
| 9.4.1.1.1.2  | Chest or abdo pain  
Younger than 16 yrs  
Inability to walk  
Patient volunteers a high risk condition | |

**Criteria 3:**

**Focused screening examination – guidelines for triage nurse**

*Complaint related to: Examination performed*

| Ear pain: | Examination of ear |
| Head and neck: | Inspection of face mouth throat |
| Respiratory: | Auscultation of lungs |
| Skin/wound complaint: | Inspection of problem / area of skin |
| Joints: | Inspection, palpation joint ROM |
| Back: | Inspection, overall appearance, observation of gait |
| Feet: | Inspection, observation of gait |

**Criteria 4:**

**Non emergency chief complaint**

Allergy or hay fever  
Allergy  
Chronic dizziness  
Chronic, recurrent haematuria  
Chronic sinusitis  
Constipation, 3 days or less  
Dental problems  
Diarrhoea (not orthostatic)  
Drug or alcohol detox  
Dysuria, mild female  
Ear pain  
Foot problems (blisters, pain, ingrown toenails, plantar warts)  
Hepatitis exposure or symptoms  
Immunisations and gamma globulin requests  
Joint pain  
Lice or scabies  
Localised sunburn without blisters  
Mild back pain, able to walk without assistance  
Minor contusion or abrasion  
Mild cough without hemoptysis or respiratory impairment
<table>
<thead>
<tr>
<th>Authors</th>
<th>Criteria set</th>
<th>Basis for criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driscoll, Vincent &amp; Wilkinson[159] (1987)</td>
<td>Mild eye irritation without signs of infection&lt;br&gt;Mild eye irritation without signs of infection&lt;br&gt;Minor headache without neurological impairment&lt;br&gt;Minor rectal pain or itching&lt;br&gt;Minor skin sores, not infected&lt;br&gt;Mouth blisters&lt;br&gt;Muscle aches&lt;br&gt;Nausea or vomiting&lt;br&gt;Neck pain (no hx of acute trauma)&lt;br&gt;Painless urethral discharge&lt;br&gt;Physical examination requests&lt;br&gt;Pregnancy testing&lt;br&gt;Prescription refill&lt;br&gt;Puritus without rash&lt;br&gt;Sexual disease exposure&lt;br&gt;Simple, localised rash&lt;br&gt;Sore throat&lt;br&gt;Sleep disorder&lt;br&gt;Suture removal&lt;br&gt;Trauma follow up (minor injury, treated elsewhere)&lt;br&gt;URTI (except patient with diabetes, CHF, Renal failure, Ca)&lt;br&gt;Vaginal bleeding (minor - one pad in last 6 hrs)&lt;br&gt;Vaginal discharge&lt;br&gt;Weakness – appears well&lt;br&gt;Work release or disability form completion&lt;br&gt;Wound checks</td>
<td><strong>Physician assessment; Patient self evaluation</strong>&lt;br&gt;Acknowledged as having subjective element&lt;br&gt;Criteria applied:&lt;br&gt;• “Inappropriate only those cases who could clearly have been seen by a GP or who required no medical attention at all” p78&lt;br&gt;• Assumed that this would give a conservative estimate.</td>
</tr>
<tr>
<td>Field &amp; Lantz [29] (2006)</td>
<td>Specific criteria set applied&lt;br&gt;Non urgent: CTAS levels IV (less urgent) and V (non urgent)</td>
<td><strong>Generic Criteria: Triage Code</strong>&lt;br&gt;Non urgent: CTAS levels IV (less urgent) and V (non urgent)</td>
</tr>
<tr>
<td>Foldes, Fischer &amp; Kaminsky[199] (1994)</td>
<td>If the patient had not come to the ED, how likely would he or she have been to die?</td>
<td><strong>Specific criteria set applied</strong></td>
</tr>
<tr>
<td><strong>Criteria development:</strong></td>
<td><strong>Criteria development:</strong></td>
<td><strong>Assessor:</strong> Appropriate self rated by patients and by casualty officer</td>
</tr>
<tr>
<td><strong>Assessor:</strong> Appropriateness self rated by patients and by casualty officer</td>
<td><strong>Assessor:</strong> Appropriateness self rated by patients and by casualty officer</td>
<td><strong>Criteria development:</strong> based on Canadian Emergency Department Triage and Acuity Scale (CTAS)&lt;br&gt;<strong>Assessor:</strong> triage paramedic</td>
</tr>
<tr>
<td><strong>Criteria development:</strong></td>
<td><strong>Criteria development:</strong></td>
<td><strong>Assessor:</strong> Appropriateness self rated by patients and by casualty officer</td>
</tr>
<tr>
<td>Authors</td>
<td>Criteria set</td>
<td>Basis for criteria</td>
</tr>
<tr>
<td>------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Franco, Mitchell & Buzon[179] (1997) | **Specific criteria set applied**  
  **Appropriateness Criteria:**  
  1. Acute condition of <72 hrs duration | Incorporated the American College of Emergency Physicians (ACEP) “objective” criteria for defining an emergency  
  ACEP guidelines to determine “appropriate” ED visits as used in study:  
  - Significant pain  
  - Shock  
  - Significant infection  
  - Acute trauma  
  - Abuse  
  - Commitable mental illness  
  - Newborn  
  - Haemorrhage or threat of  
  - Vital sign or mental status change  
  - Brought to hosp by police  
  - Brought to hosp by ambulance  
  - Referred by other source |
| Terminology used: Non emergency |  
  - Very likely  
  - somewhat likely  
  - somewhat unlikely  
  - very unlikely  
  - cannot tell  
  If the patient had not come to ED how likely would he or she have been to have a life- limb- or organ-threatening complication?  
  - Very likely  
  - somewhat likely  
  - somewhat unlikely  
  - very unlikely  
  - cannot tell  
  Considering all aspects of this case was this an emergency?  
  - Definitely yes  
  - Probably yes  
  - Probably not  
  - Definitely not  
  - Cannot tell  
  Could this problem have been pursued 6-8 hrs later without harming the pt or causing undue pain?  
  - Definitely yes  
  - Probably yes  
  - Probably not  
  - Definitely not  
  - Cannot tell  
  If the patient had called you for prior authorisation to visit the ED would you have given it?  
  - Yes  
  - No  
  - Cannot tell  
  If a primary care physician or urgent care centre had been available, could this problem have been dealt with there?  
  - Definitely yes  
  - Probably yes  
  - Probably not  
  - Definitely not  
  - Cannot tell | Assessor: Physician judgment |
<table>
<thead>
<tr>
<th>Authors</th>
<th>Criteria set</th>
<th>Basis for criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gill, Reese &amp; Diamond [200] (1996)</td>
<td><strong>Subjective assessment of urgency vs non urgency</strong>&lt;br&gt;<strong>Urgent</strong>&lt;br&gt;For the Triage nurse prospective assessment: = if the nurse answered ‘yes’ to either “do you feel there was a threat to the patients life if she or he did not receive treatment within an hour?” or “Do you feel the patient needed care within a few hours to prevent the problem from becoming serious”&lt;br&gt;Condition ‘urgent’ if: major illness or injury in which a possible danger exists to the patient if the condition is not medically treated within 20mins to 2 hrs&lt;br&gt;<strong>Non Urgent:</strong>&lt;br&gt;If the triage nurse answered ‘no’ to both the questions above&lt;br&gt;Condition ‘non urgent’ if: minor injury/illness in which the patient is usually ambulatory and can be seen in 4-6 hrs</td>
<td></td>
</tr>
<tr>
<td>Criteria development:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Criteria development:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Green &amp; Dale [245] (1992)</td>
<td>a triage system to identify patients with primary care problems was developed in consultation with the nursing staff. This process part of a previous study by Dale, Green, Glucksman &amp; Higgs (1991) <em>Providing for primary care: Progress in A&amp;E</em>. Department of General Practice, Kings College School of Medicine.</td>
<td></td>
</tr>
<tr>
<td>Criteria development:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Griffiths, King &amp; Preston [233] (1967)</td>
<td>Rationale for criteria linked to department title: ‘Casualty’ with discussion of the implication of changing this to...</td>
<td></td>
</tr>
<tr>
<td>Criteria development:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Criteria not identified</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Authors**

<table>
<thead>
<tr>
<th>Criteria set</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Non urgent / Inappropriate</strong></td>
</tr>
<tr>
<td>2. Fever &gt;102F less than 72 hrs</td>
</tr>
<tr>
<td>3. Acute exacerbation of &lt;24hrs of a chronic condition</td>
</tr>
<tr>
<td>4. Subsequent hospital admission</td>
</tr>
<tr>
<td>5. Sudden onset of acute condition after office hours when increased risk of morbidity might result if not treated</td>
</tr>
<tr>
<td>6. Patient taken to ED by ambulance</td>
</tr>
<tr>
<td><strong>Basis for criteria</strong></td>
</tr>
<tr>
<td>Assessor: Triage nurse</td>
</tr>
<tr>
<td><strong>Gill, Reese &amp; Diamond [200] (1996)</strong></td>
</tr>
<tr>
<td><strong>Terminology used:</strong> Subjective assessment of urgency vs non urgency</td>
</tr>
<tr>
<td><strong>Urgent</strong>&lt;br&gt;Condition ‘urgent’ if: major illness or injury in which a possible danger exists to the patient if the condition is not medically treated within 20mins to 2 hrs</td>
</tr>
<tr>
<td><strong>Non Urgent:</strong>&lt;br&gt;Condition ‘non urgent’ if: minor injury/illness in which the patient is usually ambulatory and can be seen in 4-6 hrs</td>
</tr>
<tr>
<td><strong>Criteria development:</strong></td>
</tr>
<tr>
<td>Criteria questions used as have previously been used in published studies; White-Mearns, Thornton, Yeo (1989) Sociodemographic and health factors influencing black and Hispanic use of the emergency room. <em>J Nat Med Assoc</em> 81, 72-80 and White-Mearns, Thornton (1989) Non emergency visits to the emergency rooms; a comparison of blacks and whites. <em>Milbank Q</em> 67, 35-57.</td>
</tr>
<tr>
<td><strong>Assessor:</strong> Eight health professionals (four emergency nurses, two emergency physicians, two family physicians) used identical criteria to retrospectively rate urgency. Agreement was measured for all reviewers, as well as among health professionals of the same specialty. Agreement was also measured between one ED nurse's retrospective assessment and the prospective assessments of the triage nurses who had seen the patients on presentation.</td>
</tr>
<tr>
<td><strong>Terminology used:</strong> Generic criteria: Primary care attenders</td>
</tr>
<tr>
<td>1. Self referred patients with symptoms likely to be caused by conditions not in need of immediate care or urgent care and unlikely to require hospitalisation</td>
</tr>
<tr>
<td>2. self-referred patients with non-urgent complications of long standing conditions</td>
</tr>
<tr>
<td>‘True’ A&amp;E attenders</td>
</tr>
<tr>
<td>1. all patients referred by phone or letter from a GP</td>
</tr>
<tr>
<td>2. Major trauma (eg long bone fractures and dislocations, second degree burns, lacerations requiring suturing, head injuries with loss of consciousness)</td>
</tr>
<tr>
<td>3. All emergency presentations in need of immediate care or likely to require hospital admission</td>
</tr>
<tr>
<td><strong>Criteria development:</strong> a triage system to identify patients with primary care problems was developed in consultation with the nursing staff. This process part of a previous study by Dale, Green, Glucksman &amp; Higgs (1991) <em>Providing for primary care: Progress in A&amp;E</em>. Department of General Practice, Kings College School of Medicine.</td>
</tr>
<tr>
<td><strong>Assessor:</strong> triage nurse with at least 6 months experience</td>
</tr>
<tr>
<td><strong>Griffiths, King &amp; Preston [233] (1967)</strong></td>
</tr>
<tr>
<td><strong>Criteria not identified</strong></td>
</tr>
<tr>
<td>All attenders divided into one of the following four groups:</td>
</tr>
<tr>
<td><strong>Criteria development:</strong> Rationale for criteria linked to department title: ‘Casualty’ with discussion of the implication of changing this to...</td>
</tr>
<tr>
<td><strong>Assessor:</strong></td>
</tr>
<tr>
<td>eight health professionals (four emergency nurses, two emergency physicians, two family physicians) used identical criteria to retrospectively rate urgency. Agreement was measured for all reviewers, as well as among health professionals of the same specialty. Agreement was also measured between one ED nurse's retrospective assessment and the prospective assessments of the triage nurses who had seen the patients on presentation.</td>
</tr>
<tr>
<td><strong>Griffiths, King &amp; Preston [233] (1967)</strong></td>
</tr>
<tr>
<td><strong>Terminology used:</strong> Primary care problems</td>
</tr>
<tr>
<td><strong>Inappropriate attenders</strong></td>
</tr>
<tr>
<td><strong>Generic criteria:</strong> Primary care attenders</td>
</tr>
<tr>
<td>1. Self referred patients with symptoms likely to be caused by conditions not in need of immediate care or urgent care and unlikely to require hospitalisation</td>
</tr>
<tr>
<td>2. self-referred patients with non-urgent complications of long standing conditions</td>
</tr>
<tr>
<td>‘True’ A&amp;E attenders</td>
</tr>
<tr>
<td>1. all patients referred by phone or letter from a GP</td>
</tr>
<tr>
<td>2. Major trauma (eg long bone fractures and dislocations, second degree burns, lacerations requiring suturing, head injuries with loss of consciousness)</td>
</tr>
<tr>
<td>3. All emergency presentations in need of immediate care or likely to require hospital admission</td>
</tr>
<tr>
<td><strong>Criteria development:</strong> a triage system to identify patients with primary care problems was developed in consultation with the nursing staff. This process part of a previous study by Dale, Green, Glucksman &amp; Higgs (1991) <em>Providing for primary care: Progress in A&amp;E</em>. Department of General Practice, Kings College School of Medicine.</td>
</tr>
<tr>
<td><strong>Assessor:</strong> triage nurse with at least 6 months experience</td>
</tr>
<tr>
<td><strong>Griffiths, King &amp; Preston [233] (1967)</strong></td>
</tr>
<tr>
<td><strong>Criteria not identified</strong></td>
</tr>
<tr>
<td>All attenders divided into one of the following four groups:</td>
</tr>
<tr>
<td><strong>Criteria development:</strong> Rationale for criteria linked to department title: ‘Casualty’ with discussion of the implication of changing this to...</td>
</tr>
<tr>
<td><strong>Assessor:</strong></td>
</tr>
<tr>
<td>Authors</td>
</tr>
<tr>
<td>---------</td>
</tr>
</tbody>
</table>
| **Terminology used:** “casual attender” | ● result of an accident,  
● medical emergency or  
● surgical emergency  
● casual attender | ‘Accident & Emergency’  
**Assessor:** not specified |
| Guterman, Fransazek, Murdy & Gifford [226] (1985) | **Specific criteria set applied**  
Physicians: self determined both prospectively and retrospectively relative urgency of patients presenting to 24 US EDs  
Prospectively asked to complete:  
When you first saw this patient, before you did a detailed assessment, you felt that attention was required:  
_____ immediately (within minutes)  
_____ urgently (within 1-2 hours)  
_____ promptly (within 2-12 hours)  
_____ soon (within 24 hrs)  
_____ fairly soon (within days)  
_____ did not need medical attention  
Retrospectively, after the patient left or a diagnosis was established, you felt the problem merited attention:  
_____ immediately (within minutes)  
_____ urgently (within 1-2 hours)  
_____ promptly (within 2-12 hours)  
_____ soon (within 24 hrs)  
_____ fairly soon (within days)  
_____ did not need medical attention  
In your estimation, this patient could have been treated adequately:  
_____ only in the ED  
_____ in a hospital clinic  
_____ in a doctors office  
_____ at home  
_____ other | **Criteria development:** Based on data collected from Nationwide urgency survey, self administered  
**Assessor:** Physician assessment |
| Hauswald [234] (2004) | **Generic Criteria:**  
**ED Efficient:**  
● patient admitted to the hospital  
● 2 hr + observation or treatment  
● Consulted on by a specialty service  
● Billable physician procedure performed  
● Radiologic test performed  
● Laboratory test performed | **Criteria development:** Prospective development of criteria for determining efficiency of resource use  
**Assessor:** not specified |
<table>
<thead>
<tr>
<th>Authors</th>
<th>Criteria set</th>
<th>Basis for criteria</th>
</tr>
</thead>
</table>
| Lang, Davido, Diakite et al[227] (2006) | Scheduled wound re check or suture removal | **Off site clinic efficient:**  
- Low severity problem (the visit was billed at the Centres for Medicare and Medicaid Services [CMS] evaluation and management levels 99281 or 99282)  
- Did not have an acute problem (defined by evidence in the chart that symptoms were new or had changed within 2 days of the visit)  
- Was seen between 9am – 5pm on a weekday  
- Arrived by private vehicle | **Criteria development:** Rationale not specified but does identify reference to Hui & Walter method which allows for the estimation of the prevalence of a dichotomic problem and the sensitivity and specificity of several observers when no gold standard exists.  
**Assessor:** each case was coded independently by 4 observers, the doctor and nurse on duty as well as by 2 senior specialists in emergency medicine, based on the patient notes. |
| Lavenhar, Ratner & Weinerman[183] (1968) | **Generic Criteria:**  
**Urgent visit:**  
1. Immediate care needed within 4 hrs to avoid severe consequences for the patient (extreme emergency)  
2. His/her care needed to be provided within 24hrs or the technical equipment of the hospital had to be used for diagnostic or therapeutic purposes (emergency)  
3. Although the vital or functional prognosis was not threatened within 24hrs, the patient was worried by the appearance or recent worsening of symptoms (subjective emergency)  
**Non urgent visit**  
1. Symptoms not recent, or recent and minor  
2. No sense of emergency on patients part | **Criteria development:** not specified  
**Assessor:** resident Emergency physician |
| Law & Yip[149] (2002) | **Generic Criteria:** **Triage Code**  
Based on the assumption that triage codes 3,4,5 were lower levels of urgency “triage based allocation” | **Criteria development:** “The current triage-based allocation system at A& E departments and hospital admission data can be used to objectively...” |
<table>
<thead>
<tr>
<th>Authors</th>
<th>Criteria set</th>
<th>Basis for criteria</th>
</tr>
</thead>
</table>
| Lee, Lau, Hazlett et al [150] | **Physician subjective assessment**  
- 2 physicians rated the patients record retrospectively on the urgency status on admission to A&E, defined whether the patient required A&E services or could have been treated by a GP  
- If agreement, this was seen as ‘gold standard’  
- If disagreement, then the principle researcher (academic family physician with A&E experience) or the trained research member of staff would classify the case according to the Handbook. | **Criteria development:** Decisions on level of utilization based on the Handbook on Vocational Training in Family Medicine produced by the Hong Kong College of Family Physicians (describes the necessary knowledge and skills family physicians require)  
**Assessor:** not specified |
| Liu, Sayre, & Carleton [241]  | **Generic criteria:**  
**Urgent visit:**  
“patient requires immediate attention for acute illness or injury that threatens life or function. Delay would be harmful to the patient” (p1148)  
**Non urgent visit:**  
“patient does not require attention immediately or within a few hours” (p1148)  
Based on retrospective determination with access to discharge diagnostic and treatment information 4.2% of non urgent patients were hospitalised 0.03% deaths | **Criteria development:** National Hospital Ambulatory Medical Care Survey (NHAMCS) data used. Categorization of visits as urgent / non-urgent determined in advance by participating hospitals.  
**Assessor:** participating hospitals (not otherwise specified) |
| Lowe, Bindman, Ulrich et al [229] | **Specific criteria set applied**  
**Published guideline and explicit and implicit criteria set**  
**Modified triage guidelines – Nonemergency complaints**  
- Allergy or hay fever  
- Anxiety  
- Back pain – nontrauma, new onset or chronic/recurrent; able to walk with assistance; (if backpain is associated with trauma see the criteria under Trauma) (Chronic: duration exceeding a week)  
- Constipation  
- Chronic obstructive pulmonary disease (minor complaint, non laboured Breathing Cough without haemoptysis or respiratory impairment  
- Dental problem: No facial swelling  
- Depression: not suicidal  
- Diarrhoea (exclude if T>38C)  
- Dizziness: Chronic (Chronic: duration exceeding a week)  
- Drug or alcohol detoxification  
- Dysuria: female | **Criteria development:** Based on Dertlet et al’s published guidelines (modified) together with addition of explicit and implicit physician mediated criteria.  
Independent variable: whether the patient met the published triage guidelines for refusing care  
Dependent variable: whether the visit was deemed “appropriate” or “avoidable”. Based on two sets of criteria, explicit and implicit  
**Assessor:** 2 ED nurses |
<table>
<thead>
<tr>
<th>Authors</th>
<th>Criteria set</th>
<th>Basis for criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Eye, mild burning without signs of infection, no foreign body</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ear pain</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Foot problem: blisters or ingrown toenails, plantar warts, pain</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fracture: Recently treated and splinted in another ED</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Headache without neurological impairment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Haematuria: Chronic, recurrent</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hepatitis; exposure or symptoms of</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HIV test request</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Immunizations and gamma globulin requests</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Joint pain: No distal neurovascular compromise, not due to trauma</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lice or scabies suspected</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mouth blisters</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Muscle aches</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nausea and vomiting</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Neck pain: no history of trauma (if neck pain is associated with trauma see the criteria under Trauma)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Penile discharge or dysuria (male)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pharyngitis, symptoms of</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Physical examination requests</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pregnancy testing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prescription refills</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pruritis without rash</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rash – Localised (covering less than half of one extremity or an equivalent area of the face or trunk)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rectal pain or itching, minor bleeding</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sexual disease exposure</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sinusitis chronic (Symptoms lasting more than a week and/or previous episodes)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skin infection – minor (sores unlikely to need antibiotics or incision and drainage)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skin lumps, bumps or growths</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sleep disorders</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sunburn without blisters, localized (covering less than half of one extremity or an equivalent area of the face or trunk)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Suture removal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Trauma – Minor acute (within 48hrs): not requiring sutures or orthopaedic evaluation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Trauma – Recently treated elsewhere and discharged (pain, contusions, abrasions)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Upper Respiratory Tract Infection symptoms (except patients with diabetes, CHF, Renal failure, Cancer)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vaginal bleeding - minor (no more than one pad in last 6 hrs)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vaginal discharge</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Varicose veins</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Weakness – appears well</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Work release or disability form completion</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wound checks</td>
<td></td>
</tr>
<tr>
<td>Authors</td>
<td>Criteria set</td>
<td>Basis for criteria</td>
</tr>
<tr>
<td>---------</td>
<td>--------------</td>
<td>--------------------</td>
</tr>
<tr>
<td><strong>Indications for ED care (Exclusion criteria associated with triage guidelines)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age under 15 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonambulatory patient</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Severe pain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arrived by ambulance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vital signs outside acceptable limits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature: 35-38.8 (38.3 for &gt;60yrs)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respiration: 12-20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blood pressure: 90-160mm Hg systolic 60-118mm Hg diastolic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pulse: 60-110 (100 if &gt;60)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Explicit criteria for appropriateness of ED visit</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospitalisation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diagnostic testing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Imaging studies: radiographs, ultrasound studies, CT, MRI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laboratory tests on body fluids</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Include only if results available while in ED, (plus blood cultures)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exclude routine tests (CBC, electrolytes, blood urea nitrogen, creatinine, glucose, calcium, urinalysis, pregnancy test, vaginal wet mount)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tests not on body fluids (eg ECG, electroencephalogram, slit lamp exam, pulse oximetry)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intravenous fluids (other than ‘to keep veins open’)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oxygen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prescription medication administered in ED (other than tetanus immunization or oral analgesia)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restraints</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specialty consultation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transfusion of blood products</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment of an orthopaedic problem by splinting with plaster, knee immobiliser or crutches, or by reducing a fracture or dislocation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wound management (other than by cleansing, or bandaging of minor abrasions and clean puncture wounds that a patient could be expected to perform)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*If the case met the refuse care triage guidelines but was found to be an appropriate ED visit according to the explicit criteria, a second emergency physician, blinded to the triage decision, reviewed the ED records to answer two additional questions*
Authors & Criteria set

Implicit criteria for appropriateness of ED visit

Would the patient's outcome have been worse if (s)he had not been seen until 24 hrs later?

And if not

Were history, physical, or ancillary data necessary to rule out a condition that could have led to a worse outcome had it not been treated within 24 hrs?

<table>
<thead>
<tr>
<th>Lowe &amp; Bindman[247] (1997)</th>
<th>Multiple criteria sets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminology used: Appropriateness / avoidable attendance</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Patient questionnaire:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visit appropriateness determined based on 2 questions</td>
</tr>
<tr>
<td>1) ‘How serious is your medical problem now?’ Responses recorded against a 5 point scale ranging from ‘not at all serious’ to ‘extremely serious’. A visit was classified as avoidable if the pt indicated ‘not at all serious’</td>
</tr>
</tbody>
</table>
| 2) ‘Sometimes people have to wait several hours in the emergency room. Instead of waiting now, would you prefer to have an appointment at a definite time in 1-3 days time?’ A visit was classified as avoidable if the pt indicated they would prefer a clinic visit.

<table>
<thead>
<tr>
<th>Nursing Triage form:</th>
</tr>
</thead>
</table>
| A 4 point triage scale is used, those least urgent being allocated triage 4. Those pts given this triage code were considered to have avoidable presentations. 2 experienced ED nurses applied a set of published guidelines for identifying non emergent problems that could be ‘safely denied ED care’ to each set of triage notes. In cases where consensus could not be reached (2%) these were excluded.

<table>
<thead>
<tr>
<th>Medical records:</th>
</tr>
</thead>
<tbody>
<tr>
<td>A presentation was considered appropriate if any of the following were met:</td>
</tr>
<tr>
<td>• Hospitalisation</td>
</tr>
</tbody>
</table>

An ED visit was considered ‘appropriate’ if any of these was performed:

- Diagnostic testing
- Imaging studies: x-ray, ultrasound, CT, MRI
- Lab tests on body fluids (only if results available while in ED, plus blood cultures)
- Exclude routine tests (CBC, electrolytes, blood urea nitrogen, creatinine, glucose, calcium, urinalysis, pregnancy test, vaginal wet mount)
- Tests not on body fluids (eg ECG, electroencephalogram, slit lamp exam, pulse oximetry)
- Intravenous fluids (other than ‘to keep veins open’)
- Oxygen

<table>
<thead>
<tr>
<th>Basis for criteria</th>
</tr>
</thead>
</table>

Criteria development: explicit criteria given but derivation / justification for this not given

Assessor: Data was collected from 3 sources – pt questionnaire, triage nurse forms, medical records.
An ED physician, blinded to the triage decision, randomly reviewed a selected sample of notes, considering the following 2 questions:
1) Would the pt's condition have been worse if he/she was not seen until 24 hrs later?
2) If not, were physical, history or ancillary data necessary to rule out a condition that could have led to a worse outcome if not treated within 24hrs?
The visit was considered appropriate if either were affirmative.

**Authors**
Lowy, Kohler, Nicholl[246] (1994)

### Multiple criteria sets

**Comparison of three methods of assessment**

**Method 1:** existing diagnostic classification developed for the Nuffield Provincial Hospitals Trust (NPHT)
- Divides patients into groups according to the clinical management needs implied by their diagnosis.
- Patients with conditions which are not considered to require facilities beyond those available in general practice are “inappropriate”

**Method 2:** ICD-9 classification, giving rise to three categories
1. Conditions of which most types can usually be treated in general practice
2. Conditions where it is unclear whether the facilities of an A&E dept would be needed
3. Conditions of which most types would usually need to be treated in an A&E dept.

**Method 3:** Process definition
- based on investigations and treatments which were felt to indicate that the patient needed hospital care, regardless of the final diagnosis.

**Criteria development:** Utilised 1 existing and 2 new methods for assessing appropriateness. New processes developed “after extensive discussions with A&E consultants based at eight hospitals in the study” (p135). Existing tool used: the Nuffield Provincial Hospitals Trust diagnostic classification of clinical needs.
Described as a retrospective chart audit, based on factual information about the processes of care rather than subjective opinions about the appropriateness of the condition.

**Assessor:** not specified, but a random selection of assessments were validated against the pooled perceptions of a group of 5 GPs.
<table>
<thead>
<tr>
<th>Authors</th>
<th>Criteria set</th>
<th>Basis for criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Myers[237] (1982)</td>
<td><strong>Author subjective review</strong>&lt;br&gt;Reviewed by author to make individual, subjective decision re necessity for hospital presentation. Patient problems deemed more suitable for GP included minor injuries and lacerations, acute infections, most eye problems and bites. Patients assumed to be appropriate:&lt;br&gt;  - GP referred&lt;br&gt;  - Collapse&lt;br&gt;  - Abdominal pain&lt;br&gt;  - Chest pain&lt;br&gt;  - Acute gynaecological problems&lt;br&gt;  - Overdose&lt;br&gt;  - Major medical problems</td>
<td><strong>Criteria development:</strong> no specific criteria, based on authors subjective assessment&lt;br&gt;<strong>Assessor:</strong> Author assessment – experience working in both A&amp;E and GP. 36 of the 1000 cases 'equivocal' – default to hospital appropriate</td>
</tr>
<tr>
<td>O’Brien, Shapiro, Woolard, O’Sullivan &amp; Stein[240] (1996)</td>
<td><strong>Multiple criteria sets</strong>&lt;br&gt;Method 1: Triage&lt;br&gt;Patient presenting complaint as registered by triage nurse matched to list of pre determined 51 non-emergent complaints derived from EM literature. Eg dysuria, symptoms of pharyngitis, muscle aches (not further described)&lt;br&gt;Method 2: Explicit&lt;br&gt;Based on use of specific resources: 10 explicit criteria derived from EM literature eg radiography, IV fluids. (not further described) If none of these resources used, then 'inappropriate'&lt;br&gt;Method 3: Physician assessment&lt;br&gt;2 Emergency physicians asked to answer the rhetorical question “Could this problem be taken care of by a primary care physician within 24 hours without harm to the patient?” based on chart review of ED nurse triage assessment and vital signs</td>
<td><strong>Criteria development:</strong> Pre determined categories derived from literature&lt;br&gt;<strong>Resource use:</strong> based on predetermined list&lt;br&gt;**Physician determination based on knowledge / experience/ expertise&lt;br&gt;<strong>Assessor:</strong> Applied 3 different assessment methods to same cohort group</td>
</tr>
</tbody>
</table>
| Pereira, e Silva, Quintas et al[153] (2001) | **Specific criteria set applied**<br>Data from patient interview and medical record review<br>Explicit criteria for appropriateness of ED visits<br>  - Transfer from other medical source<br>  - Hospitalisation<br>  - Death at ED | **Criteria development:** Modified with permission from published work by Lowe, Bindman, Ulrich et al Refusing care to emergency department patients: evaluation of published triage guidelines. Ann Emerg Med 1994; 23:286-293<br>Chest x-ray removed from ‘appropriate’ criteria as
<table>
<thead>
<tr>
<th>Authors</th>
<th>Criteria set</th>
<th>Basis for criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Petersen, Burstin, O’Neill et al[228] (1998)</td>
<td><strong>Specific criteria set applied</strong></td>
<td>deemed ‘routine’ in authors setting.</td>
</tr>
<tr>
<td>Terminology used: Non urgent</td>
<td><strong>Sample populations:</strong> those adult patients presenting with abdominal pain, chest pain, asthma</td>
<td><strong>Assessor:</strong> researchers gathered data, applied explicit criteria</td>
</tr>
<tr>
<td></td>
<td><strong>Urgent</strong> if vital signs:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Temp &gt;102F</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- P &lt;50 or &gt;105 per min</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Resp &gt;24</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Systolic B/P ≤ 90 or ≥180</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Diastolic B/P ≤50 or ≥ 110</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Urgent chestpain: history of cardiac disease, symptoms for 2 days or less; older than 35 if male, 45 if female; any cardiac risk factor, exertional chestpain, sob or new ecg changes.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Urgent asthma: symptoms present for less than 1 week</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Urgent abdominal pain: symptoms 48hrs or less plus any of the following: older than 65, GI or PV bleeding, pregnancy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>All other presentations non urgent.</td>
<td></td>
</tr>
<tr>
<td>Prince &amp; Worth[256] (1992)</td>
<td><strong>Specific criteria set applied</strong></td>
<td>Criteria development: Explicit complaint-specific measures of urgency on presentation to ED, based on triage criteria developed by Baker et al and approved by ED Chiefs at all 5 hospitals involved in study.</td>
</tr>
<tr>
<td>Terminology used: Inappropriate</td>
<td>Excluded any patients deemed critically ill by nursing staff</td>
<td><strong>Assessor:</strong> Initial vital signs, medical hx and ED notes used by blinded house staff physician reviewers to complete the urgency rating. 5% random sample reviewed by a different physician, giving an intra-class coefficient of 0.97</td>
</tr>
<tr>
<td></td>
<td><strong>Appropriate:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Fractures and dislocations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Strains and sprains of the lower limbs</td>
<td></td>
</tr>
<tr>
<td>Authors</td>
<td>Criteria set</td>
<td>Basis for criteria</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>--------------------</td>
</tr>
</tbody>
</table>
| Elley, Randall, Bratt & Freeman [258] (2007) | Subjective assessment and Specific Criteria set applied  
1) Panel assessment of initial random set based on following questions:  
- Could the case have been managed in a primary health care after hours clinic with immediate access to outpatient laboratory tests and simple radiology?  
- Could the case have been managed in a community based health care practice that did not have immediate access to laboratory tests and radiology?  
2) Panel then adapted the existing HUAP protocol to reflect the specific context but the specific 'local adaptations' are not discussed / identified | Assessor: Physician |
Non urgent based on nurse triage system “Emergency severity index” category 1-5. Patients category 3,4,5 defined as non urgent (low acuity) | Criteria development:  
References given to the HUAP model (Sempere-Selva et al 2001), referred to as “an overseas clinical guide” adapted by a clinical panel consisting of 7 doctors (5 GPS 2ED specialists) and 5 nurses (# after hours primary health care and 2 ED nurses) |
Non urgent patients defined as any who do not | Criteria development:  
### Authors Criteria set

<table>
<thead>
<tr>
<th>Terminology used: Non urgent</th>
<th>Urgent ED visits:</th>
<th>Basis for criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. Their visit resulted in hospital admission</td>
<td>meet the urgency criteria.</td>
</tr>
<tr>
<td></td>
<td>2. They were referred to the ED after being evaluated in any health care facility</td>
<td>Rationale and derivation of criteria not specified.</td>
</tr>
<tr>
<td></td>
<td>3. Their visit was for an initial evaluation for workers compensation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Patient under age of 16 with no parent or guardian present</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Suspected child abuse (verified by triage nurse)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. Sexual assault victims</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7. Chest pain in patients who are aged 30 years or older</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8. Abdominal or flank pain</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9. Prolonged or persistent vomiting or diarrhoea (meaning vomiting greater than 6 times a day or greater than 6 bowel movements a day)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10. Vomiting blood or passing bloody stool</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11. Acute active vaginal bleeding (greater than 6 pads a day)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12. Lacerations requiring sutures or chemical burns</td>
<td></td>
</tr>
<tr>
<td></td>
<td>13. 2nd degree burns or greater</td>
<td></td>
</tr>
<tr>
<td></td>
<td>14. Penetrating trauma</td>
<td></td>
</tr>
<tr>
<td></td>
<td>15. Extremity injury with obvious deformity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>16. Drug or illegal substance overdose</td>
<td></td>
</tr>
<tr>
<td></td>
<td>17. Change in mental status, disorientation to time and place</td>
<td></td>
</tr>
<tr>
<td></td>
<td>18. Hearing voices</td>
<td></td>
</tr>
<tr>
<td></td>
<td>19. Major depression</td>
<td></td>
</tr>
<tr>
<td></td>
<td>20. Suicidal ideation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>21. Homicidal ideation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>22. Patient came in with an indwelling IV catheter</td>
<td></td>
</tr>
<tr>
<td></td>
<td>23. Pulse less than 60 (age 4 or older)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>24. Pulse greater than 100 (age 13 or older)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>25. Pulse greater than 120 (age 4-12)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>26. Pulse less than 80 (under 4 years old)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>27. Pulse greater than 150 (under 4 years old)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>28. Respiratory rate greater than 30 (age 13 years and older)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>29. Respiratory rate less than 10 (age 13 years and older)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>30. Respiratory rate greater than 36 (age 4-12)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>31. Respiratory rate less than 16 (age 4-12)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>32. Respiratory rate greater than 44 (under 4 years)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>33. Respiratory rate less than 20 (under 4 years)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>34. Systolic BP less than 90 (age 16 and older)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>35. Systolic BP greater than 180 (age 16 and older)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>36. Systolic BP less than 80 (age 6-16)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>37. Systolic BP greater than 150 (age 6-16)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>38. Systolic BP less than 70 (under 6 years)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>39. Systolic BP greater than 120 (under 6 years old)</td>
<td></td>
</tr>
</tbody>
</table>

**Assessor:**
Urgency determined at Triage.
Does not specify who determined urgency (physician or nurse)
<table>
<thead>
<tr>
<th>Authors</th>
<th>Criteria set</th>
<th>Basis for criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sempere-Selva, Peiro, Sendra-Pina, et al[154] (2001)</td>
<td><strong>Specific criteria set applied</strong></td>
<td><strong>Hospital Urgency Appropriateness protocol (HUAP)</strong> Must meet at least one of the criteria in any section to be considered appropriate.</td>
</tr>
<tr>
<td></td>
<td><strong>1. Criteria of severity</strong></td>
<td>1.1 Loss of consciousness, disorientation, coma; insensitivity (sudden or very recent)</td>
</tr>
<tr>
<td></td>
<td>1.2 Sudden loss of sight or hearing</td>
<td>1.3 Alterations in pulse rate (&lt;50 / &gt;140 bpm) or arrhythmia</td>
</tr>
<tr>
<td></td>
<td>1.4 Alterations in blood pressure (systolic &lt;90/&gt;200mg Hg; diastolic &lt;60/&gt;120mm Hg)</td>
<td>1.5 Alterations in electrolytes or blood gases (not to be taken into account in patients with chronic alterations of these parameters: chronic kidney failure. Chronic respiratory disease etc)</td>
</tr>
<tr>
<td></td>
<td>1.6 Persistent fever (5 d) not controlled after treatment in primary care</td>
<td>1.7 Active haemorrhage (eg hematemesis, epistaxis, melena), excluding superficial wounds that only require suture</td>
</tr>
<tr>
<td></td>
<td>1.8 Sudden loss of functional capacity of any part of the body</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>2. Criteria for treatment</strong></td>
<td>2.1 Administration of medicines or fluids (except to maintain pathway)</td>
</tr>
<tr>
<td></td>
<td>2.2 Administration of oxygen</td>
<td>2.3 Setting with plaster casts (excluding bandaging)</td>
</tr>
<tr>
<td></td>
<td>2.4 Surgical intervention or procedure</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>3. Criteria for diagnostic intensity</strong></td>
<td>3.1 Monitoring of vital or constant signs every 2 hours</td>
</tr>
<tr>
<td></td>
<td>3.2 Radiology of any type</td>
<td>3.3 Laboratory tests (except glycemia in diabetic patients seeking care for reasons other than diabetes and glycemia tests with glucose sticks)</td>
</tr>
<tr>
<td></td>
<td>3.4 ECG (except in patients with chronic cardiopathy who present for nonrelated problems)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>4. Other criteria</strong></td>
<td>4.1 Patient has been in observation in A&amp;ED &gt;12 hrs</td>
</tr>
<tr>
<td></td>
<td>4.2 Patient is admitted to hospital or transferred to another hospital or dies in A&amp;ED.</td>
<td>4.3 Others in patients referred by physician (specify)</td>
</tr>
<tr>
<td></td>
<td><strong>5. Criteria used only for those patients who self referred</strong></td>
<td></td>
</tr>
<tr>
<td>Authors</td>
<td>Criteria set</td>
<td>Basis for criteria</td>
</tr>
<tr>
<td>---------</td>
<td>--------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>5.1</td>
<td>Has had an accident (traffic, work related, in public place...) and needs to be examined</td>
<td></td>
</tr>
<tr>
<td>5.2</td>
<td>Symptoms suggesting vital emergency: chest pain, dyspnoea with rapid onset, labored breathing, acute abdominal pain</td>
<td></td>
</tr>
<tr>
<td>5.3</td>
<td>Condition known to patient that usually leads to hospitalisation</td>
<td></td>
</tr>
<tr>
<td>5.4</td>
<td>Told by physician to go to A&amp;ED if symptoms developed</td>
<td></td>
</tr>
<tr>
<td>5.5</td>
<td>Requires primary medical care rapidly and the hospital is closest centre</td>
<td></td>
</tr>
<tr>
<td>5.6</td>
<td>Other circumstances in self referred patients, (specify).</td>
<td></td>
</tr>
</tbody>
</table>

**List of reasons for inappropriate use of Hospital A&ED**

**Patients referred by a physician**

1.1 Case not emergency; does not require immediate attention

1.2 Patient requires immediate attention that can be obtained outside hospital setting

1.3 Referred by outpatient clinic to speed up diagnosis

1.4 Referred by mistake

1.5 Others: specify

**Self referred patients**

2 Excessive wait in other health care services

2.1 Waiting list for surgery

2.2 Waiting list for hospital outpatient consultation

2.3 Waiting consultation at hospital outpatient clinic (long wait between appointments)

2.4 Waiting consultation with nonhospital specialist

2.5 Waiting consultation in primary care (with appointment)

2.6 Waiting diagnostic tests requested by primary care physician or nonhospital specialist

2.7 Waiting diagnostic tests requested by hospital

2.8 Others: specify

3 Inadequacy of ongoing care

3.1 Primary care office is closed (after hours or weekend)

3.2 Physician delay for home visits (primary care, in the day)

3.3 Physician delay for home visits (out of hospital emergency service, during the day)

3.4 Cannot contact primary care centre

3.5 Cannot contact out of hospital emergency service, during the day

3.6 Others: specify

4 Patient does not know how to use health care service

4.1 No primary care physician has been assigned

4.2 Does not know address of primary care physician or telephone number

4.3 Is not aware of out of hospital emergency service/does not know telephone number or address

4.4 Others: specify
<table>
<thead>
<tr>
<th>Authors</th>
<th>Criteria set</th>
<th>Basis for criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shesser, Kirsch, Smith, Hirsch[192] (1991)</td>
<td><strong>Specific criteria set applied</strong></td>
<td><strong>Criteria development:</strong> Explicit criteria set provided but background and rationale for its development not provided. Paediatric patients were excluded as “the ED receives very few paediatric visits” and geriatric patients excluded on the grounds that there was “greater likelihood that apparently minor complaints could represent serious illness” <strong>Assessor:</strong> not specified, researchers approached patients who met the criteria, but this process not further explained.</td>
</tr>
</tbody>
</table>

**Patients were included in the minor illness group if:**
- They were self referred or referred by telephone contact with a medical provider
- They were more than 18 but less than 65
- Their vital signs on presentation fell into the following range:
  - Systolic: 80mmHg < systolic < 191 mmHg
  - Diastolic: 44mg Hg < diastolic < 110 mm Hg
  - Pulse: 50 < pulse < 120
  - Temperature: 35C < temp < 39C
  - Respirations: 10 < resps < 28

**Patients were excluded from the minor illness group if:**
- Their visits resulted in hospital admission
- They were referred to the ED after having been evaluated in any health care facility
- They arrived by ambulance
- Their chief complaint included one of the following:
  - Chest pain in men more than 35yr
  - Severe abdominal or flank pain
  - Persistent SOB
  - Acute, active vaginal bleeding
  - Lacerations or chemical burns
  - Drug or illegal substance overdose
  - Change in mental status

---

**5 Patient has more confidence in hospital or distrusts primary care services**
- 5.1 Has gone to primary care physician but does not “trust” him/her
- 5.2 Has gone to out of hospital emergency service, but does not “trust” it.
- 5.3 Came directly to A&ED
- 5.4 Is patient of hospital (outpatient) and believes will receive better care in A&ED
- 5.5 Others: specify

**6 Convenience of patient and problems with patient’s environment**
- 6.1 Lives close to hospital/will be away from work/will get rapid care/more convenient…
- 6.2 Patient characteristics: low intellectual quotient, hypochondriac, simulating illness…
- 6.3 Wants specific exploration (radiology, laboratory tests…)
- 6.4 Family wants patient admitted
- 6.5 Court or police order
- 6.6 Others: specify
<table>
<thead>
<tr>
<th>Authors</th>
<th>Criteria set</th>
<th>Basis for criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smadi et al. [158] (2005)</td>
<td><strong>Subjective criteria assessment</strong>&lt;br&gt;Patients evaluated by a physician and labelled as either non urgent or urgent. Pregnant women excluded as they were seen in another area.</td>
<td>Criteria development: Stated that “no definite criteria to classify the urgency of cases”; decision to classify was “totally a qualified physician decision (an internist, or a surgeon, or a family practitioner)” p11&lt;br&gt;<strong>Assessor:</strong> Physician</td>
</tr>
<tr>
<td>Stein, Harzheim, Costa, Busnello &amp; Rodrigues [147] (2002)</td>
<td><strong>Subjective criteria assessment</strong>&lt;br&gt;ED physicians determined whether patient visits was:&lt;br&gt;• An emergency (need imminent care otherwise he/she could die)&lt;br&gt;• Urgent (need a visit within 24 hrs)&lt;br&gt;• Elective (could define a visit in more than 24hrs)</td>
<td>Criteria development: Definition of urgency based on the Brazilian Medical Federal Council. Resolution 1451, details not available&lt;br&gt;<strong>Assessor:</strong> Two emergency physicians independently reviewed all the notes of patients included in the sample.</td>
</tr>
<tr>
<td>Stewart, Savage, Scott &amp; McClure [235] (1989)</td>
<td><strong>Specific criteria set applied</strong>&lt;br&gt;<strong>Appropriate:</strong>&lt;br&gt;Accidents&lt;br&gt;• Injuries&lt;br&gt;• Wounds&lt;br&gt;• Poisoning&lt;br&gt;Emergencies&lt;br&gt;• Acute medical and surgical conditions referred by the family doctor (appendicitis, limp, meningitis, diabetes etc)&lt;br&gt;• Respiratory difficulty&lt;br&gt;• Altered level of consciousness&lt;br&gt;• Non accidental injury&lt;br&gt;<strong>Inappropriate:</strong>&lt;br&gt;• Family doctor unavailable&lt;br&gt;• Parent preference for A&amp;E&lt;br&gt;• Short cut to out patient clinics</td>
<td>Criteria development: Rationale: Inappropriateness based on determination of whether this was an accident or emergency.&lt;br&gt;<strong>Assessor:</strong> Criteria applied by senior registrar (author)&lt;br&gt;Derivation not provided</td>
</tr>
<tr>
<td>Authors</td>
<td>Criteria set</td>
<td>Basis for criteria</td>
</tr>
<tr>
<td>---------</td>
<td>--------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Sturm, Hirsch, Lee et al[244] (2010)</td>
<td>Generic Criteria: Triage Code</td>
<td>Criteria development: based on the Emergency Services Index triage system, 5 levels, lowest two indicating low resource utilisation. Triage category, resource utilisation and admission are stated to be “validated methods for assigning urgency to visits” (p71)</td>
</tr>
<tr>
<td>Terminology used: Non urgent</td>
<td>Non urgent</td>
<td>Assessor: triage nurse assigned triage category</td>
</tr>
<tr>
<td></td>
<td>● If non urgent triage category allocated</td>
<td></td>
</tr>
<tr>
<td></td>
<td>● Patient discharged home</td>
<td></td>
</tr>
<tr>
<td>Sucoff &amp; Clark[243] (1999)</td>
<td>Specific criteria set applied</td>
<td>Criteria development: Third party (insurance) payers determinations of ‘appropriateness’ – refused payment for patients with the following discharge diagnoses.</td>
</tr>
<tr>
<td>Terminology used: Inappropriate</td>
<td>Based on retrospective identification of 11 discharge diagnoses (DX11) identified by a third party payer as being ‘inappropriate’ for ED evaluation.</td>
<td>Assessor: The final diagnosis determined by medical records coders, not clinicians.</td>
</tr>
<tr>
<td></td>
<td>● Chronic nasopharyngitis</td>
<td>Presenting complaints for these patients were the same as for 79% of all ED patients (considered ‘appropriate’)</td>
</tr>
<tr>
<td></td>
<td>● Chronic sinusitis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>● Chronic pharyngitis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>● Rhinitis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>● Constipation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>● Head cold</td>
<td></td>
</tr>
<tr>
<td></td>
<td>● Haemorrhoids</td>
<td></td>
</tr>
<tr>
<td></td>
<td>● Toothache</td>
<td></td>
</tr>
<tr>
<td></td>
<td>● Flu</td>
<td></td>
</tr>
<tr>
<td></td>
<td>● Headache</td>
<td></td>
</tr>
<tr>
<td></td>
<td>● Tension headache</td>
<td></td>
</tr>
<tr>
<td>Vertesi[142] (2004)</td>
<td>Generic Criteria: Triage Code</td>
<td>Criteria development: Acknowledges that while triage scales are not intended as workload or illness severity tools, but that despite this they are frequently used as a surrogate for illness severity. For this reason chose to use this criteria set and consider outcomes if it had resulted in triage away of non urgent patients.</td>
</tr>
<tr>
<td>Terminology used: Non urgent</td>
<td>Used Canadian Emergency Department Triage and Acuity Scale (CTAS) categories:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I – III considered urgent</td>
<td></td>
</tr>
<tr>
<td></td>
<td>IV and V considered non- urgent</td>
<td></td>
</tr>
<tr>
<td>Authors</td>
<td>Criteria set</td>
<td>Basis for criteria</td>
</tr>
<tr>
<td>------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Ward, Huddy, Hargreaves, et al [236] (1996)</td>
<td><strong>Specific triage criteria set applied</strong>&lt;br&gt;Triage categories used:&lt;br&gt;<strong>Resus:</strong> Patients requiring immediate resuscitation, overrides all over categories.&lt;br&gt;<strong>Major A:</strong> Patients with life threatening systemic illness or injury. Need to be seen within 15 minutes.&lt;br&gt;<strong>Major B:</strong> Patients with potentially life threatening systemic illness or injury. Require moderate nursing care, some investigations and treatment. Admission not always necessary.&lt;br&gt;<strong>Minor B:</strong> Patients who require minimal nursing, investigations, and treatment before discharge who are not in the PC category. A delay of several hours would not be detrimental to their condition.&lt;br&gt;<strong>Major B/PC:</strong> Self referred patients with non urgent complications of long term multisystem conditions, unlikely to require hospital admission, that are included on triage list.&lt;br&gt;<strong>Minor B/PC:</strong> Self referred patients with non urgent extremity or single system problem or injury, unlikely to require investigation (eg x-ray), that are included on triage list.&lt;br&gt;<strong>Presenting conditions which may be suitable for primary care:</strong>&lt;br&gt;1. Abdominal pain (more than 2/52 duration with no associated symptoms)&lt;br&gt;2. Back pain&lt;br&gt;3. Burn (sunburn, scold) minor only&lt;br&gt;4. Constipation&lt;br&gt;5. Cough (not chest infection)&lt;br&gt;6. Deafness&lt;br&gt;7. Dental&lt;br&gt;8. Dizziness&lt;br&gt;9. Diarrhoea&lt;br&gt;10. Diarrhoea and vomiting&lt;br&gt;11. Emotinal upset&lt;br&gt;12. Gynaecological problem&lt;br&gt;13. Haemoptysis&lt;br&gt;14. Headache&lt;br&gt;15. Injury (bruise, sprain, abrasion)&lt;br&gt;16. Numbness&lt;br&gt;17. Pain (area involved eg R cheek)&lt;br&gt;18. Personal problem&lt;br&gt;19. Pyrexia&lt;br&gt;20. Vaginal bleeding&lt;br&gt;21. Psychiatric problem&lt;br&gt;22. Rash&lt;br&gt;23. Require prescription</td>
<td><strong>Criteria development:</strong>&lt;br&gt;Revision of existing triage criteria by senior A&amp;E sister and 2 A&amp;E consultants, one of whom had previous experience in General Practice. Revised system piloted on retrospective sample before study commencement.&lt;br&gt;<strong>Assessor:</strong> Triage Nurse</td>
</tr>
<tr>
<td>Authors</td>
<td>Criteria set</td>
<td>Basis for criteria</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>--------------------</td>
</tr>
</tbody>
</table>
25. Sore throat  
26. Social problem (minor)  
27. Skin problem  
28. Swelling (of particular part)  
29. Unwell (no particular problem given)  
30. Urinary problem (dysuria, haematuria, frequency, retention etc)  
31. Vomiting  
32. Other | Specific criteria:  
Deferred care criteria were developed for three symptom complexes:  
- abdominal and pelvic pain,  
- musculoskeletal pain (including low back pain, neck pain, isolated extremity symptoms and generalized musculoskeletal pain)  
- respiratory infection symptoms (including ‘cold’, cough, flu, sore throat and ear and sinus symptoms) | Criteria development:  
Assessor: See article appendices for specific criteria |
| Williams, O’Rourke & Keogh[254] (2009) | Specific criteria:  
Deferred care criteria were developed for three symptom complexes:  
- abdominal and pelvic pain,  
- musculoskeletal pain (including low back pain, neck pain, isolated extremity symptoms and generalized musculoskeletal pain)  
- respiratory infection symptoms (including ‘cold’, cough, flu, sore throat and ear and sinus symptoms) | Generic Criteria: Triage Code  
Non-urgent:  
Assigned Australasian Triage System (ATS) category 4 or 5 | Criteria development:  
stated as for the purposes of the study ATS categories 4 & 5 represented non urgent attendance. No further justification. Went on to note that 11% of the study group were admitted to hospital.  
Assessor: not identified whether nursing or medical triage personnel |
APPENDIX 4: NZ LEVELS OF EMERGENCY CARE SERVICES

Level One: Primary Care / Remote Rural.
- small hospitals without designated EDs and Accident and Medical clinics, together with individually contracted rural GPs and nurses (PRIME)

Level Two: Sub-acute/Rural Hospital Emergency Department
- small rural hospitals or designated healthcare facility EDs with the capacity to manage a range of acute illness and injury, including resuscitation and limited stabilisation
- local trauma services for patients with significant injuries, stabilisation prior to transfer
- designated assessment and treatment areas with separate resuscitation facilities
- 24 hours access to medical officers (on-site or available within 10 minutes) and ideally a full-time Director, preferably with specialist qualifications
- Medical Officers must have initial and periodic refresher training in advanced life support, including adult, paediatric and neonatal resuscitation. Nursing Staff requirements include a designated clinical charge nurse, access to a clinical nurse educator and 24 hour nursing staff coverage with triage capacity
- expectations that a proportion of registered nurses will have completed or be undertaking relevant post-graduate studies in Emergency Nursing

Level Three: Secondary Hospital Emergency Department
- requirements as for level two, with the following additions: ability to manage a range of acute illness and injury, including resuscitation, stabilisation, and assisted ventilation if required prior to transfer for definitive care
- settings and facilities including specific provision in waiting room and treatment areas for children and accompanying people/whanau, specific provision for the treatment of violent and disturbed people, and a purpose-designed area with separate resuscitation facilities
- resuscitation capabilities extend to ability to provide assisted ventilation prior to transfer.
- Medical staff: full-time Medical Director, experienced medical officers, with adult, paediatric, and neonatal resuscitation training, on-site 24 hours
- Nursing staff: dedicated nursing leader, clinical nurse consultant, clinical nurse educator and clinical charge nurse for at least 16 hours a day, 7 days a week
- expectation that a proportion of the registered nursing staff will have completed or be undertaking relevant post-graduate studies in Emergency Nursing

Level Four: Major Secondary Hospital Emergency Department
- requirements as for level three facilities, plus ability to manage all emergencies, including stabilisation and assisted ventilation, and provide definitive care for most
- provides advice and treatment for selected cases referred from sub acute hospitals, rural services, and smaller secondary hospitals
- capacity for extended assisted ventilation and invasive monitoring (ability to transduce central lines / manage arterial lines) is expected
• medical staff are required to have support of extended-hours specialist cover
• nursing staff to include a dedicated triage nurse and dedicated nurse coordinator on at least a 16 hours a day, 7 days a week basis

**Level Five: Tertiary Hospital Emergency Department**
• requirements as for level four facilities, plus ability to provide resuscitation, stabilisation and initial treatment for all emergencies
• provide Tertiary Referral Service to other hospitals in the region
• provides advice and stabilisation for complex cases referred from other hospitals
• medical staff: Full-time Medical Director with specialist qualifications in Emergency Medicine
• nursing staff: dedicated clinical charge nurse. An emergency nurse practitioner is appropriate in this setting; dedicated team of registered nurses experienced in emergency nursing, available on site 24-hours, with many having completed post-graduate education specialising in emergency nursing; a dedicated Triage Nurse on a 24 hours a day, 7 days a week basis

**Level Six: Higher Level Tertiary Hospital Emergency Department**
• as per previous levels, plus a sophisticated, purpose designed area with separate resuscitation area and facilities and capacity for frequent management of major trauma and other life-threatening emergencies
• medical staff: extensive out-of-hours specialist cover (ideally 24 hours, 7 days). Advanced training Registrars on-site 24 hours
• nursing staff: A dedicated nurse educator, specialising in emergency nursing. A dedicated Nurse Co-ordinator on a 24 hours a day, 7 days a week basis
1. Emergency Department ‘appropriateness’ survey: what’s it all about?

What is the study about?

- Thank you for agreeing to take part in the Emergency Department (ED) ‘Appropriateness’ Study. This research is part of a PhD study which aims to examine the concept of ‘appropriateness’ in relation to emergency department use in New Zealand.

EDs worldwide are ‘overcrowded’ and facing increasing pressure. A number of possible causes for ED overcrowding have been suggested, one of which is that some people may use the ED who do not really need to do so. These patients are sometimes referred to as ‘inappropriate’ and it has been suggested that if this group accessed alternative services, some of the ED overcrowding could be reduced.

- The terms ‘appropriate’ or ‘inappropriate’ in relation to ED attendance are controversial. Many consider the terms patronising and unfair. However, for want of better terms ‘appropriate’ and ‘inappropriate’ are used in this study. For those who do not like the terms, please make a note to that effect, but complete the questions anyway. You may prefer to interpret the term ‘inappropriate’ as meaning – would likely have been better served by seeking care elsewhere’.

- This study seeks to determine whether health professionals working in NZ EDs can reach an agreed definition of ‘appropriate’ reasons for presenting to the ED.

What are you asked to do?

- To commit to a minimum of three rounds and a maximum of four rounds of survey questions, aimed at generating a consensus statement about ED ‘appropriateness’.

- The surveys will be sent and / or e-mailed to participants, who will be asked to reply within one week.

- A reminder e-mail / letter will be sent to participants who have not replied within this time, asking that they do so.

- Analysis of responses will occur after all responses are received (or after 2 weeks, whichever is the lesser).

- Statistical analysis of the responses will be returned to participants together with the next round of questions on the 4th week.

- The process to be followed is a Delphi round of questions – additional information about the Delphi process is included at the end of the survey.

How long will it take?

The survey process is planned to occur over a 3-4 month period, one set of questions being sent and analysed per month.

It is anticipated that it will take no more than 10-15 minutes to complete each set of questions.
## Demographic data

**Questions to establish the Delphi Panel profile**

The following non-identifying demographic questions have been included to provide an overview of the Delphi Panel participants, which may be used to support subsequent publications.

### 1. Gender:
- [ ] male
- [ ] female

### 2. Age band:
- [ ] 20-29
- [ ] 30-39
- [ ] 40-49
- [ ] 50-59
- [ ] 60-69
- [ ] 70+

**Ethnicity:** The following question is taken from the 2001 Census (Statistics New Zealand) and is included to aid in the accurate collection of ethnicity data.

### 3. Which ethnic group(s) do you belong to?
- [ ] NZ European
- [ ] Maori
- [ ] Samoan
- [ ] Cook Islander
- [ ] Tongan
- [ ] Niuean
- [ ] Chinese
- [ ] Indian
- [ ] Other (please specify)

### 4. Years of experience in emergency medicine/nursing:
- [ ] <5
- [ ] 5-10
- [ ] >10
### 5. Emergency Department currently worked in:

- [ ] Auckland City
- [ ] Christchurch
- [ ] Dunedin
- [ ] Hanukoa Bay
- [ ] Hutt Valley
- [ ] Middlemore
- [ ] Northshore
- [ ] Palmerston North
- [ ] Stanthorpe
- [ ] Te Puna
- [ ] Whakato
- [ ] Wellington
3. Free text questions: your opinion

1. Are there specific conditions / situations currently seen in your area of practice that you feel would not require Emergency Department care? If so, please provide examples of these.

2. How would you define an ‘appropriate’ reason for attending ED?

3. How could you define an ‘inappropriate’ reason for attending ED?
# 4. Structured Delphi questions

**Delphi round questions:**

These questions are derived following consideration of the existing literature about ‘appropriateness’ of patient presentations to an emergency department setting. The aim of this round is to generate responses to key questions and concepts that have been identified as fundamental in determining ‘acceptability’ and ‘appropriateness’ beliefs.

**Section 1:**

Statements related to the role of the Emergency Department in health care provision

## 1. Which of the following best describes your response to the statement given

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>disagree</th>
<th>uncertain</th>
<th>agree</th>
<th>strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency departments (EDs) should be kept for 'emergency'</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patients are capable of determining what conditions are suitable for ED care</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patients should see a general practitioner (GP) or After Hours Service before coming to the ED</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patients with non urgent health needs should not be seen in the ED</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Only a doctor can determine the urgency of a health problem</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If a patient states they can’t afford to go anywhere else, they should be seen in the ED</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seeing non urgent patients in the ED adversely affects the care of more seriously unwell patients</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It is safe to refer some patients away from the ED</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not all patients who come to the ED need hospital level assessment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NZ EDs have a problem with ‘inappropriate’ patient attendances</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All patients who present to an ED need to be assessed by a doctor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Section 2:**

Questions related to determinations of ‘appropriateness’
2. Which of the following best describes your response to the statement given

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>disagree</th>
<th>uncertain</th>
<th>agree</th>
<th>strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>If a patient’s symptoms have remained unchanged for more than 72hrs before presentation, this can be considered an inappropriate attendance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If a patient has been referred by a GP or After Hours doctor this is an appropriate attendance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If a patient is transported to hospital by ambulance this represents an appropriate attendance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If a patient is discharged from ED with no further follow up, this is an inappropriate attendance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If a patient’s condition resulted from a road traffic accident this represents an appropriate attendance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If a patient is subsequently admitted to hospital this is an appropriate attendance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If a patient’s condition resulted from a work place accident, this represents an appropriate attendance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If a patient has received no investigations while in the ED, this is an inappropriate attendance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If a patient has received no treatment other than a prescription, bandage, sling dressing or steristrips this represents an inappropriate attendance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If a patient requires oxygen administration, this represents an appropriate attendance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If a patient requires a specialty consultation, this represents an appropriate attendance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If a patient requires prescription medications administered in ED (other than Tabanox or oral analgesics) this is an appropriate attendance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patients trapped as category five (lowest category at triage, less urgent, to be seen within 120 minutes) have inappropriate reasons for presenting.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Section 3:

Some authors have identified specific conditions or circumstances which suggest an avoidable ED presentation. Below are some examples taken from existing ‘tools’.

3. Please indicate whether you agree that the listed criteria represents an identifiable inappropriate reason for presentation

<table>
<thead>
<tr>
<th>Condition</th>
<th>Strongly disagree</th>
<th>disagree</th>
<th>uncertain</th>
<th>agree</th>
<th>strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allergy or hay fever</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constipation, 3 days or less</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dental problems</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lice or scabies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mouth ulcers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nausea or vomiting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Painless urethral discharge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pregnancy tests</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prescription refill</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attending for a second opinion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4. Please make any additional comments or responses related to the questions presented:


5. Are there any issues related to the concept of 'appropriateness' not raised already that you wish to be considered by the panel?


6. Please enter your name here: this is for the purpose of identifying who has completed each round, your information will remain confidential and is not provided to other respondents.


5. How does the Delphi Round work?

- Developing a consensus definition for 'appropriateness' is an essential prerequisite in determining whether this contributes to overcrowding in NZ EDs.

- Movement towards such a consensus is proposed by means of repeated rounds of questions / statements, interspersed with group feedback (The Delphi Technique).

- This will take place via website survey or e-mail, in a structured format known as the Delphi Technique.

- The objective is to develop a consensus definition or criterion set which would allow for measurement / quantification of 'inappropriateness' in relation to NZ ED presentations.

- The Delphi technique is one of the most well-known and widely used of the consensus methods.

- This is a process whereby key individuals are invited to participate in a series of structured 'rounds', where questions are posed and statements rated to indicate relative degree of support and concurrence.

- Between rounds, feedback is provided to group members, indicating the relative weighting given to statements by members of the group (this is presented in a generic manner, with no individual identifiers used). (This will include central tendencies - mean, median, mode- and percentage of panelists responding to each question).

- Statements / questions are then re-presented to the group, where indicated in a modified format, and re-rated by the participants.

- The statistical group response is determined at the end of the process, all the opinions expressed forming part of the final 'answer'. The group opinion is defined as the appropriate statistical aggregate of individual responses (opinions) on the final round.

- If consensus has been reached at this point, this will be used to formulate a measurement tool which can be applied to determine relative level of 'appropriateness' of patient presentations to NZ emergency departments.

THANKYOU FOR TAKING THE TIME TO BE PART OF THIS PROJECT. AN ANALYSIS OF THESE QUESTIONS WILL BE SENT TO YOU, FOLLOWED BY THE SECOND DELPHI ROUND.
### 1. Emergency Department Delphi Study: Round 2

Thank you for taking part in the ED Delphi study - your participation is appreciated. 62 participants commenced the study with 59 completing the first survey round.

Demographics from the first round identified 32% male and 68% female respondents. The majority (58%) of participants indicated that they were within the 40-49 age range; 75% self identified as NZ European, 11% as British, 8% as Maori and 8% as other ethnicity.

78% of respondents identified that they have had greater than 10 years experience in ED.

Response time has taken a little longer than anticipated, and it is reasonable to assume that there will be similar delays between this and the final round. Thank you for your patience.

Specific data relating to your personal responses will be sent to you by e-mail, so that you can compare your individual responses to those of the group.

The overall responses to questions are aggregated, and where there is more than 70% agreement, the item is accepted.

This round of the Delphi survey is set out a little differently to the first. You will find that instead of tables for the first sets of questions, they are listed individually. Each of the questions carried forward from the first round is preceded by the statistics related to participants responses. This gives the appearance of a much larger document.

At the end of the survey, I have included an example from an international criteria based tool, which I hope you will also take time to consider. This is not suggested as appropriate for use in NZ, but simply included as an example of how such a tool might look.

Thank you again for taking the time to complete this process.

1. Please state your name and e-mail address (this information is solely for the purpose of tracking and sending responses and you will not be identified in any reports or publications arising from this study).
2. Emergency Department role

The role of Emergency Departments

This section looks again at these questions which seek to understand perceptions regarding the role of Emergency Department's in the New Zealand health care setting, drawing on themes that are common in the international literature. Where the initial statements did not reach the 70% consensus for agreement, these have been re-presented for further consideration. In some cases the question has been re-worded to reflect feedback from participants.

You are asked to consider these statements again, and to re-rate them - you may retain your initial rating or alter this.

Original question 1:
Emergency departments (EDs) should be kept for 'emergency'

Results from round 1 show that 67% of respondents either 'agreed' or 'strongly agreed' with this statement.
10% of respondents were unsure
23% of respondents either 'disagreed' or 'strongly disagreed'

The most common single response from the group was 'agree' at 45%.

1. Please consider this question again, you are free to alter your original response or to retain it.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>disagree</th>
<th>unsure</th>
<th>agree</th>
<th>strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency departments (EDs) should only be used for patients with 'emergency' level problems</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Original question 2:
Patients are capable of determining what conditions are suitable for ED care.

Results from round 1 show that 38% of respondents either 'agreed' or 'strongly agreed' with this statement.
20% of respondents were 'unsure'
50% of respondents either 'disagreed' or 'strongly disagreed'

The most common single response from the group was 'disagree' at 45%

2. Patients are capable of determining what conditions are suitable for ED care.

Please consider this question again, you are free to alter your original response or to retain it.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Unsure</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients are capable of determining what conditions are suitable for ED care</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Original question 3:
Patients should see a general practitioner (GP) or After Hours Service before coming to the ED

Results from round 1 showed that 18% of respondents either 'agreed' or 'strongly agreed' with this statement.
25% were uncertain
57% of respondents either 'disagreed' or 'strongly disagreed'.

The most common single response from the group was 'disagree' at 47%
3. Patients should see a general practitioner (GP) or After Hours Service before coming to the ED

Please consider this question again, you are free to alter your original response or to retain it.

<table>
<thead>
<tr>
<th>Patients should see a general practitioner (GP) or After Hours Service before coming to the ED</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Unsure</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
</table>

Original question 4: Patients with non urgent health needs should not be seen in the ED

Results from round 1 showed that 52% of respondents either 'agreed' or 'strongly agreed' with this statement. 23% were uncertain

The most common single response from the group was 'agree' at 37%. 25% of respondents either 'disagreed' or 'strongly disagreed'.

4. Patients with non urgent health needs should not be seen in the ED

Please consider this question again, you are free to alter your original response or to retain it.

<table>
<thead>
<tr>
<th>Patients with non urgent health needs should not be seen in the ED</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Unsure</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
</table>

Original question 5:
If a patient states they can't afford to go anywhere else, they should be seen in the ED

Results from round 1 showed that 57% of respondents either 'agreed' or 'strongly agreed' with this statement. 23% were uncertain

20% of respondents either 'disagreed' or 'strongly disagreed'.

The most common single response from the group was 'agree' at 35%

5. If a patient states they can't afford to go anywhere else, they should be seen in the ED

Please consider this question again, you are free to alter your original response or to retain it.

<table>
<thead>
<tr>
<th>If a patient states they can't afford to go anywhere else, they should be seen in the ED</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Unsure</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
</table>

Original question 6:
Seeing non urgent patients in the ED adversely affects the care of more seriously unwell patients

Results from round 1 showed that 38% of respondents either 'agreed' or 'strongly agreed' with this statement. 8% were uncertain

53% of respondents either 'disagreed' or 'strongly disagreed'.

The most common single response from the group was 'disagree' at 38%
6. Seeing non urgent patients in the ED adversely affects the care of more seriously unwell patients

Please consider this question again, you are free to alter your original response or to retain it.

| Seeing non urgent patients in the ED adversely affects the care of more seriously unwell patients |
|---------------------------------------------------------|---------------------------------------------------------------|
| Strongly disagree                                       | Disagree                                                      |

Original question 7:
It is safe to refer some patients away from the ED

Results from round 1 showed that 35% of respondents either 'agreed' or 'strongly agreed' with this statement.
25% were uncertain
30% of respondents either 'disagreed' or 'strongly disagreed'.

The most common single response from the group was 'agree' at 48%

7. It is safe to refer some patients away from the ED

Please consider this question again, you are free to alter your original response or to retain it.

<table>
<thead>
<tr>
<th>It is safe to refer some patients away from the ED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
</tr>
</tbody>
</table>

Original question 8:
NZ EDs have a problem with 'inappropriate' patient attendances

Results from round 1 showed that 41% of respondents either 'agreed' or 'strongly agreed' with this statement.
25% were uncertain
44% of respondents either 'disagreed' or 'strongly disagreed'.

The most common single response from the group was 'disagree' at 32%

8. NZ EDs have a problem with 'inappropriate' patient attendances

Please consider this question again, you are free to alter your original response or to retain it.

<table>
<thead>
<tr>
<th>NZ EDs have a problem with 'inappropriate' patient attendances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
</tr>
</tbody>
</table>

The following three statements reached the 70% acceptance threshold during round 1:

Only a doctor can determine the urgency of a health problem
95% of respondents either disagreed or strongly disagreed
2% were uncertain
3% agreed

Not all patients who come to the ED need hospital level assessment
95% of respondents either agreed or strongly agreed
2% were uncertain
3% disagreed

All patients who present to an ED need to be assessed by a doctor
82% of respondents either disagreed or strongly disagreed
8% were uncertain
10% either agreed or strongly agreed
3. Factors that may identify 'appropriateness'

Determining 'appropriateness' in relation to ED patient presentation.

This section looks at those questions which seek to understand perceptions regarding the concept of 'appropriateness' in relation to Emergency Department patient presentations, drawing on themes that are common in the international literature. Where the initial statements did not reach the 70% consensus for agreement, these have been represented for further consideration. You are asked to consider these statements again, and to re-rate them - you may retain your initial rating or alter this.

Each rating statement is followed by an optional text box allowing you to provide additional information to support your viewpoint.

| Original question 1:                                                                                           |
| If a patient has been referred by a GP or After Hours doctor this is an appropriate attendance                  |
| Results from round 1 showed that 82% of respondents either 'agreed' or 'strongly agreed' with this statement.  |
| 17% were uncertain                                                                                             |
| 12% of respondents 'disagreed'.                                                                                |
| The most common single response from the group was 'agrees' at 40%                                           |

1. **If a patient has been referred by a GP or After Hours doctor this is an appropriate attendance**

Please consider this question again, you are free to alter your original response or to retain it.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Unsure</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>If a patient has been referred by a GP or After Hours doctor this is an appropriate attendance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Original question 2:                                                                                           |
| If a patient is transported to hospital by ambulance this represents an appropriate attendance                  |
| Results from round 1 showed that 89% of respondents either 'agreed' or 'strongly agreed' with this statement.  |
| 10% were uncertain                                                                                             |
| 6% of respondents 'disagreed'.                                                                                  |
| The most common single response from the group was 'agrees' at 34%                                           |

2. **If a patient is transported to hospital by ambulance this represents an appropriate attendance**

Please consider this question again, you are free to alter your original response or to retain it.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Unsure</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>If a patient is transported to hospital by ambulance this represents an appropriate attendance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
70% of respondents either agreed or strongly agreed
15% were uncertain
15% either disagreed or strongly disagreed

Patients triaged as category five (lowest category at triage, least urgent, to be seen within 120 minutes) have inappropriate reasons for presenting.

80% of respondents either disagreed or strongly disagreed
15% were uncertain
15% either agreed or strongly agreed.
4. Other possible criteria for determining 'appropriateness'

This section presents the findings regarding appropriateness criteria identified derived from the international literature. Those criteria which did not reach consensus, together with determinants suggested by participants, are represented for further rating.

Original condition descriptor 1:
Allergy or Hayfever

45% of respondents either disagreed or strongly disagreed
17% were unsure
34% either agreed or strongly agreed

The single most commonly selected response was disagree at 41%

1. Do you consider the following presenting complaint is an inappropriate reason to present to ED?

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Unsure</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allergy or hay fever without evidence of anaphylaxis, in an otherwise well individual</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Original condition descriptor 2:
Constipation of 3 days or less duration

35% of respondents either disagreed or strongly disagreed
19% were unsure
46% either agreed or strongly agreed

The single most commonly selected response was agree at 36%

2. Do you consider the following presenting complaint is an inappropriate reason to present to ED?

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Unsure</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constipation of 3 days or less duration</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Original condition descriptor 3:
Dental problems

41% of respondents either disagreed or strongly disagreed
15% were unsure
44% either agreed or strongly agreed

3. Do you consider the following presenting complaint is an inappropriate reason to present to ED?

The single most commonly selected response was agree at 36%

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Unsure</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dental problems</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Original condition descriptor 4:
Mouth ulcers

32% of respondents either disagreed or strongly disagreed
20% were unsure
48% either agreed or strongly agreed

There were two most commonly selected responses, these were disagree and agree each with a rating of 36%

4. Do you consider the following presenting complaint is an inappropriate reason to present to ED?

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Unsure</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mouth ulcers</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

Original condition descriptor 5:
Painless urethral discharge

36% of respondents either disagreed or strongly disagreed
17% were unsure
47% either agreed or strongly agreed

The single most commonly selected response was agree at 36%

5. Do you consider the following presenting complaint is an inappropriate reason to present to ED?

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Unsure</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Painless urethral discharge</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

Original condition descriptor 6:
Attending for a second opinion

37% of respondents either disagreed or strongly disagreed
19% were unsure
44% either agreed or strongly agreed

The single most commonly selected response was disagree at 34%

6. Do you consider the following presenting complaint is an inappropriate reason to present to ED?

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Unsure</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attending for a second opinion</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
5. Potential criteria derived from participant responses

The following criteria are suggested from responses given by respondents to round 1 of this survey. Please indicate your response using the alternatives listed and make any additional comments which may help explain your rationale.

1. The following conditions and/or criteria have been suggested by respondents to round 1 of the Delphi survey. Please indicate your response to the following suggested criteria:

I believe that the listed condition/criteria, if forming the presenting complaint in an otherwise well patient, indicates on CLINICAL grounds that an alternative care pathway is more appropriate than ED presentation.

PLEASE NOTE: the following questions will ask you to look at NON CLINICAL factors that may impact on patient presentation

<table>
<thead>
<tr>
<th>Condition</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Unsure</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routine medical check up</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Request for medical certificate without requiring emergency care</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Request for ACC certificate without requiring emergency care</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Healthcare documentation without the need for emergency care (e.g., forms for school, periodic detention, insurance)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Prescription for emergency contraception pill</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Routine suture removal</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Referrals to ED for injuries only</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Bladder cast checks</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Injuries requiring simple suturing</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Requests for dressing changes</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Minor lacerations to limbs</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Isolated mental health problems (no organic cause to be ruled out)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Routine care of stable medical conditions</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Request for assessment of chronic condition (no acute changes)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Non-acute alcohol and drug detox</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Otitis media</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Viral URTI</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Nappy dermatitis</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Routine childhood illnesses: chickenpox</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Superficial cuts and abrasions</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>Longstanding musculoskeletal problems (no acute exacerbation)</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>Diarrhoea and vomiting in otherwise well patient</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>Eczema</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>Sprain but still weight bearing</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>Cold or flu symptoms in otherwise well person</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
</tbody>
</table>

2. Please indicate if, for each of the listed service areas, there is access to an available community resource in your area.

You may tick more than one box

<table>
<thead>
<tr>
<th>Service Area</th>
<th>Normal Working Hours</th>
<th>After Hours (17.30-23.00)</th>
<th>Overnight (23.00-08.30)</th>
<th>Statutory Holidays</th>
<th>Weekends</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacy access</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>Non ED based psychiatric services</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>Primary Health care services</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>Accident and medical clinic</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>Community based x-ray facility</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>Dental services</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>Sexual health clinic</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
</tbody>
</table>
3. Please indicate whether you agree that the following NON CLINICAL factors should be taken into account when considering 'appropriateness' of ED patient presentation.

In the absence of clinical indicators for emergency care, please indicate whether you would take into account the following when considering 'appropriateness' of patient presentation to ED.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Unsure</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient's perception of urgency</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient's level of distress</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient's concern with cost of alternative service</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient's stated inability to access regular GP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient's preference for ED care</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient's lack of knowledge regarding alternative care services</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Convenience to patient of ED location</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Convenience to patient of not having to make an appointment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inability of the patient to access specialist care in a timely fashion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability of alternative services</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability of social support / supervision</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3. Criteria 3:
Focussed screening examination – guidelines for triage nurse

<table>
<thead>
<tr>
<th>Item</th>
<th>Disagree</th>
<th>Unsure</th>
<th>Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ear pain, then requires examination of ear</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Head and necks:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inspection of face mouth, throat</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respiratory: Auscultation of lungs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skin/wound complaints:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inspection of problem / area of skin</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Joint: Inspection, palpation, joint XRRM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Back: Inspection of back, overall appearance of patient, observation of gait</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feet: Inspection of feet, observation of gait</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. Criteria 4:
Presence of minor complaint

(the implication here is that these complaints, if taken together with the findings from the other categories,

<table>
<thead>
<tr>
<th>Item</th>
<th>Disagree</th>
<th>Unsure</th>
<th>Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allergy or hay fever</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>diarrhoea (not orthostatic)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allergy: chronic dizziness</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mild back pain, able to walk without assistance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>drug or alcohol detect</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constipation, 3 days or less</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dysuria, mild female</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minor contusion or abrasion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mild eye irritation without signs of infection</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mild cough without haemoptysis or resp impairment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ear pain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dental problems feet problems (blisters, pain, ingrown</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>toenails, planter warts)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minor headache without neurological impairment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>minor rectal pain or itching</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic, recurrent haematuria</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sexual disease exposure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis exposure or symptoms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Symptom / Condition</td>
<td>Yes</td>
<td>No</td>
<td>Maybe</td>
</tr>
<tr>
<td>----------------------------------------------------------</td>
<td>-----</td>
<td>----</td>
<td>-------</td>
</tr>
<tr>
<td>chronic sinusitis</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Immunizations and</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>gamma globulin requests</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>minor skin rashes, not infected</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Joint pain</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>sore throat</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Lice or scabies</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>sleep disorder</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Mouth blisters</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>suture removal</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Muscle aches</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>localized sunburn without blister</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Nausea or vomiting</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>trauma follow up (minor)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>injury treated elsewhere</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Neck pain (not for acute trauma)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>URTI except pt with diabetes, Croup, renal failure (Ca)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Painless urethral discharge</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>vaginal discharge</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Physical examination</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>requests</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Physical examination Requests</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Pregnancy testing</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>weakness - appears well</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Prescription refill</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>work release or disability</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>form completion</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Pruritus without rash</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>wound checks</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Simple, localized rash</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

5. Please include any comments / feedback about this type of criteria based tool.

6. Are there any other comments you wish to make?

Thank you for taking the time to complete this survey - your feedback is valued.
APPENDIX 7: SURVEY ROUND 3

1. Final survey

Thankyou all for taking the time to remain involved with this process. I apologise for the delays that have seen this take longer than initially anticipated. The material being presented to you in this survey is designed to bring together final points and clarify areas of general agreement.

1. Please state your name and e-mail address (this information is solely for the purpose of tracking and sending responses and you will not be identified in any reports or publications arising from this study).
A number of statements so far have reached a consensus point of 70% or greater. These are as follows:

1) Statements that are DISAGREEED with:
   Only a doctor can determine the urgency of a health problem
   All patients who present to an ED need to be assessed by a doctor
   If a patient’s symptoms have remained unchanged for more than 24hrs before presentation, this can be considered an inappropriate attendance
   If a patient is discharged from ED with no further follow up, this is an inappropriate attendance
   If a patient has received no investigations while in the ED, this is an inappropriate attendance
   If a patient has received no treatment other than a prescription, bandage, sling dressing or steristrips this represents an inappropriate attendance
   Patients triaged as category five (lowest category at triage, less urgent, to be seen within 120 minutes) have inappropriate reasons for presenting
   If a patient requires prescription medications administered in ED (other than Tetanus or oral analgesics) this is an appropriate attendance

2) Statements that are AGREED with:
   Not all patients who come to the ED need hospital level assessment
   If a patient is subsequently admitted to hospital this is an appropriate attendance
   If a patient requires oxygen administration, this represents an appropriate attendance
   If a patient states they don’t want to go anywhere else, they should be seen in the ED
   It is safer to refer some patients away from the ED

3) Condition specific indicators that in the presence of no other illness / injuries are seen as more appropriate for treatment utilising a health service other than ED
   Lice or scabies
   Pregnancy testing
   Prescription refill
   Painless vaginal discharge
   Routine medical check up
   Request for medical certificate without requiring emergency care
   Request for ACC certificate without requiring emergency care
   Healthcare documentation without the need for emergency care (e.g. school, periodontal, insurance)
   Routine suture removal
   Routine care of stable medical conditions
   Request for assessment of chronic condition (no acute changes)
   Non-acute alcohol and drug detox
   Longstanding musculoskeletal problems (no acute exacerbation)
   Eczema
   Minor cut or abrasion
   Nontuberculous or respiratory infection
   Foot problems: blisters, pain, ingrown toenails, plantar warts
   Localised wound without blistering

4) Non-clinical factors that influence medical and nursing perceptions of appropriateness
   Patient’s perception of urgency
   Patient’s level of distress
   Patient’s concern with cost of alternative service
   Availability of alternative services
   Availability of social support / supervision

5) Factors that are NOT seen as significant in determining appropriateness:
   Convenience to patient of not needing to make an appointment
   Convenience to patient of ED location
   Patient’s preference for ED care
## 2. Reviewing questions

This section includes previously rated questions that did not reach a consensus level of 70% or greater, but which did reach greater than 55% consensus. You are asked to consider these one final time, to see if there is room to move further towards agreement. The results from round 2 are presented for your consideration. Wordings of some questions has been altered slightly in an attempt to more closely represent an acceptable statement.

1. **Please consider the following question and indicate your preferred response:**

   **Original question:** Emergency departments (EDs) should only be used for patients with 'emergency' level problems. Results from previous round were as follows:

   - Strongly disagree: 6.9%; disagree 22.4%; unsure: 3.4%; agree: 63.8%, strongly agree: 3.4%

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Unsure</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDs should only be used for patients with emergency conditions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. **Please consider the following question and indicate your preferred response:**

   **Original question:** Patients are capable of determining what conditions are suitable for ED care. Results from previous round: strongly disagree 3.4%; disagree 55.2%; unsure 5.2%; agree 36.2%; strongly agree 0%.

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Unsure</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients are able to determine if their condition is suitable for ED care</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. **Please consider the following question and indicate your preferred response:**

   **Original question:** Patients with non urgent health needs should not be seen in the ED. Results from previous round: strongly disagree 3.5%; disagree 26.3%; unsure 5.3%; agree 52.6%; strongly agree 12.3%.

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Unsure</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients with non urgent health needs are more appropriately seen by health services other than ED.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. **Please consider the following question and indicate your preferred response:**

   **Original question:** Seeing non urgent patients in the ED adversely affects the care of more seriously unwell patients. Results from previous round: strongly disagree 15.8%; disagree 40.4%; unsure 5.3%; agree 35.1%; strongly agree 3.5%.

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Unsure</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treating non urgent patients in the ED disadvantages more seriously unwell patients.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5. Please consider the following question and indicate your preferred response:

Original question: NZ EDs have a problem with 'inappropriate' patient attendances. Results from previous round: strongly disagree 10.5%; disagree 45.6%; unsure 8.8%; agree 29.8%; strongly agree 5.3%.

6. Please consider the following question and indicate your preferred response:

Original question: If a patient has been referred by a GP or After Hours doctor this is an appropriate attendance. Results from previous round: strongly disagree 0%; disagree 30.9%; unsure 12.7%; agree 47.3%; strongly agree 9.1%.

7. Please consider the following question and indicate your preferred response:

Original question: If a patient’s condition resulted from a road traffic accident this represents an appropriate attendance. Results from previous round: strongly disagree 0%; disagree 25.5%; unsure 9.1%; agree 60%; strongly agree 5.5%.

8. Please consider the following question and indicate your preferred response:

Original question: If a patient is transported to hospital by ambulance this represents an appropriate attendance. Results from previous round: strongly disagree 5.6%; disagree 58.3%; unsure 7.4%; agree 25.9%; strongly agree 1.8%.

9. Please consider the following question and indicate your preferred response:

Original question: Injuries from workplace accidents should be assessed and treated in an ED. Results from previous round: strongly disagree 1.8%; disagree 67.3%; unsure 10.9; agree 18.2%; strongly agree 1.8%.
10. Please consider the following question and indicate your preferred response:

Original question: If a patient requires a specialty consultation, this represents an appropriate attendance. Results from previous round: strongly disagree 1.9%; disagree 57.4%; unsure 9.3%; agree 31.5%; strongly agree 0%.

<table>
<thead>
<tr>
<th></th>
<th>strongly disagree</th>
<th>disagree</th>
<th>unsure</th>
<th>agree</th>
<th>strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>A patient who needs a specialty consultation should be seen in ED.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
3. Recognising appropriateness of presentation at time of arrival.

This section is seeking to clarify opinions around the ability to determine appropriate reasons for presenting to an ED. Review of some questions from round 2 are included, together with some specific questions related to triage and assessment.

1. The following statements are based on responses received from previous rounds. Please consider how you (as an individual) would respond.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Unsure</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>If a patient has been physically assessed and found to have a non urgent condition, they might as well stay and be treated in ED.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If a patient is aware of alternative services but wishes to be seen in ED for a non urgent problem this is their right.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It is possible to determine at Triage if a patient needs to be seen in ED. (By history taking and focussed physical assessment)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The development of a tool for determining patient 'appropriateness' would not assist patient flow</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I do not believe that a check list approach to determining appropriateness is possible.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I believe it is possible to identify patients who could be treated elsewhere prospectively (before medical assessment and diagnostics).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The development of a tool for measuring levels of patient 'appropriateness' within a specific ED would assist with departmental responses to patient flow</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I believe it is possible to identify the characteristics that represent an appropriate patient presentation to ED.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I believe it is only possible to identify patients who could have been treated elsewhere retrospectively.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I would be prepared to refer a patient away from ED if their condition was non urgent.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If a patient's condition is non urgent and they are prepared to wait they should be seen in ED.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It is possible to determine at Triage if a patient needs to be seen in ED. (By history taking and physical examination only)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In order to determine severity of a patient's condition they need a physical examination.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I would be prepared to advise a patient of alternative services they could access if their condition was non urgent.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Your contribution to this project is much appreciated. The next step is to undertake further analysis of the data collected and to consider whether there is sufficient agreement to formulate a criteria set that would make it possible to measure the ED population in terms of 'appropriateness'. There has been considerable interest in the possibility that some of our ED patients could be more efficiently and effectively treated through services other than ED. This is based on a number of presumptions that have not been tested, including consideration of whether such a distinct population exists. A basic step in determining this is to identify whether there is a rational sense of consensus around definitions of 'appropriateness'. It may be that it is possible to identify patients who could receive alternative access to care, this does not however imply that this is easily identifiable or practically measurable. These questions need to be considered in order to allow robust discussion of the issues, based on more than assumption or anecdotal evidence. I believe that the findings from this study will contribute to a greater understanding of the issue and will lead to a greater questioning of the underlying assumptions. Thank you once again for agreeing to participate.

Please respond to the following questions so that I can keep you informed of the progress of this study.
2. Please indicate whether you wish to receive further information regarding the outcomes from this study.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>I wish to receive an electronic summary of the study findings.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I would be prepared to take part in an individual interview related to this topic.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I wish to be advised of any publications or conference presentations which may arise from this study.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I would be interested in further research in this area as a participant.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I would be interested in further research in this area as a coresearcher.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX 8: Authored Papers and Presentations Linked to This Study

Conference presentations:

8th International Conference of Emergency Nurses Australasia
Canberra, Australia 14th-16th October 2010
Paper presented: *The inappropriate attender – PhD study*

Nursing Research Section NZNO Conference
“Celebrating Nursing Research: Opening Doors”
Wellington 20 & 21st November, 2009
Papers presented: *Formulating consensus: using the Delphi method*
*The inappropriate attender in New Zealand’s emergency departments: whose definition?*

College of Emergency Nurses New Zealand and New Zealand Flight Nurses Annual Conference “Leading in care – soaring in practice”
Christchurch 27th-29th August 2009
Paper presented: *Who comes to the emergency department and why?*
Recipient of the MEDXUS Emergency Nursing Research Award


Third Annual Duty Managers Conference. Christchurch NZ.

Journal articles:


