Preferences of patients for emergency services available during usual GP surgery hours: a discrete choice experiment

Karen Gerard\textsuperscript{a} and Val Lattimer\textsuperscript{b}


Objective. A study was undertaken to investigate patients’ strength of preferences for attributes or characteristics associated with delivery of emergency primary care services available during usual GP surgery hours and to investigate the trade-offs between attributes.

Methods. A discrete choice experiment was used to quantify patients’ strength of preferences for several key attributes of usual-hours emergency primary care. The attributes were chosen to reflect the findings of previous research, current policy initiatives and discussions with local key stakeholders. A self-complete questionnaire was administered to NHS Direct callers and adult attenders at Accident and Emergency, GP services and the NHS Walk-in Centre in the locality. Regression analysis was used to estimate the relative importance to patients of the different attributes.

Results. An overall response of 71\% (\(n = 432\)) was achieved. All but one of the attributes was a statistically significant predictor of preference. The attribute ‘being kept informed about waiting time’ was the most important. This was followed by ‘quality of the consultation’, ‘having a consultation with a nurse’, ‘having a consultation with a doctor’ and ‘contacting the service in person’. Respondents were prepared to wait an extra 68 min to have a consultation with a doctor, but an extra 2 h 9 min for information about expected waiting time. There were no measurable preference differences between patients surveyed at different NHS entry points. Respondents younger than 45 years held strong preferences with respect to how they wanted to make contact with the system, whereas older respondents appeared not to hold strong preferences, seemingly indifferent between the alternatives. There was weak evidence which showed the younger group more strongly preferred accessing services via an integrated telephone system than making contact in person.

Conclusions. This study showed that local solutions for reforming emergency primary care during hours when the GP surgery is open should take account of the strength of patient preferences. The discrete choice method was acceptable, and the results directly informed the development of a local service framework for such care.

Keywords. Discrete choice experiments, emergency care, patient preference, preference elicitation, primary care.

Introduction

A review of the provision of 24 h emergency care was undertaken in a UK health authority area to understand how best to alleviate bottlenecks occurring across the system and so inform local decision making on ways to improve system capacity and responsiveness. Recently negotiated performance targets included improved triage times for patients attending GP primary care centres and NHS Walk-in centres, waiting times in Accident and Emergency (A\&E) and ambulance response times to life-threatening emergencies. As part of this review, local decision makers needed to be able to predict how patients might respond to local service reforms based on a valid preference measure.

The study reported investigated the strength of patient preferences for particular generic attributes relating to the system of primary care services that dealt with emergency
care that was available during the ‘usual GP surgery hours’ period, i.e. weekdays 8.30 a.m. to 6.00 p.m. and Saturday morning. A complementary study was conducted over the ‘out-of-hours’ period in order to reflect the different mix of services available and to account for the possibility that preferences could be different.1

Concern for patients’ experience of health care is central to the UK government’s strategy for reforming emergency care, but giving them a greater say in the way the NHS works requires a concerted effort by decision makers to establish such preferences. To some extent primary care has led the way; the 1998 General Practice Survey was the first national survey of patients’ views on an NHS service and it is now routinely updated. Of relevance to this paper were that the highest levels of patient discontent were found relating to access and waiting time issues. More recent findings suggested patients’ views were even more critical.3 These findings are not surprising given that the emergency care environment has been described by some as a fragmented ‘whole system’, lacking in co-ordination and disjoint working.4

Changes to the delivery of emergency care in the UK in recent years has included improved access for usual-hours general practice services, partly in response to government targets (including telephone consultation and ‘advanced access’ arrangements); and extended roles for nurses.8–12 There have also been innovative experiments using paramedics to assess patients on behalf of GPs and GPs seeing patients in A&E departments.4 At local level, these service attributes are configured into a range of different services which form an emergency primary care system. It is important that decision makers identify the best way to provide services which should involve establishing how proposals for change might reflect patients’ preferences. The national surveys reported earlier are limited in this respect.

The reported study examined the importance of several key attributes of emergency care services available during GP surgery hours, their relative importance, how much patients were willing to trade between them, and subgroup analysis. The study used the economic technique of discrete choice analysis, an attribute-based measure of preference which has been shown to be reliable and valid (for an overview of health care applications see Ryan and Gerard13).

Discrete choice analysis was selected because of three advantages over close rivals. The technique is based on a realistic context. All decisions involve choices and all choices involve sacrifice.14 This means that, unlike opinion polls or satisfaction surveys, asking respondents to choose between options, as the technique does, forces them to value attributes against each other. The results are used to provide information on attributes of a service and on the intensity of preferences. Application of this technique can help the decision maker to identify the important factors likely to influence preference. For example, Ryan and Farrar15 used the attributes ‘location of treatment’ and ‘waiting time’ to describe different orthodontic services and estimated how much additional time an individual was prepared to wait to obtain their preferred location.

**Background**

The discrete choice analysis technique is based around the idea that any goods or service can be described in terms of its attributes and the levels these take. It follows that satisfaction can be modelled as a behavioural response.17,18 Subjects are presented with a series of choices. These represent alternative descriptions of the service, differentiated by different combinations of attribute levels. For example, Table 1 describes four emergency services in terms of two attributes each with two levels. It can be seen that service A represents an A&E visit, service B a telephone contact with the GP, service C a visit to an NHS Walk-in centre and service D contact with NHS Direct. The subject is asked to imagine a scenario involving why they might want the service and then to choose their most preferred description. For each description the subject selects it is assumed to yield a higher level of satisfaction than that rejected. For example, Table 2 shows one of the 10 choices

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**Table 1**  Example of alternative service descriptions from a simple two attribute, two level health system

<table>
<thead>
<tr>
<th>Attribute 1</th>
<th>Attribute 2</th>
<th>Service description</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘Face to face’ initial contact</td>
<td>Contact with a doctor</td>
<td>Service A (visit to A&amp;E)</td>
</tr>
<tr>
<td>‘By telephone’ initial contact</td>
<td>Contact with a doctor</td>
<td>Service B (call to GP surgery)</td>
</tr>
<tr>
<td>‘Face to face’ initial contact</td>
<td>Contact with a specially trained nurse</td>
<td>Service C (visit to NHS Walk-in centre)</td>
</tr>
<tr>
<td>‘By telephone’ initial contact</td>
<td>Contact with a specially trained nurse</td>
<td>Service D (call to NHS Direct)</td>
</tr>
</tbody>
</table>

**Table 2**  Example of a choice

<table>
<thead>
<tr>
<th>Choice</th>
<th>Service A</th>
<th>Service B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Making contact</td>
<td>Single telephone call</td>
<td>In person</td>
</tr>
<tr>
<td>Where advised</td>
<td>At home, no travelling</td>
<td>Nearest NHS facility 15 miles</td>
</tr>
<tr>
<td>Waiting time between initial contact and advice</td>
<td>2.5 h</td>
<td>4.5 h</td>
</tr>
<tr>
<td>Informed of expected wait</td>
<td>No information</td>
<td>No information</td>
</tr>
<tr>
<td>Who advises you</td>
<td>Nurse, specially trained</td>
<td>Doctor</td>
</tr>
<tr>
<td>Quality of contact</td>
<td>Enough time, no interruptions</td>
<td>Not enough time, interruptions</td>
</tr>
</tbody>
</table>

(Tick one box only)
presented to subjects participating in the reported study (the format for all 10 choices is identical except for the levels). Choosing in this way enables the probability of an alternative being chosen to be modelled as a function of the attribute levels.

No UK studies have been conducted in the emergency services available during usual GP surgery hours. However, three studies have applied the technique to the delivery of out-of-hours primary care in the UK, and these have proved a useful basis. The first study, the complement to the present study, found that having a consultation with a doctor was the most important attribute but that having a consultation with a nurse, being kept informed of expected waiting time and quality of the consultation were also important factors. The second study found the single most important attribute was ‘whether the doctor seemed to listen’, to the extent that some respondents would not trade this attribute to obtain more of another. The authors concluded that improvements in doctor–patient communication might be most important when deciding how best to upgrade services. The third study also confirmed the importance of the attribute ‘doctor’s manner’ in the care patients wanted to receive, but here subjects were more prepared to trade this for more of other attributes such as reductions in waiting times and where the patient was seen. One unexpected finding was subjects’ relative dislike for telephone consultations.

**Methods**

Figure 1 outlines the framework for a discrete choice analysis and key technical details for the interested reader (Louviere and colleagues provide in-depth discussion of the technique).

**Attributes and levels**

The process of defining attributes and levels was informed by published literature; national and local policy initiatives; guidance from the project’s steering committee; interviews with key stakeholders; and a pilot study. Attributes were selected that were common features of the main providers of the local emergency system. This narrowed the focus to the initial contact and receipt of initial medical advice or treatment. Each attribute is described below and presented in Table 3.

<table>
<thead>
<tr>
<th>Step</th>
<th>Key tasks</th>
<th>Technical details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Identify attributes and levels of service</td>
<td>To identify the key attributes of importance. Assign two or more levels to each attribute; levels are to represent the range of variation in the attribute relevant to the research question but which are plausible, feasible and capable of being traded off against one another.</td>
<td>Depending on the attribute levels may be measured in quantitative units (e.g. minutes of time) or qualitative units (e.g. seen by doctor or nurse). Qualitative ones require more care with their interpretation (e.g. the current study uses dummy variables to describe the direction of change from one level to another for the attributes ‘making contact’ and ‘who advises’). Six attributes is considered manageable although there is no current evidence-based guidance on what might be regarded as too complex a task for respondents to complete.</td>
</tr>
<tr>
<td>2. Select a sample of service descriptions and combine into choice sets</td>
<td>Since the total set of attribute level combinations (descriptions) is usually too large to use in its entirety a sample is required. These can be subsequently grouped together to generate a set of preference choices.</td>
<td>Total number of attribute levels is calculated by the product of the number of levels (e.g. in the current study it is 7 x 5 or 3 x 3 x 3 x 3 x 3 x 3). Statistical design theory is used to draw the sample (a process known as using a fractional factorial design) and to group descriptions into choice sets. The theory allows certain effects of interest to be estimated independently of one another. In the current study, as is often the case, main attribute effects are estimated using a regression model which is linearly additive.</td>
</tr>
<tr>
<td>3. Survey sample for preferences</td>
<td>To generate a survey instrument incorporating the set of preference choices in step 2; select an appropriate sample; and collect preference data under survey conditions.</td>
<td>Typically a self-complete or interview-administered instrument contains around 8-16 preference choices and some additional questions on key health and socio-demographic factors. As each subject provides multiple preference data points sample size calculations reflect this and the general rule of thumb used is that 30-100 subjects are required per subgroup (a subgroup could be factor such as age or gender).</td>
</tr>
<tr>
<td>4. Analysis</td>
<td>Use appropriate regression techniques to analyse preference data and sub-groups.</td>
<td>The dependent variable (preference choice) is binary, represented as ‘0’ if the option is not chosen and ‘1’ if chosen. To obtain estimates of the parameters associated with such a dependent variable a relevant probability model is fitted (in the current study this is a probit model).</td>
</tr>
</tbody>
</table>

**FIGURE 1 Framework for discrete choice analysis**

*Source: Ryan and Gerald*
The attribute ‘making contact’ deals with how contact is initiated if the person needs medical advice that cannot wait until the next available GP appointment. This contact could be ‘in person’ or ‘by telephone’. In the out-of-hours context, the government’s vision is for ‘single call access’ with providers automatically diverting calls to NHS Direct for initial assessment, triage and initial contact and advise/treatment. This was 30 min, 2.5 h and 4.5 h wait based on typical waiting times and desirable targets. Previous studies support the hypothesis that shorter waiting is preferred.

Another attribute was concerned with whether patients were kept informed of the expected wait. This was predicated on the belief that patients would want this information to allay anxiety and/or to allow their time to be put to better use. This is endorsed by the government and supported by a previous study.

Evidence is growing of the contribution that nurses and other professionals allied to medicine can make to the care of patients. Given that these roles may still be novel to patients, an important attribute under investigation was who advises the presenting patient. As it was difficult to postulate a priori whether other health professionals would be as preferred as the doctor, the categories ‘nurse specially trained’, and ‘paramedic’ were incorporated into two dummy variables which used paramedic as the comparator (in Table 3 these are labelled ‘NURSE’ and ‘DOC’).

Finally, there is evidence that the quality of the consultation experienced is important, such as being able to talk to the doctor and understanding the doctor’s explanations. Ideas in the literature were adapted to signal a salient generic notion of the quality of the consultation received. This was presented as three ordinal levels using the notion of sufficient uninterrupted consultation time. It could be hypothesized that better quality would be preferred.

### Selecting a sample of service descriptions and making choice sets

Six attributes of three levels produces a total of 729 (or 3^6) possible service descriptions. Not all of these could be used in a questionnaire, so a software program was used to generate a sample. These were paired and placed into sets of choices. The properties associated with the choice sets are reported elsewhere.

### Surveying preferences

A self-complete questionnaire was formatted as two sections: section 1 presented 10 choice sets each comparing ‘service A’ with ‘service B’ and asking the subject to think about the choices under certain conditions. That is to say, to keep the choices relevant to the initial contact and advise/treatment received from all the emergency care services available locally subjects were asked to

“Imagine you are at home on a week day morning and you decide you are in need of urgent medical care...”
advice or treatment. You decide to contact a service.

There are several options about the service you contact. Which service would you choose?" Section 2 of the questionnaire asked about: socio-demographic details, experience of emergency care and health services generally, and current health. In addition, responders were asked how easy or difficult they found the choice questions.

The study population comprised individuals who were attending for emergency treatment or advice with a key provider in the health authority area during February 2002. These were: A&E Department at the local teaching hospital; six GP services (we included patients from surgeries offering same day appointments and out-of-hours GP services) which were geographically spread; the NHS Direct authority covering the health authority population; and an NHS Walk-in Centre close to the city centre.

The NHS Direct survey was ongoing throughout the data collection fortnight; for other services, time periods for distributing questionnaires were selected to cover likely busy periods when there would be patients waiting for treatment. Subjects were adults over 16 years or adults accompanying younger patients who were eligible to represent the views of younger respondents.

With the assistance of the nursing staff in each location, patients who were waiting to be seen at A&E, GP service or NHS Walk-in Centre were approached to take part in the study but only if they appeared not to be overly distressed, anxious, pre-occupied, too ill or in too much pain. Patients with an injury to a hand or arm that would make it impractical to fill out the questionnaire were also excluded (unfortunately, there was insufficient time available to the researchers handing out questionnaires to fill one in for patients with such injuries). A 60% response rate was anticipated.29

NHS Direct callers were surveyed by post and a response rate of 40% was anticipated based on the average response from two previous studies. The postal survey involved call handlers screening to check that callers were from the relevant area and were not too ill, unduly anxious or distressed. If none of these applied, callers were invited to participate in the research at the conclusion of their consultation. Verbal consent was given for NHS Direct to send out the survey and the completed questionnaire was returned directly to the research team. It was considered unethical to have access to callers’ names and addresses, and the alternative, follow-up by NHS Direct, was not feasible. Thus it was not possible to follow-up non-responders with reminder letters.

Analysis

The data were analysed using an appropriate regression model for binary dependent variables coded ‘0’ or ‘1’. In this case, the probit regression model was performed to obtain maximum likelihood estimation of the choice model.31

In the analysis reported, all respondents were consistent. This meant that the individual responded in a certain way; they preferred more of a good thing rather than less of it. Such behaviour was assessed by a test included in the questionnaire. One choice contained an option that was unambiguously dominant over the other (so-called ‘dominance test’, see Gerard28). There were 16 individuals who were found to be ‘inconsistent’ by this means.

A preference function was estimated based on the relative change in satisfaction associated with the differences in attribute levels for each choice. It took the form:

\[ V = \sum_{i=1}^{8} \text{parameter}_i \times \text{attribute}_i + e + u \]

where V is the change in satisfaction associated with moving from service A to service B, 1–8 are the parameters of the model to be estimated, and e and u are the unobservable error terms where e is due to differences in observations and u is due to differences among respondents. Table 3 links attribute names to labels and coding levels that were used in the regression analysis.

Response rates

Of 607 questionnaires distributed, 432 (71%) were usable (completed and consistent). The response rate by entry point varied, 30% was obtained from the postal survey of NHS Direct callers and between 81 and 96% from the remainder (Table 4). Making the choices was only judged difficult in 10% of responses. Most respondents had found the questionnaire easy or not difficult to complete.

Table 4: Survey response and ease of task

<table>
<thead>
<tr>
<th>Questionnaires distributed</th>
<th>Questionnaires completed (%)</th>
<th>Usable (consistent responders) (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NHS Direct</td>
<td>200</td>
<td>60 (30)</td>
</tr>
<tr>
<td>A&amp;E</td>
<td>141</td>
<td>141 (100)</td>
</tr>
<tr>
<td>Walk-in Centre</td>
<td>128</td>
<td>128 (100)</td>
</tr>
<tr>
<td>GP services</td>
<td>138</td>
<td>119 (89)</td>
</tr>
<tr>
<td>Total</td>
<td>607</td>
<td>448 (73)</td>
</tr>
<tr>
<td>Ease of task (%)</td>
<td>Easy</td>
<td>129 (29)</td>
</tr>
<tr>
<td>n = 448</td>
<td></td>
<td>Not easy or difficult</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Difficult</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Missing</td>
</tr>
</tbody>
</table>
The socio-economic profile of the sample is given in Table 5. Where comparable population data were available, it was shown that the study sample was statistically significantly different in composition with respect to age (the study sample being generally younger) and economic activity (the study sample being more likely to be employed). The sample did, however, represent the population in terms of gender and ethnicity.

**Regression model**

The results of the regression model reported in Table 6 apply to consistent responders. With some qualification, the size of the coefficients can be used to indicate relative importance per unit change of an attribute, and the signs on the coefficients indicate in which direction satisfaction changes. Care has to be exercised in interpreting these results, however, as they are clearly dependent on which units of change are adopted, and need to be considered alongside what is feasible by way of the scale of change. Allowing for this caveat, all attributes influenced preferences for the group of responders as a whole. That is to say, and in order of importance, intensity of preferences were influenced by the extent of:

- being kept informed about expected waiting time with respondents preferring more information to less;
- quality of the consultation mattered, with respondents preferring enough uninterrupted time to discuss their problem than less;
- contact was with a doctor as compared with a paramedic;
- contact was with a nurse, as compared with a paramedic;
- making contact in person was preferred, as compared with two or more telephone calls to get through;
- making contact was via an integrated call system as compared with two or more telephone calls to get through;
- location mattered, with respondents preferring less travel and (by implication) consultation at home; and
- waiting time between initial contact and being advised or treated, with respondents preferring less waiting time.

It is further helpful when trying to decide how to provide better services to consider the trade-offs between attributes. In this study, respondents were willing to forgo different amounts of waiting time to gain improvements in various attributes. For example,
the typical respondent was prepared to wait an extra 2 h 9 min to have more information about expected waiting time and an extra 68 min to have a consultation with a doctor (calculated by dividing the coefficients for \text{INFORM\_TIME} and \text{DOC} by the coefficient for \text{WAIT\_TIME}, respectively).

\textit{Subgroup analysis}

Preference heterogeneity was investigated (but not reported). It was found that compared with the results in Table 6, respondents younger than 45 years held strong preferences with respect to how they wanted to make contact with the system, whereas older respondents appeared not to hold strong preferences, being seemingly indifferent between the alternatives. There was weak evidence which showed the younger group more strongly preferred an integrated telephone system than making contact in person.

\textbf{Discussion}

This study used a discrete choice experiment to measure strength of patient preferences for generic attributes of emergency care services during usual GP surgery hours. The results suggested all but one of the attributes was a statistically significant predictor of preferences and could be used to guide local modernization plans. The most important attribute was ‘being kept informed of expected waiting time’, with respondents expressing a willingness to pay in terms of waiting \(>2\) h longer to be given this information. The next three important attributes were quality of consultation and being advised by a nurse and doctor. When thinking about making contact with a service, respondents preferred making contact in person. A more general interpretation could be suggested from the data. Respondents would be prepared to tolerate not having services located closer to home if they could be kept informed of expected waiting time and given consultations of sufficient duration and uninterrupted. Such trade-offs means that service providers can consider more flexible packages of service locations with the proviso they also address issues around provision of waiting time information and consultation quality.

The study had a number of limitations. The sample surveyed under-represented elderly health care users and those in poor health. This could be of greater concern for individual emergency services such as the A&E department and ambulance service, which may have sicker and more elderly populations. The study focused on users of emergency care services for whom the service descriptions and choice options were particularly pertinent; however, a wider, more representative community survey may have produced different findings. Response to the postal survey was hampered because the researchers were not permitted to follow-up respondents and remind them to return questionnaires.

This was an unfortunate limitation, as a higher response rate could have been anticipated if one or two reminders were used.\textsuperscript{30,32} Instead, the representativeness of NHS Direct callers must be called into question.

A further limitation concerns how respondents perceived the attributes that were described, in particular, how and where respondents anticipated their waiting time, which could not be ascertained from the reported study. This somewhat restricts the interpretation that can be placed on the importance of waiting time and being kept informed of waiting time. Waiting time spent at home next to the telephone is likely to be valued differently from waiting time spent in an A&E department. Likewise, being kept informed of waiting time is likely to be more valuable if you are free to use that time, which is not usually the case in A&E departments. A better understanding of how these attributes are perceived can be obtained with qualitative research methods. This should be a topic of future research.

This research builds on earlier studies to represent a more complete range of service choices which are relevant in the provision of today’s more complex emergency primary care environment. Similar to the findings of these previous studies, qualitative aspects of the system were shown to be important to respondents.\textsuperscript{1,19,20} In particular, it was shown that individuals were concerned about being kept informed about expected waiting time and having contact with medical advice that was perceived as being long enough and free of interruptions. As such, some improvements to the system could be achieved by examining the way in which providers communicate with their patients. This could be straightforward to achieve, at relatively low cost. Interestingly too, was that comparison with the complimentary out-of-hours study showed stronger preferences for being kept informed of expected waiting time and having enough contact with medical advice that was perceived as being long enough and free of interruptions. One explanation might be that our sample were young working adults who might be less prepared to arrange health service visits around their working lives.

Strong preferences were elicited for being advised by a specially trained nurse and doctor rather than paramedics. One general interpretation is that initiatives which use or aim to use new (radical) ways of working, such as extending the role of paramedics, may yet be less acceptable in emergency care settings and need careful handling if they are introduced or expanded so that individuals, perhaps unfamiliar with them or uncertain of their effectiveness, are appropriately informed of their place in the system and of the anticipated benefits. This study further suggested that, if preference heterogeneity is taken into account in modernization plans, services for older people may have to be tailored differently from those for younger people.
Patient preferences for ‘usual hours’ emergency services

Although waiting time appeared less important than most of the other attributes, both the scale of the measurement unit and the setting need to be kept in mind when interpreting the findings. This is particularly so given that possible improvements in time savings can be expected to impact differentially across the system. For example, long waits in A&E could be substantially reduced through initiatives such as streaming patients,25,30,32 but only quite small improvements could arise from an already responsive NHS Direct service.

In summary, respondents have preferences for how emergency primary care services are organized and, when presented with relevant choices about this using discrete choice analysis, can validly express the strength of their views. This should encourage health care decision makers. It is possible to measure strengths of preferences even for services not yet operational, and this is particularly helpful in policy analysis of possible future service configurations.

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KG led the preference study; conceived and designed the choice experiment with the assistance of the wider team, worked with VL on the organization of the study, and conducted the analysis and interpretation of findings. VL contributed to the design of the questionnaire, the interpretation of findings and providing the policy context. KG and VL drafted the paper for publication and are the guarantors.

Declaration

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References


25 Salisbury C, Trivella M, Bruster S. Demand for and supply of out of
hours care from general practitioners in England and Scotland:
observational study based on routinely collected data. Br Med J 2000;
320: 618–621.
Preference Experiment Designer. The Netherlands: Hagedoorn
Consultancy Group; 1991.
27 Zwerina K, Huber J, Kuhfield W. A general method for constructing
efficient choice designs. US, Fuqua School of Business, Duke
University; 1996.
28 Gerard K. Respondent consistency in discrete choice experiments:
moving things forward using a case study in emergency and on
demand health care systems. Odense, University of Southern
29 Vick S, Scott A. Agency in health care. Examining patients’
preferences for attributes of the doctor–patient relationship. J
30 van der Pol M, Caimi E. Estimating time preferences for health using
International; 2000.
32 Cooke M, Wilson S, Pearson S. The effects of a separate stream for
minor injuries on accident and emergency department waiting