An Evaluation of a General Practice Co-operative

Submission for the Degree of Doctor of Medicine

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by

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Summary

Objectives

To assess the impact of establishing a general practice co-operative on:

- General practitioner satisfaction
- Patient satisfaction
- The pattern of service use for unplanned health service contacts, particularly A&E services.

Design

Controlled before and after study using historical and contemporary controls

Setting

Sheffield

Subjects

Survey of Sheffield residents, with follow up home interviews and review of medical records. Postal survey of Sheffield practices.

Interventions

Establishment of a general practice co-operative.

Main outcome measures

General practitioner reported satisfaction with out of hours working arrangements.
Patient satisfaction using adapted McKinley questionnaire.
Proportions of patients seeking help from general practitioner, A&E and other services.
Results

The establishment of the co-operative was associated with:

• improved general practitioner satisfaction with out of hours working arrangements
• no important changes in existing high levels of patient satisfaction
• no overall increase in use of A&E services.

Before the co-operative opened, the proportion of patients contacting A&E services out of hours was lower in practices who subsequently joined the co-operative. A year after opening, the proportion had risen to levels similar to non member practices. However, the difference in changes in A&E use between patients of member and non member practices was not statistically significant.

Conclusions

General practice co-operatives have been successful in achieving the policy objectives of the 1995 “New Deal”, improving general practitioner morale without jeopardising patient satisfaction or impacting adversely on other services.
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1 Introduction

1.1 Structure of this thesis

This thesis describes an evaluation of a general practice co-operative. Chapter 1 gives the background to the study and explains the need for this research. Chapter 2 reviews the relevant research literature. Chapter 3 gives an overview of the study methods, design and data collection.

The next three chapters each address one of the key research questions of the study. Chapter 4 addresses the impact of the co-operative on A&E and other services. Chapter 5 addresses the impact on patient satisfaction, and chapter 6 the impact on GP satisfaction. For each aspect of the study the background, methods, results and conclusions are described.

Chapter 7 draws together the conclusions of the different aspects of the study and discusses policy and research implications. Examples of the study instruments used are shown in the appendices.

1.2 Origin of the project

In 1995 the NHS Research and Development Primary/Secondary Interface Programme tendered for proposals to investigate the impact on accident and emergency (A&E) services of new models of service delivery in primary care. At that time I had been awarded a joint Medical Research Council/NHS Executive Trent Special Training Fellowship in Health Services Research,
based at the Medical Care Research Unit at the University of Sheffield, and during the first year of the fellowship needed to develop a protocol for a research study. I was lead applicant on a bid from the Medical Care Research Unit, together with the departments of primary care and health economics also at the Sheffield Centre for Health and Related Research - later to become the School for Health and Related Research (ScHARR), to evaluate the impact of a general practice co-operative on A&E services.

Since the proposed study design was a controlled before and after study, it was important to identify a general practice co-operative in the NHS which was not yet in operation, but had firm plans for establishment. Because of the timetable for funding decisions by the Primary/Secondary Interface Programme, only co-operatives with plans for establishment after September 1996 were suitable.

I telephoned primary care lead officers in many health authority areas, but in most areas co-operatives were already established. If firm plans existed for a co-operative, then usually the co-operative was timetabled to open before the funding decision in September 1996. Where co-operatives due to open after that date were under consideration, plans were usually more speculative and not considered firm enough to form the basis of our proposed evaluation.

This situation made it very difficult to identify a suitable co-operative for the evaluation. At the outline bid stage, the proposal was to evaluate a co-operative proposed to be established in the Dearne Valley, and we gained the
support of Doncaster Health Authority for our bid. By the time our bid had been shortlisted, and we were invited to submit a full proposal, the proposed co-operative had run into difficulties and we had to look elsewhere. The fast changing nature of the situation at that time is illustrated by the fact that the bid was finally rescued by a new proposal to open a general practice co-operative in October 1996 in Sheffield, operating from a primary care treatment centre a few hundred yards away from the Medical Care Research Unit. With the support of the Local Medical Committee, and the proposed management board of the co-operative, we submitted a full proposal for evaluation. The commissioning board awarded the proposal the highest marks of all proposals submitted to the Primary Secondary Interface Programme in that round, and in September 1996 we were told that the study would be funded.

1.3 The need for research

As described more fully in section 2.4, general practice co-operatives developed in response to increasing discontent amongst general practitioners about the problems of providing 24 hour cover in the face of ever increasing demands.\textsuperscript{1,2} Following the government’s “New Deal” in 1995, there was a rapid increase in the number of general practice co-operatives throughout the NHS,\textsuperscript{3,4} but much of this expansion occurred in the absence of any evaluation.
In Sheffield, a general practice co-operative was established on 31st October 1996, with 67 member practices out of 108 practices in Sheffield, covering the majority of the Sheffield population. It operated from a primary care treatment centre in the centre of town, on the site of one of Sheffield’s two main general hospitals. With funding for the evaluation secured in September 1996, there was a brief window of opportunity to start a before and after study evaluating the impact of the co-operative before it opened in October.

A literature review by Hallam in 1994 concluded that previous published studies on out of hours primary care provided an inadequate basis for assessing the potential impact of proposed fundamental changes in service provision. In 1996 a two day symposium on 24 hour responsive health care organised by the National Primary Care Research and Development centre at the University of Manchester concluded that alternative approaches to providing 24 hour primary care were under-documented and under-researched. They identified an “urgent need for basic research to fill in the gaps in our existing knowledge and to guide service developments”.

At the same time, major developments were being proposed in the organisation of A&E services, mainly driven by the perceived need to improve care for major trauma. There was a trend towards centralisation of services, with concentration of expertise in fewer A&E departments, and a concurrent development of more local services for minor injuries. A previous study had found that in urban areas as much as 42% of first contact care out of
hours was with A&E departments rather than general practitioners. It was clear that neither service could be understood or evaluated in isolation. Out of hours care is provided by a wide variety of services which have arisen independently, resulting in areas of overlap and little co-ordination. With marked changes occurring in the organisation of A&E services, as well as GP out of hours care, there was a clear need for research on the interrelationship between the developing services.

Important studies on the relationship between primary care and A&E services had been undertaken, particularly in London, showing that patients who attend A&E with primary care type problems can be prospectively identified, and may be managed more cost-effectively by general practitioners in A&E than by usual A&E staff. Others had examined “inappropriate” attendance at A&E, but the factors influencing patients' choice of where to seek emergency care remain poorly understood. However, no studies had examined how recent developments in provision of out of hours care in general practice impact on A&E services, or on patients' choice of available services. Nor had any examined the cost consequences of these service developments from a population perspective to assess their impact on the full range of available services.

Research on out of hours models prior to the start of this study was limited to descriptions of services in the UK and abroad. One important finding was that patients might be reluctant to travel to primary care treatment centres,
rather than receive visits at home, despite being seen sooner in the centre. It was felt that this reluctance to travel to primary care treatment centres might have implications for A&E services. This concern that changes in models of GP out of hours care may impact on other services such as A&E was the impetus for the call for this research.

Concern had also been voiced that patients might be dissatisfied with a co-operative primary care treatment centre service due to lower levels of home visiting, and that this would lead to an increase in attendances at A&E services that already feel over burdened. Equally, concern had been voiced from smaller A&E services that the establishment of general practice co-operatives might lead to a reduction in A&E attendances, threatening their viability.

Despite the rapid spread of general practice co-operatives, there were then a number of under-researched concerns about their impact. In summary these were:

- impact on use of other services, especially A&E
- impact on patient satisfaction
- impact on general practitioners’ satisfaction

It was important to examine whether the co-operative could fulfil the policy objective of the New Deal (improving GP satisfaction with out of hours arrangements) without impacting adversely on A&E or other services. It was
also important to investigate whether any rise in doctor satisfaction might be at the expense of patient satisfaction.

The study aimed to take a population perspective, allowing an examination of the impact of the co-operative on A&E services and on other services used by people making unplanned contacts for health problems. The study was designed to measure changes in patterns of service use following the establishment of the co-operative, whilst also assessing changes in patient and GP satisfaction.


2 Literature Review

2.1 Aims of the review

The aims were to review the literature on:

- The history of general practice co-operatives – what led to the establishment, and later the dissemination of this model of out of hours care?
- Demand for out of hours care – what do we know about the epidemiology of demand for out of hours care?
- Evaluative studies of general practice co-operatives – what do we know about the impact of general practice co-operatives on patients, doctors and health service use?

Since the study described in this thesis is an evaluation of a general practice co-operative, the principal objective of the literature review was to identify evaluative studies of general practice co-operatives. Initially the search was undertaken before my study, but it was continued and updated throughout and after the study period, so that relevant studies occurring were added as they were published.

As discussed in section 2.6, by evaluative studies, I mean studies with a comparison group. The majority of studies identified were non-evaluative studies – simple descriptive studies without any comparison being made.
These studies proved useful, however, in understanding the epidemiology of demand for out of hours care, and together with the many reviews and editorials identified in the literature search, in documenting the history of co-operatives.

### 2.2 Search strategy

Following discussions with the information resources section at ScHARR, the Medline search strategy shown in Table 1 was used to identify potentially relevant literature. This search strategy had been developed previously by Rheinhardt Wentz, information specialist at the UK Cochrane Centre.

Where possible, this search strategy was adapted for use on other literature databases such as Embase and the Science Citation Index, otherwise simple free text searches were undertaken. The review was a continual process, with searches being made regularly and references added to a growing reference manager database over a period of several years. Electronic citation searching was also undertaken regularly in the Science Citation Index, allowing any papers that had cited some of the seminal papers in this field to be identified.
### Table 1: Search strategy

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In addition to electronic searching, the reference lists of relevant papers and books were examined. This was particularly useful where key review articles were identified. During the course of this project (in one case before the onset of the project) several important reviews were published which were extremely helpful in identifying relevant papers and in reassuring the author that important papers had not been missed. These reviews were:

1. A seminal review of the literature on out of hours by Hallam, published in the BMJ in 1994.5


3. A review of the literature between Jan 1990 and May 2000 undertaken by Lattimer and published in Annex Two of “Raising Standards for Patients, New Partnerships in Out of hours Care”, an independent review of GP out of hours services in England, commissioned by the Department of Health.22

4. A review of the literature since 1959 on demand for out of hours care, undertaken by Salisbury.23

In addition to electronic searching and scanning reference lists of relevant articles, I also used personal contact with researchers in the field and regular reading and scanning of journals kept in the Medical Care Research Unit to identify studies. An attempt was also made to identify relevant “grey
literature” through electronic searching of a grey literature CD ROM and hand searching. Finally, the internet was also searched using internet search engines such as Alta Vista UK and Google, to identify relevant reports, articles and abstracts.

Titles and abstracts were reviewed to identify papers likely to be relevant to the aims of the review, and these were ordered.

This chapter first discusses three models of general practice out of hours care. It then discusses the political background and events leading up to the establishment and rapid spread of co-operatives as the major form of out of hours care in the NHS. Next the literature on the epidemiology of demand for out of hours care is summarised, followed by a review of evaluative studies of general practice co-operatives. Newer models of out of hours care developed since the study (such as NHS Direct) are discussed in section 7.4.

### 2.3 Models of general practice out of hours care

General practitioners provide out of hours services in three main ways:

1. Own on call/Practice rotas
2. Deputising services
3. General practice co-operatives
2.3.1 Practice on call rotas

Historically, particularly in pre-NHS days, many general practitioners worked as single handed practitioners, often working from their own homes. In this situation, general practitioners would provide cover for their own patients 24 hours a day – only handing over to other doctors, locums, whilst they were on holiday. Whilst this continuity of care was seen as a mark of good practice, out of hours demand was not encouraged. In his biography of Will Pickles, first president of the Royal College of General Practitioners, John Pemberton describes how the practice resisted installing a telephone, since it might lead to unnecessary or trivial calls.

As general practitioners began to gather into group practices, working from purpose built surgeries and health centres, out of hours cover was usually organised around a practice rota. Doctors would have shared lists, which meant that any doctor called out of hours might have previously treated the patient and be aware of any longstanding condition.

This model of care is characterised by home visiting and telephone advice. A study in Scotland by Heaney and Gorman, for example, found that 63% of patients received a home visit, and 29% received telephone advice. Only 8% were seen in surgery. One advantage of this model is that doctors visiting patients have access to their medical notes – though in practice these are rarely consulted.\textsuperscript{24}
Smaller practices sometimes joined together to form extended practice rotas, in order to reduce the frequency of on call work for each general practitioner. This practice, which grew in response to perceived increases in demand, was discouraged by changes to the contractual arrangements in 1990, which reduced the night visit fee for extended rotas of ten doctors or more.  

2.3.2 Deputising Services

Doctors’ Deputising Services are commercial organisations which provide out of hours cover for general practitioners. They provide a wide range of services, ranging from a simple answering service for general practitioners doing their own on call, to a full answering and visiting service to which general practitioners can hand over out of hours.

In response to general practitioners’ concerns about the effects of on call and rising demand on their lifestyle, deputising services became more and more extensively used, particularly in urban areas. The numbers of general practitioners using deputising services doubled in the early 1970s, and by 1993 deputising services provided two thirds of all night visits in inner-city areas.

Despite a regulatory framework, ensuring for example that doctors employed by deputising services have had at least six months’ experience of general practice, concerns have been raised over the standards of care provided by deputising services. Hospital services, in particular, have voiced criticism
about referrals made by deputising doctors. However, some studies have suggested that this criticism is unjustified, pointing out that patient satisfaction with deputising services has been high.

Deputising services have been characterised by high rates of home visiting with little telephone advice. Contracts between general practitioners and deputising services have usually included a payment per visit, resulting in a commercial incentive to visit. However, in the face of increasing competition from general practice co-operatives, commercial deputising services have had to change. Many have opened primary care treatment centres, and charging structures have been changed to encourage more telephone advice and consultations at the centres.

2.3.3 General Practice Co-operatives

The National Association of General practice co-operatives defines a co-operative as:

“a non-profit making organisation entirely owned, and medically staffed, by the general practitioners of the area in which they operate.”

Set up to reduce the frequency of out of hours duty for general practitioners, co-operatives represented a fundamental change in the way doctors provide out of hours care. Whereas in the past many doctors had been on call for small populations simultaneously, a new structure was established in which a small number of doctors would cover a large number of practice populations.
This meant that out of hours duty, whilst more infrequent, would be considerably busier for the doctors. Doctors knew that they could provide care to many more patients per hour in a surgery setting than by undertaking home visits because of the associated travel time. For this reason, primary care treatment centres were set up, with patients encouraged to attend for consultation, rather than receive a visit in their home. Transport to the centre was often provided (or subsidised) for those unable to make their own way.

In addition, general practitioners in co-operatives used telephone advice to a higher level than before, and, in contrast to fee-per-visit deputising services, home visits were reserved for the house-bound, or those too ill to attend the centre.

Co-operatives vary in a number of important ways. The number of patients covered varies 100 fold, from around 10,000 to over 1 million; the number of doctors from 10 to 400. There are also important differences in organisation and facilities, with some providing free transport for patients to attend their primary care treatment centres, others subsidised transport, and some no transport at all. The number of primary care treatment centres provided by a co-operative varies, as does the setting – which range from surgeries of member practices to purpose built or acute hospital premises.
2.4 The history of general practice co-operatives

This section describes the political, social and professional changes that led to the creation of the general practice co-operative as a new model of out of hours care provision, and its rapid spread throughout the NHS, to become the principal provider of out of hours care.

2.4.1 GP dissatisfaction

Whilst it is improbable that many doctors have ever relished having their nights disturbed by calls from patients out of hours, it was in the late 1980s and early 1990s that general practitioners’ dissatisfaction with their 24 hour commitment increased dramatically. Before that time, providing out of hours care to one’s own patients had been seen as a sign of good professional practice. Gradually, more doctors came to see personal on call work as a failure to set boundaries, as unrealistic and possibly detrimental to the quality of in hours general practice.

NHS strategy in the late 80s, like much of the then government’s public services policy, reflected an underlying consumerist philosophy. There was a move in the commercial sector to a “24 hour society”, with an increasing number of shops and services available around the clock. Management changes in the NHS reflected a belief in “sectoral transference”, that management strategies in the private sector would transfer over to the public sector, with consequent improvements for the patient/consumer. The “New
Contract” of 1990 was widely perceived to have been imposed on general practitioners, and there was resentment about the differential night visit fee it introduced. A fixed night visit fee was replaced with a £45 fee for visits made by the patient’s own doctor, or by a doctor in a rota of up to ten general practitioners. For more extended rotas, including the use of commercial doctors’ deputising services, the night visit fee was reduced to £15. This differential fee was introduced explicitly to encourage out of hours care by doctors from a patient’s own practice, and to discourage the use of deputising services, which had grown substantially. In the year following these changes, the proportion of night visits by deputies fell by 19%.25

Growing resentment about general practitioners’ contractual obligation to provide 24 hour General Medical Services was fuelled by the experience of younger general practitioners whose hospital medical experience had been influenced by disputes about junior hospital doctor hours. In high profile protests, junior doctors had chained themselves to railings to draw attention to their long hours of duty, with some “shifts” starting on Friday morning and ending on Monday evening. As these doctors moved from the senior house officer hospital posts of their general practitioner vocational training schemes into general practice, they brought with them a view of 24 hour duty periods as exploitation, rather than “good practice”.

In this environment a series of rounds of negotiation between the British Medical Association’s General Medical Services Committee and the
government took place. In a 1992 survey of 35,000 general practitioners undertaken by the GMSC, with a 70% response rate, 80% of doctors wanted to opt out of the responsibility for providing 24 hour cover. General practitioners were keen to experiment with new arrangements for out of hours care, particularly primary care emergency centres. Dissatisfaction among general practitioners with current contractual arrangements was so high that negotiations even involved threats of industrial action and withdrawal from the NHS.

2.4.2 The New Deal, 1995

Negotiations between the BMA General Medical Services Committee and Department of Health finally led, in 1995, to the government offering its “New Deal”. This was agreed unanimously by the GMSC and described by the BMA as

“as great an advance for general practice as the contract of 1966”.

The key features of the new deal were:

- the option for general practitioners to hand over the responsibility for out of hours cover to another principal;
- a restructured payment scheme for out of hours visits, with the removal of the differential night visit fee for extended practice rotas;
- a public campaign to educate patients; and
• the establishment of a £45 million development fund to help with the start-up and running costs of rotas above the level of individual practices.\(^3\)

It was this latter feature that catalysed the rapid proliferation of general practice co-operatives.\(^3\) Though the money was to be found from the non General Medical Services NHS budget, it represented a 55% increase in the cost of night visiting, and a U-turn in government policy on out of hours care. The effect on the number of general practice co-operatives was dramatic. In 1990 there were 6 general practice co-operatives in England and Wales registered with the National Association of General Practice Co-operatives.\(^3\) In 1994 Hallam and Cragg found 22 established co-operatives in England and Wales.\(^4\) Following the introduction of the development fund from April 96 many more general practice co-operatives were established all over the country, and by October 1996 there were 124 co-operatives registered with the National Association.\(^3\) Doctors who had previously provided out of hours cover through a practice rota, or who had subscribed to a commercial deputising service, formed co-operatives to share out of hours duty, making it less onerous in terms of the amount of time spent on duty. Many general practitioners also perceived that they would have more control and ownership of a co-operative than they could have as users of a commercial deputising service. The expansion in the number of co-operatives continued and by 1998
there were over 300 co-operatives throughout the country, with over 20,000
general practitioner members.\textsuperscript{27}

\section{Demand for out of hours care}

There is a widespread perception that demand for out of hours care from
general practitioners has been rising inexorably for many years. Studies
examining demand for out of hours care have been undertaken for more than
40 years.\textsuperscript{23} However, in 1994 in a seminal review of the literature on primary
care outside normal working hours Hallam noted a paucity of reliable
evidence on this subject.\textsuperscript{5} More recently Salisbury reviewed studies since
1959 on this topic.\textsuperscript{23} This section reviews what is known about the
epidemiology of demand for out of hours care, and evidence that that demand
has indeed risen.

\subsection{The epidemiology of demand for out of hours care}

In 1995 in a cross-sectional survey in Buckinghamshire, Brogan et al found an
out of hours contact rate with all health services of 438 patient contacts per
thousand population per annum.\textsuperscript{41} 45\% of these were with general
practitioners. An average general practice co-operative receives between 140
and 240 calls between 7pm and 7am per thousand patients per annum,\textsuperscript{42} but
studies of demand for out of hours care in different parts of the country have
demonstrated very different levels of demand. Whilst some of this may be
due to different populations (whether in age, levels of illness,\textsuperscript{43} or deprivation
for example) much of the variation might be explained by differing study methodologies.²³

Characteristics of demand have been reported in studies of practice rotas, deputising services and general practice co-operatives. The epidemiology of demand may be considered under the conventional headings of person, place and time.

### 2.5.1.1 Person

**2.5.1.1.1 Age and sex**

Whilst female sex is associated with demand for out of hours care, whether in deputising services, ⁴⁴ or general practice co-operatives, ⁴⁵ it is age that is the personal characteristic most strongly associated with demand for out of hours care. Calls from parents of pre-school children have been found to represent 25% of out of hours calls.⁴⁶ In the most important study of out of hours demand, ⁴⁵ Salisbury et al found that in 20 general practice co-operatives call rates were highest for (parents of) children under 5 (especially boys) and that call rates fell in older children and in young adults. Thereafter call rates rose with increasing age.

**2.5.1.1.2 Presenting complaint**

The types of problem for which patients contact out of hours services have been found to be predominantly upper respiratory tract infections, gastroenteritis, and other minor ailments.⁴¹ ⁴⁴
2.5.1.2 Place
Demand for care, whether for GP or A&E services, has been found to be higher in deprived inner city areas, and this relationship between demand and deprivation continues out of hours. Salisbury et al’s study found rates of calls from deprived areas to be 70% higher than non-deprived areas. Call rates were also found to be higher in Scotland than England, but no difference in call rates was found between co-operatives in the North and South of England.

2.5.1.3 Time

2.5.1.3.1 Time of day
The highest call rates are seen in the early evening, and the lowest between 1am and 6am. Half of all calls occur before 1am.

2.5.1.3.2 Day of the week
Weekend evenings are busier than weekday evenings, and peak demand occurs on Sunday mornings.

2.5.1.3.3 Time of year
There is little consistent evidence to support the prevailing view that demand is higher in the winter.

2.5.2 The increase in demand for out of hours care
The wide variation in demand found in different studies makes it difficult to compare “like with like” over a consistent period. Nevertheless the view of
most reviewers is that a genuine rise in demand has occurred. Over the 25 years up to 1993 the demand for care outside normal working hours increased fivefold,\(^46\) and home visits and deputising calls more than doubled in the 3 years up to 1995.\(^40\)

Despite the changing definition of the time period for which night visit fees could be claimed, the most reliable historical data is on night visit rates – though as most calls occur earlier in the evening these only represent a small proportion of out of hours calls. Salisbury analysed night visit claims in Berkshire Family Health Services Authority and found (after exclusion of the extra two hours for which night visit claims could be claimed following the introduction of the 1990 contract) that claims increased by 38.7% from 1989 to 1992.

### 2.6 Evaluative studies of general practice co-operatives

#### 2.6.1 Types of evaluative study

The essential quality of an evaluative study is that it makes a comparison. In his book “Evaluating Health Interventions”,\(^50\) Ovretveit defines evaluation as:

> “Evaluation is making a comparative assessment of the value of the evaluated or intervention, using systematically collected and analysed data, in order to decide how to act.”

He goes on to write:
“Comparison is the main way in which evaluation helps users to attribute value, and is what distinguishes evaluation from some other types of research.”

Many studies claiming to be “evaluations” do not use control groups and in the absence of a comparison group are unable to provide useful information about the service being evaluated. Recent examples of this phenomenon include the Consumers Association’s “evaluations” of NHS Direct and Walk-in Centres.\textsuperscript{51-53}

Thus the main inclusion criterion in my search for evaluative studies of general practice co-operatives was a comparison, or control, group or time period. This single criterion led to the exclusion of the majority of the studies identified in the literature search from this category.

A further distinction may be made between and experimental and non-experimental studies. In the former, the study team has some influence over the intervention that is being evaluated; in the latter the team is more passive, and evaluates an intervention over which it has no influence. One important type of experimental evaluative study is the randomised controlled trial, which if well-designed offers a high degree of protection against bias and confounding.\textsuperscript{54} Whilst randomised controlled trials have for some time been established as the “gold standard” for evaluative studies, they are not always possible or appropriate. Furthermore, recent work comparing the results of randomised and non-randomised studies is increasingly calling their
superiority into question.\textsuperscript{55-58} These studies have shown that where careful non-randomised studies are undertaken, the results are similar to randomised controlled trials of the same interventions. Given the scarcity of randomised controlled trials in the evaluation of general practice co-operatives, this is an important debate.

Non-experimental evaluative studies make comparisons between an intervention group and a control group. Sometimes a single group is looked at in two or more time periods in a before and after study. These studies are using historical controls only. In other studies, the intervention group and a comparison group are examined in one time period. These studies use contemporary controls. More rigorously, some before and after studies measure changes over time in the intervention group, and compare these with changes over a similar time period in the comparison group. These studies use historical and contemporary controls. The evaluation of the Sheffield general practice co-operative which is the subject of this thesis is an example of such a design.

2.6.2 Description of evaluative studies

As in many research fields, the paucity of evaluative studies of general practice co-operatives both before and after the study period is notable. The widespread adoption of general practice co-operatives has occurred largely in the absence of any evaluation.
2.6.2.1 Randomised controlled trials

Two randomised trials were identified. Different aspects of the trials were reported in six journal articles, (Table 2). A review of each of the studies follows the table.

Table 2: Papers reporting randomised controlled trials

<table>
<thead>
<tr>
<th>Author</th>
<th>Year</th>
<th>Ref. no.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lattimer et al</td>
<td>1997</td>
<td>59</td>
<td>Pilot study for South Wiltshire Out of Hours Project (SWOOP) trial (see below) to test feasibility of nurse telephone consultation and triage.</td>
</tr>
<tr>
<td>Lattimer et al</td>
<td>1998</td>
<td>60</td>
<td>SWOOP Group equivalence trial in a general practice co-operative of nurse telephone triage using decision support software, compared with usual care.</td>
</tr>
<tr>
<td>Thompson et al</td>
<td>1999</td>
<td>61</td>
<td>Adjunct to SWOOP trial, examining effect of nurse consultation on overnight calls.</td>
</tr>
<tr>
<td>Cragg et al</td>
<td>1997</td>
<td>32</td>
<td>Randomised controlled trial of care by deputising service compared to care from patients’ own general practitioner. Paper I reported processes of care.</td>
</tr>
<tr>
<td>McKinley et al</td>
<td>1997</td>
<td>63</td>
<td>Same trial as in Cragg et al, above. Paper II reported on the outcome of care.</td>
</tr>
</tbody>
</table>
2.6.2.1.1 Lattimer et al 1997.
This was the first of an important series of papers reporting the SWOOP trial of nurse telephone consultation. This pilot study aimed to assess the feasibility of the trial.

Population:

56 out of hours calls in 2 practices. Calls relating to children under 1 year were excluded.

Intervention:

Nurse telephone consultation and triage, with support from Telephone Advice System, a computer based primary care call management system.

Comparison group:

None in pilot study

Outcomes

- Proportion of calls handled by nurse and proportion needing referral to general practitioner.
- Patient satisfaction in postal survey to 44 callers.

Main findings

Feasibility of study was established. 38% of calls were handled by nurse alone. 87% of patients were satisfied or highly satisfied with the advice received from the nurse.
Comment

This paved the way for the main SWOOP study which has important implications for the organisation of general practice co-operatives. As a pilot study it had no control group and was not an evaluative study in itself.

2.6.2.1.2 Lattimer et al 1998

This paper describes the main findings of the SWOOP trial. It used block randomisation of matched pairs of days and weekends and was designed to demonstrate equivalence of adverse events.

Population:

14492 out of hours calls to a general practice co-operative of 19 practices in Wiltshire. Out of hours was defined as:

- Monday to Friday - 18.15 to 23.15 from Monday to Friday
- Saturday - 11.00 to 23.15
- Sunday – 08.00 to 23.15.

Calls about children under 1 year and repeat calls on the same day were excluded.

Intervention:

Nurse telephone consultation and triage, by experienced nurses with support from Telephone Advice System, a computer based primary care call management system.
Comparison group:

Usual care, ie telephone consultation and triage by general practitioner on duty in the co-operative.

Outcomes

- Adverse events – deaths within seven days of a contact with the out of hours service; emergency hospital admissions within 24 hours and within 3 days of contact; A&E attendance within 3 days of a contact.

- Management of calls - Numbers of calls handled by nurse alone, and by general practitioner. Attendances by type (telephone, centre attendance, home visit).

Main findings

Rates of adverse events were equivalent in the intervention and control groups.

About half of all calls could be handled by a nurse alone, and the intervention was associated with falls in the proportions of:

- GP telephone advice (69% fall)
- Attendance at primary care centre (38% fall)
- Home visits (23% fall)
Comment

Experimental evaluative studies in the field of organisation of services are notoriously difficult to design and implement. This landmark study has enormous implications for the organisation of general practice co-operatives, and may ultimately lead to a shift in the management of “in hours” demand as well.

Drawbacks are that the decision support software that formed part of the evaluated intervention has not been adopted as the NHS Direct standard which is likely to be widely disseminated, limiting the external validity of the trial.

As patients were unaware of who would be answering their call, (ie a nurse or a doctor) the trial does not directly address the more pragmatic question of how demand might be altered when patients are aware that nurses will be taking their out of hours calls.

The results of a single shot postal survey of patients were not reported due to a low (40%) response rate.

This trial tells us much about a way of organising and staffing general practice co-operatives. However, it does not evaluate whether a co-operative is in itself better or worse than other models of out of hours care.
2.6.2.1.3 Thompson et al 1999;
This paper reported a parallel trial to the SWOOP study above, in the same
general practice co-operative, extending the intervention to include overnight
calls.

**Population**

223 overnight (23.15 to 08.00) calls to the co-operative described above in
Lattimer 1998.

**Intervention**

Nurse telephone consultation as described above.

**Comparison group**

Usual co-operative care as described above.

**Outcomes**

As described above, with the addition of attendance at a daytime surgery
within 3 days of a call.

**Main findings**

59% of overnight calls were handled by nurse alone. Reductions were seen in
the proportions of calls requiring general practitioner advice and home visits.

A reduction in daytime surgery attendance was not statistically significant.

**Comment**
This trial extended the evidence for nurse consultation to the much more infrequent overnight calls.

It was not powered to detect equivalence in adverse events, and tells us nothing about these in overnight calls.

The use in this study of a one-sided significance test is debatable. Arguably these should be restricted to situations where changes can only take place in one direction, rather than where stated interest is in changes in one direction.

2.6.2.1.4 Lattimer et al 2000
This paper reported an economic evaluation of the SWOOP trial described above in Lattimer 1998.

**Population**

All calls contacting the co-operative described above in the year of the trial.

**Intervention**

Nurse telephone consultation as above.

**Comparison group**

Usual co-operative care, as described above.

**Outcomes**

Costs of the nurse consultation service and savings resulting from its use.

**Main findings**
The additional annual costs of the intervention (£81,237) were outweighed by
the additional savings (£94,422) – largely due to an observed reduction in
hospital admissions.

Comment

This study makes a strong case for nurse telephone consultation being
efficient as well as effective. The efficiency, however, depends on the
reproducibility of a reduction in hospital admissions brought about by nurse
telephone consultation, and on the appropriateness of avoided admissions.

2.6.2.1.5 Cragg et al 1997 and McKinley et al 1997

These studies report different outcomes of the same trial of commercial
deputising service out of hours care versus out of hours care provided by
patients’ own doctors.

Population

2152 patients requesting out of hours care from 49 practice doctors and 183
deputising doctors.

Out of hours was defined as:

- Weekdays – 19.00 to 07.00
- Saturdays – after 13.00
Intervention

Care from commercial deputising service doctor

Comparison group

Care from a doctor from the patient’s own practice.

Outcomes

Processes of care

- Type of consultation
- Time to visit
- Prescribing
- Hospital admissions

Outcome of care

- Health status
- Patient satisfaction
- Subsequent health service use

Main findings

Deputising doctors were found to give far less telephone advice (0.72% v 20.2%); take 50% longer to visit, and prescribe generically half as often as practice doctors.

Patients were less satisfied with care from deputising doctors.
There were no differences in health status or subsequent health service.

Comment

This is one of only two randomised controlled trials in out of hours care. Whilst it provides evidence of superiority of care from practice doctors, no health outcomes were shown to be worse following deputising service care.

The study adds weight to widespread concerns about services offered by commercial deputising services, concerns that contributed to the initiation and popularity of the co-operative movement. However, it is not an evaluative study of co-operatives, and it is not possible to extrapolate any of the findings of the superiority of “own doctor” care to the co-operative setting (where care is usually not provided by the patient’s own doctor).

2.6.2.2 Non-experimental evaluative studies.

Ten non-experimental evaluative studies were identified, (Table 3). Again a review of each study follows the table.
Table 3: Non-experimental evaluative studies

<table>
<thead>
<tr>
<th>Author</th>
<th>Year</th>
<th>Ref. no.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Williams et al</td>
<td>1985</td>
<td>7</td>
<td>Study of provision out of hours care in four urban areas, one of which contained an early general practice co-operative.</td>
</tr>
<tr>
<td>Salisbury</td>
<td>1997</td>
<td>33</td>
<td>First of a series of three studies by Salisbury evaluating a general practice co-operative compared with a deputising service. This study reported measures of activity.</td>
</tr>
<tr>
<td>Salisbury</td>
<td>1997</td>
<td>64</td>
<td>Second paper in Salisbury’s evaluation of a general practice co-operative compared to a deputising service. This study reported patient satisfaction.</td>
</tr>
<tr>
<td>Salisbury</td>
<td>1997</td>
<td>65</td>
<td>Third of paper from Salisbury’s evaluation of a general practice co-operative. This paper reported general practitioner satisfaction</td>
</tr>
<tr>
<td>Sharpley</td>
<td>1997</td>
<td>66</td>
<td>Study of out of hours activity in the same practice using a practice rota, extended rota and general practice co-operative.</td>
</tr>
<tr>
<td>Shipman et al</td>
<td>1997</td>
<td>67</td>
<td>Postal survey of general practitioner satisfaction with out of hours arrangements, compared to 1 year ago.</td>
</tr>
<tr>
<td>Heaney et al</td>
<td>1998</td>
<td>66</td>
<td>Comparison of stress and arousal levels in general practitioners before and after the establishment of a general practice co-operative.</td>
</tr>
<tr>
<td>Charles-Jones and Houlker</td>
<td>1999</td>
<td>69</td>
<td>Before and after study, looking at the impact of a new general practice co-operative on general practitioners and their families.</td>
</tr>
<tr>
<td>Fletcher et al</td>
<td>2000</td>
<td>70</td>
<td>Comparison of general health status of general practitioners, before and after the establishment of three new general practice co-operatives.</td>
</tr>
<tr>
<td>Shipman et al</td>
<td>2000</td>
<td>71</td>
<td>A study of patient satisfaction with general practice co-operative, deputising service and practice based out of hours arrangement.</td>
</tr>
</tbody>
</table>

2.6.2.2.1 Williams et al, 1985
This study was the first that allowed a comparison between out of hours care in areas served by co-operatives and deputising services.

**Population**

5170 first contacts out of hours in four urban areas, 3 served by deputising services and one by a general practice co-operative.

Out of hours was defined as:

- Monday to Friday 1900 to 0800, plus
- 1200 Saturday to 0800 Monday.
Description of comparisons and types of controls used

This study allowed comparison of care in areas predominantly served by a general practice co-operative (considered here as the intervention) and deputising services (considered here as the control). Only contemporary controls were used – there was no measurement of outcomes before the co-operative.

Outcomes

Proportion of contacts made to:

- Own practice
- Deputising service
- Co-operative
- Accident and emergency department

Main findings

Compared with areas served by deputising services, in the area served by the general practice co-operative a lower proportion of calls were made to the patients own general practitioner and to A&E departments.

Comment

Whilst an evaluation of the general practice co-operative was not the principal focus of this study, it provides the first data comparing health service use
associated with general practice co-operative and deputising service out of hours arrangements.

The results led to concern that general practice co-operatives might lead to a reduction in the proportion of care provided by patients own doctors. However, it is likely that this represents greater use by general practitioners of the co-operative (which was non-profit making) than the (commercial) deputising services in the areas under study.

The external validity of this study is limited by the changes in the organisation of co-operatives that have occurred since the early 80s. In particular, the co-operative is described as “operating like deputising services but are not profit making”. From this description it is unlikely that this early general practice co-operative operated from a primary care treatment centre. Only 68% of general practitioners in the “intervention” area were members of the general practice co-operative.

2.6.2.2 Salisbury 1997 (measures of activity)

This study compared measures of activity in a general practice co-operative and a deputising service.

Population

5812 patient contacts over an eight week period to both services: a general practice co-operative with 147 general practitioner members and a
commercial deputising service serving 29 doctors in the same area, and 118
doctors in a neighbouring area.

Co-operative hours:

- Daily 1900 to 0700 and
- From 1200 Saturday at weekends

Description of comparisons, and types of controls used

This study was designed to compare the co-operative (“intervention” with the
deputising service “control”). Only contemporary controls were used.

Outcomes

- Patient characteristics
- rates of:
  - home visiting/telephone advice/attendance at a primary centre
  - hospital admission
  - prescribing
- response times

Main findings

The co-operative was associated with lower visiting rates (a third compared to
three quarters of calls); and more telephone advice (around 60% compared to
20%) than the deputising service. Doctors from the co-operative also prescribed drugs to around half as many patients and admitted 30% more patients to hospital. Response times from the co-operative were 10 minutes slower than from the deputising service.

Comment

This study, together with the accompanying papers on patient and GP satisfaction, provided the first evaluative data on a general practice co-operative operating from a primary care treatment centre.

One drawback, inevitable in such a fast changing arena, was that the control group was changing – the deputising service had previously had a policy of visiting all patients, but had introduced a telephone advice policy only two months before the study began. It is likely that the pattern of use of home visits, centre attendance and telephone advice seen in the areas served by the deputising service might change as the new telephone advice system became more established. This is an example of a general problem in evaluating general practice co-operatives compared to deputising services which were changing their policies (and charging systems) in response to the challenge of the co-operative movement.

It is interesting to note that in this study the co-operative (perhaps seen as a higher quality service in terms of lower prescribing) was also associated with a slightly higher hospital admission rate. Higher deprivation levels in the intervention area may be an explanation for the higher admission rates. This
illustrates the difficulty of interpreting differences in hospital admission rates seen, for example, in the SWOOP study.\textsuperscript{62}

2.6.2.2.3 Salisbury 97 (patient satisfaction)

The second paper in Salisbury’s evaluation of a general practice co-operative compared to deputising service, this was a postal survey of patient satisfaction, using a modified version of the McKinley satisfaction questionnaire.\textsuperscript{72}

**Population**

2312 patients surveyed. Setting as described above in Salisbury 97 (measures of activity)

**Description of comparisons, and types of controls used**

Designed to compare the satisfaction of patients contacting the co-operative with that of patients contacting the deputising service. Only contemporary controls were used.

**Outcomes**

For the primary comparison of co-operative v deputising service:

- overall satisfaction;
- satisfaction with explanation and advice
- satisfaction with doctor’s manner
• satisfaction with contacting the service

• satisfaction with receptionist

Acceptability and satisfaction with wait were separately assessed for home visits, attendances at primary care centre and telephone advice only.

Patient factors predicting satisfaction were also examined.

**Main findings**

The response rate was 67%.

There was no difference in patient satisfaction between the co-operative and the deputising service. Patients contacting the deputising service were less satisfied with explanation and advice and with the wait for visits.

Lower satisfaction was associated with:

• younger age

• non-white ethnic group

• telephone advice

• patients who would have preferred to see their own doctor

• patients who originally wanted a home visit

• longer waiting times for visits.
Comment

The same drawback of the changing nature of the control group applies as in the study of measures of activity, as the survey of satisfaction was undertaken on patients in the same time period. Those withstanding, this study provides good evidence that overall patient satisfaction was similar in the co-operative and the deputising service. Given that a randomised study had shown patients to be less satisfied care from deputising service than from a doctor from their own practice, (section 2.6.2.1.5) it might be argued that it follows that patients would prefer care from a doctor in their own practice to care from a co-operative. However it is difficult to make that judgement in the absence of a direct comparison of the two models of care.

The survey represented a single “snapshot”. It would be preferable to have measured satisfaction before and after the establishment of the co-operative, allowing changes in satisfaction in the intervention group to be compared with changes in satisfaction in the control group.

Overall satisfaction was lower in this study than in previous studies, perhaps because it was measured more stringently here. Concerns were raised about patient satisfaction in the wake of the increasing levels of telephone advice.
2.6.2.2.4 Salisbury 97 (GP satisfaction)
The third paper in Salisbury’s evaluation of a general practice co-operative compared to deputising service, this was a postal survey of general practitioners, measuring their satisfaction with their arrangements for out of hours care.

Population

280 general practitioners, 139 in the co-operative, and 141 using the deputising service. Setting as described above in Salisbury 97 (measures of activity)

Description of comparisons, and types of controls used

The study was designed to compare the satisfaction of doctors using the co-operative with that of doctors using the deputising service. Only contemporary controls were used.

Outcomes

- The importance to general practitioners of a range of issues in deciding whether to use the co-operative or the deputising service.
- Satisfaction with seven aspects of the out of hours service they used.

Main findings

Co-operative members were more satisfied with their arrangements for out of hours care than general practitioners using the deputising service. Overall,
92% of general practitioners were satisfied or very satisfied with their arrangements.

The main reasons for joining the co-operative were quality of care and the manning of the co-operative by local general practitioners.

**Comment**

The paper reports the p value (<0.001) for the difference in overall GP satisfaction, but not the proportion satisfied or very satisfied in the intervention and control arm. It is therefore difficult to make an assessment of the importance of this difference. Again a snapshot is taken, and no assessment is made of how satisfaction has changed since the establishment of the co-operative. Compared to previous studies of doctors’ satisfaction and morale, 73 general practitioners seem happier.

2.6.2.2.5 **Sharpley 1997**

This study, reported in a letter to the BMJ, examined changes in patterns of health service use in a single practice using different out of hours arrangements.

**Population**

1215 out of hours contacts in a three partner semi rural practice of 6100 patients over a 48 week period.
Description of comparisons, and types of controls used

The study compared patterns of out of hours service use in a single practice over three (continuous) 16 week periods as the practice changed from a practice rota, to an extended practice rota, to membership of co-operative. Thus historical controls only are used, this being a before and after study of the impact of a co-operative but without contemporary controls.

Outcomes

Numbers of:

- Night visits
- Night telephone advice contacts

Main findings

Compared to the first study period, when a practice-based rota was used, joining the co-operative was associated with a 52% reduction in out of hours contacts. Home visits fell by 49%, telephone consultations fell by 73% and surgery consultations rose by 93%.

Comment

As this study was published in a letter, limited details are available. No significance testing is reported.

While the outcomes have the advantage of coming from the same practice and population, in the absence of contemporary controls it is not possible to assess
secular/seasonal trends. No details of processes for accessing care from the co-operative are given, and the reductions in out of hours activity observed may represent lack of awareness of the co-operative in the early stages of the practices membership.

2.6.2.2.6 Shipman et al 1997
This study, also reported in a letter to the BMJ, examined GPs’ satisfaction and their views about patient satisfaction.

Population
416 general practitioners in Lambeth, Southwark and Lewisham, 73% of whom were co-operative members and 25% of whom used a deputising service.

Description of comparisons, and types of controls used
Results were not presented separately for co-operative members and non members, though questions were asked about improvements following the “new arrangements” and patient satisfaction compared to 1 year ago. There were therefore implied historical controls.
Outcomes

- GP satisfaction with out of hours arrangements
- General practitioners’ views of patient satisfaction compared 1 year previously
- Reported improvements in general practitioners’ quality of life
- General practitioners’ influencing concerns about out of hours services.

Main findings

Four fifths of general practitioners are satisfied with their current arrangements for out of hours care, and nine out of ten general practitioners consider their patients to be at least as satisfied as one year previously. General practitioners’ concerns were with quality of care and training, eg training in telephone consultation skills.

Comment

Whilst there is an implication in the limited published data on this study that the co-operative (established in April 1996) was not in operation 1 year before the study, this is not absolutely clear. Nevertheless, this study demonstrates improvements for general practitioners following new out of hours arrangements. Unfortunately, results on GP satisfaction and GP views of patient satisfaction are not shown separately for co-operative members and non-members.
2.6.2.2.7 Heaney et al 1998
This study examined stress levels in general practitioners before and after the establishment of a general practice co-operative.

Population

36 general practitioners in Midlothian who formed a general practice co-operative.

Description of comparisons, and types of controls used

Historical controls only were used. Comparisons were made between self-recorded stress levels 1 week before and 1 year after the co-operative was formed. A matched analysis was performed on a subset of 16 general practitioners whose responses to both surveys could be identified as pairs.

Outcomes

- Adapted Nottingham Stress Arousal Check List
- Self reported stress level and impact on family/social life
- Hours worked and on call status

Main findings

In both the main and the matched analyses, stress scores fell and arousal scores rose. A relationship between on call arrangements and stress scores found the before survey had disappeared in the after survey.
Compared to before the co-operative, doctors reported undertaking less out of hours duty, and less imposition of duty on family or social life after the co-operative.

Comment

This was the first before and after study to assess the impact of a co-operative on doctors’ stress levels, and provides evidence that co-operatives reduce doctors’ stress. It was a small study – with only 24 responses before the co-operative and 23 after and only 16 in the matched analysis. The absence of contemporary controls means that the secular trends could not be accounted for.

2.6.2.2.8 Charles-Jones and Houlker 1999

This before and after study examined the impact of a new general practice co-operative on the morale of general practitioners and their families.

Population

All 57 general practitioners in Chester, all of whom joined the co-operative, and their spouses.

Description of comparisons, and types of controls used

Only historical controls were used – the study compared morale six weeks before and six months after the establishment of the co-operative. There was
no contemporary control in Chester (since all general practitioners joined the co-operative) and control area was studied.

Outcomes

- Dislike of out of hours work
- Damage to family life
- Worry about safety on call
- Stress to doctor/spouse
- Anger

Main findings

For both general practitioners and their partners, reductions were observed in all outcomes, with the falls being statistically significant in all except worry about safety in general practitioners (P=0.06).

Comment

This study provides evidence of improvements in GP morale 6 months after the establishment of co-operative. The response rate in general practitioners was 86% but was unknown in spouses (though it was at least 63%).

As there was no deputising service in Chester, the study compares general practitioners’ (and spouses’) satisfaction with practice rotas with satisfaction with the co-operative. Weaknesses include the lack of contemporary controls,
and uncertainty about whether the improvement in morale lasted longer than six months.

2.6.2.9 Shipman et al 2000

This is the only study comparing patient satisfaction in general practice co-operatives, deputising services and practice-based out of hours services.

Population

1823 out of hours contacts with the three services in an inner London Health Authority.

Description of comparisons, and types of controls used

The comparisons were between each of the three services 15 months after the establishment of the general practice co-operative, ie contemporary controls only.

Outcomes

Patient satisfaction scores using the same scales used by Salisbury, above.

Main findings

Overall satisfaction was high and there were no significant differences in overall satisfaction between the three services.

Satisfaction with the wait for a home visit was higher with practice-based care than for the deputising service.
Satisfaction with the wait for a telephone consultation was higher with practice-based care than for either the deputising or the co-operative.

Satisfaction with telephone advice was lower than for attendance at the primary care centre.

Comment

The main drawback of this study was its low response rate (54.4%) which means it is open to significant response bias. The study was undertaken using the same methodology as Salisbury, and illustrates the difficulties of undertaking research in inner city practices.

This study provides the only direct comparison between co-operatives and practice-based care, though the “practice-based” care in this study was accessed via the deputising answering service. Nevertheless, satisfaction with the wait for telephone consultation was found to be higher in the practice-based group than in the co-operative.

The study strengthened existing concerns about patient satisfaction with calls handled by telephone advice only.

2.6.2.2.10 Fletcher et al 2000

This postal survey examined the impact of the establishment of co-operatives on general practitioners’ health status.
Population

374 general practitioners in Buckinghamshire, where three co-operatives became established.

Description of comparisons, and types of controls used

Historical controls were used, with the comparison being made between all general practitioners in 1995 (when 20% of general practitioners were members of a co-operative) and 1998 (when 69% of general practitioners were members).

Comparisons using contemporary controls (members and non-member of the co-operative) were possible, but not reported.

Outcomes

Short Form 36 health status questionnaire.

Main findings

Health status improved between 1995 and 1998, with statistically significant changes in the emotional role, social function, mental health and energy and vitality dimensions of the SF36. General health scores in 1998 were still lower than social class I norms.

Comment

This study provides some evidence that doctors’ overall health is improved following the establishment of a co-operative.
The association could have been explored further by comparing changes in health in general practitioners joining the co-operative with those who did not, but this was not reported. Thus secular trends in health for reasons other than the co-operative cannot be ruled out. Different survey methodologies were used in each year, leading to different response rates.

2.6.3 Other studies of co-operatives

Several other studies of general practice co-operatives were identified which did not meet the criteria for evaluative studies described in section 2.6.1.

Hallam and Henthorne undertook seven case studies of co-operatives to describe their development and organisation, patterns of care, experiences of users and stakeholders’ views. The principal conclusions of the study were that co-operatives have improved quality of life for doctors and that patients attending co-operatives were as satisfied with those receiving home visits. Concerns were raised about dissatisfaction with telephone advice, escalating demand, poor facilities, and wide variations in patterns of care.

In a study of five out of hours primary care centres, Cragg et al compared characteristics those attending and declining to attend. Only 22% of callers agreed to attend, though those that did so were highly satisfied with the service provided. Principal reasons for declining to attend were belief that they were too ill to travel, and lack of transport. Free patient transport
services to co-operatives may contribute to equity of access to out of hours care for patients from deprived areas.\textsuperscript{75} Rapid appraisal methods may be helpful in organising out of hours services taking into account local needs.\textsuperscript{76}

\subsection*{2.6.4 Summary of evidence from evaluative studies}

A matrix illustrating the types of evaluative study identified in the literature review, together with the principal outcomes assessed, is shown in Table 4. This allows rapid identification of the strongest type of evidence available for each outcome, with the more robust study designs closer to the left of the matrix. The trial by Cragg and McKinley is omitted from the table, since it did not concern co-operatives.

It is immediately apparent how little experimental evidence exists – only the trials concerning nurse telephone consultation. None of the non-experimental studies have used the strongest design, comparing changes over time using historical and contemporary controls. Nor is there any suggestion from the matrix that the quality of studies has improved over time. No studies where the intervention was the establishment of a co-operative have examined their impact on clinical outcomes or patient general health, or on health service use outside general practice and A&E.
Table 4: matrix of evaluative study designs and outcomes

<table>
<thead>
<tr>
<th>Outcome/Design</th>
<th>Experimental</th>
<th>Non-experimental</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RCT or non-randomised controlled trial</td>
<td>Historical and contemporary controls only</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Contemporary controls only</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Historical controls only</td>
</tr>
<tr>
<td>GP outcomes</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>GP satisfaction</td>
<td>Salisbury 97</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Shipman 97; Charles-Jones 99</td>
</tr>
<tr>
<td></td>
<td>GP stress</td>
<td>Heaney 98</td>
</tr>
<tr>
<td></td>
<td>GP general health</td>
<td>Fletcher 2000</td>
</tr>
<tr>
<td>Patient outcomes</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Patient satisfaction</td>
<td>Salisbury 97; Shipman 2000</td>
</tr>
<tr>
<td></td>
<td>Patient clinical outcomes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Patient general health</td>
<td></td>
</tr>
<tr>
<td>Health service use</td>
<td>Use of own Practice</td>
<td>Williams 85</td>
</tr>
<tr>
<td></td>
<td>Use of A&amp;E</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Use of other services</td>
<td></td>
</tr>
<tr>
<td>Processes of care</td>
<td>Type of consultation</td>
<td>Salisbury 97</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sharpley 97</td>
</tr>
<tr>
<td></td>
<td>Prescriptions</td>
<td></td>
</tr>
<tr>
<td>Organisation of co-operatives</td>
<td>Nurse telephone consultation</td>
<td>Lattimer 98; Thompson 99</td>
</tr>
</tbody>
</table>
Summarising the evidence from these evaluative studies, what we know about co-operatives compared to other models of out of hours arrangements can be considered under each type of outcome.

### 2.6.4.1 General Practitioner outcomes
There is good evidence that doctor satisfaction with general practice co-operatives is high. There is moderate evidence that co-operatives improve morale of doctors joining them, at least in the short term, and some evidence that doctors stress levels and general health are improved.

### 2.6.4.2 Patient outcomes
Patient satisfaction is the only patient outcome for which evidence exists. There is good evidence that patients are more satisfied with face to face consultation than with telephone advice only. There is moderate evidence that patient satisfaction with co-operatives is similar to that for deputising services. The evidence comparing patient satisfaction with co-operatives and with patients’ own practice doctors is conflicting. In the one direct comparison, there is moderate evidence that satisfaction with co-operatives, practice doctors and co-operatives is similar. However, there is strong evidence that patients are more satisfied with care from a doctor from their own practice than with deputising services.
2.6.4.3 Health service use and processes of care
There is good evidence that co-operatives are associated with a higher level of telephone advice and a lower level of home visiting than deputising services. An early co-operative was associated with fewer contacts to a patient’s own general practitioner and a lower A&E use. General practitioners working in co-operatives prescribe fewer drugs than deputising doctors.

2.6.4.4 Organisation of co-operatives
There is very strong evidence that around half of calls to general practice co-operatives can be safely managed by trained nurses supported by software. There is moderate evidence that cost savings will result from such a policy.
3 Overview of methods

3.1 Study objectives

The study objectives were to assess the impact of the general practice co-operative on:

1. The pattern of use of A&E, GP and other first contact services (chapter 4)
2. Patient satisfaction with first contact services (chapter 5)
3. GP satisfaction with out of hours arrangements (chapter 6)

An economic study, led by a health economist at ScHARR, was also undertaken, but is not presented as part of this MD thesis.

3.2 Study design

This was a before and after study of patients seeking unplanned (non-elective) health care using historical and contemporary controls.

Two key features of the study design were:

3.2.1 A population perspective.

Designs which compare the costs and effectiveness of discrete models of out of hours provision by looking solely at users of each service provide some useful information. However, they are not able to assess the overall impact of new services models on the population use of services. By taking a
population based approach, we have been able to look at the pattern of service
use for all types of care and assess the impact of service developments on the
use of other services as well as how patients choose GP or A&E services.
This information can be used to complement that gained from discrete service
model comparisons.

3.2.2 A non-randomised study.

The focus of our study was on patient choice of out of hours services and how
it is affected by the establishment of the co-operative. A randomised design,
whilst removing selection bias in comparisons of alternative service options,
would have eliminated patient choice and thus prevented the study of patient
choice and its consequences for population demand in the real world.

3.3 Intervention

The establishment of an out of hours general practice co-operative in
Sheffield.

3.3.1 The service existing before the co-operative opened

In 1996 there were 322 general practitioners working in Sheffield from 108
practices. Ninety-eight per cent of the general practitioners were supported in
their out of hours activity by Healthcall Ltd. Healthcall is a commercial
deputising service which operates from premises in the Lower Don Valley,
and covers the Health Authority areas of Sheffield, Barnsley, Rotherham,
Wakefield, Doncaster, North Derbyshire and North Nottinghamshire. In addition to the deputising service, Healthcall provided a 24 hour answering service for general practitioners.

The deputising service was available from 6pm to 8am each weekday and from 12 noon Saturday until 8am Monday. A Thursday service from 12 noon to 6pm was also provided.

3.3.2 The service after the co-operative

The co-operative opened on the evening of 31st October 1996. It operates from accommodation in the centre of the Sheffield, at the Royal Hallamshire Hospital. Services are available at all times covered by the commercial deputising service and include a 24 hour answering service.

Patients access the service in the following way:

1. Patients telephone their own general practitioner’s number. The call is automatically transferred to the new service, or they receive a message asking them to contact the new service.

2. The call is answered by a trained receptionist who takes initial details. A doctor telephones the patient back and offers them one of the following:

   a) Immediate telephone advice, which may remove the need to see a doctor.

   b) Attendance at the primary care treatment centre which is open throughout the out of hours period and is staffed by doctors, nurses and receptionists. In
the event of the patient having difficulty attending the centre, transport may be
provided.

c) A visit to the patient’s home by a general practitioner.

When the service opened the centre was staffed by four general practitioners
between 6pm and midnight, and by two general practitioners between
midnight and 8am. An emergency standby general practitioner is required to
cover each session. The service is non-profit making and its establishment
was funded by a bid against the “New Deal” out of hours development fund.

The service aimed to improve the standard of out of hours care by:

• increasing the options for where patients can receive out of hours care

• providing care in a safe, well-equipped and staffed environment

• providing chauffeur driven cars to more quickly respond to appropriate
  visit requests, while increasing general practitioner security

• creating an environment where general practitioners can enjoy their
  normal working day and deliver an improved quality of care because of a
  reduction of the out of hours burden with its well documented stresses and
  pressures.

Changes in to Health Call during the study

In response to these developments, Health Call altered the contracts on offer
to general practitioners not joining the co-operative. It set up its own treatment
centred in Carbrook, Sheffield, and altered its contracts to reduce or remove the fees for each visit made.

### 3.4 Pilot study

Funding approval for the study was obtained in mid September 1996 and the general practice co-operative opened on 31\textsuperscript{st} October that year. In order to complete the “before” postal survey prior to that date, the first mail out had to start on the 4\textsuperscript{th} October. This left very little time for a pilot study. Nevertheless a small pilot of the postal questionnaire was undertaken with academic and clerical staff at the university and amended accordingly.

The interview schedule was piloted by the research team on the first 12 patients responding positively to the postal questionnaire. These patients were included in the final analysis where appropriate.

### 3.5 Data collection

This was undertaken in several stages. The stages are outlined briefly here, with further details on each aspect of the study provided in the appropriate chapter.

1. **Postal questionnaire**

This was sent to a random sample of the Sheffield population (all ages). Questionnaires were sent to the parents or guardians of children under 16 years. The questionnaire asked whether people had sought help for any health
problem in the previous four weeks, and if so whether the contact was planned before seeking help (ie elective care) or unplanned

2. **Home interviews**

Home interviews were offered to those identified in the postal questionnaires as having recently sought health care in an unplanned contact. The interviews gathered details about the most recent episode, including use of services, the time that a decision was made about where to seek help, and satisfaction with services.

3. **Review of patient notes**

Permission to review notes was requested at the home interview.

Information from the postal questionnaire, home interviews and patient notes were reviewed together to produce the best account possible of the unplanned contact.

These three parts of the study were repeated to gather data before and 1 year after the establishment of the primary care treatment centre.

4. **Practice survey**

In December 1997, all practices were sent a questionnaire to establish their views on the impact of the co-operative on their satisfaction with out of hours service arrangements for themselves and for their patients.

5. **Routine data**

Routine data on the use of A&E services over the period of the study was obtained from Sheffield health authority.
3.6 Ethical approval

Approval for the study was obtained from the North Sheffield local research ethics committee. Written consent was obtained at interview from patients granting permission for notes review.
4 Use of services and impact on A&E

4.1 Introduction and key questions

The central issue addressed by this study was the impact of the co-operative on the pattern of use of first contact health services. It was of particular concern to establish whether opening the co-operative had led to a change in the use of A&E services.

The study aimed to measure changes in the pattern of service use following the opening of the co-operative. The key question to be addressed was:

- was any change in the pattern of service use following the establishment of the co-operative different in patients of practices that had joined the co-operative and those that hadn’t?

4.1.1 Pragmatic and explanatory analyses.

A distinction can be made between explanatory and pragmatic attitudes in research. In explanatory research, the question asked is “what effect can this intervention have?” It is often carried out in selected groups, and analysis may be restricted to those receiving, or fully complying with, the intervention.

In contrast, in pragmatic research the question asked is “what effect does this intervention have overall, in the real world?” Pragmatic research attempts to use unselected populations, including those not complying with the
intervention. Health services research, as opposed to clinical research, is characterised by a more pragmatic attitude.

Whilst these concepts were originally formulated for controlled trials, they are useful in other settings. In this study we have examined the impact of the co-operative on health service use in several ways in order to answer both pragmatic and explanatory questions.

4.1.2 All hours and out of hours

Primarily we were interested in the overall effect of establishing a co-operative on the pattern of service use for all unplanned consultations (ie excluding elective care). In addition to this pragmatic question, we might expect the establishment of the co-operative to have its greatest impact on out of hours consultations. This more explanatory question was approached by repeating the analysis, restricting it to out of hours cases. This was done twice, once for cases where the consultation was made out of hours, but also for cases where the *decision* about which service to contact was made out of hours. Patients may be faced with decisions about where to take acute health problems, and make these decisions outside normal working hours whether or not the actual consultations are made out of hours. Many out of hours decisions are made to wait until surgeries are open. Conversely, decisions may be made in hours, to attend out of hours services.
We felt it important to look separately at changes in the pattern of service use in cases where the decision was made out of hours, since any impact of the co-operative might be expected to be greatest of all in these patients. Time of decision was considered too difficult a concept to reliably capture in a postal survey, and this analysis was undertaken using data collected at home interview.

“Out of hours” was considered to be outside normal surgery working hours, and for the purposes of the study was defined as:

- Monday to Friday - 1800 hours to 0759;
- Saturday - 1200 hours to 2359; and
- Sunday – all day.

Largely this also reflected the hours covered by the general practice co-operative. Saturday mornings could also be considered out of hours, however since most general Practices offer a surgery on Saturday morning, and the co-operative provided cover after the morning, we decided to exclude Saturday mornings from our working definition.

Some surgeries close on afternoon weekdays, with many surgeries in Sheffield being closed on a Thursday afternoon. However, other practices have a different half day closing or none, and it was not practical to include these variations in the definition.
In order to facilitate the collection of routine data from the Health Authority, a simpler definition of out of hours was used. Routine data was considered out of hours Monday to Friday 1800 to 0800, and all day Saturday and Sunday.

4.1.3 First service and all services

For each unplanned contact we attempted to document each service (up to a maximum of three) used during that acute episode of care. When examining changes in patterns of service use we looked initially at the impact of the co-operative on the choice of first service that the patient first turned to for help. However, it was also important to look at the more pragmatic question of whether services were ever used during the acute episode. For example, if the co-operative were to lead to a reduction in people contacting their general practitioner as the first service, it would be important to know whether patients attending A&E or other services attended their general practitioner just as often, but later in the episode. In other words, to see whether the effect was to delay, rather than reduce, the use of any services.

Any impact of the co-operative on health service use could be mediated in two distinct ways. Firstly, the establishment of the co-operative might have an effect on patients’ health-seeking behaviour, ie where they first seek health care. Secondly, the co-operative might dispose of patients who have contacted it differently from the pre-existing service. The more explanatory “first service” analysis addresses the impact of the co-operative on health-
seeking behaviour. The more pragmatic “ever service” analysis addresses the overall result of both effects of the co-operative.

By “first service” we meant the first service that the patient reported contacting. Thus, if a patient received telephone advice from a general practitioner, followed by attending A&E, the general practitioner would be the first service. The collection of information on first service contacted was more reliable in patients whose stories were confirmed at home interview.

4.2 Methods

Information on the use of services was obtained through the postal questionnaire, home interviews and notes review. Routine data on A&E use were also examined.

4.2.1 Postal Survey

Each year a random sample of Sheffield residents (all ages) was obtained from the Sheffield Health Information Project (SHIP) database from the health authority. This database contains details of all patients registered with Sheffield general practitioners. Because more practices became co-operative members than not, twice as many patients were sampled from the non-co-operative practices. Because of technical problems with the database in September 1996, when the first sample was taken, the database was 3 months out of date in terms of corrections for change of address, though it was
corrected for recent deaths. In order to make the sample comparable in the second year, it was taken in July 97, then corrected for deaths in September.

A four page questionnaire was mailed each year to all people in the sample, along with a letter explaining the reasons for the study. The questionnaire was based on a postal questionnaire about minor injuries and service use from a previous MCRU study. Questionnaires were addressed to the parent or guardian of children aged less than 16 years. Responses were logged onto a Microsoft Access database and, in order to maximise response rates and minimise non-response bias, reminders were sent to non-responders two and four weeks after the initial mailing. The dates of the mailings are shown in Table 5:

Table 5. Mailing dates

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial mail out</td>
<td>3/10/96</td>
<td>2/10/97</td>
</tr>
<tr>
<td>1st reminder</td>
<td>16/10/96</td>
<td>16/10/97</td>
</tr>
<tr>
<td>2nd reminder</td>
<td>31/10/96</td>
<td>30/10/97</td>
</tr>
</tbody>
</table>

The purpose of the questionnaire was to identify people who had made an unplanned contact, seeking help for a health problem, in the previous 4 weeks, wherever they had sought help. Further details as to the type of problem, and where and when they had sought help were also requested on the form, together with information about age, sex, and access to use of a car. Those who indicated that they had made a recent unplanned contact were then
approached for a home interview, unless they had indicated on the postal questionnaire that they would not like to be contacted again.

4.2.1.1 Inclusion criteria for postal questionnaire data

Only respondents completing the form before 28th November 1996 could have sought help (in the previous 28 days) before the co-operative opened on 31 October. Responses after 28th November 1996 in the first year were therefore excluded from the analysis. In the second year, the corresponding cut-off date of 27th November was applied.

For those responses occurring in the core period (3/10/96 to 28/11/96 in year 1 and 2/10/97 to 27/11/97 in year 2), three types of response were possible. Either they had sought help before the key date (31/10/96, the date the co-operative opened in the first year, and the corresponding date of 30/10/97 in the second year); or they had sought help after the key date; or they had not sought help.

Analysis of service use, and comparison between years, was restricted to those in the first category. Interviews were offered to these patients.

4.2.2 Home interview

Home interviews were offered to those who responded to the postal screening questionnaire indicating that:
• they had sought care for a health problem in the four weeks prior to completion;

• the contact had been unplanned;

• they did not object to being approached again;

The primary purpose of the interviews was to confirm and clarify the story given on the postal questionnaire about the most recent unplanned episode, including which services were contacted, in what order. In particular, we wanted to clarify the time that a decision was made as to where the patient would first seek help. This was important since we felt that changes in service use would depend on what services were available, and how they were perceived at the time of decision. The time of contact was also requested, along with any other services used in that episode, and any follow up care.

The home interviews provided data on other outcomes: information was gathered on patient satisfaction, and economic data as described in the relevant chapters. The interview was also used to obtain written consent for review of notes, for those patients reporting contact with services keeping medical records.

4.2.3 Review of notes

For those patients where consent was obtained, an attempt was made to review the notes relating to the contact. Following a letter arranging a visit to the practises, the notes were reviewed, and data relevant to the episode were
extracted onto a standard form. Dates and times were taken where possible. Similarly, A&E and other hospital records were reviewed, along with the hospital computerised patient administration systems.

4.2.4 Synthesis of data from postal questionnaire, home interviews and notes review.

The most reliable data in what were often complex stories concerning the circumstances and timing of decisions to seek health care, came from those patients who had been interviewed and had given consent for review of their notes where relevant. For these patients, data from the three data sources were reviewed together and cross-checked. The “best account” of the story was entered onto the database, whether it be from all three data sources, or postal survey and home interview (for those interviewed but without notes review) or postal survey alone (for those not interviewed).

4.2.5 Routine A&E data

Routine data on the use of A&E services was obtained from Sheffield Health’s SHIP database for the period of the study. This data, the total first attendances at A&E by Sheffield residents at the A&E department in Sheffield in each month, was analysed by whether the patient was a member of the co-operative or not, and whether the attendance occurred in hours or out of hours. Total attendances in these categories were graphed to show time changes over
the period, and acted as a background picture on which to interpret the
focussed data from the before and after surveys.

4.2.6 Statistical methods

4.2.6.1 Sample size calculation

The principal comparisons made were between:

• changes in patterns of service use of patients of general practitioners who
  had joined the out of hours co-operative before and after its establishment,
  and

• changes in patterns of services use of other general practitioners in the
  city.

The sample size was calculated as follows: in order to have an 80% chance of
detecting as significant at the 5% level a change in the proportion of out of
hours contacts with A&E before and after the introduction of the out of hours
co-operative in the population from 40% to 30%, 375 contacts in each year
were needed. We assumed that 4% of the population seek out of hours care in
4 weeks,79 and that therefore 9,375 respondents were needed. This assumed,
for example, that there would be a change from 40% to 20% in the population
who might be covered by the co-operative, and no change in the others. A
previous MCRU population survey of service use for minor injuries in
Sheffield had achieved a response rate of 70%, and we assumed that if this were achieved 13,500 questionnaires would need to be sent in each year.

### 4.2.6.2 Analysis

The data were analysed using SPSS version 10. Changes in service use before and after the establishment of the co-operative were compared in patients of practices who had joined the co-operative (member practices) and those that hadn’t (non member practices). Services used were classified into three groups: GP, A&E or other, and the percentage of patients attending each calculated for first service used, and again for services ever used during the acute episode (see section 4.1.3, above).

For significance testing, the three groups were simplified into a binary dependent variable – those who used A&E and those who did not. A model was built using the explanatory variables year (before and after co-operative), and co-operative membership (member and non member practices). Logistic regression was used to test for differences in the Odds Ratio for change in A&E use, based on the interaction between year and coop membership. 95% confidence intervals were calculated for each odds ratio.

Each analysis was undertaken unadjusted then again, adjusted for age, sex, distance from A&E (calculated using home postcode), and car access. We also had details on phone ownership, problem type (whether or not an injury) and ethnic group, but only for those patients who had been interviewed.
These factors were compared from year 1 to year 2 but were not included in the adjusted analysis.

As discussed in section 4.1.1, each analysis was undertaken for:

- all hours (using data from all patients);
- out of hours contacts (using data from all patients); and
- out of hours decisions (using data from patients who had been interviewed)

### 4.3 Results

#### 4.3.1 Study numbers and response rates

#### 4.3.1.1 Postal questionnaire

The sample of Sheffield residents obtained from the SHIP database contained 13,442 people in year 1 and 13,469 people in year 2, making a total of 26,911 people. The postal questionnaire was sent to these 26,911 people and the responses of patients of practices who joined the co-operative (member practices) and those who didn’t (non member practices) are shown in Table 6 for each year.
### Table 6. Responses to the postal questionnaire

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The Sample</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unknown practice</td>
<td>34</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>Non member</td>
<td>4310</td>
<td>4251</td>
<td>8561</td>
</tr>
<tr>
<td>Coop member</td>
<td>9132</td>
<td>9184</td>
<td>18316</td>
</tr>
<tr>
<td>Total</td>
<td>13442</td>
<td>13469</td>
<td>26911</td>
</tr>
<tr>
<td><strong>Deaths before the postal survey</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unknown practice</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non member</td>
<td>4</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>Coop member</td>
<td>11</td>
<td>19</td>
<td>30</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>26</td>
<td>41</td>
</tr>
<tr>
<td><strong>Movers before the postal survey</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unknown practice</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Non member</td>
<td>394</td>
<td>377</td>
<td>771</td>
</tr>
<tr>
<td>Coop member</td>
<td>564</td>
<td>441</td>
<td>1005</td>
</tr>
<tr>
<td>Total</td>
<td>958</td>
<td>822</td>
<td>1780</td>
</tr>
</tbody>
</table>
41 people had died when the postal survey arrived. Of the 26,870 people alive when the postal questionnaire was posted, 1780 had moved house and therefore did not receive the questionnaire. 25,590 questionnaires were delivered to living people resident at their address, and of these 17,908 were returned, 9031 in year 1, and 8877 in year 2. This represents a return rate of 71.4 %, over 70% in each year. The return rate in patients of practices joining the co-operative was 73%, and 68% in non member practices.
299 of the returned questionnaires were unusable because they were defaced, or the respondent had refused/was unable to complete the questionnaire. This left 17609 useable questionnaires, a useable response rate of 70.2%. After removal of a further 60 questionnaires from people who had moved out of Sheffield, and 219 questionnaires where the reported age/sex did not match that on the SHIP database, 17,330 questionnaires remained. Of these 30 in year 1 had responded more than 28 days after the opening of the co-operative, and 30 in year 2 after the corresponding date in 1997. This left 17,270 questionnaires completed in the “core period”, where seeking health care in the previous 28 days could have been before the co-operative opened in year 1 and the corresponding date in year 2.

These responses were split into 3 groups: those seeking help before the co-operative opened (or the corresponding date in year 2); those only seeking help after this date; and those who did not seek health care in the 28 days before completing the questionnaire. 4925 people sought help during the “key period” (5/9/96 to 31/10/96 in year 1; 4/9/97 to 30/10/97 in year 2). 132 sought help after the key period; and 12, 213 did not seek help. Those seeking help in the key period are shown in Table 7.
Table 7: Number (%) of respondents seeking health care in previous 28 days

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unknown practice</td>
<td>0 (0)</td>
<td>4 (21.1)</td>
<td>4 (21.1)</td>
</tr>
<tr>
<td>Non member</td>
<td>768 (29.5)</td>
<td>692 (27.7)</td>
<td>1460 (28.6)</td>
</tr>
<tr>
<td>Coop member</td>
<td>1775 (29.2)</td>
<td>1686 (27.8)</td>
<td>3461 (28.5)</td>
</tr>
<tr>
<td>Total</td>
<td>2543 (29.3)</td>
<td>2382 (27.7)</td>
<td>4925 (28.5)</td>
</tr>
</tbody>
</table>

Overall 28.5% (4925/17,270) of respondents had sought health care within the previous 28 days. For 66.2% (3260/4925) of these the care had been planned, Table 8.

Table 8. Number (%) of respondents seeking health care where care was planned and unplanned

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planned care</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unknown practice</td>
<td>4 (100)</td>
<td>4 (100)</td>
<td>4 (100)</td>
</tr>
<tr>
<td>Non member</td>
<td>500 (65.1)</td>
<td>462 (66.8)</td>
<td>962 (65.9)</td>
</tr>
<tr>
<td>Coop member</td>
<td>1163 (65.5)</td>
<td>1131 (67.1)</td>
<td>2294 (66.3)</td>
</tr>
<tr>
<td>Total</td>
<td>1663 (65.4)</td>
<td>1597 (67.0)</td>
<td>3260 (66.2)</td>
</tr>
</tbody>
</table>
Unplanned care

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non member</td>
<td>258</td>
<td>217</td>
<td>475</td>
</tr>
<tr>
<td>Coop member</td>
<td>588</td>
<td>533</td>
<td>1121</td>
</tr>
<tr>
<td>Total</td>
<td>846</td>
<td>750</td>
<td>1596</td>
</tr>
</tbody>
</table>

1665 patients had sought unplanned care in the previous 28 days. In 14 cases, the incident had occurred outside Sheffield, leaving 1651 cases. 55 respondents had sought help from family and friends only, without seeking any help from any health service. This left 1596 patients for analysis, Table 9.

**Table 9. Cases for analysis: unplanned care in previous 28 days**

4.3.1.2 Home interviews

526 of the 1596 patients for analysis indicated that they did not want to be approached for interview. Of the 1070 that we attempted to contact, 311
could not be contacted or refused at the door. 759 patients were successfully interviewed and included in the analysis (Table 10).

Table 10. Patients interviewed at home.

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non member</td>
<td>125</td>
<td>88</td>
<td>213</td>
</tr>
<tr>
<td>Coop member</td>
<td>282</td>
<td>264</td>
<td>546</td>
</tr>
<tr>
<td>Total</td>
<td>407</td>
<td>352</td>
<td>759</td>
</tr>
</tbody>
</table>

567 of the interviewed patients gave written permission for their medical notes to be reviewed. The modified McKinley satisfaction questionnaire was administered to 653 patients at interview (see chapter 5).

4.3.2 Characteristics of respondents

4.3.2.1 Postal survey

Characteristics of the 1596 respondents are shown by year in Table 11
Table 11: Characteristics of respondents: all patients

<table>
<thead>
<tr>
<th></th>
<th>Before (n=846)</th>
<th>After (n=750)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age: mean</td>
<td>37.0</td>
<td>38.1</td>
<td>0.39</td>
</tr>
<tr>
<td>Sex: % male</td>
<td>42.3</td>
<td>44.9</td>
<td>0.32</td>
</tr>
<tr>
<td>Car access: % with access</td>
<td>72.8</td>
<td>72.3</td>
<td>0.82</td>
</tr>
<tr>
<td>Distance to A&amp;E in Km: mean</td>
<td>6.1</td>
<td>6.1</td>
<td>0.92</td>
</tr>
</tbody>
</table>

*P values were calculated using chi square for categorical variables and t-test for continuous variables.*

There were no significant differences in any of these characteristics in the respondents before and after the co-operative was established. These variables were included in the adjusted analyses.

4.3.2.2 Home interviews

759 patients were interviewed, and their characteristics are shown in Table 12
Table 12. Characteristics of respondents: home interview patients

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Before (n=407)</th>
<th>After (n=352)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age: mean</td>
<td>34.6</td>
<td>36.5</td>
<td>0.33</td>
</tr>
<tr>
<td>Sex: % male</td>
<td>44.7</td>
<td>43.8</td>
<td>0.83</td>
</tr>
<tr>
<td>Car access: % with access</td>
<td>69.0</td>
<td>69.3</td>
<td>0.82</td>
</tr>
<tr>
<td>Distance to A&amp;E in Km: mean</td>
<td>6.3</td>
<td>6.2</td>
<td>0.92</td>
</tr>
<tr>
<td>Phone in home: % with phone</td>
<td>94.9</td>
<td>97.7</td>
<td>0.09</td>
</tr>
<tr>
<td>Ethnic group: % white</td>
<td>93.4</td>
<td>95.3</td>
<td>0.31</td>
</tr>
<tr>
<td>Problem type: % injury</td>
<td>15.8</td>
<td>17.7</td>
<td>0.50</td>
</tr>
</tbody>
</table>

P values were calculated using chi square for categorical variables and t-test for continuous variables.

For interviewed patients we had additional information about phone in home, ethnic group and problem type, which had not been available for patients who only returned a postal survey. There were no significant differences between respondents in year 1 and 2, though a higher phone ownership was observed in year 2.

A gradual rise in phone ownership is a predictable finding in a population survey, and it is reassuring to find an indication of it in this study. The model for out of hours services recommended in the governments out of hours
depends largely on initial telephone access, and a gradual decrease in the number of people without telephones will be welcomed by those responsible for organising out of hours services.

Telephone access was not a factor included in the adjusted analyses of service use, since the small numbers of people without a phone made the model unstable. For interview patients the same adjustments were made as for all patients, ie age, sex, car access, and distance from the A&E department. Since the absolute rise from 96% to 98% of the population is small, it is likely that adjustment for phone ownership would have had a negligible impact on the results.

4.3.3 Changes in service use

As described in section 4.1, we looked separately at the questions of whether the establishment of the co-operative had had an impact on

a) the first service used; and

b) services ever used during the acute episode

with particular emphasis on the impact of the co-operative on the use of A&E services.

In each analysis we looked at the overall impact of the co-operative analysing consultations at all hours, and also at the effect on out of hours consultations, where we might expect the establishment of the co-operative to have greater impact. Finally, using only data for the patients who were interviewed, we
repeated the analysis for out of hours decisions. All hours consultations were looked at using all patients surveyed, and again using only patients who had been interviewed.

For the logistic regression, adjusted analyses are shown. No important differences were found between the unadjusted and adjusted analyses.

### 4.3.3.1 First service used

#### 4.3.3.1.1 All hours

#### 4.3.3.1.1.1 All patients

The results from all patients, looking at the first service used, all hours are shown in Table 13.

<table>
<thead>
<tr>
<th>Service</th>
<th>Before</th>
<th>After</th>
<th>Change in %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(N)</td>
<td>%</td>
<td>(N)</td>
</tr>
<tr>
<td>Non-coop members</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GP</td>
<td>(195)</td>
<td>75.6</td>
<td>(163)</td>
</tr>
<tr>
<td>A&amp;E</td>
<td>(31)</td>
<td>12.0</td>
<td>(26)</td>
</tr>
<tr>
<td>Other</td>
<td>(32)</td>
<td>12.4</td>
<td>(28)</td>
</tr>
<tr>
<td>Coop members</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GP</td>
<td>(444)</td>
<td>75.6</td>
<td>(382)</td>
</tr>
<tr>
<td>A&amp;E</td>
<td>(65)</td>
<td>11.1</td>
<td>(74)</td>
</tr>
<tr>
<td>Other</td>
<td>(78)</td>
<td>13.3</td>
<td>(77)</td>
</tr>
</tbody>
</table>
Odds Ratio* (95% CI) for change in A&E use in co-op members compared to non-coop members, based on the interaction between year and coop membership = 1.33 (0.68, 2.61). P=0.40

*adjusted for age, sex, distance and car access.

Three quarters of patients attend GP services as the first service for unplanned health care, with the remainder split evenly between A&E and other services. “Other” included a wide range of services including pharmacists, physiotherapists, dentists and complementary therapists.

There was very little change in the pattern of first service use among patients of non member practices. In patients of practices who joined the co-operative, a 3% increase in use of A&E as first service attended was observed, along with a 4% fall in use of GP. In non member practices, these changes were 0% and 0.5%. These differences between member and non-member practices were not statistically significant.
4.3.3.1.1.2 Home interview patients

The same analysis was performed on only those patients who were interviewed to confirm and clarify the services they used. Table 14)

Table 14. First service used: all hours, home interview patients

<table>
<thead>
<tr>
<th></th>
<th>Before</th>
<th>After</th>
<th>Change in %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(N)</td>
<td>(%)</td>
<td>(N)</td>
</tr>
<tr>
<td>Non-coop members</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GP</td>
<td>(91)</td>
<td>72.8</td>
<td>(62)</td>
</tr>
<tr>
<td>A&amp;E</td>
<td>(14)</td>
<td>11.2</td>
<td>(12)</td>
</tr>
<tr>
<td>Other</td>
<td>(20)</td>
<td>16.0</td>
<td>(14)</td>
</tr>
<tr>
<td>Coop members</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GP</td>
<td>(216)</td>
<td>76.9</td>
<td>(191)</td>
</tr>
<tr>
<td>A&amp;E</td>
<td>(31)</td>
<td>11.0</td>
<td>(29)</td>
</tr>
<tr>
<td>Other</td>
<td>(34)</td>
<td>12.1</td>
<td>(44)</td>
</tr>
</tbody>
</table>

*Odds Ratio* (95% CI) for change in A&E use in co-op members compared to non-coop members, based on the interaction between year and coop membership = 0.84 (0.31, 2.27). P=0.72

*adjusted for age, sex, distance and car access.

A small rise in A&E use was observed among patients of non member practices, whilst in co-operative member practices there was no change in A&E use, but this difference was not statistically significant.
4.3.3.1.2 Out of hours contacts

Results of the analysis restricted to patients who consulted out of hours are shown in Table 15.

**Table 15. First service used: out of hours contacts**

<table>
<thead>
<tr>
<th></th>
<th>Before</th>
<th></th>
<th>After</th>
<th></th>
<th>Change in %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>(N)</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>Non-coop members</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GP</td>
<td>(26)</td>
<td>53.1</td>
<td>(21)</td>
<td>50.0</td>
<td>-3.1</td>
</tr>
<tr>
<td>A&amp;E</td>
<td>(17)</td>
<td>34.7</td>
<td>(15)</td>
<td>35.7</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>(6)</td>
<td>12.0</td>
<td>(6)</td>
<td>14.3</td>
<td>2.1</td>
</tr>
<tr>
<td>Coop members</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GP</td>
<td>(67)</td>
<td>60.4</td>
<td>(64)</td>
<td>50.0</td>
<td>-10.4</td>
</tr>
<tr>
<td>A&amp;E</td>
<td>(26)</td>
<td>23.0</td>
<td>(46)</td>
<td>35.9</td>
<td>12.5</td>
</tr>
<tr>
<td>Other</td>
<td>(18)</td>
<td>16.0</td>
<td>(18)</td>
<td>14.1</td>
<td>-2.1</td>
</tr>
</tbody>
</table>

*Odds Ratio* (95% CI) for change in A&E use in co-op members compared to non-coop members, based on the interaction between year and coop membership = 1.57 (0.54, 4.56). P=0.41

*adjusted for age, sex, distance and car access.

In out of hours consultations, the proportion of patients consulting GP services as the first service is lower than all hours at about half, rather than three quarters. This may be because general practice services are perceived as
being relatively less accessible out of hours, or that more health problems out
of hours are perceived by patients as “emergencies” and appropriate for A&E
services. About a third of patients consult A&E services for unplanned health
care out of hours, compared to one in eight of all hours consultations.

It is interesting to note that the advent of the co-operative has not, in the first
year at least, shown any sign of reducing the difference between in hours and
out of hours patterns of service use. Rather, a 12.5% rise in A&E use was
observed among patients of practices joining the co-operative, together with a
10.4% fall in use of GP as first service. Much smaller changes in the same
direction were observed in non member practices. However, the difference
between member and non member practices was not statistically significant.

In year 2, after the co-operative had started, the proportions using GP, A&E
and other services were similar for patients of member and non member
practices. However in year 1, before the co-operative opened, patients of
member practices used A&E less and GP more. There are several possible
explanations for this. Patients in practices joining the co-operative may live
further away from A&E, for though distance is included in the adjusted
logistic regression analysis of use of A&E services, the numbers and
percentages in the table are not adjusted for distance. Alternatively if out of
hours GP services in those practices who joined the co-operative were
perceived as being of a higher standard, that might also lead to greater use,
though this did not apply in the year after the co-operative opened. It may be,
for example, that in the period before the co-operative opened, practices who subsequently stayed with a deputising service rather than joining the co-operative were higher users of deputising services than those who did join.

Another explanation might be that those practices with lower out of hours A&E us selected themselves for co-operative membership (perhaps because of the relatively high use made of their out of hours services). Another explanation is statistical artefact. The difference in the change in A&E services from year 1 to year 2 between member and non member practices (adjusted for age, sex, car access and distance from A&E) was not statistically significant.

4.3.3.1.3 Out of hours decisions

The impact of the co-operative on use of services when the decision was made out of hours was examined using the interview data, (Table 16).

Among these consultations A&E is relegated to last place, with GP being by far the most frequent choice of first service, and other services being more frequently chosen than A&E. Decisions taken out of hours may be to await the next available in hours GP or other services.
Table 16. First service used: out of hours decisions

<table>
<thead>
<tr>
<th></th>
<th>Before</th>
<th>After</th>
<th>Change in %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(N)</td>
<td>%</td>
<td>(N)</td>
</tr>
<tr>
<td><strong>Non-coop members</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GP</td>
<td>(46)</td>
<td>73.0</td>
<td>(32)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>74.4</td>
<td>1.4</td>
</tr>
<tr>
<td>A&amp;E</td>
<td>(6)</td>
<td>9.5</td>
<td>(4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9.3</td>
<td>-0.2</td>
</tr>
<tr>
<td>Other</td>
<td>(11)</td>
<td>17.5</td>
<td>(7)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>16.3</td>
<td>-1.2</td>
</tr>
<tr>
<td><strong>Coop members</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GP</td>
<td>(92)</td>
<td>77.3</td>
<td>(79)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>66.4</td>
<td>-10.9</td>
</tr>
<tr>
<td>A&amp;E</td>
<td>(17)</td>
<td>14.3</td>
<td>(23)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>19.3</td>
<td>5</td>
</tr>
<tr>
<td>Other</td>
<td>(10)</td>
<td>8.4</td>
<td>(17)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14.3</td>
<td>5.9</td>
</tr>
</tbody>
</table>

Odds Ratio* (95% CI) for change in A&E use in co-op members compared to non-coop members, based on the interaction between year and coop membership = 1.61 (0.36, 7.31). P=0.54

*adjusted for age, sex, distance and car access.

An 11% fall in the use of GP as first service was observed in patients of member practices. The rise in A&E use, at 5%, was smaller than that seen in out of hours contacts, with a similar rise being observed in the use of other services. Only small changes were observed in non member practices, but the difference in the changes in A&E use from year 1 to year 2 between member and non member was not statistically significant.
4.3.3.2 Service ever used (during acute episode)

Equally important is the question of whether A&E use, and use of other services, changed following the establishment of the co-operative, looking at all services used for the acute episode, not just the first service used. Again this was looked at for all hours (in all patients surveyed and in interviewed patients); for out of hours contacts (in all patients surveyed) and for out of hours decisions (in those interviewed at home).

4.3.3.2.1 All hours

4.3.3.2.1.1 All patients

75 to 80% of patients consulted GP services during an acute episode of unplanned health care, 15 to 18% consulted A&E services and about a quarter sought help from other services, (Table 17). These proportions add up to more than 100%, since any patient may consult more than one service.
Table 17 Service ever used: all hours, all patients

<table>
<thead>
<tr>
<th></th>
<th>Before (N)</th>
<th>Before %</th>
<th>After (N)</th>
<th>After %</th>
<th>Change in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-coop members</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GP</td>
<td>(204)</td>
<td>79.1</td>
<td>(176)</td>
<td>81.1</td>
<td>2</td>
</tr>
<tr>
<td>A&amp;E</td>
<td>(39)</td>
<td>15.1</td>
<td>(39)</td>
<td>18.0</td>
<td>2.9</td>
</tr>
<tr>
<td>Other</td>
<td>(62)</td>
<td>24.0</td>
<td>(60)</td>
<td>27.6</td>
<td>3.6</td>
</tr>
<tr>
<td>Coop members</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GP</td>
<td>(473)</td>
<td>80.6</td>
<td>(410)</td>
<td>76.9</td>
<td>-3.7</td>
</tr>
<tr>
<td>A&amp;E</td>
<td>(88)</td>
<td>15.0</td>
<td>(99)</td>
<td>18.6</td>
<td>3.6</td>
</tr>
<tr>
<td>Other</td>
<td>(157)</td>
<td>26.7</td>
<td>(148)</td>
<td>27.8</td>
<td>1.1</td>
</tr>
</tbody>
</table>

Odds Ratio* (95% CI) for change in A&E use in co-op members compared to non-coop members, based on the interaction between year and coop membership = 1.08 (0.60, 1.94). P=0.81

*adjusted for age, sex, distance and car access.

In these data there is no suggestion of lower A&E use in member practices in year 1. In non member practices, there were small rises from year 1 to year 2 in the proportions using GP, A&E and other services during the acute episode. In practices joining the co-operative, a similar picture was seen for A&E and other services, but a small fall was observed in the use of GP services during
the acute episode. The difference between changes in A&E use in member and non member practices was not statistically significant.

4.3.3.2.1.2 Home interview patients

The same analysis, restricted to home interview cases, is shown in Table 18. The proportions of patients attending GP, A&E and other services all hours were broadly similar to those seen when all patients were analysed.

Table 18. Service ever used: all hours, home interview patients

<table>
<thead>
<tr>
<th></th>
<th>Before (N)</th>
<th>Before %</th>
<th>After (N)</th>
<th>After %</th>
<th>Change in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-coop members</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GP</td>
<td>96</td>
<td>76.8</td>
<td>67</td>
<td>76.1</td>
<td>-0.7</td>
</tr>
<tr>
<td>A&amp;E</td>
<td>15</td>
<td>12.0</td>
<td>19</td>
<td>21.6</td>
<td>9.6</td>
</tr>
<tr>
<td>Other</td>
<td>24</td>
<td>19.2</td>
<td>24</td>
<td>27.3</td>
<td>8.1</td>
</tr>
<tr>
<td>Coop members</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GP</td>
<td>228</td>
<td>81.1</td>
<td>206</td>
<td>78.0</td>
<td>-3.1</td>
</tr>
<tr>
<td>A&amp;E</td>
<td>44</td>
<td>15.7</td>
<td>41</td>
<td>15.5</td>
<td>-0.2</td>
</tr>
<tr>
<td>Other</td>
<td>67</td>
<td>23.8</td>
<td>70</td>
<td>26.5</td>
<td>2.7</td>
</tr>
</tbody>
</table>

Odds Ratio* (95% CI) for change in A&E use in co-op members compared to non-coop members, based on the interaction between year and coop membership = 0.52 (0.21, 1.25). P=0.14

*adjusted for age, sex, distance and car access.
The all hours data from home interview patients show no change in A&E use among patients of member practices, alongside a rise of 10% in use of A&E services in non member practices, though the difference in the changes was not statistically significant (P=0.14). This non-significant trend was in the opposite direction to that seen for out of hours contacts (sections 4.3.3.1.2 and 4.3.3.2.2)

Again there was a small drop in GP use among patients of practices joining the co-operative, with no real change in A&E use. However, the interview data showed an increase in A&E use and use of other services among non member practices. No statistically significant results were found.
4.3.3.2.2  Out of hours contacts

As with first service used, a lower proportion of patients use GP services out
of hours than in all hours, (Table 19).

Table 19. Service ever used: out of hours contacts

<table>
<thead>
<tr>
<th></th>
<th>Before</th>
<th>After</th>
<th>Change in %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(N)</td>
<td>%</td>
<td>(N)</td>
</tr>
<tr>
<td>Non-coop members</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GP</td>
<td>(28)</td>
<td>57.1</td>
<td>(25)</td>
</tr>
<tr>
<td>A&amp;E</td>
<td>(20)</td>
<td>40.8</td>
<td>(17)</td>
</tr>
<tr>
<td>Other</td>
<td>(16)</td>
<td>32.7</td>
<td>(12)</td>
</tr>
<tr>
<td>Coop members</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GP</td>
<td>(74)</td>
<td>66.7</td>
<td>(71)</td>
</tr>
<tr>
<td>A&amp;E</td>
<td>(29)</td>
<td>26.1</td>
<td>(53)</td>
</tr>
<tr>
<td>Other</td>
<td>(34)</td>
<td>30.6</td>
<td>(39)</td>
</tr>
</tbody>
</table>

Odds Ratio* (95% CI) for change in A&E use in co-op members compared to
non-coop members, based on the interaction between year and coop
membership = 1.93 (0.68, 5.46). P=0.21

*adjusted for age, sex, distance and car access.

Around 40% of patients sought help from A&E services out of hours, except
in non member practices before the co-operative opened, where the proportion
was around one quarter of patients. Again the possible explanations of
distance, perceived higher quality GP service, practice selection for co-operative membership and statistical artefact discussed in section 4.3.3.1.2 may apply.

From this lower baseline of 26.1%, a 15% increase in the proportion of patients contacting A&E services was observed in patients of practices who joined the co-operative, together with a decrease in the proportion using GP services. These changes contrasted with non member practices, where the proportions using A&E remained unchanged and the proportion using GP services rose slightly. However, the difference in the changes in A&E use between member and non member practices was not statistically significant.

As with first service used, this non-significant trend for an increase in the proportions seeking help from A&E services out of hours resulted in similar proportions of patients from member and non member practices using A&E in year 2. The explanation for this trend, which must of course include statistical artefact, will depend on the reason for the lower proportions of patients from member practices before the co-operative was established. It is possible that patients previously seen by deputising services in year 1 were now being effectively triaged over the phone to A&E services by co-operative staff. However, since we recorded each service contacted, whether or not it was attended, that would not explain any increase in the proportion of patients member practices contacting A&E services as a first service.
4.3.3.2.3 Out of hours decisions

As with the first service analysis, decisions out of hours showed a high proportion of patients seeking care from GP services, with A&E services relegated to the lowest proportion, after other services, (Table 19). 75 to 80% of these patients used GP services, and about a quarter used services other than A&E and GP.

Table 20. Service ever used: out of hours decisions

<table>
<thead>
<tr>
<th></th>
<th>Before</th>
<th>After</th>
<th>Change in %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(N)</td>
<td>%</td>
<td>(N)</td>
</tr>
<tr>
<td>Non-coop members GP (48)</td>
<td>76.2</td>
<td>(35)  81.4</td>
<td>5.2</td>
</tr>
<tr>
<td></td>
<td>A&amp;E (7)</td>
<td>11.1</td>
<td>(6)  14.0</td>
</tr>
<tr>
<td></td>
<td>Other (14)</td>
<td>22.2</td>
<td>(11) 25.6</td>
</tr>
<tr>
<td>Coop members</td>
<td>GP (97)</td>
<td>81.5</td>
<td>(85) 71.4</td>
</tr>
<tr>
<td></td>
<td>A&amp;E (23)</td>
<td>19.3</td>
<td>(26) 21.8</td>
</tr>
<tr>
<td></td>
<td>Other (28)</td>
<td>23.5</td>
<td>(30) 25.2</td>
</tr>
</tbody>
</table>

Odds Ratio* (95% CI) for change in A&E use in co-op members compared to non-coop members, based on the interaction between year and coop membership = 0.99 (0.26, 3.80). P=0.99*

*adjusted for age, sex, distance and car access.

There was a rise from year 1 to year 2 in the proportion of patients seeking care from A&E and other services, in both member and non member
practices. The proportion seeking help from GP services rose by five percent in non member practices but fell by ten percent in practices joining the co-operative. There was weak evidence the difference in the change in GP use was significant – the odds ratio for change in GP use was 0.35 (0.11, 1.14), adjusted p value = 0.08. However there was no evidence of any difference in A&E use.

4.3.4 Routine data

Routine data on A&E attendances was also examined to look for evidence of impact on A&E services. Though this service-based data is unable to show the full range of service use by the population, it is able to show trends in the number of first attendances at A&E over the time that the co-operative was established.

First attendances at A&E occurring at all times of the day are shown in Figure 1. The monthly totals are higher for co-operative member practices, since they represent the majority of practices, however there is certainly no suggestion of a rise in A&E attendances in patients of these practices after the establishment of the co-operative on 31st October 1996. There is little evidence of any change in A&E attendance in either type of practice.

A similar picture is found for out of hours attendances (Figure 2), with no evidence that out of hours attendances have risen or fallen in either type of practice since the establishment of the co-operative.
Whilst limited to one service only, these routinely collected data suggest that the co-operative has not led to a rise in A&E attendances either in or out of hours.
Figure 1: Monthly A&E first attendances of patients from coop and non-coop practices
Figure 2: Monthly out of hours A&E first attendances of patients from coop and non-coop practices
4.4 Discussion and conclusions

As discussed in section 4.1.1, the study addressed a pragmatic question as to whether the co-operative had affected the pattern of service use in hours, and explanatory questions about its impact on the pattern of service use when consultations, or decisions, were made out of hours.

For all hours consultations there was no indication of any greater increase in the proportion of patients using A&E services in member compared to non member practices. There was a slightly greater rise in member practices in the all patients analysis of first services, but this was not seen in the ever service analysis. In the all hours analysis restricted to interview patients (both first service and ever service) there was a slightly greater rise in the proportion of patients seeking help from A&E services in practices that didn’t join the co-operative, though these analyses involved much smaller numbers of patients. None of the differences in the change in A&E use between member and non member practices were statistically significant, and there is no evidence that overall, in all hours the establishment of the co-operative has been associated with an increase in the proportion of patients using A&E services.

In out of hours decisions, where we had perhaps expected any effect of the co-operative to be greatest, there was again no evidence that the establishment of the co-operative had led to an increase in the proportion of patients using A&E services. In the first service analysis there was a five percent greater
rise among patients of member practices, but the difference in change of A&E use was not statistically significant. In the ever service analysis, which is more important from the point of view of impact on A&E services, the greater rise in among patients of member practices was not seen.

It is in out of hours contacts that the results are most interesting, with the analysis of first services used showing a 12 percent rise in the proportion of patients using A&E services in practices joining the co-operative that was not seen in non member practices. A similar 15 percent rise was seen in the ever service analysis.

However, the rise seen in member practices in both cases only brought the proportion using A&E services up to the levels seen in non member practices, where there had been little change. It is therefore necessary to consider why A&E use might have been lower among practices who joined the co-operative before they did so, and why a year later it had risen to levels that were similar to non member practices.

One possibility is statistical artefact – the difference between the changes in A&E use in member and non member practices was not significant, either before or after adjustment. This view is supported by the routine data, which showed no increase in A&E first attendances in patients of member practices out of hours. However, it is possible that the study, despite starting off with 27,000 people surveyed, was too small to reliably detect a difference in the change of A&E use of this magnitude, in the subgroup of out of hours
contacts. Despite a 70% response rate, the fact that only around 10 percent of respondents sought care for unplanned health services in the previous 28 days, and the fact that the majority of these were consultations made in hours, meant only 330 patients with out of hours consultations were available for analysis. Our sample size calculation was that 375 patients were necessary in each year. We had assumed that four percent of the population would seek out of hours care, whereas in our sample only 21.7% of contacts were out of hours, meaning that around 2% of the population sought care out of hours in the previous 28 days.

If the lower proportion of patients using A&E services, and correspondingly the higher proportion of patients using GP services out of hours, were real rather than artefact, possible explanations have been listed in section 4.3.3.1.2. These are:

1. patients of non member practices living closer to A&E;
2. self-selection of practices for membership of the co-operative because of higher proportional GP use out of hours;
3. perceived higher quality of GP services among patients of practices who joined the co-operative before they did so.

Whichever of these explanations (other than statistical artefact) is real, it is also necessary to consider why a year after the co-operative opened
proportions using A&E services had equalised in member and non member practices.

The question of distance, and indeed the interpretation of the results generally, are complicated by the fact that during the study period there were changes to A&E services as well as GP services. In Sheffield, as in many parts of the country, centralisation of A&E services took place with the closure of one of the city’s two A&E departments. This started before the opening of the co-operative, with one of the A&E departments switching to daytime only, whereas previously each department had covered about half of the evenings.

In April 1997, the A&E department at the Royal Hallamshire Hospital closed, leaving one 24 hour A&E department for the city. A minor injury unit opened on the site of the former A&E department, on the same site that the co-operative primary care treatment centre had been established in October 1996.

Explanations 2 and 3 above are not exclusive, as practices where patients preferred to use GP services out of hours, perhaps because they were perceived as higher quality GP services, may have elected to join the co-operative. It is possible that patients who previously enjoyed home visits out of hours from practices about to join the co-operative, switched to greater use of A&E services when the co-operative was established. While this explanation has some appeal, with patients perhaps deciding that if they do have to travel, it might as well be to A&E as to the primary care treatment
centre, it is not supported by the findings of the study on patient satisfaction (chapter 5).

The only finding approaching statistical significance in all the analyses undertaken was the weak evidence of a decrease in the proportion of patients from member practices ever attending GP services, compared to an increase among non member practices, where the decision was made out of hours. A similar pattern was seen in the first service analysis. This too would be consistent with patients from practices who had joined the co-operative switching away from a previously preferred out of hours GP service.

It is interesting that a higher proportion of patients attend A&E out of hours than in hours. Whilst this could reflect a difference in patients’ perceptions of the urgency of their problems out of hours, it could also reflect a difference in the perceived relative accessibility of GP and A&E services out of hours. The establishment of the co-operative has done nothing to reduce this effect, with the pattern of service use shifting, if at all, in the opposite direction.
5 Patient satisfaction

5.1 Introduction and key questions

This part of the study aimed to discover whether the establishment of the co-operative had led to any change in patient satisfaction with first service attended in patients seeking unplanned health care. Again we were interested to see whether there was any difference in the change in satisfaction between patients of practices joining and not joining the co-operative.

We were interested in the overall impact of the co-operative on patient satisfaction, analysing consultations at all hours. We also might expect the greatest impact to be on out of hours consultations, particularly those in which the decision about where to attend was made out of hours. Since all patients who provided satisfaction data were interviewed, we were able to look separately at patient satisfaction in those making out of hours decisions.

Prior to the start of our study, only one study had examined patient satisfaction in patients attending a co-operative. This had shown high satisfaction of those attending, but no studies had compared changes in patient satisfaction in practices joining and not joining a co-operative.

5.2 Methods

The McKinley questionnaire is a well-validated instrument, designed to assess patient satisfaction with out of hours GP care. In our study protocol we had
originally planned to measure patient satisfaction using a modified version of the Medical Outcomes Visit Short Form, developed by Ware for the comparison of outpatient visits to different kinds of practices. We had planned to administer this, together with the SF36 general health measure at interview. However, other studies of UK general practice co-operatives published subsequently (and in progress at the time of our study) used the McKinley questionnaire, and we felt it advisable to use comparable outcomes. (Since the McKinley questionnaire is considerably longer than the Medical Outcomes Visit Short Form, there was no longer space in the interview for the administration of the SF36, and this was dropped from the study protocol.)

We used a version of the McKinley questionnaire used by Salisbury in his comparative study of co-operative and a deputising service. We made minor adjustments to the questionnaire in order to make it usable in patients who attended A&E departments, as well as general practice. The questionnaire was administered to patients at home interview, asking about satisfaction with the first service contacted, for those patients attending GP or A&E services. It was administered for all consultations made whether in or out of hours. Satisfaction was not assessed for second or subsequent services, nor where the first contact was with other services such as the chemist etc.
5.2.1 Analysis

Responses were scored using the method described by Salisbury. Having extended the use of the questionnaire to patients attending A&E services, and to contacts at all hours, we were able to calculate scores for three of the subscales described in Salisbury’s study:

- Overall satisfaction
- Satisfaction with explanation and advice
- Satisfaction with doctors manner

These three scores were from zero to five, with five being the most satisfied. We would like to have calculated scores for satisfaction with access to services, a subscale used by McKinley. However, some of the questions used in the subscale were not appropriate for many of the patients in our study, and a score on that subscale was not calculable. Instead, we analysed a single question from the subscale about access to services that was applicable to most patients. Patients were asked whether they agreed with the statement: “it was very easy to get to” the service they used whether that was to the GP medical centre or A&E department. For patients who received a home visit, or telephone advice only, the statement was amended to: “it was very easy to get a visit from the doctor” or “it was very easy to get advice from the doctor on the telephone”, as appropriate. Respondents rated their agreement with the
statement by ringing one of five responses ranging from strongly agree to strongly disagree.

Changes in mean satisfaction scores from year 1 to year 2 were compared in patients of practices joining and not joining the co-operative, using ANOVA in SPSS version 10. The analysis was carried out unadjusted, then adjusted for age, sex and ethnic group (factors found to be related to patient satisfaction in Salisbury’s study). Only adjusted results are presented, but no important differences were found between the adjusted and unadjusted analyses.

For the access question, responses were grouped into a binary variable (agreeing or not agreeing with the statement about access). Logistic regression was used to calculate the odds ratio for changes in dissatisfaction (disagreement with the statement), based on the interaction between year and co-operative membership.

Analyses were undertaken for all consultations and again for consultations where the decision about where to go first was taken out of hours. The definition of out of hours used was weekday evenings and weekends other than Saturday mornings (as defined in section 4.1.1).
5.3 Results

5.3.1 Characteristics of respondents

653 patients were interviewed about satisfaction using the modified McKinley questionnaire. Characteristics of respondents in each year are shown in Table 21.

Table 21. Characteristics of respondents: patient satisfaction interviews

<table>
<thead>
<tr>
<th></th>
<th>Before n=351</th>
<th>After n=302</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age: mean (n)</td>
<td>34.8</td>
<td>36.8</td>
<td>0.37</td>
</tr>
<tr>
<td>Sex: % (n)male</td>
<td>45.6</td>
<td>44.4</td>
<td>0.76</td>
</tr>
<tr>
<td>Ethnic group: % (n)white</td>
<td>93.4</td>
<td>95.0</td>
<td>0.39</td>
</tr>
</tbody>
</table>

*P value for age was calculated using a t-test. Chi squared was used for sex and ethnic group.*

No important differences existed in age, sex or ethnic group between year 1 and year 2.

5.3.2 Overall satisfaction score

5.3.2.1 All hours

Overall satisfaction scores for all consultations, whether in or out of hours, are shown in Table 22.
### Table 22. Overall satisfaction scores, all hours

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Effect</th>
<th>Difference in changes (95% CI)</th>
<th>p-value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before</td>
<td>Mean</td>
<td>Mean</td>
<td>Change</td>
<td>SD</td>
</tr>
<tr>
<td>Non-coop members</td>
<td>3.92</td>
<td>(99)</td>
<td>3.81</td>
<td>(73)</td>
</tr>
<tr>
<td>Coop members</td>
<td>3.86</td>
<td>(243)</td>
<td>3.77</td>
<td>(220)</td>
</tr>
</tbody>
</table>

* p value comparing changes from year 1 to year 2 in patients of practices who did and didn’t join the coop. Adjusted for age, sex and gender.

Overall satisfaction scores were high in both years, and were similar in patients of practices which did or did not join the co-operative. The slight fall in overall satisfaction from year 1 to year 2 was very similar in member and non member practices, and there was no evidence that the change in satisfaction in co-operative members was different from that in non members. The drop from year 1 to year 2 represented an effect size of approximately 0.1. Effect sizes below 0.2 are usually considered negligible.81
5.3.2.2 Out of hours

When the analysis is restricted to consultations where the decision about which service to attend first was made out of hours, a similar picture is shown. (Table 23)

**Table 23. Overall satisfaction scores, out of hours**

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Effect</th>
<th>Difference in changes (95% CI)</th>
<th>p-value*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before</td>
<td>After</td>
<td>Change</td>
<td>SD</td>
</tr>
<tr>
<td>Mean score (n)</td>
<td>Mean score (n)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-coop members</td>
<td>3.90 (50)</td>
<td>3.83 (35)</td>
<td>-0.07</td>
<td>0.90</td>
</tr>
<tr>
<td>Coop members</td>
<td>3.97 (108)</td>
<td>3.71 (103)</td>
<td>-0.26</td>
<td>0.90</td>
</tr>
</tbody>
</table>

*p value comparing changes from year 1 to year 2 in patients of practices who did and didn’t join the coop. Adjusted for age, sex and gender.

Again, overall satisfaction scores are high and fell slightly from year 1 to year 2 in both groups. Out of hours the fall from year 1 to year 2 was higher in patients of practices who had joined the co-operative, but the difference between the changes in satisfaction of patients of member and non member practices was not statistically significant.
5.3.3 Satisfaction with explanation and advice

5.3.3.1 All hours

Scores for satisfaction with explanation and advice for all consultations, whether in or out of hours, are shown in Table 24.

**Table 24. Satisfaction with explanation and advice, all hours**

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Effect</th>
<th>Difference in change</th>
<th>p-value*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before</td>
<td>After</td>
<td>Change SD</td>
<td>(95% CI)</td>
</tr>
<tr>
<td>Mean score</td>
<td>Mean</td>
<td>Mean</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>n</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-coop</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>members</td>
<td>3.91</td>
<td>3.88</td>
<td>-0.03</td>
<td>0.68</td>
</tr>
<tr>
<td>(96)</td>
<td>(68)</td>
<td></td>
<td></td>
<td>-0.04</td>
</tr>
<tr>
<td>Coop members</td>
<td>3.91</td>
<td>3.82</td>
<td>-0.09</td>
<td>0.68</td>
</tr>
<tr>
<td>(225)</td>
<td>(211)</td>
<td></td>
<td></td>
<td>-0.13</td>
</tr>
</tbody>
</table>

* p value comparing changes from year 1 to year 2 in patients of practices who did and didn’t join the coop. Adjusted for age, sex and gender.

Once again, scores are high, with a very small fall from year 1 to year 2 in both groups. The difference between the changes in satisfaction of patients of member and non member practices was not statistically significant. The fall in satisfaction score of 0.09 in patients of practices who joined the co-operative represents an effect size of 0.13, which is considered negligible.
5.3.3.2 Out of hours

The results of the analysis restricted to out of hours consultations (ie where the decision about which service to attend first was made out of hours) are shown in Table 25.

**Table 25. Satisfaction with explanation and advice, out of hours**

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Effect</th>
<th>Difference in change</th>
<th>p-value*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before</td>
<td>After</td>
<td>Change SD</td>
<td>size</td>
</tr>
<tr>
<td>Non-coop members</td>
<td>Mean</td>
<td>Mean</td>
<td>score (n)</td>
<td>score (n)</td>
</tr>
<tr>
<td></td>
<td>3.96</td>
<td>4.02</td>
<td>0.06</td>
<td>0.63</td>
</tr>
<tr>
<td>Coop members</td>
<td>3.98</td>
<td>3.81</td>
<td>-0.17</td>
<td>0.63</td>
</tr>
</tbody>
</table>

* p value comparing changes from year 1 to year 2 in patients of practices who did and didn’t join the coop. Adjusted for age, sex and gender.

Here a small rise in satisfaction in patients of non member practices was observed alongside a fall in satisfaction score of 0.17 in patients of practices joining the co-operative. The fall represented an effect size of 0.27 (small), and again the difference between the changes in satisfaction of patients of member and non member practices was not statistically significant.
5.3.4 Satisfaction with doctor’s manner.

5.3.4.1 All hours

Scores for satisfaction with doctor’s manner for all consultations, whether in or out of hours, are shown in Table 26.

Table 26. Satisfaction with doctor’s manner, all hours

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Effect</th>
<th>Difference in change</th>
<th>p-value*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before</td>
<td>After</td>
<td>Change SD</td>
<td>size</td>
</tr>
<tr>
<td>Non-coop members</td>
<td>4.26</td>
<td>4.10</td>
<td>-0.16</td>
<td>0.80</td>
</tr>
<tr>
<td>Coop members</td>
<td>4.21</td>
<td>4.18</td>
<td>-0.03</td>
<td>0.80</td>
</tr>
</tbody>
</table>

* p value comparing changes from year 1 to year 2 in patients of practices who did and didn’t join the coop. Adjusted for age, sex and gender.

Here there were small changes in the opposite direction, with the fall in satisfaction observed being slightly higher in patients of practices which did not join the co-operative, (effect size 0.20, small). However, once again the difference between the changes in satisfaction of patients of member and non
member practices was not statistically significant. Satisfaction scores for doctors manner were even higher than for explanation and advice and overall satisfaction.

5.3.4.2 Out of hours

Out of hours, a similar picture was seen, (Table 27). Again the difference between the changes in satisfaction of patients of member and non member practices was not statistically significant.

Table 27. Satisfaction with doctor’s, out of hours

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Effect</th>
<th>Difference in change</th>
<th>p-value*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before</td>
<td>After</td>
<td>Change SD</td>
<td>size (95% CI)</td>
</tr>
<tr>
<td>Mean score (n)</td>
<td>Mean</td>
<td>Mean</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-coop members</td>
<td>4.27</td>
<td>4.14</td>
<td>-0.13</td>
<td>0.74</td>
</tr>
<tr>
<td>Coop members</td>
<td>4.28</td>
<td>4.26</td>
<td>-0.02</td>
<td>0.74</td>
</tr>
</tbody>
</table>

* p value comparing changes from year 1 to year 2 in patients of practices who did and didn’t join the coop. Adjusted for age, sex and gender.
5.3.5 Access to services

5.3.5.1 All hours

The majority of patients agreed with the statement that “it was easy to get to” the service they attended. (Table 28)

Table 28. Satisfaction with access to services, all hours

<table>
<thead>
<tr>
<th></th>
<th>Before (n)</th>
<th>Before %</th>
<th>After (n)</th>
<th>After %</th>
<th>Change in %</th>
<th>OR* (95% CI)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-coop members</td>
<td>(91)</td>
<td>93.8</td>
<td>(61)</td>
<td>83.6</td>
<td>-10.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.35 (0.11, 1.16)</td>
<td>0.09</td>
</tr>
<tr>
<td></td>
<td>(6)</td>
<td>6.2</td>
<td>(12)</td>
<td>16.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coop members</td>
<td>(209)</td>
<td>89.3</td>
<td>(198)</td>
<td>88.8</td>
<td>-0.53</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(25)</td>
<td>10.7</td>
<td>(25)</td>
<td>11.2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Odds Ratio for change in dissatisfaction (not agreeing), looking at interaction term “year by co-operative membership”.

There was some weak evidence (p=0.09) that satisfaction with access fell more in patients of practices which didn’t join the co-operative. Very little change from year 1 to year 2 was observed in patients of practices that joined
the co-operative, alongside a 10% fall in the numbers of patients of non
member practices who agreed that access was easy.

5.3.5.2 Out of hours

Changes of a similar size and direction were seen again in consultations where
the decision was made out of hours. (Table 29) In the smaller numbers of
patients in this analysis, the difference between the changes in satisfaction of
patients of member and non member practices was not statistically significant.

Table 29. Satisfaction with access to services, out of hours

<table>
<thead>
<tr>
<th></th>
<th>Change in %</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before</td>
<td>After</td>
</tr>
<tr>
<td>All hours</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(n)</td>
<td>%</td>
<td>(n)</td>
</tr>
<tr>
<td>Non-coop members</td>
<td>Agree (48)</td>
<td>96.8 (30)</td>
</tr>
<tr>
<td></td>
<td>Don't (2)</td>
<td>4.0 (6)</td>
</tr>
<tr>
<td>Coop members</td>
<td>Agree (94)</td>
<td>92.2 (95)</td>
</tr>
<tr>
<td></td>
<td>Don't (8)</td>
<td>7.8 (10)</td>
</tr>
</tbody>
</table>

*Odds Ratio for dissatisfaction (not agreeing), looking at interaction term
“year by co-operative membership”.

**P value for null hypothesis that OR=1.
5.3.6 Post hoc power

Though numbers of patients in the out of hours analyses are inevitably lower than all hours, it is unlikely that any important effects on patient satisfaction of establishing the co-operative have been missed. Post hoc power calculations show that at 5% significance levels the study had 80% power to detect effect sizes (differences in changes of patient satisfaction scores between patients of practices who did and did not joint the co-operative) of about 0.4 for all hours, and 0.5 for out of hours. Effect sizes of 0.5-0.8 would be considered moderate, and greater than 0.8 would be considered large.

5.4 Discussion and conclusions

This study found no evidence that the co-operative was associated with any changes in patient satisfaction. The study was powered to detect any moderate or large differences between changes in patient satisfaction of member and non member practices, so it is unlikely that any important differences were missed. We observed a slightly greater fall in overall satisfaction, and in satisfaction with explanation and advice, among patients of member practices, but changes in the opposite direction for satisfaction with doctor’s manner and satisfaction with access. Apart from satisfaction with access all hours, where there was some weak evidence of a difference, none of the differences in changes in satisfaction between member and non member practices were statistically significant.
Research published after this study using the same instrument we used showed that overall satisfaction was similar in patients receiving care from a co-operative and a deputising service. A small but statistically significant difference was found in the same study in satisfaction with explanation and advice – being slightly lower in patients receiving care from a deputising service. The satisfaction scores observed in our study were slightly higher than in this study. In another study published after our study started, McKinley et al showed patient satisfaction to be higher in patients attended by their own doctors rather than deputising services.

The study findings do not support the hypothesis that changes observed in service use were due to dissatisfaction in patients of general practitioners joining the co-operative (see section 4.4).
6  GP views

6.1  Introduction and key questions

Given the policy background of GP dissatisfaction with out of hours arrangements leading to the New Deal, it was particularly important to establish whether those practices joining the co-operative had experienced any change in their satisfaction with arrangements for out of hours care. We wanted to ask practices whether:

compared to before the co-operative opened, practices in Sheffield were now more or less satisfied with:

- their arrangements for out of hours cover (ie for them)
- the services provided for their patients.

We also wanted to know whether practices think that

- their patients are more or less satisfied with out of hours services since the co-operative opened,

since it is possible for that doctors might be happy that their patients are getting high quality medical care, but feel that patients are unhappy about the arrangements, (if for example they involve more travel for them than previously).

It was clearly important to establish whether changes in satisfaction varied between practices that had joined or not joined the co-operative.
Little research has been carried out on whether co-operatives have achieved the aim of increasing satisfaction among general practitioners who join. Three studies published after we commenced this evaluation measured satisfaction among members of general practice co-operatives, but none of these reported on changes in satisfaction of practices joining a co-operative compared with other practices. We surveyed all Sheffield practices to assess the impact of joining the co-operative on doctor satisfaction with out of hours arrangements.

6.2 Methods

We undertook a postal survey of all Sheffield practices, whether members of the co-operative or not. Some of the 108 practices were officially single handed practices, but worked together from shared premises, often sharing patients in practice. These were grouped together and considered group practices for the purposes of the GP practice survey. We thus wrote to 98 practices.

We designed a short (four sides of A4) questionnaire, using questions adapted from an instrument used in a previous study of out of hours arrangements, and some newly designed questions. After a small pilot, the questionnaire was amended.

The questionnaire asked practices to assess the current time spent on out of hours duty, and their current level of satisfaction with their out of hours
arrangements, in comparison to the period immediately before the establishment of the co-operative (October 1999). We also asked practices to assess their satisfaction with the out of hours care provided for their patients over the same period, and their perception of how satisfied patients were with out of hours arrangements.

We asked respondents to rate the amount of time spent on out of hours duty on a five point Likert scale, ranging from “much more time” to “much less time”. Similarly we asked them to rate their satisfaction on a five point Likert scale ranging from “much more satisfied” to “much less satisfied”. After each of the questions about satisfaction, we asked why the practice had answered as they had, leaving space for open comments.

The survey was sent out in Dec 1998, 26 months after the co-operative opened. The questionnaire was addressed to the practice manager, who was asked in a covering letter to pass it on to one of the principals for completion. We asked the general practitioner completing the questionnaire to respond on behalf of all the other principals in the practice. (Co-operative membership in Sheffield is by practice, so that there are no practices where some general practitioners are members and some are not.) A £5 book token was enclosed in recognition of the time and effort required to complete it. We also enclosed a stamped addressed return envelope. We sent a single reminder letter to practices that had not replied within two weeks of the initial mailing.
6.2.1 Analysis

For each of the questions we compared the responses of co-operative members with non members. Practices that had joined or left the co-operative after it’s opening in 1996 were included unless they had changed status within the four weeks prior to completion of the survey.

The outcome measure used was the proportion of respondents in each of the five Likert categories. To take account of the ordinal nature of these categories, significance testing was undertaken using Somers’ D, rather than a simple Chi square.

6.3 Results

6.3.1 Response and completion rates

We sent questionnaires to 98 practices, and 89 were returned, giving a return rate of 90.8 %. Two practices were excluded from the analysis. One practice had joined the co-operative two weeks before the survey, too recently to meet the inclusion criteria. The second practice was excluded because it had joined a Primary Care Act pilot scheme and, as the partners had become salaried general practitioners, co-operative membership was no longer an option for the practice. The results shown are based on analysis of the remaining 87 practices, which represent 88.8% of all practices and 90.6% of practices included in the study.
The questions on time on duty and satisfaction with care provided for patients were answered by 86 (98.9%) of the included practices. Completion rates for the other two questions were 100%.

6.3.2 Time on duty

Overall 65% of practices reported a reduction in time spent on out of hours duty. (Table 30)

Table 30. (Time spent on out of hours duty, compared to before the co-operative was established. Number (%) of responding practices)

<table>
<thead>
<tr>
<th></th>
<th>Much more time</th>
<th>More time</th>
<th>Equal time</th>
<th>Less time</th>
<th>Much less time</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non members</td>
<td>0 (0)</td>
<td>1 (3.4)</td>
<td>14 (48.3)</td>
<td>6 (20.7)</td>
<td>8 (27.6)</td>
<td>29 (100)</td>
</tr>
<tr>
<td>Members</td>
<td>1 (1.8)</td>
<td>4 (7.0)</td>
<td>10 (17.5)</td>
<td>10</td>
<td>32 (56.1)</td>
<td>57 (100)</td>
</tr>
<tr>
<td>All responding practices</td>
<td>1 (1.2)</td>
<td>5 (5.8)</td>
<td>24 (27.9)</td>
<td>16</td>
<td>40 (46.5)</td>
<td>86 (100)</td>
</tr>
</tbody>
</table>

Somers’ $D=0.229$. $P=0.016$

There is strong evidence that practices joining the co-operative reduced this time more than non-co-operative members. 56% of co-operative members
reported spending much less time on out of hours duty than in October 1996, compared to 28% of non members.

6.3.3 Satisfaction with out of hours arrangements

Overall 75% of practices reported an increase in satisfaction with their out of hours arrangements. (Table 31)

Table 31. Satisfaction with out of hours duty, compared to before the co-operative was established. Number (%) of responding practices

<table>
<thead>
<tr>
<th></th>
<th>Much more satisfied</th>
<th>More satisfied</th>
<th>Equally satisfied</th>
<th>Less satisfied</th>
<th>Much less satisfied</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non members</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 (10.3)</td>
<td>9 (31.0)</td>
<td>14 (48.3)</td>
<td>3 (10.3)</td>
<td>0 (0)</td>
<td>29</td>
</tr>
<tr>
<td>Members</td>
<td>39 (67.2)</td>
<td>14 (24.1)</td>
<td>5 (8.6)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>58</td>
</tr>
<tr>
<td>All responding</td>
<td>42 (48.3)</td>
<td>23 (26.4)</td>
<td>19 (21.8)</td>
<td>3 (3.4)</td>
<td>0 (0)</td>
<td>87</td>
</tr>
</tbody>
</table>

Somers’ D=-0.563. P<0.001
Again there is strong evidence that co-operative members’ satisfaction increased more than non members’. Nearly all (91%) member practices reported that they were more satisfied with their out of hours arrangements, compared to 41% of non member practices.

An examination of the relationship between changes in satisfaction and changes in time on duty among member practices (Table 32) shows that, while there is a strong relationship between reduction of time on duty and satisfaction with out of hours care, six practices which reported spending equal or more time on out of hours duty also reported being “much more satisfied” with their out of hours arrangements. This suggests that additional factors related to membership of the co-operative are also important.

Increased satisfaction was attributed in the open comments to spending less time on call, more evenings and weekends off duty, less disruption to family life, and better care for patients.
Table 32. Changes in satisfaction with out of hours duty and in time spent on out of hours duty among co-operative member practices. Number (%)

<table>
<thead>
<tr>
<th>Time on duty</th>
<th>Much more time</th>
<th>More time</th>
<th>Equally time</th>
<th>Less time</th>
<th>Much less time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfaction</td>
<td>n</td>
<td>Total</td>
<td>n</td>
<td>Total</td>
<td>n</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Much more satisfied</th>
<th>More satisfied</th>
<th>Equally satisfied</th>
<th>Less satisfied</th>
<th>Much less satisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Much time</td>
<td>0 (0)</td>
<td>1 (100)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>More time</td>
<td>3 (75)</td>
<td>1 (25)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Equal time</td>
<td>3 (30)</td>
<td>3 (30)</td>
<td>4 (40)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Less time</td>
<td>7 (70)</td>
<td>3 (30)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Much less time</td>
<td>26 (81.3)</td>
<td>5 (15.6)</td>
<td>1 (3.1)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Total</td>
<td>39 (68.4)</td>
<td>13 (22.8)</td>
<td>5 (8.8)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
</tbody>
</table>

Somers’ $D=-0.282$. $P=0.008$
6.3.4 Satisfaction with care provided for patients

Overall 58% of practices reported an increase in their satisfaction with the out
of hours care provided for patients. (Table 33)

Table 33. Satisfaction with care provided for patients. Number (%) of
responding practices

<table>
<thead>
<tr>
<th></th>
<th>Much more satisfied</th>
<th>More satisfied</th>
<th>Equally satisfied</th>
<th>Less satisfied</th>
<th>Much less satisfied</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non members</td>
<td>1 (3.4)</td>
<td>7 (24.1)</td>
<td>18 (62.1)</td>
<td>3 (10.3)</td>
<td>0 (0)</td>
<td>29</td>
</tr>
<tr>
<td>Members</td>
<td>21 (36.8)</td>
<td>21 (36.8)</td>
<td>14 (24.6)</td>
<td>1 (1.8)</td>
<td>0 (0)</td>
<td>57</td>
</tr>
<tr>
<td>All responding</td>
<td>22 (25.6)</td>
<td>28 (32.6)</td>
<td>32 (37.2)</td>
<td>4 (4.7)</td>
<td>0 (0)</td>
<td>86</td>
</tr>
</tbody>
</table>

Somers’ D = -0.435. P < 0.001

There is strong evidence that this satisfaction increased more among co-
operative members. The majority of non members reported that their
satisfaction with patient care was the same as in 1996, whereas nearly three
quarters of member practices reported that they were more satisfied with
patient care. 37% of members reported that they were much more satisfied with patient care, compared to only 3.4% of non member practices.

Reasons given in the open comments for the increased satisfaction included urgent calls being attended to more quickly; better communication and feedback to the practice; and care provided by general practitioner principals.

6.3.5 Practice perception of patient satisfaction

Most practices reported that patients were equally satisfied with out of hours care arrangements compared to 1996. (Table 34).

Table 34. Practice perception of patient satisfaction. Number (%) of responding practices

<table>
<thead>
<tr>
<th></th>
<th>Much more satisfied</th>
<th>More satisfied</th>
<th>Equally satisfied</th>
<th>Less satisfied</th>
<th>Much less satisfied</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non members</td>
<td>0 (0)</td>
<td>4 (13.8)</td>
<td>19 (65.5)</td>
<td>6 (20.7)</td>
<td>0 (0)</td>
<td>29 (100)</td>
</tr>
<tr>
<td>Members</td>
<td>5 (8.6)</td>
<td>17 (29.3)</td>
<td>34 (58.6)</td>
<td>2 (3.4)</td>
<td>0 (0)</td>
<td>58 (100)</td>
</tr>
<tr>
<td>All responding</td>
<td>5 (5.7)</td>
<td>21 (24.1)</td>
<td>53 (60.9)</td>
<td>8 (9.2)</td>
<td>0 (0)</td>
<td>87 (100)</td>
</tr>
</tbody>
</table>

Somers’ D = -0.312.  P = 0.001
However 40% of co-operative member practices reported that patients were now more satisfied with patient care, compared to 14% of non member practices. 21% of non member practices reported a fall in patient satisfaction, compared to only 3% of member practices. These differences are highly significant.

6.4 Discussion and conclusions

This study found that practices who joined the co-operative became more satisfied with their out of hours arrangements. These practices also reported greater reductions in the amount of time they spend on out of hours duty, and increased satisfaction with care for patients.

Among practices joining the co-operative, changes in satisfaction with out of hours arrangements were strongly related to changes in time on duty. Nevertheless, practices reporting no change, or even an increase, in out of hours duty also reported an increase in satisfaction, suggesting that there are other important benefits from joining a co-operative. These may include improved care for patients, which was cited alongside reduction in time on duty in the open comments from practices as a reason for increased satisfaction.

Several studies of GP satisfaction were published after this evaluation. The results presented here are consistent with those of Salisbury, who found that
general practitioners using a co-operative were more satisfied than those using a deputising service, and with those of Heaney et al, who found a reduction in stress levels among general practitioners one year after joining a co-operative. The results also concord with those of Shipman, who found high levels of GP satisfaction with out of hours care provided for patients. A study measuring health status with the SF36 found an improvement in the health status of general practitioners between 1995 and 1998, coinciding with an increased use of co-operatives.

This study found that general practitioners who joined the co-operative think that their patients are now more satisfied with out of hours arrangements. This finding, however, is not supported by evidence from the patients themselves, (chapter 5) where little change in satisfaction was observed.

The response rate achieved in this study (91%) is remarkably high, particularly in the context of falling response rates to general practitioner surveys. The high response will in part be due to the brevity of the questionnaire, the good relationship between the study team and practices in Sheffield, and to the book token incentive. However we feel it chiefly reflects the saliency to general practitioners of the issue of out of hours care, and its impact on their quality of life, and on patient care.

There are several limitations to this study. We sent one questionnaire to each practice in Sheffield, rather than to each general practitioner, therefore the findings may not be representative of all principals’ views. However, since...
decisions about on call arrangements, such as co-operative membership, are usually practice based, we feel that this approach was justified. Membership of the co-operative in Sheffield is by practice, so there are no practices where some, but not all general practitioners are members of the co-operative.

It is possible that those practices electing to join the co-operative were less satisfied with their out of hours arrangements before the co-operative opened than practices who did not elect to join it. It could therefore be argued that our results are due to regression to the mean, with dissatisfied practices before the co-operative having a greater chance of being “more satisfied” at a later date. This explanation is not, however, compatible with the finding that overall satisfaction among all general practitioners in Sheffield was higher after the co-operative opened. The increase in satisfaction among practices electing to join the co-operative cannot therefore be attributed to a selection effect, since overall satisfaction rose.

Though the increase in satisfaction and reduction in time spent on duty were more common in co-operative members, many non member practices reported a reduction in time on duty and an increase in satisfaction. These findings may be due to changes in the commercial deputising in Sheffield introduced at the time the co-operative was established. A treatment centre was established, and contracts were introduced which allowed practices to hand over to the deputising service for longer hours at the same cost.
Given the recruitment and retention problems that exist in general practice,\textsuperscript{84,85} the finding that co-operatives greatly improve GP satisfaction with out of hours care has important policy implications. An increase in GP morale will be welcomed by doctors and patients alike. It is important that new policy initiatives, such as NHS Direct and walk-in centres, are introduced in a way that is supportive of general practice co-operatives. Easy access services such as these have the potential to increase demand for primary care both in and out of hours.\textsuperscript{86} Any related increase in out of hours duty may lead to a reduction in GP satisfaction and a consequent worsening of morale and recruitment problems in general practice. Evaluation of these new services must measure their impact on out of hours duty and GP satisfaction.

One of the original aims of the Sheffield co-operative was “to create an environment where general practitioners can enjoy their normal working day and deliver an improved quality of care because of a reduction of the out of hours burden with its well documented stresses and pressures.” The study provides evidence that the co-operative has increased doctor satisfaction locally, and supports the premise that the “New Deal” for out of hours care, through the provision of general practice co-operatives has succeeded in its objective of reducing dissatisfaction among general practitioners with out of hours working arrangements.
7 Discussion

7.1 Implications of study findings

This study has shown that establishing a general practice co-operative has led to an increase in GP satisfaction with out of hours arrangements, without sacrificing patient satisfaction and without any major impact on use of A&E services.

The Sheffield co-operative has helped to achieve the policy objective of the New Deal, a reduction in GP dissatisfaction with out of hours working. Joining the co-operative was associated with greater satisfaction with out of hours working and satisfaction with care for patients. It was also associated with greater reductions in amount of time spent on out of hours duty.

General practitioners who joined the co-operative also perceived that their patients were more satisfied with the new out of hours arrangements.

However, this study provides no evidence of any important changes in patient satisfaction associated with the establishment of the co-operative. There was some weak evidence that satisfaction with access might have risen more in patients of member practices, but small changes were observed in the opposite direction for overall satisfaction, and satisfaction with explanation and advice.

The findings are consistent with other studies of benefits to general practitioners, and of patient satisfaction. In each case, this is the
first study published to compare changes in member and non member practices following the establishment of a co-operative.

A&E services can be reassured about any worries of “flooding” of their departments as a result of co-operatives. The study found no evidence of any important increase in overall use of A&E services associated with the co-operative. Analysis of consultations where the decision was made out of hours is also reassuring. However for out of hours contacts our study, though finding no statistical evidence of an increase in A&E use associated with the co-operative, was too small to rule it out completely. For both first service used, and all services used for an acute episode, we observed a greater increase in the proportion of patients attending A&E services in member, compared to non member practices.

However, the increase in the proportion using A&E services observed in member practices only brought them up to the same level as that seen in non member practices. Various possible explanations for this are examined in chapter 4, but the routine data, and the lack of any important change in patient satisfaction do not support concerns about major movement away from GP services and toward A&E services in member practices.

An economic study, undertaken as part of this study and described in the report to the funder,\(^\text{87}\) (though not presented as part of this thesis) showed an increase in costs from year 1 to year 2. This was significantly higher in practices which didn’t join the co-operative, compared to those that did join,
probably due to an increase in home visiting. This again is reassuring to A&E departments concerned that the establishment of co-operatives might cost them money.

### 7.2 Limitations

The main limitations to this study are the low numbers of out of hours contacts found, and the difficulty in isolating any impact of the co-operative from other service changes happening over the study period. We powered the study expecting around 4% of patients to have sought non-elective health care in the previous month. We found that approximately 10% of people sought non-elective care, but that about 80% of this care was in hours. We thus observed half the out of hours cases anticipated, despite a sample of 27,000 patients and a response rate of more than 70%. Nevertheless our study has proved large enough to answer clearly questions about doctor and patient satisfaction, and about all hours impact on A&E services.

As in many other areas, the establishment of a co-operative in Sheffield occurred alongside other service changes. The centralisation of A&E services, though starting before our study, continued between the before and after arm of our study. Pragmatic health services research in the real world often has to deal with concurrent service development, and it is unlikely that the major findings of the study, such as the increase in GP satisfaction, could be due to factors other than the co-operative.
Changes in the control arm of the study also occurred, with the deputising service operating more from a treatment centre, and offering changes to its contracts. Again these problems are unavoidable, and reflect a real response to the establishment of a co-operative. If anything, such changes might lead to an underestimate of the improvements in GP satisfaction attributed to the co-operative.

Inevitably, services for acute health problems have changed since the end of the study period and continue to develop. The advent of NHS Direct may have implications for the pattern of use of A&E and other services, as well as a possible impact on the satisfaction of patients, doctors and other staff. Walk in centres have added to the options available to patients seeking care, and the governments out of hours review recognises the need for greater integration of the many services now on offer. The monitoring of activity recommended by the review will need to be supplemented with research studies. A population based survey is the only approach that can look at all services used in acute care, and serial surveys allow the developing patterns of service use to be described as successive service developments take place. Information from our study will allow more careful planning and accurate sample size calculations of future surveys.
7.3 *The role of general practice in NHS modernisation*

The rapid spread of co-operatives demonstrates the great potential that general practitioners have for delivering the rapid modernisation of primary care services. Once important barriers were removed through the New Deal, general practitioners showed flexibility and rapid change in service provision rarely seen in other, more inert, parts of the NHS. These changes have produced benefits to practices at times of low morale and poor recruitment, and at the same time are associated with high levels of patient satisfaction.

The solutions that have disseminated rapidly through NHS primary care services have been designed by practices themselves, not imposed from above – and this has important implications for future modernisation programmes, as primary care groups move towards trust status. It is important that NHS Direct, and the single point of entry recommended by the out of hours review, are perceived by primary care staff as developments that they have a say in shaping. The impact of such developments on demand, workload and staff morale must be monitored, alongside impact on patients. Co-operatives may have diffused the crisis in primary care services struggling to cope with the demands of out of hours working, but it is likely that rising demand and expectations of will continue to test the resources of all staff providing a 24 hour service.
7.4 The future of general practice co-operatives and out of hours care

7.4.1 Integration of services

Out of hours services have undergone rapid transformation over the past decade, and there are no signs that the pace of change is likely to slow down. The addition of the telephone advice service NHS Direct and walk in centres to the existing range of services means that patients are faced with an even wider variety of choices for seeking out of hours care. A principal challenge facing out of hours services, then, as identified in the review of GP out of hours services commissioned by the Department of Health, is integration.

An anecdote from one of my general practitioner colleagues at the University Of Sheffield illustrates the problem. One of his patients presented one evening at the site of an accident and emergency department, to find that it had been closed down as part of the centralisation of accident and emergency services. The patient followed signs to the minor injury unit set up when the accident and emergency department had closed, but because it was after 8pm, it had shut for the night. Undeterred he followed signs to a new walk in centre where he was seen and a referral made to the general practice co-operative. Following a consultation at the primary care treatment centre, he was referred to a new emergency admission unit, also set up on the same site following the closure of the accident and emergency department.
Pharmacists, community nursing teams and lay networks all add to the plethora of options facing patients. Without more integration of existing services there is a danger of confusion for service users, and inefficient replication of services.

In order to overcome these problems, NHS Direct has been recommended as a single point of access and triage. There are already areas where NHS Direct is closely integrated with general practice co-operatives, and this would need to be disseminated to all co-operatives, and also to other out of hours services, including accident and emergency departments. NHS Direct would need to take all out of hours calls, rather than the proportion they do at present, and this would have important implications for the staffing of NHS Direct, including the numbers of nurses and their training. Staffing levels would have to be set to cope with variations in demand, including busy periods such as bank holidays. Given the current shortage of nurses within the NHS, including A&E services, transference of nurses into NHS Direct may have implications for the provision of other services.

It is important that some direct access services continue to exist so that those unable or unwilling to use the telephone can access the care they need, and nurse triage could be undertaken for these patients on site. Primary care treatment centres, as well as accident and emergency departments, may need to accept patients who turn up unannounced. Whilst this might be unpopular with co-operatives, it would avoid the situation reported in some co-operatives.
of such patients being turned away, only to call in from yards away on their mobile phones.

As well as integration between out of hours providers, the future out of hours system will need to be closely integrated with daytime services, to ensure seamless care at all times of day. Lessons learned in out of hours services, such as the importance of nurse triage, and the handling of many problems using telephone consultation, might be usefully transferred to in-hours services.

7.4.2 Communication

A challenge for an integrated service will be to ensure adequate communication between all parts of the care delivery system. Advances in communications technology, such as electronic health care records, will need to be fully utilised, and concurrent ethical concerns about confidentiality addressed. An example is the storage of personal medical records on the world wide web, allowing access to data from any health service provider connected to the internet.

7.4.3 Equity

Ensuring equity of access will remain an important challenge for services. Vulnerable populations such as those from areas of deprivation, the elderly and certain ethnic groups currently find accessing services difficult and
future services will need to address this. Translation services at the single point of telephone access will need to be further developed.

### 7.4.4 Medical and Nursing Morale

Changes in provision of out of hours care arose in response to crises in medical morale, and it is important that new services take into account the needs of both doctors and nurses expected to staff them. This will mean ensuring that working conditions to provide 24 hour emergency care do not impact adversely on their family and social life, and that their training and development needs are met. These factors will be essential to avoid recruitment crises among both doctors and nurses.

### 7.4.5 The role of general practice

As general practitioners work together in larger and larger groups, including general practice co-operatives, and as consumer pressures move us closer to providing as many services as possible 24 hours a day, some general practitioners feel there is a threat to their traditional role. General practice in the UK has been based on principles of “continuous, comprehensive and co-ordinated care”, and some consider that the we are moving away from the continuous, personalised service needed to ensure continuity of care, and an efficient gatekeeper role. Changes in the funding of general practice, including the development of salaried general practitioners, rather than independent contractor status, will have an impact on out of hours services
and the culture of general practice. Consumerist pressures for convenient, 24 hour access to care may not be compatible with continuity of care and a continuing one to one doctor patient relationship. As Heath has stated:  

The public must decide what sort of service it wants. ………

“The public needs to be persuaded to debate these questions, because the answers will exert a powerful influence over the future development of general practice. The danger may be that if we go too far down the consumerist road we will destroy the British system of general practice – just at the moment when the rest of the world has realised what an effective system it is.”

7.5 Remaining research issues

7.5.1 Research into general practice co-operatives

Though general practice co-operatives are now firmly established as a leading player in the out of hours care system, many research questions remain.

Opportunities for evaluative studies that examine the impact of co-operatives are limited, given that most areas now have co-operatives already established. Comparisons of practice rota based care with co-operatives are lacking, and no evaluations have examined the impact of co-operatives on patients’ health.
Further research is needed on how primary care treatment centres should be organised. For example should they be stand alone centres, or sited in hospitals/accident and emergency departments.

General practitioners who do not join co-operatives are an interesting field for research. What are the characteristics of their practices and populations, and why do they not join?

Importantly, research is needed into what is the “right” level of telephone advice only consultations, home visits and primary care centre attendances. The proportion of telephone advice only consultations has increased, and home visits decreased, but there are still concerns over patient satisfaction and safety. Further work is needed to assess the appropriateness of diagnoses and patient management decisions made in each of these types of consultation.

7.5.2 Research into newer out of hours services

As out of hours services develop, studies of newer service models, such as NHS Direct and walk-in centres, are needed. The relationship between different parts of the out of hours care system need to be examined, including communication and integration between services. Important research questions include:

- What effect do new first contact care services have on demand for health care services?
What are the hopes, fears and concerns of NHS staff about the impact of new first contact care services on the delivery of patient care, access to care and equity. Are these concerns justified?

What effect do the new developments in first contact care have on equity of access to health care? Which patient groups are empowered and which disenfranchised by these developments?

What is the effect of these rapid developments on communication between health services and on continuity and coordination of care?

These questions will be best addressed by multidisciplinary research teams using a blend of quantitative and qualitative methodologies.

To help maximise benefits from scarce use of NHS resources, economic evaluations of out of hours and emergency systems are needed. However, these will depend on the availability of effectiveness data from pragmatic evaluations. Where possible these should use randomised studies, or studies using historical and contemporary controls.

With the prospect of a single entry point to emergency services through NHS Direct, further studies of triage are needed to establish the most effective and efficient means of assigning patients to appropriate services, and of prioritising urgent cases. Evaluation of computerised decision support using the NHS clinical assessment system, now adopted by NHS Direct, is urgently needed.
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Appendix A. Postal Survey Questionnaire
Appendix B. Home interview schedule, including patient satisfaction questionnaire
Appendix C. General Practice Questionnaire