

Outpatient Services and Primary Care: A scoping review of research into strategies for improving outpatient effectiveness and efficiency

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Executive Summary

Background

A key government objective in NHS reform is to reduce waiting times for specialist care. Broadly speaking there are two strategic approaches to achieving this objective. The first is to increase hospital capacity and so achieve faster throughput of patients. The second is to reduce demand for specialist care by finding alternatives to outpatient treatment. This review is focused on the latter of these two strategies.

Aims

Our aim was to identify strategies and processes involving primary care that influence the efficiency and effectiveness of outpatient services. Four types of models were reviewed:

- **Transfer:** The substitution of services delivered by hospital clinicians for services delivered by primary care clinicians. This included: minor surgery, diabetes care, GPs with special interests, discharge from outpatient follow-up, and direct access for GPs to hospital tests and services.
- **Relocation:** Shifting the venue of specialist care from outpatient clinics to primary care without changing the people who deliver the service. This included: shifted outpatient clinics, telemedicine (as a 'virtual' form of relocation), and attachment of specialists to primary care teams.
- **Liaison:** Joint working between specialists and primary care practitioners to provide care to individual patients. This included shared care and consultation liaison.
- **Professional behaviour change:** Interventions intended to change the referral behaviour of primary care practitioners, including referral guidelines, audit and feedback, and education and financial incentives.

For completeness we looked also at two models of care that do not involve primary care, although these were not subject to the rigorous scoping methods described below. These included intermediate care services (community mental health teams and hospital at home) and hospital redesign of outpatient services (rapid-access chest pain clinics, treatment centres and hospital outreach nurses for chronic obstructive pulmonary disease).

Methods

We conducted a 'scoping' review of published research into each of the four models described above.

Data sources

The databases searched (from 1980 onwards) included: MEDLINE®; Health Management and Information Consortium (HMIC) Health Management and Policy database; Cochrane Database of Systematic Reviews; Cochrane Central Register of Controlled Trials; System for Information on Grey Literature (SIGLE); National Research Register; Research Findings Electronic Register (ReFeR); Index to Theses; Campbell Collaboration Social, Psychological, Educational and Criminological Trials Register.

Study selection

Studies were included if they related to one of the four models above and included usable information about any of the following outcomes: patient health or satisfaction; quality of care; impact on hospital services; impact on primary care services; and costs. All types of study designs were eligible for inclusion including: existing literature reviews, clinical trials, observational studies, and qualitative case studies. Where a high-quality systematic review was found for a particular intervention, we sought only to update the review by adding more recent publications.

Data extraction and analysis

For each type of intervention covered by the review, one reviewer decided which studies to include and carried out all data extraction. Data synthesis was qualitative. The findings across all types of intervention for each model were then summarised by one reviewer and scrutinised by all reviewers to arrive at an overall conclusion about that model's impact on outpatient effectiveness and efficiency. The feasibility and policy implications of implementing the model were then considered and recommendations made, where appropriate, for further research.

Limitations of the review

The review was not intended to be a comprehensive systematic review, and the search strategy lacked sensitivity in some areas. It may be that some relevant publications were not identified. Despite this limitation, we are confident that the review is sufficiently robust to

have identified the main potential strengths and weaknesses of the different models of care.

Results

Interventions shown to be effective in reducing outpatient demand included:

- Discharge of outpatients to (i) no follow-up, (ii) patient-initiated follow-up, or (iii) general practice follow-up, as alternatives to routine follow-up in hospital outpatient clinics. These interventions improve access and reduce outpatient attendance without adverse effects on the quality of care. Primary care workload is increased but overall NHS costs may be reduced. Uptake may be limited by low acceptability to a significant minority of patients and clinicians. Patient-initiated access requires major revision of hospital appointment systems.
- Direct access for GPs to (i) hospital-based diagnostic tests and investigations or (ii) hospital-provided treatments, without the prior approval of a specialist in an outpatient clinic. These interventions reduce waiting times and outpatient attendance without adverse effects on the quality of care. Direct access to tests requires expansion of hospital services but increases in primary care workload appear slight. Savings in reduced outpatient attendance may be offset by overall increases in demand. The intervention is suitable only for tests and services that lie within the competency of primary care.
- Structured referral sheets that prompt GPs to conduct any necessary pre-referral tests or treatments. The administrative burden for GPs may restrict widespread application.
- Educational outreach by specialists, such as involvement of specialists in activities to support local referral guidelines. This requires a substantial time commitment from both specialists and GPs.

Promising interventions that merit further investigation included:

- Early evaluation of GPs with special interests (GPSIs) acting as substitutes for outpatient specialists suggest GPSIs improve access and reduce waiting time without adverse effects on the quality of care. Treatment thresholds may lower, provoking service-led increases in demand. The intervention requires the co-operation of hospital specialists who sometimes block change. Impact on cost and effectiveness appears context dependent and merits further investigation.
- The transfer of medical care for common chronic conditions, such as diabetes, from secondary to primary care improves access. Quality of care is unaffected provided that practices establish disease registers, recall patients at regular intervals for review,

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and conduct those reviews in accordance with evidence-based guidelines. Primary care workload is increased. Overall cost-effectiveness is unknown. The potential for moving management of a wider range of chronic conditions from hospitals to primary care warrants further investigation.

- 'In-house' second opinion prior to referral was shown to reduce outpatient referral without adversely affecting the quality of care in one study. Further studies are needed to assess the reproducibility of this finding.

Ineffective interventions included:

- Relocation of specialist services to primary care settings was generally associated with improved access for patients. Greater equity in care provision may be achieved by relocating specialists to communities with poor access to secondary care services (e.g. remote rural areas). Locating specialists to well-served communities was associated with reduced outpatient effectiveness and efficiency. Specialist attachment to primary care teams was shown to reduce outpatient attendance for only one of three specialties evaluated (physiotherapy).
- Joint working between primary and secondary care clinicians, which may improve the quality of care, but appears to have little impact on outpatient attendance. The intervention demands excellent communication and good relations between primary and secondary care clinicians, and these conditions are not always present.
- Certain professional behaviour change strategies were ineffective in changing the referral behaviour of primary care clinicians. These included: passive dissemination of referral guidelines; audit and feedback of referral rates; and discussion of referral behaviour with an independent medical advisor. These interventions could be discontinued where they are presently used with cost savings to the NHS.

Strategies that were effective but had unintended negative effects included:

- Transferring minor surgery from outpatient clinics to primary care was associated with important reductions in the quality and safety of care.
- Financial incentives designed to discourage outpatient referral from primary care were effective but risked reducing necessary referrals.

Strategies not involving primary care

Although outside the remit of this review, we looked briefly at interventions not involving primary care that might improve outpatient effectiveness and efficiency. This overview suggested that the

introduction of intermediate care services may reduce use of hospitals for more severely ill patients and improve patient satisfaction. Overall cost-effectiveness is uncertain and merits further investigation. Redesign of outpatient clinics to provide rapid access for patients with life-threatening conditions can reduce waiting time, with potential health gains for patients. Costs are increased and the impact on routine outpatient attendance is unknown. Private sector provision of care in treatment centres has the potential to expand NHS capacity but research into overall cost-effectiveness is not yet complete. Specialist outreach into the community (bypassing primary care) does not appear to improve outpatient effectiveness or efficiency.

Conclusions

The paucity of high-quality research for any one intervention was striking, making it risky to draw firm conclusions. Nonetheless, there was a surprisingly high degree of consistency in outcomes across the range of interventions included within each of the four models of care investigated. The findings broadly suggest that transferring services from secondary to primary care and strategies intended to change the referral behaviour of primary care practitioners were often effective in improving outpatient effectiveness and efficiency. Relocating specialists to primary care and joint working arrangements between primary and secondary clinicians were largely ineffective. Strategies not involving primary care that may improve outpatient effectiveness and efficiency include the introduction of intermediate care services and redesign of hospital outpatient services.

The quantity of available research varied widely across individual interventions, showing a marked relationship to contemporaneous changes in NHS policy. That is to say, we formed the impression that research was triggered by changes in policy and was predominantly targeted at assessing whether new initiatives fulfilled their stated policy objectives. Unintended consequences and impacts on allied health sectors received less attention. The research was nonetheless useful in identifying the potential benefits and disadvantages associated with each broad approach to reducing outpatient demand. No effective strategy involving primary care was without risk. Identifying these risks means, however, that policy-makers and managers can now take steps to mitigate their effects when new initiatives are introduced.

Future research

Many new changes are planned at the primary-secondary care interface following the publication of the 2006 NHS White Paper '*Our Health, Our Care, Our Say: a new direction for community*'. The precise form that these interventions will take is not yet clear, but the

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proposals appear to blend a number of the strategies reviewed here for reducing outpatient demand, namely transfer of services to primary care, relocation of specialist services, liaison between primary and secondary care practitioners and professional behavioural change. Evaluation of these new initiatives is highly likely fall within the remit of the Service Delivery and Organisation programme in its research commissioning role.

In our view, evaluations should, wherever possible, be robust and employ a (quasi) experimental design e.g. randomised controlled trials or controlled before and after studies. While this is not always possible when new policies are implemented, the literature we surveyed showed the unhelpful nature of weak study designs with initial claims often not substantiated by subsequent rigorous research.

It is important to include an appropriately broad range of outcomes. Alongside patient access and satisfaction, it is essential that new initiatives be evaluated in terms of:

- quality of care and patient safety
- NHS *costs* in providing the new service, also taking into account *prices* charged by providers and actual savings realised in other parts of the service
- overall effects on demand for care, whether from patients or GPs.

Future evaluations need also to assess the extent to which successful implementation depends on local contextual factors that may not be transferable, such as the attitudes, enthusiasm and skills of key actors. This demands that good qualitative research be conducted alongside the quantitative research described above.

Authors

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The Report

Section 1 Introduction

1.1 Background

A key government objective in NHS reform is to reduce waiting times for specialist care. Broadly speaking there are two strategic approaches to achieving this objective. The first is to increase hospital capacity and so achieve faster throughput of patients. The second is to reduce demand for specialist care by finding alternatives to outpatient treatment. This review focuses on the latter of these two strategies.

The NHS has been asked to reduce the waiting time for first outpatient appointments to four months by March 2004 and to three months by December 2005. There is a target to increase the number of patient referrals seen in the community by one million by 2006, with an associated performance indicator for primary care trusts to limit or halt the rise in outpatient referrals by GPs. These initiatives are founded on the belief that many outpatient referrals may be unnecessary, or that patients could satisfactorily be seen by community-based practitioners with appropriate skills. Recent Department of Health (2005) estimates suggest that 'up to 15 million outpatient attendances could be safely and effectively offered in community settings'.

There has been a rapid growth in services and locally initiated policies aimed at reducing the number of outpatient referrals. However, impact assessments have tended to focus on waiting times without proper evaluation of other important attributes, such as service quality or cost-effectiveness. The Audit Commission (2004) described the rapid growth of new types of service at the interface between secondary and primary care, and commented on the lack of evaluation with 'services often introduced without thorough analysis of the level and types of activity needed to improve access, the human resources needed to deliver it, or the costs this should entail' (Audit Commission, 2004).

New initiatives are being planned at the primary-secondary care interface following the publication of the 2006 NHS white paper *'Our Health, Our Care, Our Say: a new direction for community'*. A key objective is to shift health services from acute hospitals into the community and so bring care 'closer to home' for patients. A series of 20–30 demonstration sites in six key areas – ear, nose and throat, trauma and orthopaedics, dermatology, urology, gynaecology, and general surgery – will establish effective 'care pathways' that can then be rolled out across the NHS. The aim is to substitute community care for hospital care rather than simply moving existing hospital providers

into community settings. This will be accomplished by making greater use of community-based specialists, such as nurses and GPs with special interests (GPSIs), and through the increased provision of diagnostic and treatment facilities, including step-down beds, in community hospitals. Funds to support the expansion of community services will be taken from hospital budgets. Indeed, the government suggests that it may performance manage primary care trusts by introducing a target for the percentage shift from secondary care to primary and community care.

Given the high policy relevance of the topic and the need for information to inform decision-making, the Service Delivery and Organisation Research and Development Programme commissioned the authors to perform a scoping review of strategies and processes involving primary care that are being used to influence the efficiency and effectiveness of outpatient services.

1.2 Objectives

The aims of the project were to carry out a literature review and analysis of current policy in order to:

- Identify and review what is currently known about strategies involving primary care that are designed to improve the effectiveness and efficiency of outpatient services.
- Comment on the impact of such schemes on the organisation of primary care, on the primary care workforce and on patient outcomes.
- Identify and comment on the potential for innovative models of care to be replicated more widely.
- Identify the needs for future research in this area, both in terms of primary research and systematic reviews that might be needed.
- Summarise the findings in a way that will be readily accessible to policy-makers and managers.

1.3 Models of care

This review is structured around a conceptual framework, as proposed by Sibbald *et al.* (2004) and further developed here, to classify models of working at the interface between primary and secondary care. It identifies six broad strategies for improving the efficiency or effectiveness of outpatient services (Table 1). Four involve changes to processes or strategies in primary care and are thus the focus of this review. The models of working are:

- Transfer – substitution of services delivered by hospital clinicians for services delivered by primary care clinicians. The underlying assumption is that primary care practitioners can be trained to

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replace hospital specialists in defined areas of care, so reducing demand for outpatient services.

- Relocation – shifting the venue of specialist care from outpatient clinics to primary care without changing the people who deliver the service. The intention is to improve access to specialist care for those who need it. All other factors being equal, improving access should reduce waiting times but not the overall demand for specialist care.
- Liaison – joint working between specialists and primary care practitioners to provide care to individual patients, with the intention of improving the quality and co-ordination of care. Demand for outpatient services may be reduced by enabling more complex problems to be managed in primary care.
- Professional behaviour change – includes a broad range of strategies intended to change referral behaviour from primary care, including organisational interventions such as the attachment of specialists to primary care teams. The intention is to eliminate unnecessary referrals.

Two other models do not involve primary care but are included here for completeness. These are:

- Intermediate care – services provided by community-based specialists that may reduce demand on hospitals either by preventing admission or by facilitating discharge.
- Hospital service redesign – reorganisation of hospital services to improve outpatient throughput or to reduce outpatient attendance without the direct involvement of primary care.

Table 1 Models of working at the interface between primary and secondary care

Model	Sub-type	No. of papers included in section (No. of studies*)
<i>Transfer</i> Substitute primary care for secondary care	Surgical clinics (e.g. minor surgery)	10 (9)
	Medical clinics (e.g. diabetes, asthma)	1 (Cochrane review)
	Intermediate care (e.g. GPs with special interests)	9 (7)
	Outpatient discharge to primary care	16 (11)
	Direct access of primary care provider to secondary care: (i) diagnostic tests/ investigations (ii) services	(i) 26 (26) (ii) 13 (13, including 2 systematic reviews)

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Model	Sub-type	No. of papers included in section (No. of studies*)
Relocation Relocate secondary care to primary care setting. The provider remains a specialist	Shifted outpatient clinic	12 (12, including 1 systematic and 1 Cochrane review)
	Telemedicine (a 'virtual' relocation of specialists to primary care settings)	33 (25 including 4 systematic and one Cochrane review)
	Attachment of specialist to primary care team	6 (5 including 3 systematic reviews and 2 Cochrane reviews)
Liaison Joint management of patients by primary and secondary care clinicians	Shared care (joint management plans)	4 (3 including 1 Cochrane review)
	Consultation liaison (joint consultations and management plans)	
Professional behaviour change Interventions intended to reduce referral rates to secondary care from primary care	Interventions to reduce referrals: guidelines, audit and feedback, academic detailing, education, in-house referral (i.e. second opinion), financial incentives	1 (Cochrane review)
Intermediate care Management of patients at high risk of needing hospital care by community-based specialists	Community mental health teams	7 (7, including 1 systematic review and 1 Cochrane review)
	Hospital at home	4 (4, including 2 systematic and 2 Cochrane reviews)
Hospital service redesign Organisational changes in hospitals that may reduce outpatient attendance rates	Rapid-access clinics	6 (6)
	Hospital outreach services that bypass primary care	2 (2, 1 systematic and 1 Cochrane review)

**For the purpose of this table, a systematic or a Cochrane Review is noted, but counted as a single 'study').*

1.4 Structure of this report

The main body of the report opens with a detailed account of our methods of investigation, including the limitations of the review (Section 2). The results are organised into four sections, each of which covers one model of working intended to improve outpatient effectiveness or efficiency through the involvement of primary care: Transfer to primary care (Section 3); Relocation to primary care (Section 4); Liaison with primary care (Section 5); and Professional behaviour change (Section 6). Each section concludes with a summary that brings together the key findings across all interventions and identifies those with the greatest potential to improve outpatient effectiveness and efficiency. The two models of working that do not involve primary care – intermediate care and hospital service redesign – were not subject to review, but a brief synopsis has been included of our understanding of the key issues in these areas (Section 7). A synopsis of the findings and suggestions for future research are given in Section 8.

Section 2 Methods of investigation

Our aim was to review strategies and processes involving primary care that influence the efficiency and effectiveness of outpatient services.

2.1 Types of intervention

Four models of working were the focus for review:

- 1 Transfer of care from secondary to primary care.
- 2 Relocation of secondary care services to primary care.
- 3 Joint working between primary and secondary care.
- 4 Interventions intended to change referral behaviour from primary care.

Models of working that did not involve primary care, such as interventions targeted at intermediate or secondary care services alone, were excluded. Studies investigating the benefits and disadvantages of primary care-centred health care systems as a whole (i.e. general practice as the usual first point of contact and gatekeeper to specialised hospital care) were also excluded.

2.2 Types of studies

All types of study were eligible for inclusion but only studies containing usable outcome data were extracted. The types of articles considered are shown in Table 2.

We read relevant editorials and commentaries for contextual information but no formal data extraction of these was undertaken.

For each study that contained usable outcome data descriptive information was extracted, including:

- type of intervention (model of care) investigated
- type of study (as shown in Table 2)
- date(s) study was conducted or date limits of systematic review
- researcher's subjective assessment of the quality of the research (high, medium or low). A note was made of any defects in the study design.
- numbers and types of patients
- numbers and types of clinicians
- numbers and types of health care facilities (e.g. hospitals, general practices)
- country in which the research was conducted.

Table 2 Type of study: Hierarchy of evidence

Abbreviation used in report	Type of study
COCH	Cochrane systematic review
SYST	Other systematic review
REV	Other review (not Cochrane or systematic review)
RCT	Randomised controlled trial
CBA	Controlled before and after study
NRT	Non-randomised trial
BAS	Before and after study
CHT	Cohort study
SUR	Survey
AUD	Audit
DE	Descriptive evaluation
ED	Editorial
COMM	Policy commentary

2.3 Types of outcomes

Information on the following outcomes was extracted for all included studies:

- Patient outcomes
 - Satisfaction, quality of life, acceptability, preferences
 - Health status
- Service outcomes
 - Quality of care
 - Impact on hospitals: waiting time, outpatient attendance, acceptability to clinician
 - Impact on primary care: waiting time, workload, acceptability to clinician
- Costs
 - NHS costs, patient costs, full economic costing.

These were supplemented, where appropriate, by outcomes of specific relevance to individual models of care. For example, 'appropriateness of referral' was added to the list of outcomes extracted for direct access (Section 3.6). The list of additional outcomes extracted for each model of care is given in the section of the main report that deals with that model.

2.4 Search strategy

2.4.1 Databases

The following databases were searched in February 2005:

- MEDLINE® (1966–2005 January (Week 3) (Ovid)
- MEDLINE® In-Process and Other Non-Indexed Citations (31 January 2005 (Ovid)
- EMBASE 1980–2005 (Week 5) (Ovid)
- Health Management and Information Consortium (HMIC) Health Management and Policy database (January 2005) (Ovid)
- Cochrane Database of Systematic Reviews (Cochrane Library 2005, Issue 1)
- Cochrane Central Register of Controlled Trials (Cochrane Library 2005, Issue 1)
- System for Information on Grey Literature (SIGLE) (1980 – June 2004) (SilverPlatter)
- National Research Register (2005, Issue 1)
- Research Findings Electronic Register (ReFeR)
- Index to Theses 1716 (updated 19 January 2005)
- Campbell Collaboration Social, Psychological, Educational and Criminological Trials Register (C2-SPECTR) (1950 – 6 September 2004).

Search terms and limitations

A detailed description of the search strategy for each database is included in Appendix 1. The care settings (primary care, family practice, etc.) were combined with either specific interventions or general interventions and outcomes. Country limits were then applied for MEDLINE® and EMBASE to select the research of greatest relevance to the UK. This limitation was not applied to other databases, as it radically reduced the number of records retrieved (e.g. from 1660 to 252 on HMIC). Only English-language articles published in 1980 or later were included. Books were included but letters, book sections and PhD theses were excluded.

Supplemental searches

A supplemental search for direct-access studies was undertaken using the terms: direct access; open access; rapid access; rapid assessment; direct listing; fast access; one-stop; and direct referral/referrals. In addition, a supplemental search for telemedicine studies was undertaken using the term telemedicine.

The reference lists of included studies were screened to identify other relevant research.

In addition, we hand searched contents lists for the last 5 years of the following journals: British Medical Journal, British Journal of General Practice, European Journal of General Practice, Journal of Family Practice, Family Practice and Annals of Family Medicine. Recent volumes of the Journal of Telemedicine and Telecare were also hand searched.

Some models of working relevant to this review – for example, GPs with a specialist interest (GPSIs) – are relatively new and are only now undergoing evaluation. In this instance, we approached the lead investigator to obtain copies of research reports that were not yet in the public domain. Reports were provided by Dr Rosen (project completion October 2004) and Professor Salisbury (project completion April 2005). Professor Salisbury's study has subsequently been published and is quoted in the published form.

In one other area – shared care – we were aware that a high-quality systematic review was to be published by the Cochrane Collaboration. We approached the author (Dr Susan Smith), who was kind enough to share a pre-publication copy with us.

2.5 Methods of the review

The titles and abstracts of publications identified by the main search were allotted equally to the reviewers who then made an assessment of whether to obtain full copies of the papers. The papers obtained were then divided into groups according to model of care and sub-type, as shown in Table 1. Each reviewer was then allocated one or more models to review in detail. This reviewer made the final decisions about study inclusion/exclusion, and carried out all data extraction and synthesis. Reviewers extracted the relevant data into a standardised form developed for this purpose (Appendix 2).

Where more than one publication was found relating to a single study, those publications were extracted together.

Where a high-quality, systematic review was found for a particular model of care, reviewers did not extract data from those publications included in the review or published earlier than the dates encompassed by the review. Data were instead extracted from more recent publications and used to update the review.

Data synthesis was qualitative with greater weight attached to higher-quality studies. Quality assessment was informed by a hierarchy of evidence that gave greatest weight to systematic reviews and randomised controlled trials, and least weight to descriptive evaluations, as indicated in Table 2.

2.6 Limitations of the review

The review was not intended to be a comprehensive, systematic review, and is thus likely to have missed publications of relevance. The basic search strategy was designed to identify publications reporting information on outpatient utilisation and, as such, excluded research reporting other outcomes of interest. We verified this limitation by comparing the reference lists of recent review articles against the list of articles generated by our search, and found that we had failed to identify a substantial proportion of work in some areas. We instituted supplemental search strategies (described above) to offset this limitation, but it remains probable that some relevant research went undetected.

Inclusion decisions, data extraction and data synthesis were conducted by only one reviewer for each model or sub-type of care. This was necessary to ensure completion of the review within the available time and resources but is likely to have produced some inconsistencies and inaccuracies.

Despite these limitations, we are confident that this review is sufficiently robust to have identified the main potential strengths and weaknesses of a particular model of care, or to conclude that there is insufficient research on which to base such an appraisal.

Section 3 Transfer to primary care

3.1 Introduction

This section deals with the transfer of services or elements of services from secondary to primary care practitioners. The assumption is made that primary care practitioners have both the skill and the capacity to undertake work transferred to them from hospital outpatient clinics. This work includes:

- Minor surgery clinics operated by GPs instead of hospitals (Section 3.2).
- Medical clinics run by general practice teams that substitute for hospital outpatient clinics in the management of patients with chronic diseases such as diabetes (Section 3.3).
- GPs with special interests (GPSIs) who substitute for outpatient specialists in receiving referrals from other GPs (Section 3.4).
- Discharge of outpatients to (i) no follow-up, (ii) patient-initiated follow-up or (iii) general practice follow-up, as alternatives to routine follow-up in hospital outpatient clinics (Section 3.5).
- Direct access for GPs to (i) hospital-based diagnostic tests and investigations or (ii) hospital-provided treatments, without the prior approval of a specialist in an outpatient clinic. In these instances, the GP substitutes for the specialist in determining what tests, investigations or treatments are required by the patient (Section 3.6).

3.2 Transfer to primary care: Minor surgery

3.2.1 Introduction

The 1990 contract for GPs in England and Wales created financial incentives to undertake minor surgical procedures in general practice. GPs could claim for up to 60 procedures annually, drawn from an agreed list, and received £20 (1990 prices) per procedure (Department of Health, 1989). Although minor surgery had been carried out in general practice for many years, the 1990 contract resulted in an increase in the number of procedures undertaken. Some estimates suggest a doubling in the number of procedures performed following the introduction of the contract (Shrank, 1991) and one study reported a quadrupling of the number of skin biopsies received in the hospital pathology laboratory following the introduction of the contract (Cox *et al.*, 1992). In the context of long waiting lists for elective treatment in hospitals, such schemes offer potential benefits, although they also have risks.

Anticipated benefits and risks

In a report commissioned by the British Medical Association, the management consultants Coopers and Lybrand outlined a number of benefits associated with minor surgery performed by GPs (Coopers and Lybrand, 1983). These included shorter waiting times and lower costs, when compared with surgery carried out in hospital, and the freeing up of hospital resources, which could be allocated to more serious, complex and urgent cases. Enhanced job satisfaction for GPs and increased patient satisfaction were also cited as benefits. However, the report also identified risks, in that GPs might fail to diagnose serious conditions or fail to maintain surgical skills due to the low volume of operations undertaken. Furthermore, if complications arise, GPs cannot provide the same immediate access to the back-up facilities that are available in a hospital setting. There are also risks of infection due to the difficulty of maintaining adequate infection-control processes, particularly in premises that are not purpose built and in facilities that may serve a number of functions in addition to the provision of minor surgery. Ensuring the availability and maintenance of equipment in general practice may also present greater risks than at hospital sites that have dedicated facilities and equipment and rolling programmes of planned maintenance.

3.2.2 Methods

Search strategy

Relevant papers identified from the standard interface search strategy were obtained. No other searches were undertaken.

Inclusion criteria

Studies describing minor surgery in general practice were included.

Data extraction

Data were extracted by one investigator (Ruth McDonald) into a standardised form developed for this purpose (Appendix 2). We found very little literature relating to minor surgery in general practice; hence we included studies of relatively poor quality. While assessment of the quality of included studies was informed by a hierarchy of evidence (Table 2) that gave greatest weight to randomised controlled trials, other studies whose methods came fairly low down in this hierarchy had some strengths in terms of providing salient contextual information. Assessments of quality were thus largely made by considering each study on its own merits.

Data synthesis

Data synthesis was qualitative.

3.2.3 Results

Description of studies

All studies focused on the UK and were conducted between 1990 and 2005, although all but two studies were published before 1999. A total of nine studies (ten papers) were included (see Table 3 for descriptions). The quality of available research was generally poor, in part because many studies reported on small numbers of patients and often where quantitative data were presented, they were not subject to statistical analysis. There were only two prospective studies and one of these used unmatched controls whose case mix differed significantly ($p < 0.01$) from the intervention group. One study, which included larger numbers of patients, was authored by GPs providing a service to other practices and was aimed at demonstrating 'that a group of GPs with a particular interest in minor surgery can offer an expanded service both to their own patients and also to the patients of neighbouring colleagues', rather than presenting a critical evaluation of the service.

Overall, the results that follow are based on:

- One randomised controlled trial comparing minor surgery in general practice and in hospital.
- Three non-randomised trials comparing minor surgery performed in general practice versus hospital.
- One before and after study comparing performance for minor surgery before and after the expansion of minor surgery following the 1990 GP contract.

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- One cohort study examining changes in the minor surgery case mix over time.
- Three audits, two of which report on local minor surgery projects and one of which focuses on infection-control precautions in the context of the expansion of minor surgery.

Study outcomes are detailed in Table 4 and summarised below.

Patient outcomes

Patient satisfaction

Only two studies examined patient satisfaction (O’Cathain *et al.*, 1992; Coid, 1990). The comparative study (O’Cathain *et al.*, 1992) found higher rates of satisfaction in the general practice group than in the hospital-based group (92% versus 79%; $p < 0.05$). No significant difference was found on self-reported treatment outcomes. However, the control group was significantly different from the GP group in terms of the complexity of case mix ($p < 0.05$); the extent to which this may have some bearing on the findings is unclear. Furthermore, the patients were asked to report their treatment outcomes 6 weeks after treatment.

Coid’s (1990) small exploratory study found patients were ‘very satisfied’ (16/17) or ‘satisfied’ (1/17) with the service provided, citing convenience and treatment from a physician known to them as factors contributing to satisfaction ratings.

Access (proximity)

In the one study that examined this outcome (O’Cathain *et al.*, 1992 – but see comments about control group above), more patients in the GP group were able to walk to their appointment (23.9% versus 6.7% for the hospital group; $p < 0.01$) and the median time spent attending for treatment was lower in this group (1 versus 2 hours; $p < 0.01$).

Infection rates and complications

The quality of evidence with regard to infection and complication rates was poor. Four studies reported infection and/or complication rates (Coid, 1990; O’Cathain *et al.*, 1992; Lowy *et al.*, 1993; Brown *et al.*, 1997). One of these merely stated that there was ‘no evidence of increased rate of wound infection in general practice’ and does not elaborate (O’Cathain *et al.*, 1992). Another reported, that with regard to infections and complications, none were recorded (Brown *et al.*, 1997). The remaining two reported complication rates of 2.4%, of which 0.7% required secondary referral to hospital (Lowy *et al.*, 1993), and 3/20 patients (15%), 1 of whom (5%) required a further operation (Coid, 1990).

Service outcomes

Accuracy of diagnosis, adequacy of excisions

GPs performed less well than hospital doctors on adequacy of excisions in the three studies that compared performance. The before and after study (Pockney *et al.*, 2005) comparing pre-excision diagnosis and final diagnosis found that a total of 12/33 malignant lesions had no clinical suspicion of malignancy recorded by the GP. Furthermore GPs were less likely than their hospital counterparts to send pathology specimens for lesions of similar sizes and types. (144/303 [48%] versus 222/331 [67%]; $p < 0.001$). Hospital doctors were better at achieving complete excision, with a difference that approached statistical significance (6/15 GP [40%] versus 13/18 hospital [72%]; $p = 0.06$). The fact that similar results were found in the other comparative studies we reviewed raises major concerns about the ability of GPs to recognise and adequately treat serious lesions that are presented to them.

Khorshid *et al.*'s study (1998) of melanoma excision found lower rates of complete and adequate excision in the GP group (15% versus 36% in the control group), with patients in this group also more likely to require further excision due to insufficient margin from tumour edge (49% versus 39%, respectively). GPs made a confident diagnosis of melanoma in only 17% of patients prior to surgery. The authors concluded that despite these problems 'in the majority of cases patients were subsequently appropriately treated by referral to specialist units'. However patient-management data included in the paper indicate that, although 49 patients were referred to specialists, in a further four cases it was 'not clear what further management patients had'. Furthermore, although the authors found no evidence that any patient had an incomplete excision that was not subsequently corrected, the lack of data on the time delay between the procedures means that no conclusions can be drawn about the effect that this may have had on clinical outcomes. Despite the evidence on GP diagnostic accuracy, interview data provided indicate that 49% of GPs reported being confident in the diagnosis and treatment of skin cancer, including melanomas, and 25% reported that they never refer any patient with a pigmented lesion to a dermatology department.

O'Cathain *et al.* (1992) reported that more specimens in the GP group (4.9% versus 0% in hospital) were not adequately excised, though this difference was not statistically significant. This study, which compared hospital doctors and GPs on accuracy of diagnosis, also found that GPs were less accurate. For example, clinical diagnosis did not match histological diagnosis in 43.9% of GP cases versus 22.4% of hospital cases ($p < 0.05$). In addition, GPs were more likely to diagnose a mole as a lesion when it was not and more likely to misdiagnose a malignant condition as benign.

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Lowy *et al.*'s study (1994) reporting on minor surgery before and after the introduction of the 1990 GP contract found that GPs made the correct clinical diagnosis in 50% of cases, based on data for 1991, but no comparative hospital data were included.

Waiting times

In the two studies reporting these outcomes, waiting times were declared to be lower in general practice (7 days and a maximum of 1 month; Brown *et al.*, 1997; Lowy *et al.*, 1994) than for hospital surgery. Given the short waiting times reported, it seems likely that these were lower in general practice, but no direct comparisons were made with waiting times using hospital (rather than anecdotal) data.

GP workload

Despite the fact that many GPs were undertaking minor surgery prior to the introduction of the 1990 contract, evidence suggests that the effect of the contract was to increase the volume of such work (Lowy *et al.*, 1994). O'Cathain *et al.* (1992) reported that more patients returned for follow-up in the GP group (12.5% versus 3.9%) despite the less complex case mix of this group. Coid's (1990) small exploratory study estimated the GP workload in carrying out operations at the equivalent of 16 months of one GP's activity. This was for 40 operations (thirteen sebaceous cyst removals, ten nail structures operations, sixteen operations on other skin lesions/subcutaneous structures and one ganglion removal). None of the other studies systematically quantified the workload implications of minor surgery and it is not clear how Coid arrived at this estimate. Nurse follow-up and assistance should also be factored in to workload estimates; one study (Coid, 1990) provided some data on this, but it was not systematically quantified in any of the other studies reviewed.

Hospital referral, minor surgery volumes and case mix

Lowy *et al.* (1994) found that despite increased minor surgery activity in general practice, hospital referral volumes were unchanged. Coid's small study (1990) found no impact on the numbers of patients waiting for hospital surgery; however, given the small sample size, it would have been unlikely to detect any significant impact.

Lowy *et al.* (1994) also found that there was no substitution of simpler and cheaper procedures for more time-consuming and expensive treatments through transfer to primary care. However, Pockney *et al.* (2004) examined the situation 10 years later using detailed data on payments made to GPs from six health authorities covering a population approaching 4 million. The authors' analysis of the claim rates by procedure for each of the 8 years from 1993 to 2000 led them to suggest that Lowy's findings were no longer valid. In particular, cautery (including cryotherapy) rates grew from 8.16 per 1000 population to 11.34 during the study timeframe; excision rates fell

from 6.80 to 5.66 per 1000 during the same period. The suggestion is made that financial incentives have encouraged GPs to substitute cautery for excisions, as the former is more profitable for GPs to undertake. As cryotherapy is no more effective than cheap, commercially available products for treating warts, the authors argue that financial incentives are distorting treatment priorities and welcome the revised arrangements for remunerating doctors and delivering minor surgery (i.e. GPSIs, enhanced services options for practices).

Costs

In the one study that compared hospital and general practice costs, costs were lower in general practice (cost per patient £45.54 versus £33.53 in hospital). This finding was unchanged when overhead costs for both sites were removed from the calculation (£36.14 versus £30.55, respectively).

3.2.4 Conclusions

Some evidence suggests that the quality of care provided in general practice was initially poor due to inadequacies in GP training, problems in maintaining surgical skills given the low patient volume, and inadequacies in the equipment and/or procedures used to sterilise surgical implements (Finn and Crook, 1998). O’Cathain’s controlled study found no differences in health outcomes between hospital and general practice, with patients treated by GPs reporting higher satisfaction and shorter waiting times (O’Cathain *et al.*, 1992). However, in this study the unmatched control group was significantly different from the GP surgery group. A recently published randomised controlled trial raises serious concerns regarding the ability of GPs to recognise and adequately treat the serious lesions that present to them (Pockney *et al.*, 2005). This finding is consistent with the non-randomised trial evidence from two other studies (Herd *et al.*, 1992; Khorshid *et al.*, 1998), which show GPs performing less well than hospital doctors in terms of diagnostic accuracy and adequacy of excision. The medium- and long-term effects of misdiagnoses and inadequate excisions are unknown, as no studies included these outcomes. These findings suggest that relatively poorer performance in general practice is not a short-term problem related to the early years after the introduction of the scheme.

Minor surgery in general practice appears to have had no substitution effect with regard to hospital volumes. Lowy’s study (1993) suggests that many of the additional patients receiving minor surgery under the conditions of the 1990 contract may not have previously been referred to hospital. Lowy *et al.*’s (1993) early findings that GPs have not shifted towards treating more trivial cases is disputed by a more recent study (Pockney *et al.*, 2004), which suggests that financial incentives have encouraged GPs to substitute more simple procedures

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for complex ones, as the former are more profitable for GPs to undertake.

The one study that compared the costs of hospital- and general practice-based minor surgery found these to be lower in general practice (O’Cathain *et al.*, 1992). Even if this finding were not influenced by the fact that the hospital case mix encompassed a greater proportion of complex cases, the relatively poor performance of general practice with regard to diagnosis and treatment, coupled with the tendency for GPs to use minor surgery in place of cheaper, equally effective treatments suggest that, as constituted under the 1990 GP contract, minor surgery in general practice is unlikely to be a cost-effective way to provide services. It also suggests that alternatives to the scheme, which are now being implemented following the introduction of the new contract (and in relation to GPSIs, see Section 3.4 below), should be subject to closer scrutiny and evaluation in order to monitor the case mix, the quality of minor surgery processes and long-term health outcomes.

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Table 3 Study characteristics: Minor surgery

Reference	Design	Participants	Interventions
Brown <i>et al.</i> , 1997	AUD	2108 patients referred to a group practice [UK]	Group practice providing minor surgery service to neighbouring GPs (n=37)
Coid, 1990	AUD	Patients undergoing minor surgery (n=40 operations): 13 removal of sebaceous cyst, 10 operations on nail structures, 16 operations on other skin lesion/or subcutaneous structures, 1 ganglion removal [UK]	Five GPs participating in minor surgery pilot (3 GPs for 4 months, 2 GPs for 2 months)
Finn and Crook, 1998	AUD	11 practices (9.6% of health authority) volunteering to participate [UK]	Audit of infection-control precautions in the context of the expansion of minor surgery
Herd <i>et al.</i> , 1992	NRT	42 patients in 1982–1991: 15 in 1982–1989 and 27 in 1990–1991 who had malignant melanomas excised by GPs [UK]	Retrospective study of pathology reports of melanomas excised by GPs and hospital doctors
Khorshid <i>et al.</i> , 1998	NRT	Pathology reports of melanomas excised by GPs [UK]	Retrospective study of pathology reports of melanomas excised by GPs and telephone interviews with GPs who had excised melanomas. Provides some comparisons with hospital doctors' performance and assesses GPs' skills with regard to accuracy of diagnosis and adequacy of excision
Lowy <i>et al.</i> , 1993; Lowy <i>et al.</i> , 1994	BAS	Minor surgery in general practice (n=22 practices) [UK]	Comparison of performance on minor surgery before and after the expansion of minor surgery following 1990 contract

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Reference	Design	Participants	Interventions
O’Cathain <i>et al.</i> , 1992	NRT	112 patients undergoing minor surgical procedures (cysts 11.6%, moles 13.4%, warts/plantar warts 32.1%, seborrhoeic warts 9.8%, skin tags/papillomas/polyps 23.2%, dermatofibromata 3.6% and other lesions 6.2%) in general practice. 153 unmatched controls, case mix significantly ($p < 0.05$) different from intervention group (more seborrhoeic warts, moles and other lesions, fewer warts and skin tags) [UK]	Intervention: minor surgery in general practice Control: minor surgery in hospital
Pockney <i>et al.</i> , 2004	CHT	17 health authorities in England and Wales (more detailed analysis on subset of 6 health authorities covering a population of 3.8 million) 6 payment categories included: injections (joint and soft tissue), cautery incorporating cryotherapy (e.g. warts and verrucae), excisions (e.g. cysts, skin lesions for histology), other (e.g. removal of a foreign body), aspirations (e.g. joints, cysts, bursae), incisions (abscesses, cysts)	Analysis of GP claims data for the period 1993–2000. Focus on potential for substitution of cheaper procedures with more expensive procedures
Pockney <i>et al.</i> , 2005	RCT	82 GPs recruited 568 patients who underwent 652 procedures, of which 634 were skin procedures	Intervention: minor surgery in general practice (283 patients) Control: minor surgery in hospital (285 patients)

Abbreviations: AUD = audit; BAS = before and after study; CHT = cohort study; NRT = non-randomised trial; RCT = randomised controlled trial.

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Table 4 Study outcomes: Minor surgery

Reference	Patient outcomes	Service outcomes	Costs
Brown <i>et al.</i> , 1997	Complications and infections None recorded	Waiting times All patients offered appointment within 1 week and had operation within 1 month	Average cost per operation £76
Coid, 1990	Patient satisfaction Patients were 'very satisfied' (16/17) or 'satisfied' (1/17) with the service. Patients cited convenience and treatment from a physician known to them as factors Complications 3/20 patients – 1 of these resulted in a further operation	Primary care workload GP workload in carrying out operations estimated at equivalent of 16 months of 1 GP's activity Nurse follow-up: 19/20 patients followed up by nurse (11 had 1 visit, 4 had 2 visits, 4 had 3 or more visits) GP follow-up: 4 patients followed up (visits not quantified) Hospital waiting times No impact was observed. Surgical waiting lists for day cases increased by 11% and for inpatient procedures they reduced by 1%	
Finn and Crook, 1998		Adequacy of infection-control procedures Policy: 9/11 practices had no written infection-control policy, 6 had neither a policy nor guidelines for the management of an inoculation incident Equipment and facilities: waste bins inadequate in over half of practices (6/11); protective clothing provided in less than half of practices; only 2 had dedicated room for surgery; treatment rooms	

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Reference	Patient outcomes	Service outcomes	Costs
		dusty/not damp dusted in 9 practices; 5 practices did not have their sterilising equipment regularly maintained Practice: Various deficiencies including inappropriate decontamination processes and re-use of single-use instruments	
Herd <i>et al.</i> , 1992		Adequacy of excision Completeness of initial excision was doubtful or incomplete in 9 (23%) GP excisions compared with 4% of hospital excisions Diagnostic accuracy Pathology requests accompanying excision biopsies mentioned melanoma as a possible diagnosis in 15% (6/40) of GP cases versus 79% of hospital cases 39 GPs responded to a questionnaire of whom only 12 had considered melanoma in the differential diagnosis	
Khorshid <i>et al.</i> , 1998		Adequacy of excision 15% complete and adequate excision (versus 36% for hospital control) 49% (versus 39% for hospital control) required further excision due to insufficient margin from tumour edge 25% excised incompletely (versus 7% for hospital control; $p<0.001$)	

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Reference	Patient outcomes	Service outcomes	Costs
		Diagnostic accuracy GPs made a confident clinical diagnosis in only 17% of patients with malignant melanoma prior to surgery 39% of cases were diagnosed by GPs as ordinary mole non-suspicious, 24% changing mole moderately suspicious, 15% other diagnosis (including seborrhoeic warts, dermatofibromata and benign lentigines), 3% unknown Hospital referral 49 patients from the GP group were subsequently referred to hospital, 5 were excision adequate and not requiring referral, 5 were management unknown	
Lowy <i>et al.</i> , 1993; Lowy <i>et al.</i> , 1994	Complication rates 2.4% any complication; 0.7% required secondary referral to hospital	GP workload Increased by 41.2% (600 versus 847 procedures) between April–June 1990 and 1991 reports Referrals to hospital No reduction in referrals to hospital Waiting times 328/600 (54.7%) versus 452/847 (53.4%) patients treated on day first presented (1990 versus 1991) Mean waiting time 6.5 versus 6.9 days (1990 versus 1991) Accuracy of diagnosis Correct clinical diagnosis reported for 41.2% of	

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Reference	Patient outcomes	Service outcomes	Costs
		patients versus 50% (1990 versus 1991) Adequacy of excision Inadequate removal in 4.1% versus 7.7% of procedures (1990 versus 1991)	
O'Cathain <i>et al.</i> , 1992	Patient satisfaction Higher rate of satisfaction in GP group (92% versus 79% for hospital controls; $p<0.05$) Access Higher proportion of patients walked to appointment in GP group (23.9% versus 6.7% for hospital controls; $p<0.01$) Treatment outcomes No significant differences on self-reported treatment outcomes Median time attending for treatment Lower in GP group (1 versus 2 hours ($p<0.01$)) Infection rates 'No evidence of increased rate of wound infection in general practice' (though does not quantify or elaborate)	Accuracy of diagnosis GPs were less accurate than hospital doctors: in 43.9% of GP cases the clinical diagnosis did not match the histological diagnosis versus 22.4% of hospital cases ($p<0.05$) GPs were more likely to incorrectly diagnose a mole as a lesion when (50% versus 7%; odds ratio 13.00; $p<0.01$). GPs were more likely to misdiagnose a malignant condition as benign (9.8% versus 1.2%; odds ratio 10.18; $p<0.05$) Adequacy of excision 4.9% of specimens (versus 0 in hospital) were not adequately excised (though this difference was not significant) GP workload More patients returned for follow-up in GP group (12.5% versus 3.9%)	NHS costs Cost of one excision per patient was higher in hospital (£45.54 versus £33.53) Removing overheads, costs were still higher in hospital (£36.14 versus £30.55) Cost of cryotherapy lower in general practice (£3.00 versus £3.22)

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Reference	Patient outcomes	Service outcomes	Costs
Pockney et al., 2004		Volume and case mix/perverse incentives Total claims in the 6 health authorities rose from 109,876 in 1993 to 122,114 in 1999, falling back to 116,455 in 2000 Increase explained by rise in cautery (incorporating cryotherapy) from 28% to 38% of claims accompanied by decrease in excisions from 23% to 19%. 1993 cautery rate 8.16 (95% CI 8.07–8.25) per 1000 population versus 11.34 (95% CI 11.23–11.44) in 2000. Excisions rate 6.80 (95% CI 6.71–6.88) per 1000 population in 1993 to 5.66 (95% CI 5.58–5.73) in 2000 Authors concluded that as cryotherapy is no more effective at treating warts than cheap commercially available products, but is profitable for GPs, minor surgery payments to GPs result in distortion of treatment priorities leading to less efficient care	
Pockney et al., 2005		Diagnostic accuracy A total of 12/33 malignant lesions had no clinical suspicion of malignancy recorded by the GP GPs sent fewer pathology specimens than their hospital counterparts for lesions of similar sizes and types (144/303 [48%] versus 222/331 [67%]; $p < 0.001$) Accuracy of excision Hospital doctors were better at achieving complete excision, with a difference that approached statistical significance (6/15 GPs [40%] versus	

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Reference	Patient outcomes	Service outcomes	Costs
		13/18 hospital doctors [72%]; p=0.06)	

Abbreviation: CI = confidence interval.

3.3 Transfer to primary care: Medical clinics (diabetes)

3.3.1 Introduction

The 1990 GP contract for GPs in England and Wales created financial incentives for general practices to introduce 'structured' care for patients with chronic conditions such as asthma, diabetes and cardiovascular disease. Structured care includes the establishment of a disease register and recall system, with clinical reviews conducted in accordance with evidence-based guidelines. Practices responded by introducing nurse-led chronic-disease clinics (Atkin *et al.*, 1994) and by the end of the decade, clinics had successfully been introduced into almost all practices. General practice responsibility for the management of common chronic diseases has since been embedded within the new General Medical Services contract of 2004, and the quality of care provided by practices appears high. In this context, it seems debateable to question whether the medical management of common conditions might safely and effectively be transferred from hospitals to primary care. We nonetheless thought it useful to review the research evidence underpinning this transfer in order to identify its strengths and weaknesses.

Anticipated benefits and risks

The transfer of medical care for common chronic diseases from secondary to primary care should reduce demand on hospitals and free valuable resources that could be allocated to patients with more serious or complex problems. Primary care clinics are more conveniently situated and more accessible for patients, so reducing waiting times and travel costs. Service costs are expected to be lower owing to reductions in outpatient attendance and through less-expensive primary care clinicians performing work previously done by hospital clinicians. The principal risk is that the care provided by GPs will be lower in quality than that provided by specialists. Health outcomes for patients may thus be worse, so increasing overall demand and costs in the longer term. A second possibility is that higher levels of service accessibility in primary care may reduce treatment thresholds, bringing patients into care who would not otherwise have been treated.

3.3.2 Methods

Search strategy

Relevant papers identified from the standard interface search strategy were obtained. No other searches were undertaken.

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Inclusion criteria

Studies comparing chronic-disease management in general practice with that provided in hospital outpatient clinics were included. Decisions to include or exclude studies were made by one investigator (Bonnie Sibbald).

Data extraction

Data were extracted by one investigator (Ruth McDonald) into a standardised form developed for this purpose (Appendix 2). The quality of included studies was assessed against a hierarchy of evidence (Table 2) that gave greatest weight to high-quality systematic reviews and least weight to descriptive evaluations.

Data synthesis

Data synthesis was qualitative.

3.3.3 Results

Description of studies

Only one publication was included. This was a Cochrane review of primary care versus specialist management for people with diabetes mellitus (Griffin and Kinmonth, 2002). Five empirical studies were included. The characteristics of the review are summarised in Table 5. Study outcomes are summarised in Table 6.

Patient outcomes

Health outcomes

The studies reviewed suggested that health outcomes in general practice were as good or better than those in outpatient clinics, provided general practice care was 'structured'. Structured care involves practices introducing disease registers, recalling patients at regular intervals for review, and conducting those reviews in accordance with evidence-based guidelines. Longer-term health outcomes were not investigated.

Service outcomes

Hospital impact

General practice clinics substituted to some extent for hospital outpatient care. This suggests savings in outpatient slots, although for the most part these were not explicitly quantified. One early study (unstructured primary care) found higher rates of hospital admission with general practice care, whereas a later study (structured primary care) found lower rates and a third study found no difference.

Primary care impact

Two studies suggested patients were reviewed more frequently in primary care than in outpatient clinics and underwent more frequent testing of glycosylated haemoglobin. However, it is not possible to ascertain whether this increase in workload represents better-quality care or service-led demand.

Costs

The Cochrane review was unable to draw firm conclusions on costs, as cost data were not comparable between studies. The findings from the individual studies cited in the review are inconsistent. One study found structured care to be cheaper than hospital care, while a second study found it to be more expensive. Two other studies quote costs for staff and materials but provide insufficient detail on the methods used to calculate these costs; neither study compared general practice costs against hospital costs.

3.3.4 Conclusions

There was a marked dearth of research comparing general practice care with hospital care. The great bulk of research is directed towards comparing different models of care provision within the general practice context (e.g. Laurant *et al.*, 2005). The evidence is nonetheless consistent in showing that a key element to effective chronic disease care in general practice is its structure. If care is well structured – there is a disease register and recall system, with clinical reviews conducted in accordance with evidence-based guidelines – then short-term health outcomes for patients appear to be as good as those achieved in hospital outpatient clinics. Longer-term health outcomes are rarely investigated. Well-structured general practice clinics can reduce outpatient visits while improving patient access to care.

There is insufficient evidence from which to draw conclusions about costs. Savings on outpatient attendance and reduced staff costs in secondary care may be offset by increases in demand and workload in primary care. Larger practices may achieve economies in scale by employing nurses instead of doctors to deliver services (Myles *et al.*, 1996). A recent review by the Cochrane Collaboration suggests that substituting nurses for doctors in the management of chronic disease in general practice maintains the quality of care and may increase patient satisfaction with care (Laurant *et al.*, 2005). However substitution did not generally reduce overall costs, as nurses tended to have lower rates of productivity when compared to doctors.

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Table 5 Study characteristics: Medical clinics (diabetes)

Reference	Design	Participants	Interventions
Griffin and Kinmonth, 1998	COCH	Cochrane Diabetes Group register, Cochrane Library, MEDLINE® (January 1966 to December 1996), EMBASE (to December 1996), Cinahl (to December 1996), National Research Register (to December 1996), PsycLIT (to December 1996) HealthSTAR (to December 1996), Dissertation abstracts (to December 1996) and reference lists of articles	Cochrane review of trials in any language in which people with diabetes were prospectively randomly allocated to a system of review and surveillance for complications by either generalists in primary care or specialists in outpatient clinics. 5 studies were included, published between 1982 and 1994

Abbreviation: COCH = Cochrane systematic review.

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Table 6 Study outcomes: Medical clinics (diabetes)

Reference	Patient Outcomes	Service outcomes	Costs
Griffin and Kinmonth, 1998	Mortality Higher in primary care overall but most of the excess accounted for by 2 early trials that featured unstructured care Metabolic control No difference between primary and hospital care. In the 3 most recent studies featuring structured care, the mean HbA_{1c} of patients in the general practice group was the same or less than for those in the hospital group Losses to follow-up Higher in GP care overall (odds ratio 3.05; 95% CI 2.15–4.33), though due almost entirely to 1 early study without structured care Blood pressure No difference between the 2 groups	Hospital admissions 1 early study of unstructured care found higher rates for GP care. Later structured-care study found lower rates. 1 study found no difference Hospital outpatient and primary care review Data from 2 more recent studies showed patients were reviewed more often in the primary care group (weighted difference in mean reviews 0.27; 95% CI 0.07–0.46) and underwent more frequent testing of glycosylated haemoglobin (weighted difference in mean number of tests 1.60; 95% CI 1.45–1.75) Other referrals Dietitian: Structured-care group less likely to be referred (odds ratio 0.61; 95% CI 0.4–0.92) Chiropodist: Structured-care group more likely to be referred (odds ratio 2.51; 95% CI 1.59–3.97)	Data on costs not comparable between studies. For structured care, 1 study found this cheaper, 1 more expensive

Abbreviations: CI = confidence interval; HbA_{1c} = haemoglobin A_{1c}.

3.4 Transfer to primary care: Intermediate Care (GPSIs)

3.4.1 Introduction

The NHS Plan (Department of Health, 2000) envisaged that by 2004 there should be 1000 specialist GPs (later renamed GPs with special interests or GPSIs). GPSIs in England provide care in a range of settings and cover a variety of specialist areas. A recent survey suggested that over half of GPSI sessions take place outside of their own premises: 31% in acute hospitals, 9% on community trust premises, 8% in community hospitals and 10% elsewhere (Jones and Bartholomew, 2002). Choice of specialty reflects the interests of the GPs rather than a strategic assessment of need on the part of health care commissioners. Less than half (41%) of survey respondents undertaking such work held relevant postgraduate qualifications, but 82% had undertaken continuing medical education on their topic of clinical interest in the past 2 years (Jones and Bartholomew, 2002).

For the purposes of this review, a GPSI is defined as a GP with appropriate experience who is able to independently deliver a specialist service while working in a clinical area outside the normal remit of general practice (Gerada and Limber, 2003). However, we do not make any attempts to judge the appropriateness or otherwise of the GPs' experience; in the studies we reviewed, there is an assumption (implicit or explicit) that the GPSIs involved are suitably qualified.

Anticipated benefits and risks

The potential benefits of GPSIs include improved access to services. By providing services in a more accessible setting, GPSIs offer the potential to address unmet needs within the community. However, one of the risks of this approach is that easier access may result in a lowering of the referral threshold, with patients who do not require access to specialist care being treated by specialists.

Ideally, GPSIs aim to reduce inappropriate demand for hospital outpatient services and to improve access to specialist services for patients who require them. GPSIs may reduce patient travelling time and costs, while the provision of care in familiar or relaxed surroundings may improve the patients' experience. If GPSIs are engaged in educating GPs, this may increase the ability of GPs to manage patients without the need for a specialist, resulting in reduced volumes of referrals to specialist services. Alternatively, the availability of GPSIs may mean that ordinary GPs become de-skilled and refer patients whose care they would previously have managed themselves, resulting in a lowering of the treatment threshold and increased referrals overall.

GPSI provision may reduce the time patients spend waiting after referral before seeing a specialist and may make more efficient use of clinic

resources by reducing non-attendance rates. However, GPSIs in community clinic settings are unlikely to have the same immediate access to the range of diagnostic tests and investigations that exists in the hospital setting. There is a danger, therefore, that patients seen by GPSIs may require a hospital outpatient visit in addition to their outreach clinic visit. Furthermore, GPSIs may still need to refer patients for a consultant opinion. In other words, outreach may result in unnecessary delays and additional visits compared with traditional outpatient care. There is also a risk that the quality of care will decline if GPSIs are inadequately supported, as their skills are not commensurate with those of hospital consultants (Honey and Small, 2005).

3.4.2 Methods

Search strategy

The main search identified a number of commentaries and opinion pieces, but only three empirical studies. One of these was a short article in the *Health Service Journal* and the full report was obtained from the host university of the author (Sanderson, 2002). In addition we obtained reports of two evaluation studies that were commissioned by the NHS Service Delivery Organisation (Rosen *et al.*, 2005; Salisbury *et al.*, 2005). Subsequent to the completion of our main search a fourth empirical study was published (Baker *et al.*, 2005) and this has also been included.

Quality of studies

One of the problems in assessing the GPSI literature is the relative paucity of data as there are very few empirical studies in this area. There are even fewer carefully conducted studies that enable the potential impact of GPSIs on outpatient attendance to be assessed. Since the GPSI field is characterised by a range of models, specialties and levels of training, it seems reasonable to assume that results will be heavily context dependent. While there were only two randomised controlled trials in the area (Salisbury *et al.*, 2005; Baker *et al.*, 2005), some of the other studies are useful in shedding light on the contextual issues that may influence service design, implementation and outcomes.

3.4.3 Results

Description of studies

The studies included were:

- Two randomised controlled trials: one comparing GPSI with outpatient dermatology services and one comparing general practice-based with hospital-based GPSI orthopaedic services.
- One evaluation of a controlled before and after study of a GPSI dermatology scheme and a before and after study of a musculoskeletal GPSI scheme.

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- One study using audit data and descriptive evaluation to examine six of ten pilot ear, nose and throat (ENT) GPSI sites selected for the Department of Health's *Action On* programme involving five sites in primary care settings and one GPSI undertaking adult tonsillectomies at a local hospital.
- One before and after study examining a back-pain pathway, including three community-based musculoskeletal clinics run by GPSIs and extended- scope physiotherapists for patients with uncomplicated musculoskeletal problems.
- One before and after study reporting results from a GP orthopaedic fellowship initiative.
- One non-randomised trial comparing community-based GP cardiology clinics with hospital consultant outpatient clinics.

All studies were located in the UK and all but one in England, with the remaining study in Wales. They were all published relatively recently, with the oldest dated 2002.

Table 7 summarises the characteristics of included studies. Table 8 details the study outcomes, which are summarised below.

Design and implementation of GPSI schemes: contextual issues

There is considerable variation in the models of GPSI provision, including variations in GPSI training and accreditation, referral pathway (direct versus triage), the types of problems thought suitable for management by GPSIs, the levels of support, supervision and liaison provided by hospital consultants, and quality assurance systems. In the two studies that examined more than one GPSI model, factors such as the location of the clinic and GPSI access to other resources (including hospital consultants, diagnostic tests, audiology nurses and diagnostic equipment) varied widely. Such contextual issues appeared to have a significant impact on the study outcomes. For example, hospital-based GPSI clinics that coincided with consultant outpatient clinics provided an opportunity for GPSIs to interact with consultants in order to obtain advice on difficult cases. In community clinics, GPSIs were forced to refer such cases to a hospital consultant as no opportunities existed for informal interactions (Rosen *et al.*, 2005). Similarly in one GPSI ENT clinic, the lack of equipment and expert support, as well as the inability to request computed tomography (CT) or magnetic resonance imaging (MRI) scans, limited the scope of work undertaken (Sanderson, 2002).

Many of the GPSI schemes studied were evolving over the course of the evaluation. This, coupled with the dynamic context in which GPSI services were delivered (e.g. factors such as the absence of key staff at certain periods, the cancellation of theatre lists due to lists overrunning or staff absence) made it difficult, if not impossible, to compare results across GPSI schemes.

GPSI services are not created in a vacuum. Their development is influenced to a large extent by local priorities and perceptions of problems. Existing resources and service patterns also play a considerable

role in influencing the nature and evolution of GPSI service models. A key factor in this process appears to be the attitude of local hospital consultants, some of whom are antipathetic to GPSIs.

Patient outcomes

Patient satisfaction

Patient outcomes were investigated in five studies. Maddison *et al.* (2004) ascertained the views of patients following the introduction of a care pathway including three community-based musculoskeletal clinics run by GPSIs and extended-scope physiotherapists that aimed to treat patients with uncomplicated musculoskeletal problems. Most patients (88%) rated the service as excellent or very good and 75% were completely satisfied. Rosen *et al.* (2005) found no significant difference overall between hospital outpatient and GPSI-treated patients with regard to satisfaction with dermatology and musculoskeletal services. Patients were highly satisfied, with the majority rating services as excellent or very good. However, significantly fewer patients from the hospital consultant musculoskeletal group reported being able to understand their doctor's explanation of their problem. Furthermore, fewer patients in this group were able to ask all the questions they wanted and fewer were able to explain their problem fully. Significantly more GPSI-treated patients than hospital-treated patients reported finding it easier to get to their appointment and waiting a shorter time once they were there.

Sanderson (2002) explored GPSI ENT initiatives in a range of rural and suburban settings and found that patients were almost unanimous in their support for the service. Ease of access, short waiting times, relaxed atmosphere and the helpfulness of the GPSIs concerned were cited as contributing factors to these high levels of satisfaction.

Salisbury *et al.* (2005) found slightly greater satisfaction in dermatology patients attending a GPSI clinic compared with those receiving traditional outpatient care. Ease of access was also rated more highly in the GPSI group despite the fact that the clinic's location, deep in an outlying estate, was unlikely to be close to their home or work for many service users.

Baker *et al.* (2005) found patient satisfaction for two of fifteen aspects of care was higher when GPSI orthopaedic clinics were located in general practice rather than in hospital settings. Ease of access was better in the community, as was information provision by staff.

Health status

Two studies examined disease-related quality of life in dermatology patients (Rosen *et al.*, 2005; Salisbury *et al.*, 2005). Using the Dermatology Life Quality Index, no difference was detected between GPSI- and hospital-treated patients. A third study (Baker *et al.*, 2005) found no difference in general health status, as measured by the Medical Outcomes Study Short-Form (36-item) Health Survey (SF-36), between

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GPSI orthopaedic clinics based in the community and GPSI clinics based in hospital.

Service outcomes

Outpatient referrals: volumes and referral thresholds

All but one study examined outpatient referrals. Maddison *et al.* (2004) found that total musculoskeletal referrals more than doubled following the introduction of a redesigned service. In addition to the GPSI input, a senior manager and co-ordinator's time was allocated to oversee the referral process. Frequent workshops were held for local GPs, which, as well as inviting input, may have increased awareness of the service. Falling waiting times for services (see below) may also have been a factor in encouraging referrals. The surgical conversion rate in orthopaedic clinics, however, remained unchanged at 37%, suggesting that increases in service capacity were directed to unmet need.

Salisbury *et al.* (2005) reported an increase of 22% in referrals to dermatology following the introduction of the GPSI scheme in the study primary care trust (PCT); this was higher than the increases in neighbouring PCTs.

Sanderson (2002) found that newly established GPSIs did not appear to generate additional demand, but observed an increase in referrals in relation to one GPSI who had been established for 3 years and was generating 33% more referrals (per 1000 population) than neighbouring PCTs without GPSIs. Many of these patients would not have been referred to secondary care by their GP.

The implication that increases in referrals may result from a lowering of the referral threshold is echoed in Rosen's study (2005), in which 30% of referring GPs saw GPSIs as an addition to hospital outpatient care (defined as 'it allows me to refer patients whom I would not normally refer to hospital'). This study reported mixed results concerning referral volumes, with increases in some sites and reductions in others.

Duckett and Casserley's (2003) examination of a GP orthopaedic fellowship scheme reported an increase in referrals to hospital outpatient clinics from 108 in 1996 (before the scheme was set up) to 182 in 1998 (after the scheme was set up). However, as there were no data on referrals from neighbouring PCTs, it is difficult to assess the extent to which the GPSI scheme may have influenced this outcome. The study does report a change in case mix, with a reduction in referrals for simpler problems, such as ganglions, and the number of patients listed for surgery per 10 patients seen at outpatients clinics rising from 1.7 to 2.8.

Waiting times

Generally, waiting times for GPSI appointments were shorter than for traditional hospital outpatients (Egred and Corr, 2002; Rosen *et al.*, 2005; Salisbury *et al.*, 2005; Sanderson, 2002). In addition, Baker *et al.*

(2005) found waiting times for GPSI orthopaedic clinics were shorter when those clinics were located in the community than in hospital.

In hospital outpatient clinics, Maddison *et al.* (2004) reported a fall in the number of outpatients waiting longer than 4 months for an orthopaedic appointment from a peak of 1026 to 607. Rosen *et al.* (2005) reported mixed results with waiting times reduced at two sites (4.8- and 5.2-day reductions; $p < 0.001$) and increased at two sites (25.1- and 8.4-day increases; $p < 0.001$ and $p < 0.07$, respectively). However, it was not possible to disentangle the impact of other factors, such as waiting-list initiatives, consultant vacancies, increased referrals from GP or non-GP sources, in order to assess the impact of the GPSI initiative clearly. Similarly, Sanderson (2002) observed that some waiting times had reduced, though it was not clear how much of this was due to GPSI activity and how much was due to other waiting-list initiatives, of which there were several but for which evaluators did not have data.

Non-attendance rates

Two of three studies found lower non-attendance rates in GPSI settings (Sanderson, 2002; Rosen *et al.*, 2005). The third study (Salisbury *et al.*, 2005) found lower rates in the GPSI group for initial appointments (6% versus 11% for hospital) but overall rates for new and follow-up appointments were similar in both groups (GPSI 8% versus hospital 9%). Baker *et al.* (2005) found lower non-attendance rates when GPSI clinics were located in community (7%) rather than hospital (13%) settings.

Patients managed by GPSI without requiring onward referral

Egred and Corr's study (2002) comparing GPSI cardiology clinics with hospital outpatients found that two-thirds of patients were discharged after their initial appointment in both settings. Ten percent (10%) of GPSI referrals were to a consultant outpatient clinic. However, these researchers analysed case notes selected 'at random' from each patient group, which makes drawing conclusions difficult due to the absence of case-mix data from which to assess between-group similarities and differences.

Sanderson's ENT study (2002) reported that GPSIs discharge about 70–80% of patients to GP care. It is not possible to ascertain how this compares with traditional hospital outpatient management.

Rosen *et al.* (2005) found that in the two (dermatology) sites where data were available, 56% and 41% of patients were discharged after their first GPSI appointment. In the first of these sites, 26% attended GPSI follow-up, 12% were referred back to their GP, 6% were referred to a hospital consultant and 0.2% were referred to a day-treatment centre. At the other site, 59% received GPSI follow-up. In comparison, hospital outpatient management involved 59% follow-up, 32% discharged or suspended, 3% referred on, 2% 'further treatment/investigations' and 2% missing data. In the musculoskeletal site, 22% of GPSI-treated patients were discharged (versus 21% of hospital outpatients), 51%

attended a follow-up appointment (versus 49%) and 13.45% were admitted as inpatients (versus 15%) (missing data 13% versus 15%). While the overall percentage of GPSI-treated patients requiring follow-up is similar when compared with hospital patients, Rosen's study did not compare cases matched for presenting problem and morbidity.

The randomised controlled trial study of Salisbury *et al.* (2005), in which the GPSI and hospital case mix was comparable, found higher rates of follow-up in the GPSI group. The proportion of patients who had at least one follow-up was 44% (79/181) in the hospital group compared with 59% (181/307) in the GPSI group; the latter included 12% (38/307) whose follow-up was in hospital.

Baker *et al.* (2005) found no differences in referrals from GPSI orthopaedic clinics located in the community compared with those located in the hospital. This would suggest that access to consultants in the hospital setting does not necessarily influence GPSI behaviour.

GP satisfaction and education

Studies exploring stakeholder satisfaction found that referring GPs were broadly satisfied with the GPSI service. However, the expected benefits of GPSI services in terms of educating GPs had largely been unfulfilled (Rosen *et al.*, 2005) or were uncertain (Sanderson, 2002). There was some evidence of dissatisfaction among GP colleagues from the GPSI's practice concerning the ability to provide cover during absences related to GPSI workload (Sanderson, 2002).

Costs

Three studies provided information on GPSI costs.

Rosen *et al.* (2005) provided information on the cost per patient to the NHS at each of the four study sites. These varied widely, ranging from £35.27 to £93.69 per patient. Although Rosen *et al.* did not compare this with equivalent hospital costs, their analysis is helpful in illustrating the ways in which these costs are highly context dependent. At the lowest-cost site, for example, no expensive equipment was required to deliver the service, which meant that set-up costs were much lower than in the most expensive site. Furthermore, there is some evidence of economies of scale. The lowest-cost clinic had three sessions a week and provided 1485 available appointments per annum. In the highest-cost site, the higher total annual cost (£60,339 versus £52,379) was apportioned over a much smaller number of patients (n=644), giving a much higher unit cost. The addition of another GPSI at the high-cost site towards the end of the evaluation resulted in a marginal increase in total cost that reflected the GPSI's salary, with all other costs unchanged. Rosen and colleagues also examined stakeholder perceptions of cost-effectiveness. While views among GPSIs and PCT managers were mixed, hospital consultants were united in the view that the service was not cost-effective.

Sanderson (2002) estimated that GPSI costs per consultation were £30 to £40 compared with hospital (Health care Resource Group) costs of £60 to £80 per outpatient. However hospital costs included capital and overhead costs that were not included in the GPSI costs. GPSI costs also excluded hospital supervision, training and management of the scheme.

Furthermore, costs were not adjusted to reflect the lighter case mix seen by GPSIs.

The best available study (Coast *et al.*, 2005) provides a detailed breakdown of GPSI and hospital outpatient costs. Overall costs were lower in outpatient clinics compared with GPSI clinics even though the costs of lost productivity and patient and family costs were lower for GPSI clinics. These results were subject to a sensitivity analysis, which left the conclusion unchanged.

3.4.4 Conclusions

The small number of studies of GPSI services illustrate a wide range of service models. These cover orthopaedics and musculoskeletal services, dermatology, ENT and cardiology GPSI schemes. Based on the 'top ten' GPSI specialty areas identified in the survey by Jones and Bartholomew (2002), this leaves potentially significant areas of GPSI work for which no evaluations exist. Among studies evaluating GPSI schemes we found only two randomised controlled trials (Baker *et al.*, 2005; Salisbury *et al.*, 2005; Coast *et al.*, 2005). Data quality and lack of relevant comparative data severely limited the conclusions that could be drawn in two studies (Duckett and Casserley, 2003; Egred and Corr, 2002). Even among the better-quality studies, for the most part the literature demonstrates how contextual factors make it difficult to assess the added value of GPSI services in isolation from these differing and dynamic contexts.

With regard to clinical outcomes, there was no evidence that these were worse for GPSI services than those in traditional outpatient settings. However, the systems for monitoring quality and outcomes varied, with data on long-term follow-up of patients largely absent. (Even in the one site where complication rates were collected for GPSI tonsillectomies, no attempt was made to compare these with rates for other clinicians undertaking this procedure.)

Patient satisfaction levels were high for GPSI services. These reflected ease of access and shorter waiting times for GPSI clinics located in community settings. However, with regard to waiting times and access overall, the evidence is mixed. There is some evidence that GPSI services may reduce referral thresholds and increase overall referral rates.

On the basis of limited evidence (mostly from one randomised controlled trial), GPSI services would appear to be more costly than hospital outpatient services. However, costs are likely to be highly context dependent and will be influenced by factors such as the service model adopted, clinic location and patient throughput. The most important contextual factor affecting cost-effectiveness is likely to be the difference in rates of pay between GPSIs and the non-consultant doctors who do

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most of this type of work in hospitals. GPSI clinics co-located with hospital outpatient clinics may improve cost-effectiveness, but ease of access for patients may be reduced.

Many GPSI schemes were established in response to perceived problems and priorities, with design and implementation reflecting pragmatic responses to local contexts and resource availability. This meant that the extent to which local stakeholders held common and clear views on the nature and aims of the GPSI scheme varied widely. Service design and implementation were highly dependent on the support of hospital consultants, many of whom appear to be antipathetic to GPSIs.

Table 7 Study characteristics: GPs with special interests

Reference	Design	Participants	Interventions
Baker <i>et al.</i> , 2005	RCT	321 adults referred for musculoskeletal problems from 2 PCTs, excluding those thought to have serious disease [UK]	Intervention: 204 patients randomly allocated to one of 4 GPSI-led general practice clinics Control: 196 patients allocated randomly to one GPSI-led hospital clinic
Duckett and Casserly, 2003	BAS	Patients from 4 PCTs with orthopaedic problems [UK]	Orthopaedic GP fellowship; GPs can refer patients to GPSI rather than hospital outpatient
Egred and Corr, 2002	NRT	125 patients referred to cardiology clinics. Mean age 61 years (range 17–92 years) [UK]	Community-based GP cardiology clinics (locality clinics). Random selection of case notes to compare referral and investigation patterns
Maddison <i>et al.</i> , 2004	BAS	Patients with musculoskeletal problems [UK, Wales]	Back-pain pathway including three community-based musculoskeletal clinics run by GPSIs and extended-scope physiotherapists for patients with uncomplicated musculoskeletal problems.
Rosen <i>et al.</i> , 2005	CBA/BAS	Dermatology and musculoskeletal patients [UK]	Intervention: GPSI musculoskeletal (BAS) and dermatology (CBA) clinics Control: Usual hospital outpatient referral GPSIs aim to divert 'intermediate case mix' from consultant outpatient clinics
Salisbury <i>et al.</i> , 2005; Coast <i>et</i>	RCT	All adult dermatology referrals from 30 practices in one PCT area over 14-month period. Patients of any age (excluding urgent referrals, conditions with no	Intervention: GPSI dermatology service based in a suburban 'health park' providing diagnosis and management of chronic skin conditions, such as dermatitis, assessment and treatment of leg ulcers and wounds, minor skin surgery,

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Reference	Design	Participants	Interventions
<i>al.</i> , 2005		provisional diagnosis, possible malignancy, re-referred after discharge from hospital clinic, lesions in male perineum, referrals within secondary care) [UK]	cryotherapy and other procedures, such as injection of corticosteroids, advice, information and education on skin conditions. 2 GPs and specialist nurse Control: USUAL care
Sanderson <i>et al.</i> , 2002; Sanderson <i>et al.</i> , 2003	AUD/DE	ENT patients attending GPSI clinics [UK]	6 of 10 pilot sites selected for Department of Health's <i>Action On</i> programme. Wide range of characteristics, including urban and predominately rural areas; GPSI in primary care settings at 5 sites; GPSI undertook adult tonsillectomies at local hospital at 1 site

Abbreviations: AUD = audit; BAS = before and after study; CBA = controlled before and after study; DE = descriptive evaluation; ENT = ear, nose and throat; GPSI = GP with special interests; NRT = non-randomised trial; PCT = primary care trust; RCT = randomised controlled trial.

Table 8 Study outcomes: GPs with special interests

Reference	Patient outcomes	Service outcomes	Costs
Baker <i>et al.</i> , 2005	Satisfaction No significant differences on 13/15 measures in 'patient career diary' Practice-based clinics were superior to hospital-based clinics on two measures: (i) Getting an appointment: 75% (IQR 66.7–75.0%) in practice clinic versus 66.7% (IQR 50–75%) in hospital clinic; $p=0.024$ (ii) Information: 75 (IQR 65.6–85.9) in practice clinic versus 71.9 (IQR 59.4–81.3) in hospital clinic; $p=0.031$ Health status (SF-36) No significant differences at 3 months	Waiting time Practice-based clinic 43 days (IQR 34–58 days) versus hospital-based clinic 51 days (IQR 40–69 days); $p=0.001$ Non-attendance 15/204 patients (7%) did not attend the general practice-based clinics compared with 26/196 (13%) for hospital-based clinics. The significance of the difference was not reported Prescriptions and investigations No significant differences in prescribing rate, blood tests or X-rays Management No significant differences in rates of manipulation or injection Referral rate No significant differences in referral to orthopaedic specialist, physiotherapy service or other services.	
Duckett and Casserly, 2003		Outpatient referrals Increased from 108 in 1996 (before service started) to 182 in 1998 (after service started) Referrals to other physiotherapy Proportion of patients referred to physiotherapy reduced (25.2% to 17.8% practice based; 27% to	

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Reference	Patient outcomes	Service outcomes	Costs
		14% hospital based) Nature of referrals Overall increase in proportion of referrals for hand (9.34% versus 14.91%), hip (3.73 versus 11.6%) and knee (18.69% versus 22.65%) problems (no p-values given). Reductions in referrals for simpler problems e.g. ganglions (6.5% versus 1.1%) Surgical conversion rate Number of patients listed for surgery per 10 patients seen at the outpatient clinic rose from 1.7 to 2.8	
Egred and Corr, 2002		Waiting times Comment that waiting times for hospital were 12 weeks versus 2 weeks for primary care clinics initially, rising to 6–8 weeks by the end of the study as the number of referrals increased Patient management Two-thirds of patients discharged after appointment in both settings; 10% of GPSI referrals referred to outpatient clinic Investigations 83% of patients underwent at least 1 investigation in both clinics Trend in hospital clinic towards more 24-hour tapes (22.9% versus 32.9%) and angiography (4.9% versus 14%) Prescriptions Patients in hospital clinic more likely to be prescribed	

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Reference	Patient outcomes	Service outcomes	Costs
		beta-blockers (14% versus 3%). Trend towards greater prescription of ACE inhibitors and statins in hospital clinic	
Maddison <i>et al.</i> , 2004	Patient satisfaction 88% rated service excellent or very good. 75% 'completely satisfied' with service	Outpatient referrals Following introduction of service, total musculoskeletal referrals rose by 116%, orthopaedic referrals 'slightly reduced' Waiting times 'Waiting times fell' and number of outpatients waiting for >4 months for orthopaedic appointment reduced from peak of 1026 to 607 Surgery conversion rate Unchanged (37%) Duplicate referrals 'All but eliminated'	
Rosen <i>et al.</i> , 2005	Patient satisfaction No significant difference overall between hospital outpatient and GPSI patients. Majority rated both services as excellent or very good Patient-reported doctor communication Significantly fewer patients from the consultant musculoskeletal	Waiting times GPSI: All GPSI dermatology sites' waiting times shorter than for hospital outpatient clinic Hospital outpatient: Reduced in 2 sites (4.8- and 5.2-day reductions; $p < 0.001$). Increased in 2 sites (25.1- and 8.4-day increases; $p < 0.001$ and $p < 0.07$, respectively) Total referrals Total (GPSI and hospital) referrals increased in the 2 (dermatology) sites where analysis was possible (Site	Clinic costs Cost per patient in Sites 1, 2, 3 and 4 were £35.27, £41.49, £85.05 and £93.69, respectively.

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Reference	Patient outcomes	Service outcomes	Costs
	group reported being able to understand their doctor's explanation of their problem ($p<0.001$) and explanations for treatment ($p=0.023$ approaching significance at 1% level). Fewer patients in this group were able to ask all the questions they wanted ($p=0.006$) and fewer were able to explain their problem fully ($p=0.011$ approaching significance at 1% level). No other differences Length and reasonableness of wait Majority of GPSI-treated patients felt wait from referral to appointment was 'reasonable' or 'unexpectedly short'. Consultant patient responses much more varied. Strongly significant relationship between self-reported waits and whether GPSI or outpatient referral, with GPSI self-report shorter in both specialties ($p<0.001$) Disease-related quality of life No difference in Dermatology Life Quality Index between GPSI and hospital treatment	1 new referrals per 1000 registered patients: GPSI group increased from 7.93 to 12.21; control group increased from 6.84 to 9.12; Site 2: GPSI group increased from 5.64 to 6.80; control group increased from 5.44 to 4.86) Outpatient referrals No consistent effect. At dermatology Site 1, both the intervention and control groups increased their rate of referral (by 6.6 % and 32.2% respectively) but only significant in control ($p<0.001$). Dermatology Site 2, small (NS) reduction in both groups. Musculoskeletal site increased overall referrals (4.5%; $p=0.005$) New appointment non-attendance Significantly lower in 2 of 3 sites analysed (13% versus 3% and 33.4% versus 10.1%) Patient management: GPSI dermatology Site 1: 56% discharged after 1st appointment, 26% follow-up GPSI appointment, 12% referred back to GP, 6% referred to consultant, 0.2% referred to day-treatment centre Site 2: No follow-up data were recorded Site 3: 41% discharged, 59% follow-up GPSI appointment	

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Reference	Patient outcomes	Service outcomes	Costs
Salisbury <i>et al.</i> , 2005; Coast <i>et al.</i> , 2005	Patient satisfaction Slightly greater satisfaction in GPSI group (difference in mean Consultation Satisfaction Questionnaire scores 4; 95% CI 1–7; $p=0.01$) Disease-related quality of life No difference (Dermatology Life Quality Index score of 1 for both arms, ratio of geometric means 0.99; 95% CI 0.85–1.15; $p=0.88$) Perceived ease of access GPSI more accessible (mean access scores 76.1 points versus 60.5 for hospital; adjusted difference between mean scores 14 [95% CI 11–19]; $p<0.001$)	Waiting times Mean difference in waiting times of 40 days in favour of GPSI patients (95% CI 35–46 days; $p<0.001$) Non-attendance Lower rates in GPSI group for initial appointments (6% versus 11% for hospital group) but overall rates for new and follow-up appointments were similar in both groups (GPSI 8%; hospital 9%). Patient management Higher follow-up with GPSI: 59% (181/307) had at least 1 follow-up, including 12% (38/307) who attended hospital follow-up Hospital: 44% (79/181) followed up, all at hospital Referrals Between 2001 and 2004, the volume of referrals to dermatology in study PCT increased by 22% versus smaller increases in neighbouring PCTs	NHS costs Costs higher in GPSI group £207.91 versus £118.13 per patient 9 months after randomisation Patient and family costs Lower in GPSI group (£40.99 versus £56.63 per patient in hospital group) 9 months after randomisation Lost productivity Lower in GPSI group (£20.60 versus £39.60 per patient in hospital group) 9 months after randomisation Total (societal) costs Costs higher in GPSI group (£269.50 versus £214.36 per patient in hospital group) 9 months after randomisation
Sanderson <i>et al.</i> , 2002; Sanderson <i>et al.</i> , 2003	Patient satisfaction Patients almost unanimous in their support for service. Liked ease of access, short waiting times, relaxed atmosphere, helpfulness of GPSI	Hospital workload 30–40% of ENT patients referred to secondary care could be seen by GPSIs GPSIs discharged about 70–80% of patients to GP care Referral volumes and thresholds Far fewer patients seen by GPSIs have follow-up	NHS costs GPSI cost per consultation was £30–40 compared with hospital HRG cost of £60–80 per outpatient. (Though hospital costs include capital and overheads and are not adjusted to reflect the

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Reference	Patient outcomes	Service outcomes	Costs
		appointments. Newly established GPSIs did not appear to generate additional demand but 1 GPSI who had been established for 3 years was generating 33% more referrals (per 1000 population) than neighbouring PCTs without GPSIs. Many of these patients would not have been referred to secondary care by their GP Waiting times Hospital outpatient: Some waiting times reduced though not clear how much of this was due to GPSI and how much was due to other waiting-list initiatives, of which there were several, but for which evaluators do not have data GPSI: Most patients seen within a month, many seen within 2 weeks (much lower than outpatient waits) Non-attendance Low rates for GPSI (typically 1–2%)	lighter case mix seen by GPSIs, nor do GPSI costs include hospital supervision, training or the costs of managing the scheme)

Abbreviations: ACE = angiotensin converting enzyme; CI = confidence interval; ENT = ear, nose and throat; GPSI = GP with special interests; HRG = hospital care resource group; IQR = inter-quartile range; NS = non-significant; PCT = primary care trust; SF-36 = Medical Outcomes Study Short-Form (36-item) Health Survey.

3.5 Transfer to primary care: Outpatient discharge

3.5.1 Introduction

Attendance rates at outpatient clinics are affected by hospital discharge policies for both inpatient and outpatient care. Patients leaving hospital after an inpatient stay may be asked to return to an outpatient clinic after a period of time for 'follow-up', in order that a hospital clinician can check their condition or perform additional procedures that do not require inpatient admission. Such practices may range from a single outpatient attendance (e.g. to remove stitches following an operation) to repeated attendances for life (e.g. for patients with cancer). Patients, in particular those with chronic conditions such as arthritis, may be referred to an outpatient clinic by their GP and then remain under the care of a specialist for a long period of time, encompassing many outpatient attendances.

This section focuses on research looking at alternative discharge arrangements to traditional practice, where some or all of the follow-up after specialist care becomes the responsibility of the patient or their GP. Three types of innovation are described:

- 1 No follow-up.
- 2 Patient-initiated follow-up.
- 3 Follow-up in primary care.

Anticipated benefits and risks

Alternative discharge arrangements clearly have the potential to reduce outpatient attendance rates and costs to the NHS by eliminating unnecessary attendance or by transferring care to general practice. Scenarios where this might be applicable include:

- Where outpatient follow-up has been shown to have little clinical value, discharge without follow-up should be implemented. For example, National Institute for Health and Clinical Excellence (NICE) guidance on follow-up after treatment for breast cancer (NICE, 2002) states that routine follow-up has been shown to be ineffective and should normally cease after no more than 3 years, except for women enrolled in clinical trials.
- Where outpatient follow-up is indicated, the timing of appointments may be inappropriate, wasting both patient and NHS resources. For example, outpatient appointments may be of little value to patients with relapsing chronic diseases when routinely scheduled appointments fail to coincide with a relapse. Patient-initiated follow-up may help to reduce such waste.

- Finally, necessary follow-up care for some patients might be provided as effectively by primary care practitioners as by specialists. Patient access may be improved, as primary care clinics generally have shorter waiting times and are more conveniently located.

Potential risks include a reduction in the quality of care and health outcomes for patients when care is withdrawn or transferred from specialists to generalists. This may lead to increased utilisation of NHS resources in the longer term. General practice workload and costs are likely to increase in both the short and longer term. Another issue is acceptability to specialists, GPs and patients. Patients, for example, may want the reassurance of seeing a specialist rather than a GP. GPs may be unwilling to assume care and specialists may be unwilling to surrender care if both believe that outpatient follow-up makes best use of their respective skills.

3.5.2 Methods

Search strategy

The standard interface search strategy yielded 28 articles. The reference lists of included papers were searched for potentially relevant articles, yielding a further nine articles. Eleven studies (fifteen articles) met the inclusion criteria.

Inclusion criteria

Studies describing changes to discharge arrangements and reporting data on utilisation of outpatient departments and patient outcomes were included. Where results from the same study were reported in different articles, the articles were combined and extracted together. Decisions to include or exclude studies were made by one investigator (Alan Boyd).

Data extraction

Data were extracted by one investigator (Alan Boyd) into a standardised form developed for this purpose (Appendix 2). The quality of included studies was assessed against a hierarchy of evidence (Table 2) that gave greatest weight to high-quality systematic reviews and least weight to descriptive evaluations.

Data synthesis

Data synthesis was primarily qualitative.

3.5.3 Results

Description of studies

Eleven studies met the inclusion criteria. Most were condition specific, located in the UK, and published from 1994 onwards. The conditions covered included:

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- cancer – breast or lung (four studies)
- surgery – general, prostatectomy and carpal tunnel decompression (three studies)
- inflammatory bowel disease (three studies)
- rheumatoid arthritis (one study).

The majority of studies (8/11) were randomised controlled trials, some of good quality, but almost all focused on health outcomes/quality of life rather than on resource utilisation. This meant that many did not have sufficient power to identify changes in the levels of outpatient attendances or GP workload. The other study designs included two cohort studies and one non-randomised controlled trial.

Table 9 summarises the characteristics of included studies. Study outcomes are detailed in Table 10 and summarised below.

Cancer

Three of the four studies investigated patient-initiated follow-up (Adlard *et al.*, 2001; Brown *et al.*, 2002; Chait *et al.*, 1982). These three studies were relatively small scale and produced little or no evidence concerning service outcomes and costs. They suggest that patient-initiated follow-up is likely to be preferred by a proportion of users but not by all. The fourth study investigated routine follow-up with the patient's GP (Grunfeld *et al.*, 1999a; Grunfeld *et al.*, 1999b). This seemed to provide a better quality of care in some respects than outpatient follow-up. GPs spent more time with patients and costs were lower. No studies reported data on the detection of re-occurrences of cancer.

Surgery

Two well-designed studies (Bailey *et al.*, 1999; Florey *et al.*, 1994) investigated the option of giving no planned follow-up after surgery. Both studies found that this would be less costly for the NHS. GPs in both studies believed that their workload would increase and one study demonstrated such an increase. A majority of the GPs were willing to accept the no follow-up policy in one study but this was not the case in the other study. The studies also differed in their findings about how acceptable the policy would be to patients, with the more recent study being more pessimistic. No significant differences in patient health status were found, although this analysis was limited to one study.

A third study (Atherton *et al.*, 1999) investigated transfer of follow-up to the patient's GP. Wound healing was satisfactory, but there was evidence of unnecessary antibiotic prescribing.

Inflammatory bowel disease

There were three high-quality studies (Kennedy *et al.*, 2004; Robinson *et al.*, 2001; Williams *et al.*, 2000) that examined patient-initiated follow-up, two of which included self-management support for patients. The studies suggest that the majority of patients who experienced patient-

initiated follow-up preferred this to routine follow-up. The studies differed, however, as to whether the majority of patients would be willing to switch to patient-initiated follow-up from routine follow-up. Quality of life indicators were not affected, and one study found that treatment quality improved significantly. Numbers of outpatient attendances reduced significantly in all three studies. One study found that patients made significantly fewer GP appointments, while the other two studies lacked power to investigate this. Hospital costs were lower in all studies, although in two studies it was not clear whether the reduction was statistically significant. In one study the costs to primary care were higher, but did not reach statistical significance. The results further suggest that self-management support for patients may produce additional benefits and savings, but no formal appraisal of this was done.

Rheumatoid arthritis

The study of patient-initiated follow-up for rheumatoid arthritis (Hewlett *et al.*, 2000) was well designed and looked at outcomes over a long period (6 years). It provides strong evidence that such follow-up can be as appropriate as routine outpatient review, is preferred by patients and GPs, and reduces hospital outpatient attendances. NHS costs were reduced but the impact on GP workload was unclear.

3.5.4 Conclusions

This review suggests that both patient-initiated outpatient follow-up and transfer of follow-up to primary care are plausible strategies for reducing outpatient attendance rates and overall NHS costs without adverse effects on the quality of care or health outcomes for patients. Support for patient self-management may enhance these benefits when used in conjunction with patient-initiated follow-up, but the degree of added value is still poorly defined. In many studies, patients found GP visits more convenient, less time-consuming and less expensive than outpatient attendance. However, the acceptability of alternative discharge arrangements to patients, specialists and GPs was variable and far from universal. Transferring follow-up from secondary care to primary care increases the workload in the latter sector, but the magnitude of this increase is unclear. The extent to which these models of care could be rolled out to clinical conditions beyond those reviewed here is also unclear and requires further research.

Where there is good evidence that regular outpatient follow-up is clinically ineffective, discharge without follow-up should be implemented. NICE, for example, has shown that routine follow-up beyond 3 years after treatment for breast cancer is unnecessary (NICE, 2002). This review suggests that follow-up after certain types of routine surgery may also be unnecessary, but further research is needed to delineate the scope for this type of intervention.

Overall costs per patient were generally lower under alternative discharge arrangements, primarily because of reductions in outpatient attendance.

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Patient costs were also lower but primary care costs were generally higher.

Table 9 Study characteristics: Outpatient discharge to primary care

Reference	Design	Participants	Interventions
Cancer			
Adlard <i>et al.</i> , 2001	CHT and SUR	65 primary patients with malignant lung cancer who received palliative radiotherapy or chemotherapy from 1 hospital [UK]	Patients attending a routine follow-up appointment 6 weeks after completion of treatment were offered patient-initiated follow-up rather than regular outpatient attendances
Brown <i>et al.</i> , 2002	RCT	61 patients at 2 hospitals who had received treatment for stage 1 breast cancer at least 1 year previously and had no signs of recurrence [UK]	Intervention: Patient-initiated follow-up, supported by written information and telephone access to a breast cancer nurse Control: Standard clinic follow-up
Chait <i>et al.</i> , 1998	CHT and SUR	65 patients under annual review in 1 UK hospital oncology clinic. They had attended for more than 5 years, were well, free of recurrence, and had no treatment morbidity. 71% were patients with breast cancer and the vast majority were women [UK]	Patients were offered a planned discharge in which their return to the hospital clinic, if necessary, was guaranteed
Grunfeld <i>et al.</i> , 1999a; Grunfeld <i>et al.</i> , 1999b	RCT	296 women with breast cancer in remission receiving regular follow-up at 2 hospitals [UK]	Intervention: Routine follow-up from the patient's GP Control: Continued routine follow-up in hospital outpatient clinics (same recommended follow-up regimen)
Surgery			
Atherton <i>et al.</i> , 1999	RCT	105 patients undergoing carpal tunnel decompression at 1 hospital [UK]	Intervention: 2-week post-operative wound inspection and removal of stitches in the patient's GP's surgery Control: 2-week post-operative wound inspection and removal of stitches in the

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Reference	Design	Participants	Interventions
			hospital outpatient clinic
Bailey <i>et al.</i> , 1999	NRT and SUR	267 patients undergoing elective inpatient general surgery and transurethral resection of the prostate, under 5 surgeons at 1 hospital [UK]	Intervention: No planned follow-up but with additional written information given to patients and GPs before the operation Control: Traditional planned follow-up, with outpatient appointment at 6–12 weeks following surgery
Florey <i>et al.</i> , 1994	RCT and SUR	909 patients undergoing 1 of 29 defined surgical procedures at 1 hospital [UK]	Intervention: Immediate discharge to general practice (11 management schedules required no outpatient appointment; 18 required 1 outpatient appointment; 1 required >1 outpatient appointment) Control: Routine follow-up in hospital outpatients
Inflammatory bowel disease			
Kennedy <i>et al.</i> , 2004; Rogers <i>et al.</i> , 2004	RCT and DE	682 patients with inflammatory bowel disease, aged ≥17 years, able to write English, and attending a follow-up clinic in 19 hospitals in the northwest of England [UK]	Intervention: Patient-centred consultation, delivering, as appropriate: — Patient guidebook — Written self-management plan — Telephone number in case patient requires an unscheduled appointment Control: Usual care

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Reference	Design	Participants	Interventions
Robinson <i>et al.</i> , 2001	RCT	203 patients aged ≥ 16 years with inflammatory bowel disease who were undergoing hospital follow-up under the care of 7 consultants in 4 hospitals [UK]	Intervention: Personalised self-management training and follow-up on request via a telephone helpline Control: Normal treatment and follow-up
Williams <i>et al.</i> , 2000; Cheung <i>et al.</i> , 2002	RCT, SUR and semi-structured group interviews	180 patients with inflammatory bowel disease at 2 hospitals [UK]	Intervention: Patient-initiated follow-up Control: Routine appointments at outpatient clinics
Rheumatoid arthritis			
Hewlett <i>et al.</i> , 2000; Kirwan <i>et al.</i> , 2003; Hewlett <i>et al.</i> , 2004	RCT	209 patients with rheumatoid arthritis at 1 hospital [UK]	Intervention: No routine follow-up, but patients and GPs had access to a nurse-run helpline, through which they could initiate access to rapid review, and GPs were given management guidelines Control: Rheumatologist-initiated medical review at 3- to 6-month intervals

Abbreviations: AUD = audit; BAS = before and after study; CHT = cohort study; DE = descriptive evaluation; NRT = non-randomised trial; RCT = randomised controlled trial; SUR = survey.

Table 10 Study outcomes: Outpatient discharge to primary care

Reference	Patient outcomes	Process of care	Resource use
Cancer			
Adlard <i>et al.</i> , 2001	78% of patients answered 'No' to the question 'Would you have preferred to have routine clinic appointments (at the open-access clinic)?' (68% response rate) The main reason given for preferring routine appointments was that 'it would have given me more confidence' (6/9 patients who answered 'Yes' to first question [66%])	28 of the 65 patients had 1 patient-initiated outpatient visit, 10 had 2 visits and 6 had 3 visits, giving a total of 66 visits by 44 patients. None of these patients reported difficulty in making appointments. 'There were fewer visits than would be predicted from using routine 3-monthly follow-up', but no actual figures were reported. Nurses, GPs and the oncologist were generally in favour of patient-initiated follow-up, and 'doctors did not indicate that they had an increased burden of care'	
Brown <i>et al.</i> , 2002	All reported high satisfaction. Significantly more women reported convenience as an advantage of follow-up in the patient-initiated follow-up group. Significantly more women reported reassurance as an advantage in the standard clinic group. After 1 year, significantly more women reported being checked as an advantage in the standard clinic group. Being checked by a professional was closely linked to reassurance for some women. There were no significant differences in health outcomes (EORTC QLQ-C30 and HADS) over time	Similar levels of referral to hospital by GPs among both intervention groups	'Costs would reduce due to fewer outpatient attendances'

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Reference	Patient outcomes	Process of care	Resource use
Chait <i>et al.</i> , 1998	No significant differences on anxiety and depression between patients in the standard clinic and those discharged without follow-up at 4 months ($p=0.47$ and $p=0.25$, respectively)	No significant increase in visits to the GP in the year following discharge versus the year before (median of 1 extra visit; $p=0.193$)	
Grunfeld <i>et al.</i> , 1999a; Grunfeld <i>et al.</i> , 1999b	The GP group indicated greater satisfaction than the outpatient group on virtually all questions, with 9 questions showing significantly greater satisfaction at mid-trial ($p=0.01$ level). Many measures had improved significantly for the GP group between baseline and mid-trial	GP patients were seen significantly more frequently than outpatients (mean 3.4 versus 2.8 follow-up visits; $p<0.001$; 95% CI for difference: 0.3–0.9), and each follow-up visit was longer (mean 10.5 versus 7.4 mins; $p<0.001$; 95% CI for difference 2.6–3.6 mins)	The mean cost per visit was significantly lower in general practice due to lower physicians' costs (mean difference -£50.20; $p<0.001$; 95% CI -£52.5 to -£47.9). GP patients spent significantly less time getting to and from their appointment and waiting to see the doctor (mean difference in total time for appointment: -29.6 mins; $p<0.001$ 95% CI -36.5 to -22.8 minutes)
Surgery			
Atherton <i>et al.</i> , 1999		Transfer of 1 outpatient clinic attendance per patient to GP surgery. 10/59 followed up at GP surgery were considered to be infected, and 8 were prescribed antibiotics versus 0/46 assessed in the hospital clinic ($p<0.02$). Research suggests wound infection is rare and GPs were likely to have misdiagnosed infection. All wounds had healed satisfactorily at 6-week assessment 70% of patients waited less than 15 mins for treatment in GP surgery,	

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Reference	Patient outcomes	Process of care	Resource use
		compared with 23% of patients attending hospital	
Bailey <i>et al.</i> , 1999	119/192 (62%; 95% CI 55–69%) of patients felt they should have received a follow-up appointment for a surgical clinic; 42% would prefer to be followed up by both the hospital doctor and the GP, 25% by hospital only, 14% by GP only, and 18% no preference – no significant differences between treatment and control groups. No significant differences in health status (Health Status Questionnaire-12)	92% of patients in the control group attended a follow-up appointment, versus 38% in the intervention group. No evidence of increased numbers of complications (odds ratio 0.89; 95% confidence interval 0.52–1.51). Numbers of contacts with primary care staff were not significantly different. Of 86 GPs sent a questionnaire, 62 replied (72%) and the majority agreed that a policy of no follow-up at hospital would increase their workload, and that patients should not be discharged to their GP without routine hospital outpatient follow-up	Mean follow-up costs were significantly less for the no planned follow-up group (£12.75; 95% CI £9.75–£15.50; $p<0.0001$). Mean primary care staff costs were £8.37 less for the intervention group, but this was not significantly different ($p=0.11$). Mean total patient costs were significantly greater for the planned follow-up group than the intervention group (£3.84 greater; 95% CI £2.44–£5.22; $p<0.0001$). Mean total NHS costs were also significantly greater for the planned follow-up group (£20.11 greater; 95% CI £9.62–£31.04; $p<0.0001$)
Florey <i>et al.</i> , 1994	No significant differences in patients' views of how worthwhile follow-up appointments were. At 6 months, 58% of patients said they preferred the follow-up treatment they received, rather than the other possibility 'on offer'; no significant differences between groups. No significant differences in mortality or readmission rates (underpowered?)	Significant reduction in outpatient attendances for GP versus outpatient follow-up (mean 1.18 versus 0.29; $p<0.001$). Some increases in mean number of visits to GPs: — Visits to GP in first 2 months (reported by GP) (2.81 versus 2.8; $p=0.04$) — Total visits to GP (reported by	Hospital: £7.06 saving per patient in intervention group Primary care: £4.38 extra cost per patient in intervention group All 4 measures of convenience and costs showed significant benefits to patients of GP follow-up ($p<0.001$), on average saving about 12 minutes in clinic/surgery and 20 minutes on travel. Transport costs were £0.85 less

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Reference	Patient outcomes	Process of care	Resource use
		patient) (3.72 versus 4.4; $p=0.11$) — Visits to GP for surgical condition (reported by patient) (1.96 versus 2.21; $p=0.001$) 58 GPs out of 143 responded to a questionnaire. There was no clear consensus, although a majority (64%) would have been willing to accept immediate discharge as normal policy; 58% would expect an increase in their workload if there was such a policy	on average Overall: £2.68 NHS saving per patient, £5.77 social cost savings per patient with discharge to GP The difference translates to 3 more new patients being seen at each hospital clinic, or an extra 1.5 minutes more on each patient; to be balanced against an extra 2 visits per GP per year. Sensitivity analysis suggests that GP follow-up is likely to be cheaper overall
Inflammatory bowel disease			
Kennedy <i>et al.</i> , 2004; Rogers <i>et al.</i> , 2004	Satisfaction with initial consultation greater in the intervention group, but not significantly ($p=0.09$). Enablement after initial consultation greater in the intervention group ($p=0.026$). No significant differences in health outcome scores (IBDQ and HADS). After completion of the intervention, 74% of patients in the intervention arm stated a preference to continue self-management	The number of kept appointments reduced by approximately one-third in the intervention versus the control groups from 3.0 to 1.9 for the intervention group and from 3.1 to 3.0 for the control group (difference -1.04 ; 95% CI -1.43 to -0.65 ; $p<0.001$). The mean number of clinic non-attendances was also lower for the intervention group (difference -0.08 ; 95% CI -0.15 to -0.01 ; $p=0.034$). There was no significant difference in the percentage of patients making 2 GP appointments visits during the trial year (but the statistical power was quite low)	Absolute cost reduction per patient per year to hospitals was £148, primarily due to reductions in outpatient and inpatient costs

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Reference	Patient outcomes	Process of care	Resource use
Robinson <i>et al.</i> , 2001	At the end of the trial, 71 patients (82%) in the intervention group preferred the new system, 13 had no preference, and 2 preferred the old system; 80/85 of control patients (95%) elected to adopt the new system for future management. No significant difference in quality of life scores	Intervention patients made 0.9 versus 2.9 patient visits per year (difference 2.0; 95% CI 1.6–2.7; $p<0.0001$). Relapses were treated earlier in the intervention group (mean difference 34.8 hours; 95% CI 16.4–60.2 hours; $p<0.0001$). A significantly greater proportion of relapses were self-treated in the intervention group (difference 46%; 95% CI 33–59%; $p<0.0001$). Self-treatments were inappropriate significantly less often in the intervention group ($p<0.0001$). Intervention patients made significantly fewer GP consultations (0.3 versus 0.9; difference 0.6; 95% CI 0.2–1.1; $p=0.0006$) and were much less likely to miss appointments	Taking account of the time (21 mins) to develop a protocol for guided self-management, the total number of potential follow-up appointments saved by the intervention was 154 (compared to the 297 visits and 47 missed appointments in the control group). For the intervention versus the control groups, mean travel costs were £0.86 versus £8.92 ($p<0.0001$), mean total time spent visiting a doctor was 1 versus 6.2 hours ($p<0.0001$)
Williams <i>et al.</i> , 2000; Cheung <i>et al.</i> , 2002	Overall, patients had a strong preference for patient-initiated follow-up (103/164; $p<0.01$), although only 41% in the standard-care group would have preferred patient-initiated follow-up. No significant differences at 6, 12, 18 or 24 months in health outcomes (SF-36 and UK Inflammatory Bowel Disease Questionnaire) (no power calculation done)	Open-access patients made significantly fewer outpatient visits over 24 months than standard-care patients (4.12 versus 4.64; $p=0.002$). There were no significant differences in numbers of GP surgery and home visits, but the test lacked power. GPs preferred open-access follow-up for 108 patients (69%) and routine follow-up for 35 patients ($p<0.001$). A minority of GPs were in favour of extending open access to other chronic conditions	Mean total hospital cost was significantly lower for open-access patients (£582 versus £611; $p=0.012$). Costs to primary care were higher, but did not reach statistical significance (£464 versus £340; $p=0.00$ – lack of power. Patient-borne costs were not significantly different (£115 versus £122; $p=0.07$)
Rheumatoid arthritis			

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Reference	Patient outcomes	Process of care	Resource use
Hewlett <i>et al.</i> , 2000; Kirwan <i>et al.</i> , 2003; Hewlett <i>et al.</i> , 2004	Satisfaction with the system (score of 0–10) was significantly higher for the patient initiated access group at 2, 4 and 6 years (median change 0 versus –1.1; $p<0.001$). Confidence in the system (score of 0–10) was significantly higher for the patient-initiated access group at 2, 4 and 6 years (median change –0.15 versus –1.0; $p<0.001$). There were no significant differences between the groups for median change in any of the psychological variables measured. A variety of outcome measures were used, with the vast majority showing no significant difference between the groups	Patient-initiated access group had 38% fewer hospital outpatient reviews over 6 years (median 5 versus 13; $p<0.0001$). GPs' satisfaction and confidence at 6 years was higher for patient-initiated access (satisfaction 8.4 versus 7.5 [$p=0.005$]; confidence 8.4 versus 8.0 [$p=0.04$]). The number of visits to the GP for consultations about arthritis was not significantly different between the groups over the 6 years (median 8 versus 9.5) Outpatient attendances at 2 years: 262 versus 466; mean 2.82 versus 5.24 ($p<0.001$) Total GP surgery and home visits at 2 years: 423 versus 323; not significant at $p=0.05$ (power not reported)	Calculated at 2 years: Significant decrease in hospital costs for intervention patients ($p<0.001$), though GP costs were greater (£1240 in total over all patients), but not significantly so. Mean total NHS cost per patient per year £208 versus £313, ($p<0.001$). Sensitivity analysis found the overall cost saving for the study was at least 14%

Abbreviations: CI = confidence interval; EORTC QLQ-C30= European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire; HADS = Hospital Anxiety and Depression Scale; IBDQ = Inflammatory Bowel Disease Questionnaire.

3.6 Transfer to primary care: Direct access

3.6.1 Introduction

Under conventional systems of care, outpatient clinics allow clinical assessment by a hospital specialist of patients referred by a GP. Subsequent hospital visits are arranged to undertake any specialist diagnostic tests that may be required and to initiate treatment where necessary. In other words, the specialist in the outpatient clinic acts as a gatekeeper to other hospital resources. Allowing the GP to bypass this gatekeeper and gain 'direct access' to tests and services has the potential to reduce demand on outpatient clinics. Two types of direct access are considered here:

- *Direct-access diagnostic services* provide test results that assist the GP in selecting an appropriate course of treatment. Examples include echocardiography, electrocardiography; gastroscopy/sigmoidoscopy, radiology and ultrasound.
- *Direct-access treatment services* are targeted to conditions where the diagnosis can easily be made by a primary care professional and the treatment is routine. The treatment recommended by the GP is provided without prior assessment of the patient in an outpatient clinic. Examples include physiotherapy, routine or minor surgery, hearing aid fitment and orthopaedic appliance fitment.

Anticipated benefits and risks

Direct-access diagnostic services are expected to reduce outpatient attendance because GPs may refer patients for diagnostic testing without prior consultant assessment. Waiting time from presentation to testing is reduced as the patient does not require a prior outpatient appointment. If the patient can be managed by the GP without subsequent referral to a consultant, waiting time from presentation to treatment is reduced and further outpatient attendance is avoided. However, direct access may increase demand for testing, leading to less appropriate referrals and a consequent reduction in diagnostic yield. It is also possible that the quality of care will decline if GPs fail to take appropriate clinical action in response to test results. All other factors being equal, the direct cost to hospitals may be reduced if savings from reduced referral rates to outpatient clinics are greater than the costs of providing the direct-access service.

Direct-access treatment services are also expected to reduce outpatient attendance because GPs may refer patients for treatment without prior consultant approval. Waiting time from diagnosis to treatment is reduced as the patient does not require a prior outpatient appointment. The quality of care should be unaffected. However, direct access may lead to inappropriate referrals, with a consequent waste of available treatment facilities. All other factors being equal, the direct cost to hospitals may be reduced if savings from reduced referral rates to conventional outpatient

clinics are greater than the costs of providing the direct-access service, including the cost of wasted treatment facilities.

3.6.2 Methods

Search strategy

The standard interface search strategy yielded 33 studies. A supplemental search for direct-access studies yielded 22 papers. The reference lists of included papers were searched for potentially relevant articles, which yielded a further 20 studies. Of these 82 studies, 27 met the inclusion criteria for direct access to a diagnostic test and 13 met the inclusion criteria for direct access to a service. A further 22 papers dealt with rapid access and were excluded.

Inclusion criteria

Studies describing direct-access clinics (as defined above) and reporting any usable outcome data were included. Where a good-quality systematic review was found, the studies included in the review were not extracted separately. Studies describing rapid-access clinics (as defined above) were excluded. Decisions to include or exclude studies were made by one investigator (Bonnie Sibbald).

Data extraction

Data were extracted by one investigator (Bonnie Sibbald) into a standardised form developed for this purpose (Appendix 2). The quality of included studies was assessed against a hierarchy of evidence (Table 2) that gave greatest weight to high-quality systematic reviews and least weight to descriptive evaluations.

Data synthesis

Data synthesis was qualitative.

3.6.3 Results: Direct access to diagnostic test

Description of studies

Twenty-seven studies met the inclusion criteria for direct access to diagnostic testing: two studies of echocardiography; five studies of electrocardiography; eight studies of gastroscopy or sigmoidoscopy; seven studies of radiology; and five studies of ultrasound (excluding use in pregnancy). All studies were located in the UK and most were conducted between 1985 and 2000. The quality of available research was generally poor. There was: one randomised controlled trial; one before and after study; nine surveys; fourteen audits; and one descriptive evaluation. All but two studies evaluated a single direct-access clinic, and the two studies that included more than one clinic did not examine variations between clinics. Table 11 summarises the characteristics of included studies.

Patient outcomes

Patient outcomes were investigated in only two studies (Table 12). Mahadevan *et al.* (2005) ascertained the views of 45 patients who had used a direct-access echocardiography service. All patients preferred direct access; 75% believed the investigation had improved their treatment and 88% felt reassured by the investigation. In a well-designed controlled trial, MacKenzie *et al.* (2003) found no significant differences between direct-access sigmoidoscopy and conventional outpatient clinics in patient satisfaction, anxiety or depression.

Service outcomes

Service outcomes are summarised in Table 12. No studies measured the impact of direct access on outpatient attendance. Sixteen studies estimated the potential reduction in outpatient visits by subtracting the number of outpatient referrals actually made by GPs following direct access from the number of referrals that GPs said they would have made had direct access been unavailable. All sixteen studies concluded that a substantial proportion of outpatient visits could be avoided through the provision of direct access. The estimated proportion of patients managed in primary care who would otherwise have been referred to outpatient clinics was: 60–87% for echocardiography (Mahadevan *et al.*, 2005; Sim and Davies, 1998); 58–90% for electrocardiography (Agrawal *et al.*, 1999; McClements *et al.*, 1994; Paul *et al.*, 1990; Sulke *et al.*, 1991; Thwaites *et al.*, 1996); 26–88% for gastroscopy and sigmoidoscopy (Hungin, 1987; Vipond and Moshakis, 1996); 24–78% for radiology (Apthorp *et al.*, 1998; Barton *et al.*, 1987; Robling *et al.*, 1998; Sim *et al.*, 2004; Watura *et al.*, 1995; White *et al.*, 2002); and 68% for ultrasound (Connor and Banerjee, 1998). Additional evidence of a reduction in outpatient demand was found in one study, which showed that the average waiting time for outpatient appointments declined from 120 to 37 days following the introduction of direct access for gastroscopy (Bramble *et al.*, 1993).

Only one study investigated whether direct access reduced waiting time between presentation and diagnosis (Polmear *et al.*, 1999). This showed a significant reduction of 108 days (95% CI 92–125 days; $p < 0.0001$) in mean waiting time for abdominal ultrasound. Three studies compared waiting times for patients referred to direct-access clinics by GPs with waiting times for patients referred to the same clinic by consultants; all found no appreciable differences (MacKenzie *et al.*, 2003; Chawda *et al.*, 1997; Watura *et al.*, 1995). As patients referred from outpatient clinics must first have waited for an outpatient appointment, these three studies also suggest that waiting time from presentation to diagnosis was reduced by direct access.

Five studies investigated the appropriateness of referrals by GPs to direct-access clinics and most reported high levels of adherence to referral guidelines. The proportion of referrals reported to be appropriate was: 94% for echocardiography (Sim and Davies, 1998); 65–97% for electrocardiography (McClements *et al.*, 1994; Sulke *et al.*, 1991); 84%

for radiology (Sim *et al.*, 2004); and 54–96% for ultrasound (Connor and Banerjee, 1998; Polmear *et al.*, 1999). Sulke *et al.* (1991) showed that the proportion of appropriate GP referrals improved from 42% to 62% with the introduction of better referral guidelines for direct-access electrocardiography. Polmear *et al.* (1999) showed that adherence to referral guidelines was significantly better for GP (54% adherence) than consultant (31% adherence) referrals for ultrasound.

Fifteen studies compared the diagnostic yield among patients referred by GPs compared with those referred by consultants. Eleven studies reported no appreciable differences in diagnostic yield between GP and consultant referrals but failed to assess the statistical significance of their findings (Charlesworth and Sampson, 1994; Chawda *et al.*, 1997; Colquhoun *et al.*, 1988; Donald *et al.*, 1985; Mahadevan *et al.*, 2005; Mills *et al.*, 1989; Polmear *et al.*, 1999; Sim *et al.*, 2004; Thwaites *et al.*, 1996; Watura *et al.*, 1995; White *et al.*, 2002). Four studies provided a statistical assessment of differences. In some studies, GPs and consultants differed in the types of patients they referred (Shakil *et al.*, 1995) and in the diagnoses found on testing (Shakil *et al.*, 1995; Kerrigan *et al.*, 1990). However no significant differences were found in overall diagnostic yield (Bramble *et al.*, 1993; Kerrigan *et al.*, 1990; MacKenzie *et al.*, 2003; Shakil *et al.*, 1995).

No studies investigated the quality of care provided to patients that GPs managed alone following direct-access testing.

The impact of direct access on hospital workload was investigated in six studies but none assessed the statistical significance of observed changes. Five studies reported increases in referral rates following introduction of direct access. Donald *et al.* (1985) reported a threefold increase over 3 years in direct-access referrals for sigmoidoscopy. Gear and Wilkinson (1989) reported that referrals for direct-access gastroscopy increased from 376 in the first year to 1000 in the tenth year of clinic operation, but conventional referrals showed a similar upward trend and diagnostic yield did not change. Kerrigan *et al.* (1990) reported an increase in direct-access referrals for gastroscopy from 17 per week in the first year to 24 per week in the second year of clinic operation. White *et al.* (2002) reported referral rates to direct-access MRI/CT scans increased from 15 to 57 per month over 12 months. In contrast, one study (Polmear *et al.*, 1999) observed no change in the number of scans performed in the 6 months before (n=274) and after (n=279) introduction of a direct-access ultrasound clinic.

Costs

Four studies assessed the costs of direct access, but only one of these provided good-quality information. In a well-designed randomised controlled trial, MacKenzie *et al.* (2003) found that societal (NHS + patient) costs were £105 lower in a direct-access sigmoidoscopy clinic than in a conventional outpatient clinic. The remaining three studies had serious methodological failings. Sim and Davies (1998) reported that direct-access echocardiography could generate savings of £44,600 per

year, but the estimate was based on hypothetical, rather than observed, rates of reduction in outpatient attendance. Apthorp *et al.* (1998) reported that direct-access MRI scans cost £270 versus £115 for a conventional (neurology) outpatient appointment, but did not consider whether this higher cost was offset by a reduction in demand for outpatient appointments. Sim *et al.* (2004) estimated the cost of providing direct-access bone densitometry scans to be £26,370 per year but did not compare this to the cost of a conventional outpatient service.

3.6.4 Results: Direct access to service

Description of studies

Thirteen publications met the inclusion criteria for direct access to a secondary care service: two were reviews of physiotherapy; eight were studies of surgery; one was a study of hearing aid fitment; one was a study of orthopaedic appliance fitment; and one was a study of urological investigation. The eleven original research studies were all located in the UK and most were conducted between 1995 and 2000. The quality of available research was variable. There were: two systematic reviews; three randomised controlled trials; one survey; and seven audits. Both reviews were good quality but the included studies were of variable quality (Hensher, 1998; Robert and Stevens, 1997). Two of the three controlled trials were good quality (Joshi *et al.*, 2000; Thomas *et al.*, 2003). The third had significant flaws – the sample size was too small to evaluate clinically relevant outcomes, the intervention group was heavily contaminated, and no adjustment was made for cluster randomisation (McKessock *et al.*, 2001). The single survey was flawed in that patients attending the two types of clinic under study were not comparable for disease severity (Renton and McGurk, 1999). Six of the audit studies investigated a single, direct-access service and one retrospectively investigated conventional outpatient services to determine the proportion of patients who might have been suitable for direct access (Fox and Sharp, 1994). Table 13 summarises the characteristics of the included studies.

Patient outcomes

Patient outcomes were assessed in seven studies (Table 14). Patient health status was found to be better with direct access than conventional access in two systematic reviews of physiotherapy services (Hensher, 1998; Robert and Stevens, 1997) and a controlled trial of dental surgery (Joshi *et al.*, 2000). In contrast, a controlled trial of direct access to urological investigation found no difference in health outcomes (Thomas *et al.*, 2003). McKessock *et al.* (2001) reported patient satisfaction was higher with direct access than conventional access for sterilisation. Smith and Gwyn (1995) reported patients with direct access to surgery believed that their care was not adversely affected. Renton and McGurk (1999) reported patients preferred direct access to assessment for dental surgery over direct access to combined assessment and treatment, as the latter

allowed too little time in which to make necessary domestic arrangements.

Service outcomes

Service outcomes are summarised in Table 14. Eight studies investigated the impact of direct access on waiting time for treatment and all found it was reduced. Two systematic reviews of physiotherapy found that waiting time from presentation to treatment was shortest for primary care-based clinics, intermediate for direct access to hospital-based services, and longest for conventional outpatient services (Hensher, 1998; Robert and Stevens, 1997). As compared with conventional outpatient clinics, direct-access clinics were also reported to reduce waiting times for dental surgery (Joshi *et al.*, 2000; Renton and McGurk, 1999), sterilisation (McKessock *et al.*, 2001), hearing aid fitment (Fox and Sharp, 1994), orthopaedic appliance fitment (Payne *et al.*, 1987), and urological assessment of lower urinary tract symptoms but not microscopic haematuria (Thomas *et al.*, 2003).

Although direct access to treatment services is expected to reduce outpatient visits, this was investigated in only one study. Joshi *et al.* (2000) showed a reduction in outpatient attendance with direct access for dental surgery compared with conventional access. Three other studies examined the impact of direct access on hospital workload. Two systematic reviews of physiotherapy found that direct access reduced overall demand on hospitals when compared with conventional outpatient clinics (Hensher, 1998; Robert and Stevens, 1997). In contrast, Thomas *et al.* (2003) found no significant change in hospital referral rates in the years before and after the introduction of direct access for urological investigation.

The appropriateness of referrals to direct-access services was investigated in eleven studies. The proportion of direct-access referrals adhering to referral guidelines was generally high: 96% for minor surgery (Johnson *et al.*, 1996); 50–67% for tonsillectomy (Kumar *et al.*, 1998; Shah *et al.*, 1997); 81% for sterilisation (McKessock *et al.*, 2001); 98% for routine surgery (Smith and Gywn, 1995); 63% for hearing aid fitment (Fox and Sharp, 1994); and 99% for orthopaedic appliance fitment (Payne *et al.*, 1987). Two studies compared the appropriateness of referral for dental surgery by general dental practitioners with that of consultants and showed their performance to be broadly similar. (Joshi *et al.*, 2000; Renton and McGurk, 1999). Thomas *et al.* (2003) showed that appropriateness of GP referrals to direct-access urological services improved over time.

In four studies, the quality of direct-access services was examined. A systematic review of physiotherapy found no differences in treatment duration between direct-access and conventional outpatient services (Robert and Stevens, 1997). Three studies of direct access to surgical services suggested that such services were safe (Gaskell *et al.*, 2001; Renton and McGurk, 1999; Smith and Gwynn, 1995).

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Two studies investigated the impact of direct access on primary care workload and neither found significant differences in GP consultation rates between direct access and conventional access (McKessock *et al.*, 2001; Thomas *et al.*, 2003). However, McKessock *et al.* (2001) found that pre-operative consultations with GPs were longer for direct access compared with conventional access for sterilisation.

Costs

Cost of care was investigated in four studies. Two systematic reviews of physiotherapy showed that patient costs were lowest for primary care clinics, intermediate for direct-access clinics, and highest for conventional outpatient clinics (Hensher, 1998; Robert and Stevens, 1997). Overall cost per patient was lower for direct-access than conventional outpatient clinics, but savings were partially offset by increased demand. In a poorly designed controlled trial, McKessock *et al.* (2001) found no difference in hospital or patient costs between direct access and conventional access to sterilisation, but GP costs were higher as a result of longer pre-operative appointments with patients. In a well-designed controlled trial, Thomas *et al.* (2003) found patient costs were similar for direct and conventional access to urological investigation but direct costs (hospital + primary care) were lower with direct access.

3.6.5 Conclusions

Direct access to diagnostic test

The quality of studies was generally poor, making conclusions tentative. The available evidence is consistent in suggesting that direct access to diagnostic testing allows GPs to manage a substantial number of patients who would otherwise be referred to outpatient clinics. Waiting time from presentation to testing is reduced. Direct access probably increases demand for testing, but does not appear to reduce the appropriateness of referrals or alter diagnostic yield. There is a risk that GPs may sometimes fail to take appropriate clinical action in response to test results, but no studies were found that addressed this concern. There appear to be no adverse effects on patient satisfaction. The cost of providing direct-access diagnostic services is likely to be higher than that for conventional diagnostic services, but the increased cost may be fully or partially offset by savings in reduced attendance at outpatient clinics.

Direct access to service

The quality of studies was very variable, permitting no firm conclusions to be drawn. The available evidence is consistent in suggesting that waiting time from presentation to treatment is reduced by offering primary care professionals direct access to secondary care services without prior consultant approval. Outpatient attendance rates should be reduced, as prior consultant approval is not needed, but this has only been investigated in one study. The evidence for the impact on overall demand for services is inconsistent, with some studies finding no change and

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others an increase. Primary care professionals generally refer appropriately to direct-access services, and there appear to be no adverse effects on patient health outcomes or satisfaction. The cost per patient of providing direct access is likely to be lower than that for conventional outpatient services because outpatient visits are avoided. However savings to hospitals may sometimes be offset by an overall increase in demand.

Table 11 Description of studies: Direct access to diagnostic test

Reference	Design	Participants	Intervention
<i>Echocardiography</i>			
Mahadevan <i>et al.</i> , 2005	SUR	151 referrals by 65 GPs to 1 direct-access clinic compared with 97 conventional referrals from outpatient clinics in 1997–1999 [UK]	GP could request echocardiography without prior outpatient appointment. Questionnaire assessed what GP would have done without direct access. Separate questionnaire assessed patient satisfaction with service
Sim and Davies, 1998	AUD	200 referrals from 31 general practices to 1 direct-access clinic [UK]	GP could request echocardiography without prior outpatient appointment. Questionnaire assessed what GP would have done without direct access
<i>Electrocardiography</i>			
Agrawal <i>et al.</i> , 1999	AUD	247 referrals by 147 GPs to 1 direct-access clinic in 1994–1996 [UK]	GP could request electrocardiography without prior outpatient appointment. Questionnaire assessed what GP would have done without direct access
McClements <i>et al.</i> , 1994	AUD	212 referrals by 50 GPs to 1 direct-access clinic in 1990–1992 [UK]	GP could request electrocardiography without prior outpatient appointment. Questionnaire assessed what GP would have done without direct access
Paul <i>et al.</i> , 1990	AUD	98 referrals by 47 GPs to 1 direct-access clinic in 1987 [UK]	GP could request electrocardiography without prior outpatient appointment. Questionnaire assessed what GP would have done without direct access
Sulke <i>et al.</i> , 1991	AUD	110 referrals by 49 GPs to 1 direct-access clinic in 1988–1999 [UK]	GP could request electrocardiography without prior outpatient appointment. Questionnaire assessed what GP would have done without direct access
Thwaites <i>et al.</i> , 1996	SUR	111 referrals to 1 direct-access clinic compared with 91 conventional referrals from outpatient clinics in 1993 [UK]	GP could request electrocardiography without prior outpatient appointment

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Reference	Design	Participants	Intervention
Gastroscopy/sigmoidoscopy			
Bramble <i>et al.</i> , 1993	BAS	2961 referrals to 1 direct-access clinic in the 2 years before (1988–1999) and after (1990–1991) introduction of clinic [UK]	GP could request gastroscopy without prior outpatient appointment
Donald <i>et al.</i> , 1985	AUD	1458 referrals by 92 GPs to 1 direct-access clinic [UK]	GP could request sigmoidoscopy without prior outpatient appointment
Gear and Wilkinson, 1989	AUD	8781 referrals to 4 direct-access clinics in 1977–1987 [UK]	GP could request gastroscopy without prior outpatient appointment
Hungin, 1987	AUD	102 referrals to 1 direct-access clinic [UK]	GP could request gastroscopy without prior outpatient appointment
Kerrigan <i>et al.</i> , 1990	SUR	1091 referrals to 1 direct-access clinic compared with 454 conventional referrals from outpatient clinics in 1987 [UK]	GP could request gastroscopy without prior outpatient appointment
MacKenzie <i>et al.</i> , 2003	RCT	565 patients randomised to 1 direct-access clinic compared with 552 patients randomised to 1 conventional outpatient clinic [UK]	GP could request sigmoidoscopy without prior outpatient appointment Study quality was good: randomisation was blind; a power calculation was performed; analysis was based on intention to treat; however patient follow-up was <80%
Shakil <i>et al.</i> , 1995	SUR	544 referrals to 1 direct-access clinic compared with 546 conventional referrals from outpatient clinics in 1989 [UK]	GP could request sigmoidoscopy without prior outpatient appointment
Vipond and Moshakis, 1996	AUD	756 patients referred to 1 direct-access clinic [UK]	GP could request sigmoidoscopy without prior outpatient appointment
Radiology			

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Reference	Design	Participants	Intervention
Apthorp <i>et al.</i> , 1998	AUD	159 patients referred to 1 direct-access clinic by 58 GPs in 1994–1995 [UK]	GP could request MRI scan without prior outpatient appointment. Questionnaire assessed what GP would have done without direct access
Barton <i>et al.</i> , 1987	AUD	530 patients referred to 1 direct-access clinic by 2 general practices over 2-year period [UK]	GP could refer to radiology department without prior outpatient appointment. Questionnaire assessed what GP would have done without direct access
Chawda <i>et al.</i> , 1997	SUR	457 referrals by GPs to 1 direct-access clinic compared with 435 conventional referrals from outpatient clinics in 1993–4 [UK]	GP could request MRI scan of lumbar spine without prior consultant approval
Robling <i>et al.</i> , 1998	DE	63 patients referred to 1 direct-access clinic by 25 GPs in 1994 [UK]	GPs could request MRI scan of knee or lumbar spine without prior consultant approval. Interviews with GPs were used to suggest improvements to referral guidelines for direct access
Sim <i>et al.</i> , 2004	AUD	560 patients referred to 1 direct-access clinic by 154 GPs in 99 practices in 1998 [UK]	GPs could request bone densitometry scan for patients at risk of osteoporosis. Questionnaire assessed what GP would have done without direct access
Watura <i>et al.</i> , 1995	SUR	165 referrals by GPs to 1 direct-access clinic compared with 470 conventional referrals from outpatient clinics in 1993–4 [UK]	GPs could request MRI scan of knee without prior consultant approval
White <i>et al.</i> , 2002	AUD	366 patients referred for 389 scans by 179 GPs in 75 practices to 1 direct-access clinic in 1999–2000 [UK]	GPs could request MRI or CT scan of head or spine without prior outpatient appointment. Questionnaire assessed what GP would have done without direct access
Ultrasound			
Charlesworth and Sampson, 1994	SUR	300 referrals by 80 GPs in 44 practices to 1 direct-access clinic compared with 300 conventional referrals from outpatient clinics [UK]	GP could request upper abdominal ultrasound without prior outpatient appointment
Colquhoun <i>et al.</i> , 1988	SUR	968 patients with suspected gallstones referred to direct-access clinics in 3 hospitals in 1985	GP could request abdominal ultrasound without prior outpatient appointment

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Reference	Design	Participants	Intervention
		[UK]	
Connor and Banerjee, 1998	AUD	82 referrals by 1 general practice to 1 direct-access clinic [UK]	GP could request upper abdominal ultrasound without prior outpatient appointment
Mills <i>et al.</i> , 1989	SUR	500 adults referred by GPs to 1 direct-access clinic compared with 500 conventional referrals from outpatient clinics [UK]	GP could request abdominal ultrasound without prior outpatient appointment
Polmear <i>et al.</i> , 1999	BAS	100 children aged 1–13 years referred to 1 direct-access clinic in 1996 [UK]	GP could request abdominal ultrasound in children with urinary tract infections without prior outpatient appointment

Abbreviations: AUD = audit; BAS = before and after study; CT = computed tomography; DE = descriptive evaluation; MRI = magnetic resonance imaging; RCT = randomised controlled trial; SUR = survey.

Table 12 Study outcomes: Direct access to diagnostic test

Reference	Patient outcomes	Service outcomes	Costs
Echocardiography			
Mahadevan <i>et al.</i> , 2005	Patient opinion 49 direct-access patients (75%) responded to questionnaire: 100% preferred direct access; 75% believed investigation had improved treatment; 88% felt reassured by investigation	Outpatient attendance With direct access, an estimated 66/112 patients (60%) were managed in primary care who would otherwise have been referred as outpatients Diagnostic yield Direct-access referral = 86/151 (57%) abnormal Conventional referral = 49/97 (50%) abnormal No statistical assessment of the difference was given	
Sim and Davies, 1998		Outpatient attendance With direct access, an estimated 152/174 patients (87%) were managed in primary care who would otherwise have been referred as outpatients Appropriateness of referral 94% of direct-access referrals adhered to guideline	Hospital direct costs Estimated cost of outpatient referrals avoided by direct access = £48,000 per year. Cost of direct-access service = £3,400 (staff cost only). Estimated overall saving £44,600 per year
Electrocardiography			
Agrawal <i>et al.</i> , 1999		Outpatient attendance With direct access, an estimated 109/186 patients (59%) were managed in primary care who would otherwise have been referred to outpatients	
McClements <i>et al.</i> , 1994		Outpatient attendance With direct access, an estimated 167/186 patients (90%) were managed in primary care who would	

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Reference	Patient outcomes	Service outcomes	Costs
		otherwise have been referred as outpatients Appropriateness of referral Exercise electrocardiography was contra-indicated in 7/212 (3%) of direct-access referrals	
Paul <i>et al.</i> , 1990		Outpatient attendance With direct access, an estimated 75/98 patients (76%) were managed in primary care who would otherwise have been referred as outpatients Appropriateness of referral See Sulke <i>et al.</i>, 1991	
Sulke <i>et al.</i> , 1991		Outpatient attendance With direct access, an estimated 55/94 patients (58%) were managed in primary care who would otherwise have been referred as outpatients Appropriateness of referral Following improvement to referral guideline, referrals judged to be appropriate rose from 42% (Paul <i>et al.</i>, 1990) to 65% ($p < 0.01$) and the proportion of referrals at low risk of cardiac disease declined from 34% to 13% ($p < 0.01$)	
Thwaites <i>et al.</i> , 1996		Outpatient attendance With direct access, an estimated 74/11 patients (67%) were managed in primary care who would otherwise have been referred to outpatients Diagnostic yield Direct-access referral = 50/111 (45%) abnormal Conventional referral = 37/91 (41%) abnormal	

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Reference	Patient outcomes	Service outcomes	Costs
		No statistical assessment of the difference was given	
Endoscopy/sigmoidoscopy			
Bramble <i>et al.</i> , 1993		Waiting time Average waiting time for outpatient appointment declined from 120 to 37 days. No statistical assessment of the difference was given Hospital workload Overall, endoscopy workload increased from 2.2 to 4.5 per 1000 patients, but it is unclear whether this was related to direct access Diagnostic yield Direct-access referral = 35% normal. This was said to be 'not statistically different' from conventional referral but no data were given	
Donald <i>et al.</i> , 1985		Hospital workload Overall sigmoidoscopy workload was said to have increased threefold with direct access, but no data were given Barium enemas declined from 189 in year before direct access to 77 in year after service. No statistical assessment of the difference was given Diagnostic yield In the direct-access clinic, 33 carcinomas found, of which 9 (27%) were Duke stage A and 16 (49%) were Duke stage C. This compared favourably with 702 conventional referrals (published elsewhere) of	

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Reference	Patient outcomes	Service outcomes	Costs
		which 95 (13%) were Duke stage A and 343 (49%) were Duke stage C. No statistical assessment of the difference was given	
Gear and Wilkinson, 1989		Hospital workload Overall endoscopy workload increased from 376 in first year to 1000 in tenth year, but conventional referrals showed similar upward trend. No statistical assessment of the difference was given Barium enemas declined by 50% over the time period but no statistical assessment of the trend was given Diagnostic yield Diagnostic yield remained stable over the 10 years at 41–65% abnormal. No statistical assessment of trend was given	
Hungin, 1987		Outpatient attendance Following direct access, 11/94 patients were referred as outpatients. Assuming all would have been referred without direct access, 83/94 outpatient referrals (88%) were avoided	
Kerrigan et al., 1990		Hospital workload Referrals to direct access rose from 17 per week in first year to 24 per week in second year Diagnostic yield Direct access = 436/1091 (40%) normal Conventional referral = 177/454 (39%) Difference was not statistically significant Malignancy was more likely to be detected in	

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Reference	Patient outcomes	Service outcomes	Costs
		conventional referrals (23/454 [5%]) than in direct-access referrals (22/1091 [2%]) ($p<0.005$) In patients aged >40 years, the ratio of abnormal to normal findings was significantly higher for direct access (ratio ≈ 1) than for conventional referrals (ratio ≈ 2) ($p<0.03$)	
MacKenzie <i>et al.</i> , 2003	Satisfaction 83.8% of conventional referrals were satisfied versus 79.5% of direct-access referrals ($p=0.678$) Anxiety Difference in mean HADS anxiety score between groups -0.30 (95% CI -0.86 to 0.26; $p=0.291$) Depression Difference in mean HADS depression score between groups 0.24 (95% CI -0.22 to 0.70; $p=0.304$)	Waiting time Time from referral to diagnosis for large bowel or other pathology was 64.3 days for conventional referral (excluding waiting time for outpatient appointment) and 69.1 days for direct access ($p=0.174$); for cancer or other significant pathology, it was 55.1 days for conventional referral and 57.4 days for direct access ($p=0.514$) Diagnostic yield Significant pathology was found in 69 conventional referrals (13.9%) and 78 direct-access referrals (15.4%). The difference was not statistically significant	Societal cost Cost per patient was £317 for conventional referral and £203 for direct-access referral. The higher cost of £104 with a conventional referral was attributable to the cost of outpatient attendance
Shakil <i>et al.</i> , 1995		Appropriateness of referral As compared with conventional referrals, direct-access referrals were significantly more likely for patients with rectal bleeding (24% versus 15%; $p<0.01$); bleeding and diarrhoea (11% versus 3%; $p<0.001$); bleeding and pain (5% versus 1%; $p<0.01$)	

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Reference	Patient outcomes	Service outcomes	Costs
		Diagnostic yield Direct-access referral = 52% abnormal Conventional referral = 46% abnormal Difference was not statistically significant Early-stage carcinoma (defined as Duke stage A + B + C) was found in 23/544 direct-access referrals (4.2%) versus 8/546 conventional referrals (1.5%) (p<0.02) In contrast, late or metastatic disease was found in 2/544 direct-access referrals (0.4%) versus 9/546 conventional referrals (1.6%) (p<0.04). There were marked differences in presenting case mix between the two groups and this is likely to have accounted for the observed differences in staging No data were presented on waiting time	
Vipond and Moshakis, 1996		Outpatient attendance Following direct access; 196/756 patients (26%) were managed in primary care without referral as outpatients	
Radiology			
Apthorp <i>et al.</i> , 1998		Outpatient attendance With direct access, an estimated 52/150 patients (35%) were managed in primary care who would otherwise have been referred to outpatients. Of those referred following direct access, the referral destination was changed in 20/83 (24%)	Hospital direct costs Direct-access MRI cost was £270 versus £115 for outpatient (neurology) appointment. No statistical assessment of the difference was given
Barton <i>et al.</i> , 1987		Outpatient attendance GPs reported that 78% of patients would have been	

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Reference	Patient outcomes	Service outcomes	Costs
		referred as outpatients without direct access	
Chawda <i>et al.</i> , 1997		Waiting time Time from referral to diagnosis was 19 days for direct-access and 13 days for conventional referral (excluding waiting time for outpatient appointment). No statistical assessment of the difference was given Diagnostic yield Direct-access referral = 12.5% normal Conventional referral = 15.6% normal No statistical assessment of the difference was given	
Robling <i>et al.</i> , 1998		Outpatient attendance With direct access, an estimated 15/62 patients (24%) were managed in primary care who would otherwise have been referred to outpatients. Of those referred after direct-access testing, the referral destination was sometimes influenced by the direct-access test result, e.g. pain clinic rather than orthopaedic clinic	
Sim <i>et al.</i> , 2004		Outpatient attendance With direct access, an estimated 89/119 patients (75%) were managed in primary care who would otherwise have been referred as outpatients Appropriateness of referral 473/560 of direct-access referrals (84%) adhered to guideline Diagnostic yield	Hospital direct costs Estimated direct-access service cost was £26,370 per year. Excluding inappropriate referrals, this would generate £3915 in savings, but 17 patients with osteoporosis would have been missed

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Reference	Patient outcomes	Service outcomes	Costs
		229/560 patients (41%) diagnosed with osteoporosis with direct-access referral versus 53/118 (45%) with conventional outpatient referral. No statistical assessment of the difference was given	
Watura <i>et al.</i> , 1995		Outpatient attendance With direct access, an estimated 89/165 patients (54%) were managed in primary care who would otherwise have been referred as outpatients Waiting time Mean wait for scan was 19 days for direct access and 14 days for conventional referral (excluding time waited for outpatient appointment). No statistical assessment of the difference was given Diagnostic yield Cruciate/meniscal tear: 44% with direct access and 45% with conventional referrals Other abnormality: 30% with direct access and 26% with conventional referral Normal: 26% with direct access and 29% with conventional referral No statistical assessments of the differences were given	
White <i>et al.</i> , 2002		Outpatient attendance With direct access, an estimated 101/266 patients (38%) were managed in primary care who would otherwise have been referred as outpatients Waiting time Time from referral to CT scan was 13 days	

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Reference	Patient outcomes	Service outcomes	Costs
		throughout 12-month observation period. Time from referral to MRI scan rose from 13 to 32 days. No statistical assessment of the difference was given Hospital workload Referral rate to direct-access clinic increased from 15 per month at start to 57 per month at end of 12-month observation period. No statistical assessment of the difference was given Diagnostic yield Direct-access spinal scans = 50% abnormal and cranial scans = 14% abnormal, both of which were reportedly similar to yield from conventional referrals	
Ultrasound			
Charlesworth and Sampson, 1994		Diagnostic yield Clinically relevant abnormal finding found in 76/300 direct-access referrals (25.3%) versus 101/300 conventional referrals (25.3%). No statistical assessment of the difference was given	
Colquhoun <i>et al.</i> , 1988		Diagnostic yield Gallstones were detected in 27% of direct-access referrals versus 24% of conventional referrals. No statistical assessment of the difference was given	
Connor and Banerjee, 1998		Outpatient attendance An estimated 56/82 patients (68%) were managed in primary care who would otherwise have been referred to outpatients	

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Reference	Patient outcomes	Service outcomes	Costs
		Appropriateness of referral 79/82 direct-access referrals (96%) adhered to guideline	
Mills <i>et al.</i> , 1989		Diagnostic yield Conventional referral yielded 38.4% normal scans and 22.8% with a significant abnormality. Direct-access referral yielded 51.8% normal scans and 26.8% with a significant abnormality. No statistical assessment of the differences was given	
Polmear <i>et al.</i> , 1999		Waiting time Time from presentation to testing was 32 days for direct-access referral versus 140 days for a conventional referral (including waiting time for outpatient appointment). Mean difference = 108 days (95% CI 92–125 days; $p < 0.0001$) Appropriateness of referral 31/100 conventional referrals (31%) met 'strict' criteria (for positive mid-stream urine specimens) compared with 54/100 direct-access referrals (54%). Relative risk that direct-access referral met criterion = 1.74 (95% CI 1.24–2.46) Hospital workload No change in number of scans performed in 6 months before ($n=274$) and after ($n=279$) direct-access clinic introduced. No statistic assessment of the difference was given Diagnostic yield	

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Reference	Patient outcomes	Service outcomes	Costs
		Conventional referral yielded 10/100 (10%) abnormal scans versus 8/100 (8%) with direct access. No statistical assessment of the difference was given	

Abbreviations: CI = confidence interval; CT = computed tomography; HADS = Hospital Anxiety and Depression Scale; MRI = magnetic resonance imaging;

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Table 13 Description of studies: Direct access to service

Reference	Design	Participants	Intervention
Physiotherapy			
Hensher, 1998	SYST	MEDLINE® and Physiotherapy Index searched for period 1982–1993. 6 studies of variable quality were included. Data synthesis was qualitative	Systematic review of economic evaluations of physiotherapy provided through conventional outpatient clinic, direct-access clinic or primary care clinic
Robert and Stevens, 1997	SYST	MEDLINE® and Healthplan Index searched for period 1981–1996. 8 studies of variable quality were included. Data synthesis was qualitative	Systematic review of physiotherapy provided through conventional outpatient clinic, direct-access clinic or primary care clinic
Surgery			
Gaskell <i>et al.</i> , 2001	AUD	160 referrals by 40 optometrists to 1 direct-access clinic in 1999 [UK]	Optometrist could refer patient for combined assessment and same-day cataract surgery without prior assessment in outpatient clinic
Johnson <i>et al.</i> , 1996	AUD	106 patients referred by GPs or other primary care professionals to 1 direct-access clinic. Most referrals were for the excision of benign skin lesions [UK]	GP could refer patient for minor surgery under local anaesthetic without prior outpatient appointment. Exclusions included: vasectomy, children, patients with facial lesions or lymph node swelling
Joshi <i>et al.</i> , 2000	RCT	454 referrals by general dental practitioners to 1 direct-access clinic compared with 418 conventional outpatient referrals in 1997–1999 [UK]	Patients were randomly allocated to direct-access or conventional outpatient service. With direct access, general dental practitioners could refer patients for routine dental surgery without prior assessment in outpatient clinic. Pre-operative assessment and surgery were combined in a single visit
Kumar <i>et al.</i> , 1998	AUD	100 referrals to 1 direct-access clinic in 1996–1997 [UK]	GPs could refer patients, aged ≥8 years, for tonsillectomy without prior outpatient appointment

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Reference	Design	Participants	Intervention
McKessock <i>et al.</i> , 2001	RCT	75 patients referred from intervention practices of whom 46 underwent sterilisation; among these 46, 10 received direct-access service and 30 received conventional outpatient service 157 referrals from control practices of whom 100 underwent sterilisation and received conventional outpatient care [UK]	57 general practices were randomly allocated to a direct-access service (intervention practices) or conventional outpatient service (control practices). GPs in intervention practices could refer women for laparoscopic sterilisation without prior outpatient appointment and patients received an information booklet Note: The study was too small to evaluate clinically relevant outcomes, the intervention group was heavily contaminated, and no adjustment was made for cluster randomisation
Renton and McGurk, 1999	SUR	741 referrals by 200 general dental practitioners to conventional outpatient clinic; 739 referrals by the same 200 practitioners to 1 direct-access clinic for pre-operative assessment with later surgery and 101 referrals by a subset of practitioners to 1 direct-access clinic for combined pre-operative assessment and treatment. Third molar complaints were the most common reason for referral [UK]	General dental practitioners could refer patients for routine oral surgery without a prior outpatient appointment. Two forms of direct-access service were evaluated: (i) direct access to pre-operative assessment with surgery provided at a second visit; or (ii) direct access to pre-operative assessment and surgery combined in a single visit Note: The patients referred for direct access to pre-operative assessment with later surgery were reported to be more 'problematic' than the patients referred to direct access for combined assessment and surgery
Shah <i>et al.</i> , 1997	AUD	All GP referrals for 1 year to 1 direct-access clinic [UK]	Adults referred by GPs for tonsillectomy were assessed to determine what proportion could safely be referred for surgery without a prior outpatient appointment
Smith and Gwynn, 1995	AUD	105 referrals by 19 GPs in 4 practices to 1 direct-access clinic [UK]	GPs could refer patients for surgery without a prior outpatient appointment. Conditions deemed suitable for direct access included: benign skin lesions, hernia, vasectomy, ingrowing toenails, varicose veins and symptomatic gallstones
Other services			
Fox and Sharp,	AUD	100 patients, aged ≥ 60 years, referred by GPs to a single ENT outpatient clinic [UK]	Patients referred by GPs to ENT outpatient clinic for hearing aid fitment were retrospectively evaluated to assess what

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Reference	Design	Participants	Intervention
1994			proportion could safely have been referred directly to the audiometric department without prior consultant evaluation
Payne <i>et al.</i> , 1987	AUD	956 patients, aged 50–79 years, referred by 82 GPs to 1 direct-access clinic in 1985 [UK]	GPs could obtain orthopaedic appliances, or appointments with the appliance fitter, without a prior outpatient appointment
Thomas <i>et al.</i> , 2003	RCT	959 patients from 66 general practices referred to urological services in 1 hospital in 1995–1996 [UK]	General practices were randomly allocated to one of two direct-access services – investigation of lower urinary tract symptoms without prior outpatient appointment or investigation of microscopic haematuria without prior outpatient appointment. Clinical and service outcomes were assessed at 12 months

Abbreviations: AUD = audit; RCT = randomised controlled trial; SUR = survey; SYST = systematic review.

Table 14 Study outcomes: Direct access to treatment

Reference	Patient outcomes	Service outcomes	Costs
Physiotherapy			
Hensher, 1998	Health status In 2 studies, clinical outcomes were similar for conventional outpatient clinics, direct-access clinics and primary care clinics	Waiting time In 1 study, mean waiting time for primary care clinic was twofold lower than for direct-access clinic and sevenfold lower than for conventional outpatient clinic Hospital workload In 4 studies, primary care clinics generated higher demand than direct-access clinics, which in turn generated higher demand than conventional outpatient clinics	Patient In 1 study, patient costs were lowest for primary care clinic, intermediate for direct-access clinic and highest for conventional outpatient clinic Society In 3 studies, direct-access and primary care clinics appeared more cost-effective than conventional outpatient clinic In 3 studies, the direct-access clinic led to reduced consumption of non-physiotherapy care (e.g. prescribing) compared with a primary care clinic, which in turn had a lower rate of consumption than a conventional outpatient clinic
Robert and Stevens, 1997	Health status In 2 of 3 studies, patient valuations of health status were better with direct-access than conventional outpatient clinics One of 3 studies found that	Waiting time In 5 studies, the mean waiting time for primary care clinics was lower than for direct-access clinics, which in turn was lower than for conventional outpatient clinics Hospital workload	Hospital One study found that direct access increased hospital costs by £3,300 per annum. Although the cost per patient was lower for direct access than conventional outpatient access, direct access generated an increase in workload by treating

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Reference	Patient outcomes	Service outcomes	Costs
	recovery time was shorter with direct-access than conventional outpatient clinic	In 2 studies, subsequent use of outpatient services was lower in patients referred to direct-access clinics than conventional outpatient clinics Service quality In 4 studies, treatment duration was similar for conventional outpatient clinics, direct-access clinics and primary care clinics	patients who would not previously have been treated Patient In 1 study, patient costs were lowest for primary care clinic, intermediate for direct-access clinic and highest for conventional outpatient clinic
Surgery			
Gaskell <i>et al.</i> , 2001		Appropriateness of referral 154/160 direct-access referrals (96.3%) were found to be suitable for same-day cataract surgery Service quality There were no systemic, intra-operative or subsequent sight-threatening complications; 151/154 (98.1%) achieved a best corrected visual acuity of 6/12 or better at a mean of 31 days	
Johnson <i>et al.</i> , 1996		Appropriateness of referral Agreement between hospital and GP on suitability of patient for minor surgery under local anaesthetic was 95.7%	
Joshi <i>et al.</i> , 2000	Health status 87% of direct-access patients	Outpatient attendance All direct-access patients had one hospital visit;	

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Reference	Patient outcomes	Service outcomes	Costs
	and 63% of conventional outpatients preferred their mode of referral. The statistical significance of the difference was not given Knowledge 95% of direct-access patients had good knowledge of their procedure on referral versus 99% of conventional outpatients (p<0.001)	in conventional outpatients, 91% had two hospital visits and 9% had three. The statistical significance of this difference was not given Waiting time Direct-access patients were treated within 2–3 weeks versus 2–28 weeks for conventional referrals. The significance of the difference was not given Appropriateness of referral 89% of pre-operative records were complete for direct-access referrals versus 99% for conventional referrals (p<0.001) Treatment was unnecessary for 3/454 direct-access referrals (1%) and 17/414 conventional referrals (4%; p>0.05) The number of referrals treated was 409/545 direct-access patients (90%) versus 312/418 conventional outpatients (75%; p<0.001) The treatment requested by the referring health professional was changed by the surgeon in 31/454 direct-access referrals (8%) versus 77/418 conventional referrals (23%; p<0.001) Preference 74% of general dental practitioners and 77% of hospital doctors preferred direct access to conventional outpatient referrals	

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Reference	Patient outcomes	Service outcomes	Costs
Kumar <i>et al.</i> , 1998		Appropriateness of referral 33/100 referrals (33%) to the direct-access clinic did not adhere to clinical guidelines	
McKessock <i>et al.</i> , 2001	Satisfaction 43/46 patients (93%) in the intervention group were satisfied versus 89/100 patients (89%) in the control group ($p < 0.05$) Satisfaction with pre-operative counselling was higher in the intervention than control group ($p = 0.003$) Satisfaction with hospital care was said to be similar in the intervention and control groups but the statistical significance of the difference was not given Other Regression analysis suggested that the most important factors affecting patient satisfaction were amount of information given ($p < 0.01$); discussing the operation with both the GP and hospital doctor ($p < 0.01$); and age (younger patients	Waiting time Median waiting time was 104 days for the intervention group versus 123 days for the control group ($p = 0.003$) Appropriateness of referral Only 14/75 direct-access referrals (19%) adhered to guideline Primary care workload Median time patient spent with GP before operation was 17 mins for intervention group and 15 mins for controls ($p = 0.05$) Median number of pre-operative visits to GP was 1 in both intervention and control groups ($p = 0.14$) Median number of post-operative visits to GP was 1 in intervention group and 0 in control ($p = 0.04$)	Hospital Total hospital costs were £396 per patient in both intervention and control groups ($p = 0.22$) Primary care GP costs were £18 per patient in the intervention group and £14 in the control group ($p = 0.01$) Patient Total patient costs were £198 in the intervention group and £171 in the control group ($p = 0.57$)

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Reference	Patient outcomes	Service outcomes	Costs
	wanted more information [p<0.05] and older patients wanted shorter waiting times [p<0.01])		
Renton and McGurk, 1999	Satisfaction It was said that direct access to a combined pre-operative assessment and treatment service did not 'appeal to most patients', who preferred 'a delay of around 8 weeks to make appropriate domestic and work arrangements'. The numbers who expressed this view are not given and no comparison was made with patients using the alternative services under study	Waiting time Waiting time was 168 days for conventional referrals, 90 days for direct-access referrals to pre-operative assessment with later surgery, and 69 days for direct access to combined pre-operative assessment and surgery. The statistical significance of the difference was not given Appropriateness of referral Accuracy of diagnosis was 86% for conventional referrals, 48% for direct-access referrals to pre-operative assessment and 98% for direct-access referrals to combined pre-operative assessment and surgery Choice of surgical plan was judged appropriate for 82% of conventional referrals, 34% of direct-access referrals for pre-operative assessment and 98% of direct-access referrals for combined pre-operative assessment and surgery Acceptance for day surgery was 83% for conventional referrals, 49% for direct-access referrals to pre-operative assessment with later surgery and 82% for direct-access referrals to combined pre-operative assessment and surgery	

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Reference	Patient outcomes	Service outcomes	Costs
		Redirection of patients to inpatient surgery occurred in 9% of conventional referrals, 3.5% of direct-access referrals for pre-operative assessment and later surgery and 3.5% of direct-access referrals for combined pre-operative assessment and surgery The statistical significance of the differences was not given Service quality Only 0.003% of patients required hospital admission after treatment	
Shah <i>et al.</i> , 1997		Appropriateness of referral 50% of GP referrals met guidelines for direct-access tonsillectomy. Of these, 3% were later deemed inappropriate	
Smith and Gwynn, 1995	Satisfaction All patients believed their management had not been adversely affected by direct access	Appropriateness of referral 103/105 referrals to direct access (98%) adhered to guidelines; 1 patient was wrongly diagnosed by the GP Service quality 2 patients were admitted to hospital after day surgery for analgesia; a third patient experienced a minor complication	

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Reference	Patient outcomes	Service outcomes	Costs
Other services			
Fox and Sharp, 1994		Waiting time Mean delay of 6.1 months (range 1.5–13 months) for conventional outpatient appointment might have been avoided through direct referral to audiometric service Appropriateness of referral 63/100 patients (63%) satisfied referral guideline and would be eligible for direct-access service	
Payne <i>et al.</i> , 1987		Waiting time Direct access was reported to reduce waiting time by 80%, but full supporting data were not given. Of 956 direct-access referrals, 679 (71%) were seen within 5 weeks of referral and 63 (7%) waited ≥9 weeks. Waiting time for a conventional outpatient appointment was said to be 5–6 months in the same period Appropriateness of referral 4/956 direct-access referrals (0.4%) were inappropriate	
Thomas <i>et al.</i> , 2003	Health status There were no significant differences between direct-access and conventional outpatients in general health status (SF-36), level of	Waiting time Waiting time for all urological referrals was reduced (mean 11 weeks; 95% CI 7.1–15.0 weeks) from before to after the intervention As compared with conventional outpatient clinic, waiting time for direct access was	Direct costs Savings on direct costs were estimated to be £47.05 per patient for direct access to investigation of lower urinary tract symptoms and £0.28 per patient for direct-access investigation of microscopic

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Reference	Patient outcomes	Service outcomes	Costs
	anxiety (HADS) or urological symptoms (American Urological Association symptom score). Supporting data were reported in a supplementary table not included in the publication	significantly shorter for investigation of lower urinary tract symptoms (mean reduction -30%; 95% CI -11% to -45%) but not significantly different for investigation of microscopic haematuria (mean reduction 0%; 95% CI -30% to 20%) Appropriateness of referral The mean number of guideline-recommended investigations done before referral improved in the direct-access group (+0.5 investigations; 95% CI 0.2–0.8) Hospital workload There were no significant changes in the overall number of referrals to hospital. Supporting data were reported in a supplementary table not included in the publication Primary care workload There were no significant differences in GP consultation rates between direct-access patients and conventional outpatients before referral (effect size 1.0; 95% CI 0.8–1.2) or after referral (effect size 1.2; 95% CI 0.7–1.98)	haematuria Patient costs Costs to patients were reduced for both types of direct access but the differences were not significant: Urinary tract symptoms: Travel cost -£3.6 (95% CI -£12.6 to £5.2) Time cost -£33.9 (95% CI -£79 to £29.8) Microscopic haematuria: Travel cost -£2.8 (95% CI -£12.3 to £5.5) Time cost -£20.0 (95% CI -£94.5 to £59.7)

Abbreviation: CI = confidence interval.

3.7 Impact on primary care of increased day surgery

The NHS intends progressively to increase the proportion of elective surgery that is carried out as day surgery, with the intention of reducing dependence on inpatient beds in the acute sector and increasing the amount of surgery that can be delivered by alternative providers. We aimed to review the literature on the potential impact on primary care of further shifts towards day surgery.

In the event, we found no literature that specifically addressed the impact of increased day surgery on primary care workload, and it is not therefore possible to assess the impact directly. However, insights can be gained from research into the impact on primary care of other types of transfer from hospitals to the community.

In order to assess the literature on the workload implications of secondary to primary care shifts, it is important first to understand the range of different things that can be meant when studies employ the term 'workload'. The first distinction is between clinical workload (i.e. patient contact) and administrative workload (i.e. management and paperwork). The second distinction is between different attributes of work, including: volume of work (e.g. hours of work); complexity of work (e.g. level of demand on knowledge or skills); and psychological pressure (i.e. perceptions of job stress and strain). All of these are important, not least to the individual GPs concerned, but the use of different definitions and measures makes literature comparisons difficult.

Our review of evidence on transfers of care from hospitals to the community suggests that the volume of clinical work in general practice may sometimes increase, although the extent to which this happens is unclear (see Table 15). Two reviews of the wider published literature found it difficult to draw clear conclusions about the impact on GP workload of shifts from secondary to primary care over the 1990s. Much of the available evidence was based on editorials and letters from individual practices rather than on rigorous comparative research (Pederson and Leese, 1997; Scott and Vale, 1998; Scott and Wordsworth, 1998). There was good evidence of an increase in the *perceived* volume and complexity of GP work. However, the *objective* evidence more convincingly demonstrated increases in the volume of administrative work rather than in the volume of clinical work. Only one recent study points to an increase in clinical workload and this related to the changing balance of care for elderly people living in institutions. However, estimates in this study were based on projections from data on disability among adults in communal establishments from as long ago as 1986 (Kavanagh and Knapp, 1998).

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Where 'transfer of care' relates primarily to a discontinuation of unnecessary care in hospitals, then the impact on primary care may be negligible. So, for example, in a controlled trial of discharge without hospital follow-up after routine surgery, there was no increase in primary care workload because GPs were already seeing patients, either for sick notes or because the GP was contacted first when there was a complication (Bailey *et al.*, 1999).

However as Pedersen and Leese (1997) point out, lack of evidence does not mean that changes in primary care workload have not occurred or may not occur; furthermore, changes that do occur are likely to be highly dependent on the types of task required of primary care staff. So if, for example, intravenous drugs or infusions are required after day surgery, then an increase in primary care workload (especially nursing) and a need for new types of skill within the primary care workforce can be predicted. In some senses, the types of care provided in the community become more like intermediate care (see Section 7.2)

3.8 Summary and conclusions

The key findings in respect of each model of care reviewed above are given in Table 15. These suggest that the transfer of services from secondary to primary care was generally associated with improved access and convenience for patients. Quality of care and health outcomes were compromised when the transferred service demanded competencies beyond those of the average primary care clinician (e.g. minor surgery), but were otherwise unaffected. Reductions in hospital workload were not always achieved due to service-led increases in demand. The impact on overall NHS costs was variable and context dependent. Reductions in cost were achieved through reduced salary costs in primary care, and reduced time and travel costs for patients. These savings were offset by rises in costs generated through increased demand and loss of economies of scale.

Interventions shown to reduce hospital workload with a minimum of adverse effects on other aspects of care include:

- Outpatient discharge to (i) no follow-up, (ii) patient-initiated follow-up or (iii) primary care follow-up, as appropriate.
- Direct access for GPs to hospital-based diagnostic tests and investigations without prior consultant approval in an outpatient clinic – restricted to common tests and investigations about which GPs are knowledgeable.
- Direct listing of patients for specialist treatment services by GPs without prior consultant approval in an outpatient clinic – restricted to conditions for which GP diagnosis is unproblematic.

Interventions with unproven effects on hospital workload that merit further investigation include:

- Transfer of medical care for common chronic conditions from secondary to primary care.
- GPs or other practitioners with special interests (GPSIs) acting as substitutes for outpatient specialists.

Interventions with generally adverse effects on the quality, effectiveness and efficiency of health care include the transfer of minor surgery from secondary to primary care.

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Table 15 Summary of findings: Transfer to primary care

Model sub-type	Outcomes					
	Access/equity	Quality/health	Hospital impact	General practice impact	Costs	Feasibility
<i>Surgical clinic</i>	Improved access	Variable — often worse than hospital care	No reduction in workload	Increased workload Increased demand with reduction in treatment threshold	Increased costs due to overall expansion in service capacity	Requires equipment and training of primary care workforce
<i>Medical clinic</i>	Improved access	Structured care in general practice as good as hospital care	Insufficient evidence Theoretical chance of reduced workload	Increased workload Increased demand with uncertain impact on treatment threshold	Increased costs due partly to loss of economies of scale and partly to increased demand	Requires expansion in size and training of primary care workforce
<i>GPSI</i>	Improved access and reduced waiting times	Limited evidence suggests no change in quality	Insufficient evidence to demonstrate whether GPSIs reduce outpatient referral rates	Increased demand for GPSI service with reduction in treatment threshold Theoretical loss of capacity in primary care as	Lower salary costs of substituting GPSI for specialist may be offset by lower productivity of GPSI and	Requires training of GP workforce and change in the attitudes of specialists who are hostile to change

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Model sub-type	Outcomes					
	Access/equity	Quality/health	Hospital impact	General practice impact	Costs	Feasibility
				GPs move to become GPSIs	service-led increases in demand. Savings, if any, are therefore context dependent	
Outpatient discharge	Improved access	No change to quality or outcomes	Reduced outpatient visits	Increased workload	Reduced overall costs to NHS but higher costs to primary care	Unacceptable to a high proportion of patients and clinicians Patient-initiated access requires major revision of hospital appointment systems
Direct-access diagnostic test	Reduced waiting time	Insufficient evidence Theoretical risk that quality of care may decline	Reduced outpatient visits Demand increased but without reduction in treatment threshold	Insufficient evidence Theoretical risk of increased workload	Uncertain Increased hospital cost may be fully/partially offset by reduction in outpatient visits	Requires expansion of hospital diagnostic services Suitable only for tests that GPs understand well
Direct-	Reduced waiting	Quality of care	Reduced	Insufficient	Uncertain	Requires change

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Model sub-type	Outcomes					
	<i>Access/equity</i>	<i>Quality/health</i>	<i>Hospital impact</i>	<i>General practice impact</i>	<i>Costs</i>	<i>Feasibility</i>
<i>access service</i>	time	and health outcomes unchanged	outpatient visits Variable increase in demand but without reduction in treatment threshold	evidence Theoretical risk of change is low	Reduced hospital costs may be partially offset by increase in demand	in hospital policy; introduction of GP referral guidelines Suitable only for conditions GPs can diagnose with high certainty

Abbreviation: GPSI = GP with special interests.

Section 4 Relocation to primary care

4.1 Introduction

This section deals with the relocation of secondary care services to primary care settings. The secondary care clinician remains the provider of care but the venue from which care is provided changes. The purpose of relocation differs with the context in which it is given, but generally the intention is to improve access to specialist care. Closer contact between specialists and primary care clinicians may be expected to improve the knowledge and skills of the latter and so reduce the need to refer patients for specialist advice. Services relocated to populations with poor access to hospitals are expected to improve equity in care provision.

Three types of interventions are reviewed here:

- 1 Shifted outpatient clinics – in which outpatient clinics are relocated to primary care settings (Section 4.2).
- 2 Telemedicine – which is a virtual, rather than physical, relocation of secondary care services to primary care (Section 4.3).
- 3 Attachment of specialists to primary care teams (Section 4.4).

4.2 Relocation to primary care: Shifted outpatient clinic

4.2.1 Introduction

A conventional outpatient clinic sees patients referred by a GP for clinical assessment by a hospital specialist. Subsequent hospital visits are arranged to undertake any specialist diagnostic tests that may be required and to initiate treatment where necessary.

An alternative model is the *shifted outpatient* or *outreach clinic*, which involves hospital specialists visiting premises outside of the hospital site to provide care. Instead of travelling to hospital clinics, patients visit specialists in these community settings. 'Outreach' covers a range of services, populations and settings but, for the purposes of our review, we define outreach clinics as specialist clinics in urban primary care settings, rural community health centres or community hospitals that do not have resident specialists.

Anticipated benefits and risks

The potential benefits of outreach services include improved access to services. By providing services in a more accessible setting, outreach services offer the potential to address unmet need within the community. However, one of the risks of this approach is that easier access may result in a lowering of the referral threshold, with patients who do not require access to specialist care being treated by specialists. Ideally, outreach services aim to reduce inappropriate demand for hospital outpatient services and to improve access to specialist services for patients who require this.

Outreach services may encourage interaction between specialists and GPs, providing opportunities for GP education, enhanced inter-professional communication and better co-ordination of care.

Outreach services are likely to reduce patient travelling time and costs, and the provision of care in familiar surroundings may improve the patient experience. However, outreach provision is likely to increase travelling time and costs for the specialists involved. Outreach services may reduce the time patients spend waiting between referral and seeing a specialist and may make more efficient use of clinic resources by reducing the non-attendance rate. However, specialists at outreach clinics are unlikely to have the same immediate access to the range of diagnostic tests and investigations that exists in the hospital setting. There is a danger, therefore, that patients seen in outreach settings may require a hospital outpatient visit in addition to their outreach clinic visit. In other words, outreach may result in unnecessary delays and additional visits as compared with traditional outpatient care.

4.2.2 Methods

Search strategy

Relevant papers cited in the studies identified from the standard interface search strategy were obtained. No other searches were undertaken.

Inclusion criteria

Studies describing outreach services (as defined above) and reporting any usable outcome data were included. Where a good-quality systematic review was found, the studies included in the review were not separately extracted. However, some of the papers included were checked if there was insufficient detail on the outcomes of interest in the reviews. Decisions to include or exclude studies were made by one investigator (Ruth McDonald).

Data extraction

Data were extracted by one investigator (Ruth McDonald) into a standardised form developed for this purpose (Appendix 2). The quality of included studies was assessed against a hierarchy of evidence (Table 2) that gave greatest weight to high-quality systematic reviews and least weight to descriptive evaluations.

Data synthesis

Data synthesis was qualitative.

4.2.3 Results

Description of studies

Of the papers evaluating outreach interventions, we identified six systematic reviews, including three Cochrane reviews as follows:

- two on outreach services, including one Cochrane review (data to 2000)
- one on services and interventions at the interface between primary and secondary care (data to 1998).

In addition to these we included a further nine empirical studies (four controlled before and after studies, one non-randomised trial, two audits and two descriptive evaluations). Most empirical studies were UK based (5/9) with the others reporting on outreach services in Australia (2), Norway (1) and Israel (1). Included studies are described in Table 16 and study outcomes are summarised in Table 17.

Quality of studies

The Cochrane review of specialist outreach clinics in primary care settings highlighted the need for better quality evidence evaluating specialist outreach in all settings. However, the availability of higher quality evidence is skewed towards urban non-disadvantaged populations, which are more representative of UK settings.

Patient outcomes

Patient satisfaction

In general, patients were highly satisfied with care in outreach settings. Studies that merely report high levels of satisfaction with no comparator (e.g. Murray, 1998) shed little light on the relative difference in satisfaction levels between the two settings. Since NHS patients generally report high levels of satisfaction in a range of care settings, the extent to which unsophisticated approaches of this type are helpful in ascertaining satisfaction are unclear. As many patients have no experience of outpatient care, they have nothing against which to judge their experience other than their prior expectations. Perhaps the most helpful studies here are those that report on patients who have experienced care in both settings and are invited to express a preference for one of these settings.

Powell's systematic review of consultant-led specialist outreach clinics in primary care in the UK found that patient satisfaction was examined in seven of eight comparative studies. Overall, outreach was associated with increased or similar satisfaction. The Cochrane review of specialist outreach clinics in primary care settings concluded that outreach was associated with increased patient satisfaction.

Health outcomes

Many UK studies involving 'shifted outpatient' initiatives ignore the issue of health outcomes (Powell, 2002; Gruen *et al.*, 2003), although the small number of studies in Powell's review that considered this show no consistent difference in health outcomes between outreach and conventional outpatients.

Service outcomes

Primary care provider education

Interaction between GPs and specialists was expected to improve GP knowledge, with the aim of enabling GPs to manage patients without recourse to specialist advice. Although Gruen and Bailie (2004) suggest that there is some evidence of this interaction happening in rural Australia, the experience in UK settings has been somewhat disappointing on this matter (Gruen *et al.*, 2003). Those studies that report some educational benefits for GPs from outreach services

usually rely on self-reports from GPs. For example, Powell's review of UK outreach includes one study in which 50% of GPs reported increases in their knowledge/skills. However, generally the evidence is less promising than this study suggests. Other studies suggest that opportunities for GP education, enhanced inter-professional communication and better co-ordination of care have not been realised because of a lack of GP involvement in outreach clinics (e.g. Black *et al.* cited in Gruen *et al.*, 2003).

Outpatient referrals

The impact on outpatient referrals varied with the purpose and scale of the intervention. In the UK, shifted outreach clinics were small in scale relative to conventional outpatient clinics and were not intended to generate large changes in outpatient use. Riley and Kirby's study (1996) of outreach clinics (gynaecology, orthopaedics and urology) in one GP practice found more patients were referred for investigation (76% versus 57%) and added to waiting lists for hospital treatment (67% versus 54%) in outreach compared with outpatient settings. One reason for this may be the lack of diagnostic services available in primary versus secondary care settings. For example, Ayshford *et al.*'s (2001; cited in Powell, 2002) examination of ear, nose and throat (ENT) specialist outreach clinics found that 76% of attendees needed a further outpatient appointment for investigations that would normally have been performed at a first outpatient attendance. Equally, it is possible that increased referral from outreach clinics reflects increased demand targeted to unmet need; conversely the opposite may be true i.e., a reduction in referral threshold resulting in unnecessary care provision. Distinguishing these alternatives requires data on the appropriateness of referral and diagnostic yield that were generally absent from the available research.

Some of the older UK studies reflect service configurations that may no longer be relevant today. For example, Tyrer *et al.*'s (1984; cited in Powell, 2002) study examining psychiatric outreach clinics found an increase in the total number of outpatients seen. However, this study took place before the introduction of community mental health teams (see Section 7.2.1), which provide an alternative to both outreach and outpatient referral.

Shifted outpatient clinics might be used to provide services in areas with limited access to hospitals, so enhancing equity in care provision. For example, Gruen *et al.*'s study of outreach in rural Australian communities reports on an initiative intended to increase uptake of specialist services to address unmet need and improve equity of care. In contrast, O'Brien's (2001; cited in Powell, 2002) UK study compares orthodontic outreach with outpatient clinics in three settings. The first outreach clinic was only 500 metres from the hospital and the second 2 kilometres away. The example points to the importance of defining the purpose of an outreach clinic within a particular health care system.

Waiting times

Findings regarding waiting times are mixed. Powell (2002) showed that shorter waiting times reported in survey studies were not consistently corroborated by more rigorous controlled studies. The older empirical studies reviewed here generally report much shorter waiting times in outreach compared with outpatient settings. For example, Powell's systematic review found that four of five studies reported shorter waits in outreach settings. However, the extent to which these results would be replicated today is uncertain in the context of much shorter waiting times for hospital outpatients. No studies examined the overall effect of outreach clinics on waiting times for outpatient appointments.

Non-attendance rates

Powell's systematic review identified one study that showed no difference between outreach and hospital settings. Other studies showed non-attendance rates differed by specialty. One study found non-attendance rates to be lower for dermatology outreach and higher for orthopaedic outreach when compared with hospital outpatients. One study found lower non-attendance rates for outreach in five of eight specialties, with similar rates in the remaining three. Of the two empirical studies reviewed here, one found lower non-attendance rates in community diabetic clinics (Nocon *et al.*, 2004) and the other found non-attendance rates for psychiatric outreach clinics to be comparable to those of outpatient clinics (Murray, 1998).

Patient throughput

A fairly consistent finding was that where throughput was assessed, this was lower in outreach clinics (Davies *et al.*, 2000; Murray, 1998; O'Brien, 2001, cited in Gruen *et al.*, 2003; Powell, 2002; Riley and Kirby, 1996;). This is one factor explaining the higher costs associated with outreach settings (see below).

Costs

The Cochrane review (Gruen *et al.*, 2003) concluded that outreach clinics in urban non-disadvantaged populations were more costly and provided for fewer patient consultations per clinic. Powell's review came to a similar conclusion, with five of six studies reporting higher overall costs to the NHS in outreach clinic settings (Powell, 2002). Only one study included indirect costs and this found no difference. Three studies estimated patient costs and these tended towards patient costs being lower in outreach settings. One examined only direct travel costs and found lower costs in the outreach clinic. Two included the opportunity cost of time spent attending clinic, travel costs and care of dependants. One of these found higher costs in hospital clinics, mainly due to travel distance; the other found differences in favour of outreach clinics that were not statistically

significant. Overall, savings to patients were outweighed by much higher costs to the NHS.

Four empirical studies reviewed here examined costs. Donaldson *et al.* (2002) found costs to be lower in outreach settings but failed to compare equivalent costs (comparing marginal costs in outreach settings against full costs in hospitals). Two others reported that costs were lower in an outreach setting, but gave no information to substantiate these conclusions (Buhrich and Teesson, 1996; Gruen *et al.*, 2004). Studies that gave more detailed consideration to comparing equivalent costs showed costs to be higher in outreach settings (Nocon *et al.*, 2004; Davies *et al.*, 2000).

4.2.4 Conclusions

Patient satisfaction with outreach services is generally high, in part because of perceived shorter waiting times. However, research comparing outreach with outpatient clinics suggests waiting times in outreach clinics are not always shorter. The relevance of these findings to the modern NHS, where waiting times for outpatient care have been substantially reduced, is questionable.

There is a paucity of good-quality research into health outcomes for patients. Many studies did not report health outcomes on the assumption that outcomes would be unchanged as the clinicians providing the care were unchanged. Those studies that did measure health outcomes found no consistent differences between outreach and outpatient clinics.

The impact of outreach on outpatient referrals was inconsistent. There was evidence to suggest that some outreach patients required a further outpatient appointment to undergo investigations that were available in outpatient clinics but not primary care.

With regard to the cost-effectiveness of outreach clinics, the most consistently reported finding was that outreach clinics in urban non-disadvantaged populations were more costly and provided for fewer patient consultations per clinic.

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Table 16 Study characteristics: Shifted outpatient clinic

Reference	Design	Participants	Interventions
Bruusgaard, 1980	DE	18,000 patients living 65 miles away from the nearest hospital [Norway]	Specialist outreach clinics (paediatrics, internal medicine, gynaecology, ophthalmology and orthodontics) in general practice
Buhrich and Teesson, 1996	CBA	506 homeless persons with schizophrenia referred to outreach between April 1988 and mid-1992 [Australia] Intervention: (attenders; n=415) mean (SD) age 40 (11.6) years, 89% male Control group: (non-attenders referred to outreach clinic; n=91), mean (SD) age 39 (8.7) years, 85% male	Weekly evening clinics by consultant and registrar with 2 other mental health workers held within 4 refuges for homeless persons. Assertive case management including medication, counselling, regular review and access to social services Compared outreach care with no outpatient care (not traditional hospital outpatient care)
Davies <i>et al.</i> , 2000	DE	175 patients attending hospital (n=142) or outreach (n=33) clinics [UK]	Cost comparison of nurse-led hospital versus outreach anti-coagulation clinics
Donaldson <i>et al.</i> , 2002	AUD	1300 children attending a community vision screening clinic over a 64-month period (1994–1999) [UK]	GPs, community medical officers, health visitors, district nurses and primary orthoptic screeners could refer to community-based secondary vision outreach screening clinic rather than referring to the hospital eye service
Faulkner <i>et al.</i> , 2003	SYST	MEDLINE®, EMBASE, ASSIA 1985 to 1999, or from 1980 if search suggested relevant studies; updated during 2001 Ten studies of 'in-house' specialist care included: 3 RCTs, 3 CBAs, 4 ITS [UK]	Systematic review of effect of primary care based service innovations on quality and patterns of referral to specialist secondary care

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Reference	Design	Participants	Interventions
Gruen <i>et al.</i> , 2003	COCH	Cochrane EPOC register (March 2002), Cochrane Controlled Trials Register (Issue 1 2002), MEDLINE® (1966–2002), EMBASE (1988 – March 2002), Cinahl (1988 – Mar 2002), primary-secondary database NPCRDC studies and Roland 1998 'Specialist Outreach Clinics in General Practice' report Nine studies met the inclusion criteria (5 RCTs, 2 CBAs and 2 ITS studies) for detailed review and quantitative analysis, with a further 64 studies reviewed for descriptive overview and qualitative data synthesis. This review used a broad definition of outreach and included studies that use liaison and attachment and shared-care models. The results presented in Table 17 reflect findings based on our narrower definition of outreach [Worldwide]	Cochrane review of studies of specialist outreach clinics aimed at providing descriptive overview and assessment of access, quality, health outcomes, patient satisfaction, use of services and costs. Review also investigated influence of different contexts and styles of service delivery on these outcomes
Gruen <i>et al.</i> , 2004	CBA	Aboriginal people living in Northern Territories of Australia with 'surgical problems' (including gynaecology, ophthalmology, otolaryngology). 2368 people with 2339 problems over an 11-year period of whom 812 were referred to specialists and a further 142 presented directly to specialists without primary care referral [Australia]	Outreach clinics in remote areas of Australia
Leiba, 2002	CBA	Patients (military personnel) aged 18–30 years in a homefront military base [Israel]	GPs could refer patients to specialist outreach clinics (range of specialties including general medicine, general surgery, ENT, gynaecology, orthopaedics and neurology) provided in the primary care centre. Female soldiers could self-refer to a gynaecologist. Comparisons with same clinic prior to specialist input

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Reference	Design	Participants	Interventions
			(i.e. before versus after) and with unmatched control clinic employing only primary care physicians and no specialists
Murray, 1998	AUD/SUR	142 patients attending a 'shifted' psychiatric outpatient clinic in one of 2 fund-holding general practices [UK]	4 hospital consultant psychiatrists saw both new and existing patients at their local surgery
Nocon <i>et al.</i> , 2004	CBA	Patients with diabetes (insulin [type 1] and non-insulin type 2] treated) Primary care clinics: Type 1, 203; type 2, 1757 Hospital clinics: Type 1, 440; type 2, 1250 Non-white outreach: 44% versus 38.1% in hospital clinic [Bradford, UK]	19 specialist diabetes clinics in primary care. Various different models in community clinics – consultant led, nurse led, GP led, GPSI led Unmatched control group – normal hospital outpatient care
Powell, 2002	SYST	MEDLINE®, EMBASE, Cinahl and HMIC electronic bibliographic databases searched Dec 2000, updated October 2001. Supplemented with forward searching using Science Citation Index, hand searching, etc. Fifteen studies of variable quality were included (only 1 RCT and 1 other study that controlled for case mix). Data synthesis was qualitative [UK]	Systematic review of consultant-led specialist outreach clinics in primary care in the UK. Virtual outreach (telemedicine) clinics were excluded
Riley and Kirby, 1996	NRT	'Nearly 200' patients from 1 GP practice referred to outreach clinics covering 3 specialties [UK]	6-month pilot scheme of outreach clinics (gynaecology, orthopaedics and urology) in 1 GP practice. Hospital clinics provided by same consultants used as control

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Abbreviations: ASSIA = Applied Social Sciences Index and Abstracts; AUD = audit; CBA = controlled before and after study; COCH = Cochrane systematic review; DE = descriptive evaluation; ENT = ear, nose and throat; EPOC = Effective Practice and Organisation of Care; GPSI = GP with special interests; HMIC = Health Management and Information Consortium; ITS = interrupted time series; NPCRDC = National Primary Care Research and Development Centre; NRT = non-randomised trial; RCT = randomised controlled trial; SD = standard deviation; SUR = survey; SYST = systematic review.

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Table 17 Study outcomes: Shifted outpatient clinic

Reference	Patient outcomes	Service outcomes	Costs
Bruusgaard, 1980	Patient travel Much reduced (local clinics versus 65 miles to hospital)	Clinic efficiency 'In spite of the limited equipment none of the specialist consultations was wasted and most of the patients were referred back to the GP after 1 or 2 consultations' Hospital workload Consultants travel 65 miles (130-mile round trip) to clinics	'A simple cost-effectiveness analysis showed that the service was cheap for society'
Buhrich and Teesson, 1996		Hospital workload 'Steady and significant decrease' in rate and duration of hospital admission among intervention group ($F=75.6$; degrees of freedom = 1,219; $p<0.05$) Over 8-year period: Intervention (attendees): 226 had 734 admissions Controls (non-attendees): 46 had 187 admissions	
Davies <i>et al.</i> , 2000			NHS costs Average cost of a hospital clinic attendance was £8.71 versus £21.83 at an outreach clinic Patient costs Patient travel costs were higher in

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Reference	Patient outcomes	Service outcomes	Costs
			the hospital clinic setting (£3.79 versus £1.17)
Donaldson <i>et al.</i> , 2002		Outpatient attendance Of children attending community vision screening clinic: 16% (n=211) were referred on to hospital eye service; 41% only required spectacles; 43% judged 'normal' and discharged avoiding the need for referral to the hospital eye service Non-attendance rates 26% did not attend first appointment 'comparable to' hospital paediatric clinic and 32% non-attendance for follow-up appointment	NHS costs Estimated costs higher if all patients attended hospital (£286,700 versus between £168,375 and £108,516 in the community setting)
Faulkner <i>et al.</i> , 2003		Outpatient referrals Of 10 studies with in-house specialists in general practices, 8 reported data on outpatient referrals. All except 1 showed a reduction in outpatient referrals: 3 mental health studies and 2 counselling studies showed moderate or large reductions; 1 ophthalmology study showed a moderate reduction; 1 study of physiotherapy showed a reduction but a second did not – the authors judged that	

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Reference	Patient outcomes	Service outcomes	Costs
		the results of the 2 physiotherapy studies were inconclusive when combined	
Gruen <i>et al.</i> , 2003	Access <i>Perceived access:</i> no standardised scales used but 1 study found outreach led to 7.5% of patients reporting 'cost being a problem' versus 23.2% for controls and 15.3% reported 'difficulty parking' versus 73.1% for controls <i>Measures of access:</i> only 1 study reported objective measures – outreach reduced cost for patients by 19%, distance by 29% and time by 41%, though absolute differences small (22 pence, 1.67 miles, 16 mins, respectively) <i>Realised access:</i> 1 study found 9% increase in number of women seeing oncologist; 1 study found large (390%) increase in numbers of specialist consultations involving remote community patients Overall (including all 73 studies) outreach was associated with improved access Patient satisfaction No standardised scales used Overall, outreach was associated with	Attendance rates 1 urban study: attendance increased from 81% to 83% Outpatient referrals 1 study demonstrated a significant trend reversal (from positive to negative) in hospital outpatient appointments but a huge increase in outreach volumes in remote communities	Health system costs The most consistently reported findings were that in urban non-disadvantaged populations, outreach clinics were more costly and provided for fewer patient consultations per clinic

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Reference	Patient outcomes	Service outcomes	Costs
	increased patient satisfaction Service quality Guideline-consistent care and referrals: 1 study reported 7% more patients with breast cancer received guideline-consistent care; 1 study reported 8% more patients appropriately referred to specialist, though only 2.2% more offered treatment by specialist		
Gruen <i>et al.</i> , 2004	Patient satisfaction Interview summary reports 'widespread support' due to better access, reduced travel time, familiar environment, ability to bring other family members	Outpatient attendance In first 2 years. 160% increase in general surgery consultations; 400% increase in number of consultations for gynaecology and ophthalmology. Before outreach was available, 52.9% of outpatient procedures took place in community settings versus 85.9% after outreach was set up Elective referrals completed 70.1% before outreach set up versus afterwards 80.0% Patients refusing surgery 0% (hospital outpatient) versus 8.3% (outreach)	Outreach costs 'Average cost 38% lower in the community'

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Reference	Patient outcomes	Service outcomes	Costs
Leiba, 2002	Working days lost Reduction in outreach setting: 2891 days per month in 2000 versus 1938 days per month in 2001 ($p<0.001$); no change in control clinic	Health system use No significant difference in overall use of medical services. Mean$\pm$SD referrals and visits per month in 2001 versus 2000 were, respectively, 7012$\pm$722 versus 6531$\pm$750 for intervention and 4791$\pm$430 versus 4870$\pm$891 for control. This includes 1229 self-referrals and 931 GP referrals to outreach per month in 2001 Outpatient referrals Mean$\pm$SD referrals significantly reduced in outreach versus no change in control: outreach referrals to military regional centre fell from 1449$\pm$148 to 421$\pm$77 referrals per month ($p<0.001$); referrals to hospital outpatient clinic were 574 versus 419 per month ($p=0.018$) GP workload Primary care physician visits per month 2001 versus 2000 no difference in either group Hospital emergency department visits These were reduced in outreach setting from 302 to 205 per month ($p=0.002$) GP education and satisfaction GP reported 'medical enrichment' and medical interactions with specialists were	Health system costs No significant change in costs in the control setting (average monthly cost US\$1,116,000 versus US\$1,209,000 in 2000 versus 2001) No significant change in costs in the outreach setting. Additional cost of outreach compensated for by saving in referral costs (average monthly cost US\$1,867,600 in 2000 versus US\$1,771,000 in 2001)

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Reference	Patient outcomes	Service outcomes	Costs
		graded 3.7–3.9/5; GP satisfaction 4.5/5	
Murray, 1998	<i>Patient satisfaction</i> 88% (45/51) satisfied with the way they were treated by the receptionist, by the doctor and with their treatment in general; all but 1 of remainder either 'satisfied' or 'not concerned' with service	<i>Non-attendance rates</i> Non-attendance rates for each practice: 20% and 18.8%, which was comparable with rates in hospital <i>Clinic efficiency</i> Number of appointments in outreach clinic 'less than optimum and less than number of appointments in similar clinics	

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Reference	Patient outcomes	Service outcomes	Costs
		at the hospital'	
Nocon <i>et al.</i> , 2003	Patient satisfaction Majority positive comments but some negative, including long wait followed by short consultation, quality of care, lack of cover by specialist staff outside clinic times	Hospital outpatients Mean monthly outpatient attendance fell from 478.5 (before specialist clinic) to 396.8 (Year 1) and 361.6 (Year 2 – 1999/2000). Total monthly attendances (both hospital and primary care clinics) increased by 35% to 648.1 Outpatient waiting times >12 weeks for hospital outpatient prior to intervention. Only 3 community clinics developed waiting lists Non-attendance rates 25% (range 12–37%) versus 19% for hospital outpatient GP opinion Generally supportive, though criticisms included lack of planning in location of clinics, poor communication with referring GPs, concerns about quality of care from specialist GPs, potential poaching of patients and potential for non-specialist GPs to become de-skilled	NHS Costs Average cost per patient in hospital clinic setting similar to primary care based clinic: hospital clinics £194 (£136 without trust overheads); primary care based clinics £165 (range £111–£239). Hospital case mix likely to be weighted to more complex cases. Hospital patients' greater access to podiatry reflected in costs and HbA_{1c} testing 'significantly more expensive' in community setting

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Reference	Patient outcomes	Service outcomes	Costs
Powell, 2002	Outcomes 8 studies used comparative methods to examine process or outcomes. Studies have generally been small and not randomly selected. Only 1 used an RCT to minimise potential sources of bias. Only 1 other controlled for case mix. Overall, studies showed no consistent difference in health outcome. Only self-reported health status has been used 1 study found hospital dermatology patients had greater improvements in health status (mental health and general health perception subscales) than outreach patients. 1 study found hospital patients did worse than outreach patients (small differences on health perception and pain scores) Patient satisfaction This was examined in 7 of 8 comparative studies Overall, outreach was associated with increased or similar satisfaction. The RCT of orthodontic clinics found outreach patients more satisfied with location ($p=0.002$) but hospital patients more satisfied with waiting-room facilities ($p<0.0005$);	Waiting times for outpatient appointments Mixed results. Perception in survey studies that waiting times were lower in outreach was not consistently found in comparative studies Non-attendance rates 1 study showed no difference. Other studies showed non-attendance rates differed by specialty. 1 study found rates lower for dermatology outreach and higher for orthopaedic outreach. 1 study found lower rates for outreach in 5 of 8 specialties, with similar rates in the remaining 3 Subsequent outpatient referrals 1 study examined this and found no difference between hospital based and outreach clinics Clinic throughput 2 studies that commented on this found lower rates in outreach clinics: '8.6 versus 14.1 patients/doctor/clinic' and 40% fewer, respectively GP education 'Although not a universal finding' some studies point to benefits, e.g. 1 study reported 50% of GPs believed outreach	NHS costs 5 of 6 studies reported higher costs in outreach clinic settings Only 1 study included indirect costs and found no difference Patient costs 3 studies estimated patient costs: 1 examined only direct travel costs and found lower costs in the outreach clinic (£0.95 versus £1.17; $p=0.008$); 2 included opportunity cost of time spent attending clinic, travel costs and care of dependants: 1 of these found higher costs in hospital clinics (£3.96 versus £8.40) due mainly to travel distance, the other found differences in favour of outreach but these were not statistically significant Societal costs Overall, savings to patients are exceeded by extra costs to NHS, so from a societal perspective outreach clinics are more expensive

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Reference	Patient outcomes	Service outcomes	Costs
	64/66 ophthalmic patients with experience of outreach and hospital clinics preferred outreach Patient convenience All 7 studies examining travelling time and distance reported reductions for patients in outreach settings Reduced waiting times in the clinic were reported in outreach clinics in 4 out of 5 studies	had broadened their knowledge/skills	

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Reference	Patient outcomes	Service outcomes	Costs
Riley and Kirby, 1996	Patient opinion 74% of outreach patients preferred practice to hospital clinic location, compared with 52% expressing no preference and 20% preferring hospital in hospital group	Waiting times Shorter waits for appointment (4.8 weeks versus 8.6 weeks) and shorter wait in clinic (75% >10 mins versus 35%) in outreach versus hospital clinics Outpatient referrals More referred for investigation (76% versus 57%), and added to waiting list for hospital outpatient (67% versus 54%) in outreach versus hospital settings Clinic throughput Fewer patients seen per clinic (9 versus 28) in outreach versus hospital settings Non-attendance rates Rates 'markedly lower' in outreach setting	

Abbreviations: RCT = randomised controlled trial; SD = standard deviation.

4.3 Relocation to primary care: Telemedicine

4.3.1 Introduction

In the context of this review, telemedicine describes the process by which a specialist has a consultation with the patient via a videoconference link. Our search was therefore limited to telemedicine applications that were designed to substitute for or replace conventional outpatient contacts between patient and specialist. In most interventions, the referring GP sits with the patient during the teleconsultation and presents his or her patient to the specialist. In some cases a nurse replaces the GP. When the GP is present with the patient, this provides potential learning opportunities for the GP; however, this did not form a specific focus of any of the studies we identified.

The main variation of this videoconferencing model is one where images or data taken in primary care are sent to the hospital. An example would be where digital photographs of a skin condition are taken by the GP and forwarded to a dermatologist at a later time, so called 'store and forward'. Other examples include the transmission of electrocardiographs (ECGs) by a GP or of digital retinal photographs by an optometrist.

A further set of initiatives relates to home monitoring of patients and transmission of results (e.g. blood pressure) to the hospital base. Such schemes are sometimes termed 'telehealth'. They are not within the terms of reference of our scoping review, but we make brief comment below, mainly on the basis of two published systematic reviews.

4.3.2 Methods

Search strategy

The main search strategy for our scoping review produced only a small number of telemedicine references, and because the subject was believed to be relevant to our objectives, additional searches were conducted using the term 'telemedicine'. In addition, hand searching of recent volumes of the *Journal of Telemedicine and Telecare* was carried out. Resources were not available to undertake a full systematic review of the field of telemedicine, neither would it have appropriate to do so within the overall context of this scoping review.

Inclusion criteria

In reviewing the results of these additional searches, we excluded commentaries, single case reports, preliminary results of studies, opinion pieces and papers that were not in peer-reviewed journals. We concentrated on papers examining the impact on patients or services.

Data extraction

Data were extracted by one investigator (Martin Roland) into a standardised form developed for this purpose (Appendix 2). The quality of included studies was assessed against a hierarchy of evidence (Table 2) that gave greatest weight to high-quality systematic reviews and least weight to descriptive evaluations.

Data synthesis

Data synthesis was qualitative.

4.3.3 Results

Description of studies

Of the papers evaluating telemedicine interventions, we identified five systematic reviews:

- one on clinical outcomes (data to 2000)
- one on cost-effectiveness (data to 2000)
- two on clinical and economic outcomes (data to 2001)
- one on patient satisfaction (data to 1998).

We included data from these five reviews, and also data from 29 later papers that related to 19 studies which were mostly not included in these earlier reviews. Some earlier papers were also checked to see if they included outcomes of interest to us that were not included in the reviews.

We also retrieved some papers on diagnostic accuracy, as these relate to the feasibility of establishing telemedicine services. We found one detailed but non-systematic review on diagnostic accuracy relating to teledermatology (published in 2004) and one systematic review relating to telemedicine generally (data extracted to 2000). Data were also extracted from five more recent papers that related principally to diagnostic accuracy.

Overall, the results that follow are based on:

- five systematic reviews relating to telemedicine
- papers relating to twenty additional original research studies for which data were extracted (Tables 18 and 19)
- two reviews (included in Tables 18 and 19) and five additional papers (not included in Tables 18 and 19) that focused on diagnostic accuracy
- two additional systematic reviews of telemedicine interventions (not included in Tables 18 and 19, as telemedicine was not the main focus of this review).

As explained above, our research on telemedicine falls some way short of a full systematic review. However, we found that the main messages

were recurrent in most reviews and major papers, and we have confidence that the broad conclusions we draw are correct.

Quality of studies

One of the problems in assessing the telemedicine literature is the relative paucity of high-quality data. There are a large number of papers reporting anecdotal accounts of telemedicine that did or did not work for a variety of reasons. However, there are few carefully conducted studies that enable assessment of the real potential impact of telemedicine on outpatient attendance. All the systematic reviews commented on the overall poor quality of published telemedicine evaluations.

Table 18 summarises the characteristics of included studies. Table 19 details the study outcomes, which are summarised below.

Diagnostic reliability and diagnostic accuracy of telemedicine

An important question about telemedicine is whether the doctor consulting remotely makes the same diagnosis as a doctor seeing the patient face to face (diagnostic reliability), and whether he or she makes the correct diagnosis (diagnostic accuracy).

The largest volume of literature relates to teledermatology. Whithed (2006) has published a non-systematic review of teledermatology that focuses on diagnostic reliability, but it lacks a quoted search strategy and dates. Whithed (2006) distinguishes between reliability and accuracy of diagnosis. For intra-observer reliability of store and forward images, figures varying from 41% to 95% (eight studies) are quoted in the literature, with figures varying from 31% to 95% (four studies) for intra-observer reliability. These values are for 'complete diagnostic agreement' – the figures for partial agreement are higher. For videoconferencing, similar figures (54% to 99%) are quoted for inter-observer reliability (seven studies) and intra-observer reliability (two studies). Diagnostic accuracy describes whether the diagnoses are correct (e.g. against histological diagnosis). Figures from 59% to 77% are quoted for complete accuracy for clinic-based diagnosis (partial accuracy 85% to 97%), and from 31% to 85% for store and forward (68% to 85% for partial accuracy).

These figures need to be interpreted with care. Firstly, Oztas *et al.* (2004) showed that providing clinical information about the patient increases diagnostic accuracy over and above just sending photographs (which was the design of some of the studies reported above). Secondly, the quality of images transmitted by store and forward and videoconferencing has improved since some of the earlier studies in the 1990s. Thirdly, while some dermatologists report major difficulty in making a diagnosis without being able to palpate the lesion or examine the whole patient (Jolliffe *et al.*, 2001), many of these studies involve the use of new and unfamiliar equipment, and it is not clear from the literature how an experienced teledermatologist would perform compared with, for example, a junior doctor seeing the patient face to face.

For other specialties, a systematic review by Hersh *et al.* (2002) found good agreement between telemedicine and face to face consultation for psychiatric diagnoses, diabetic retinopathy, and reasonable agreement for interpreting paediatric heart murmurs. Studies of diagnostic accuracy are reported in a range of other specialties (cardiology, endocrinology, orthopaedics and neurology). Reasonable levels of reliability are usually reported, but the numbers of consultations are generally very small. In orthopaedic clinics, for example, with the patient's history and radiographs, and with the GP demonstrating joint mobility, specialists may be able to make management decisions without themselves examining the patient (Vuolio *et al.*, 2003). In assessing neurology patients, monitoring of a junior neurologist by an experienced teledermatologist appears to be feasible (Craig *et al.*, 1999; Chua *et al.*, 2001).

In another model Eminovic *et al.* (2003) used a web-based form that was self-completed by patients who also supplied up to four images of their own skin problem. Sixty percent of patients provided both good history and good images, and the authors estimated that a quarter of hospital outpatient appointments could have been safely avoided using this method.

Impact on health services

Few studies were designed in a way that allowed assessment of the overall impact of telemedicine interventions on health service use. There are numerous anecdotal reports of outpatient visits saved by teleconsultations, and it seems clear that a substantial proportion of teleconsultations do not need to be followed by a visit to the hospital for a face to face consultation. However, the previous caveats about weak study designs in addition to settings that may not be relevant to the UK (see below) apply equally to this aspect of telemedicine.

The overall impact of telemedicine consultations on health service use will depend on whether there is a difference in the rate of referral, rate of investigation and rate of patient follow-up. We found no consistent information on the impact of telemedicine on GP referral rates. It is possible that the increased availability of a service (e.g. in the GP's health centre) would increase referrals. However, it is possible that, by being present at teleconsultations (a feature of many telemedicine models), GPs would increase their knowledge, so leading to a reduced need for referral. In one study (Gilmour *et al.*, 1998), the GP reported educational benefit in three-quarters of consultations, and in another study (Wooton *et al.*, 2000), GPs estimated that the learning involved in participating in a telemedicine intervention might reduce their dermatology referrals by 20%. However, no data were collected to determine whether this reduction in referrals actually occurred.

Follow-up rates were examined in a large randomised controlled trial of multiple specialties in the UK (Jacklin *et al.*, 2003; Wallace *et al.*, 2002a; Wallace *et al.*, 2002b; Wallace *et al.*, 2004). Fifty-two percent of patients were offered follow-up appointments after a teleconsultation compared

with 41% for conventional outpatient clinic appointments. This difference was most marked for orthopaedics and (ENT) and throat, and the authors suggested that this was related to the need for specialists to conduct their own examination in these disciplines. In another study of orthopaedics referrals, around two-thirds of problems were resolved satisfactorily by a teleconsultation in the opinion of the orthopaedic surgeon (Harno *et al.*, 2001). In Wallace's randomised controlled trial (Wallace *et al.*, 2002a; Wallace *et al.*, 2002b), data were also collected on tests and investigations, and on clinical outcome. Patients seen in outpatient clinics were more likely to have tests performed than those who took part in teleconsultation (4.0 versus 3.2 tests per patient, respectively), but there was no difference in health status outcomes (using the Medical Outcomes Study Short-Form [12-item] Health Survey [SF-12]).

Indeed, in terms of clinical effectiveness, one systematic review notes that many studies assume equivalence between face to face consultations and teleconsultations, an assumption that the authors found 'unproven' (Whitten *et al.*, 2002), mainly because hardly any studies have been designed or powered to examine this question.

Patient satisfaction

In a systematic review, Mair and Whitten (2000) included all clinical trials, whether randomised or not, that included measurement of patient satisfaction in the context of a telemedicine intervention. Thirty-two studies met their selection criteria, of which ten were in psychiatry, four in dermatology, while the remainder were in a wide variety of specialties. Meta-analysis was not possible owing to the heterogeneity of the studies and their poor-quality methodology. The authors were only able to draw the rather general conclusion that telemedicine appeared to be 'acceptable in a variety of circumstances', although they noted that some disquiet may be expressed about communication between patient and provider. This was also reported in later studies, and patients may be concerned about the confidentiality of a telemedicine link (Chua *et al.*, 2001), or be embarrassed to expose their bodies over a videolink (Nordal *et al.*, 2001).

A later systematic review (Roine *et al.*, 2001, updated as Hailey *et al.*, 2003) included a broader range of studies, and concluded that telemedicine consultations were 'reasonably tolerated and acceptable to patients'.

In some more recent studies, patients expressed greater satisfaction after telemedicine consultations than after face to face consultations (Granlund *et al.*, 2003; Wallace *et al.*, 2002a; Wallace *et al.*, 2002b; Wallace *et al.*, 2004). In other settings, patients find telemedicine consultations acceptable, but would not necessarily prefer them to face to face contact. For example, in a study of child psychiatry referrals (Elford *et al.*, 2000), 82% of children 'liked' using the telepsychiatry system, but only 26% preferred it to a face to face assessment, and virtually all the parents and psychiatrists in the study would have preferred to meet face to face.

The acceptability of a telemedicine consultation may depend on the circumstances in which it is offered. In some studies, the telemedicine service was a new one in areas that were so remote that patients had minimal access to specialist services beforehand. Indeed, many of the published telemedicine evaluations are in areas with very large travelling distances for patients. In a randomised controlled trial of teledermatology in England (Collins *et al.*, 2004), 76% of patients said they would choose an immediate telemedicine consultation over a wait of 'a few weeks' for a face to face consultation.

In summary, telemedicine consultations are generally acceptable to patients, though there are situations where a face to face consultation is preferred. In circumstances where telemedicine consultations offer additional advantages, e.g. avoiding a long journey or a long wait to get an appointment, telemedicine consultations are more readily accepted than a face to face consultation.

Costs

The outcomes of telemedicine interventions in cost terms are highly dependent on the context of the intervention. For example, health service costs are raised if the GP is present during the telemedicine consultation. The overall costs are also highly dependent on whether patient costs for travel and time are included, and whether these costs are borne by the patient or by the health service. For example, travel and accommodation costs incurred by Orkney residents as a result of outpatient visits to Aberdeen may be met by the NHS (Scuffham and Steed, 2002)

Whitten *et al.* (2002) included in their review all comparative studies that had cost information. They reviewed data from 24 studies, of which 20 provided data on health service costs only, while the other four studies included patient costs. The methodological quality of the studies was generally poor, and the authors found that widespread claims for cost-effectiveness were backed up with little data. They concluded that there was little overall evidence of cost-effectiveness of telemedicine interventions, but were critical of the design of many of the studies they assessed in terms of their ability to answer questions about effectiveness or benefit to patients. A second systematic review with more detailed cost data (Roine *et al.*, 2001, updated as Hailey *et al.*, 2003) provided examples where telemedicine consultations were both more expensive and cheaper than face to face consultations, and they were also unable to draw any overall conclusions about the cost-effectiveness of telemedicine. They found the strongest evidence for cost-effectiveness was for teleradiology, which does not form part of this scoping review.

The cost-effectiveness of a particular telemedicine intervention is likely to be highly context specific. Equipment costs are an important part of the set-up costs, and these have reduced substantially since many of the earlier published evaluations. Once the equipment has been put in place, the marginal costs for additional telemedicine consultations may be lower than that for conventional consultations. (Loane *et al.*, 2001a). Economic modelling has been used to determine the break even point at which

telemedicine consultations become cost-effective (e.g. Lamminen *et al.*, 2001, Ohinmaa *et al.*, 2002). Again, these analyses are likely to be dependent on the individual service, though the general conclusion is that small telemedicine services are not cost-effective.

For patients, the difference between the costs of telemedicine consultations and conventional consultations will be greatest for rural patients. In a study in Northern Ireland, the total health service and patient costs were nearly three times as great for teleconsultations compared with conventional outpatient appointments. However, the authors estimated that if the mean round-trip travelling distance for patients increased from 26 kilometres for a telemedicine consultation to 78 kilometres for a hospital clinic, then the overall costs for the two types of clinic would be the same, despite the health service costs for telemedicine consultations remaining much higher (Wooton *et al.*, 2000). Many published telemedicine evaluations have been carried out in countries with highly remote populations (e.g. Finland, Canada), and the findings may not be readily transferable to the UK.

Telephone, e-mail and other alternatives

There may be opportunities for GPs to avoid some referrals by seeking opinions directly from specialists, e.g. by phone or e-mail. We found a small number of papers addressing this issue. However, the great majority of publications in MEDLINE® with 'email' or 'e-mail' in the title referred to e-mail communication between doctors and patients rather than communication between doctors.

The establishment of a telephone advice service that enabled GPs to ring a consultant orthopaedic surgeon for advice was evaluated by Roland and Bewley (1992). The service was valued by GPs who used it, but it was not used frequently by GPs. This service was only available at limited times of the week, and e-mail might now prove a more convenient means for GPs to seek specialist advice.

Data from a Finnish study (Harno *et al.*, 2000) suggested that when an intranet system was made available for general medicine in which GPs were able to make referrals for advice as well as requesting outpatient appointments, the referral rate doubled compared with that in a control hospital not offering advice referrals. Where advice was requested, 78% of patients were dealt with by advice alone; where a clinic visit was requested, 32% of patients could be dealt with by advice from the specialist. These differences in referral rate were not seen in orthopaedic referrals from the same study (Harno *et al.*, 2001). Another Finnish study of general medical and surgical referrals suggested there might be about as many e-mail requests for advice as referrals for consultation if this facility were offered to GPs (Jaatinen *et al.*, 2002).

In a study carried out in the UK, a neurologist was able to avoid 45% of referrals by screening the referral letter and communicating with the GP by e-mail, and a further 12% of referrals were avoided after e-mail communication leading to subsequent investigation by the GP (Patterson *et al.*, 2004).

Patients about whom advice is sought (e.g. by e-mail or phone) might be those who would have been referred anyway, or they might represent unmet need for specialist advice. In the latter case, enabling e-mail or telephone access for advice would increase overall access to specialist advice, and thus might result in a net increase in referrals. In either case, enhanced contact between GP and specialist could increase the appropriateness of referrals, but we found no evidence that addressed this point.

There may be potential for e-mail to improve communication between GPs and specialists. However, it is not possible to say from existing research whether this would lead to an increase in patients referred to specialists (by unearthing unmet need for specialist care), or a reduction in patients referred (by diverting some patients who do not need a face to face specialist opinion).

Telehealth interventions

These are interventions where remote monitoring equipment is installed, usually at the patient's home, in order for data to be sent directly to the hospital, sometimes termed 'home-based telemedicine'. Telehealth is usually used to monitor chronic medical conditions. It can be used in a form that allows the patient to report directly on their own condition, or in a form where automated readings (e.g. blood pressure) are sent to the specialist. Our review did not formally cover telehealth interventions, and specific searches were not carried out for telehealth papers. However, we noted two systematic reviews of telehealth interventions (Jennett *et al.*, 2003; Glueckauf and Ketterson, 2004) and one (Hersh *et al.*, 2001) in which telehealth interventions were included. There are very few rigorous evaluations of telehealth interventions that allow assessment of their effect on hospital attendance or health service costs, and it is thus difficult to draw conclusions across the wide variety of applications that have been tried. However, there are examples where telehealth interventions appear to increase patient access to specialist monitoring, and where patient costs are reduced (especially in highly rural areas). Reported clinical outcomes are, in general, improved or unchanged in studies of remote monitoring. No wider conclusions can be drawn on the impact on outpatient attendance of telehealth interventions, as this outcome was not generally reported.

4.3.4 Conclusions

This part of the review focused on the impact of telemedicine interventions on health service use, patient satisfaction and costs.

Published papers varied widely in their estimates of the reliability and accuracy of diagnoses made in telemedicine consultations, with the greatest number of papers relating to the diagnosis of skin rashes. Improvements in technology and increasing experience by individual doctors of remote consulting could mean that diagnostic accuracy is now better than reported in some earlier published studies. Using a videoconferencing link, the examination of the patient may be carried out

by the GP or by a junior specialist, observed by a consultant remotely. However, for some specialties (e.g. dermatology), this does not fully substitute for the consultant being able to carry out his or her own examination.

Few studies were designed in a way that allowed the overall impact of telemedicine interventions on health service use to be assessed. There are many anecdotal reports of outpatient visits being reduced by teleconsultations, and it seems clear that a substantial proportion of teleconsultations do not need to be followed by a visit to the hospital for a face to face consultation. For some specialties, the follow-up rate is increased after a telemedicine consultation, in part because of the need for the specialist to carry out his or her own physical examination. In one well-conducted randomised controlled trial in the UK, patients were more likely to be investigated if they saw the specialist in an outpatient clinic. Very few studies are available that compare health status outcomes for telemedicine and conventional clinics.

The cost-effectiveness of individual telemedicine interventions are highly context specific, and examples are available in the literature where telemedicine consultations were both substantially more expensive and substantially less expensive than conventional outpatient visits. The initial set-up costs of telemedicine consultations are high, and small telemedicine clinics are therefore less likely to be cost-effective. Where patient costs are included, the overall benefits are highly dependent on the distance that the patient needs to travel to the clinic. Most studies showing substantial overall cost savings (taking both patient and health service costs into account) are ones that involve substantially greater travelling distances than those experienced by most patients in the UK.

Telemedicine consultations are generally acceptable to patients, though there are situations where a face to face consultation is preferred. In circumstances where telemedicine consultations offer additional advantages, e.g. avoiding a long journey or a long wait to get an appointment, telemedicine consultations are more readily accepted.

Alternative ways of using technology to improve communication between GPs and specialists include telephone, videoconferencing and e-mail. Some studies suggest that providing such facilities could substantially increase the amount of advice sought by GPs. It is not known, however, whether this would increase or decrease the numbers of patients actually referred to specialist clinics.

Table 18 Study characteristics: Telemedicine

Reference	Design	Participants	Interventions
Chua <i>et al.</i> , 2001; Chua <i>et al.</i> , 2002	RCT	168 non-urgent neurology referrals to two small rural hospitals randomised to telemedicine (n=86), or face to face consultation (n=82) [UK, Northern Ireland]	Intervention: Telemedicine consultation whereby the trainee neurologist travelled to the rural hospital; the history was taken by the consultant via the telemedicine link, but the trainee then carried out the examination, supervised by the consultant over the telemedicine link Control: Conventional outpatient appointment
Collins <i>et al.</i> , 2004; Bowns <i>et al.</i> , 2006	RCT	208 dermatology referrals involving 1 hospital and 8 general practices [England]	Intervention: Store and forward images of skin problem Control: Conventional out patient appointment
Currell <i>et al.</i> , 2000	COCH	RCTs, controlled before and after studies and interrupted time series comparing telemedicine with face to face consultations 7 trials met the review criteria, but only 1 related to outpatient attendance, the others comprised 1 related to accident and emergency and 5 to home-based telehealth This was a pilot study of the RCT by Wallace <i>et al.</i> (2004) reported below. No further data were extracted	
de Mul <i>et al.</i> , 2004	SUR	1729 patients at risk of glaucoma	Intervention: Optometrists screened for glaucoma

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Reference	Design	Participants	Interventions
		involving 1 hospital and 10 optometrists in retail stores [The Netherlands]	in community, transmitting image for assessment to hospital
Eminovic <i>et al.</i> , 2003	NRT	105 dermatology referrals [The Netherlands]	Intervention: Web-based form that was self-completed by patients who also supplied up to four images of their own skin problem (60% of patients provided both good history and good images by this method) Control: Same patients, face to face consultation, single dermatologist
Granlund <i>et al.</i> , 2003	NRT	46 dermatology referrals to 1 neurologist in 2 health centres [Finland]	Intervention: Teleconsultation with specialist (GP not present) Control: Conventional outpatient appointment
Hands <i>et al.</i> , 2004	SUR/AUD	22 patients referred to telemedicine clinic for vascular problems at 1 hospital [England]	Digital photo of limb, clinical findings (pulses etc) and GP referral letter sent electronically in advance. Primary care nurse + patient then consulted hospital specialist by video link
Harno <i>et al.</i> , 2000	NRT	Referrals from GPs in 3 general practices to 2 hospitals. [Finland]	Intervention: Referrals to 1 hospital were via an intranet that enabled the GP to ask for advice as well as requesting an outpatient consultation. The system also enabled the specialist to request more information before accepting the referral. 209 general medicine referrals made via the intranet during the 8-month study period Control: Second hospital with conventional access to specialist referral/advice

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Reference	Design	Participants	Interventions
Harno <i>et al.</i> , 2001	NRT	229 surgical/orthopaedic referrals to 2 hospitals from 3 general practices This ran in parallel to the study reported by Harno <i>et al.</i> , 2000. In this part, telemedicine consultations were available for orthopaedic patients [Finland]	Intervention: 229 referrals to 1 hospital were screened, and 57 judged suitable for teleconsultation. GP was present at the teleconsultation Control: Patients seen in conventional outpatient consultations, also 319 referrals in a second hospital where teleconsultation was not available as an option
Hersh <i>et al.</i> , 2001	SYST	Papers included to 2001 (no start date) 6 studies of office-based telemedicine (versus home-based telehealth studies) were included in this systematic review: 5 fell into our exclusion categories, e.g. accident and emergency, neonatal intensive care, etc; the remaining trial is reported below (Wooton <i>et al.</i> , 2000). No further data extracted	
Krousel Wood <i>et al.</i> , 2001	NRT	107 patients attending a hypertension clinic in New Orleans [USA]	Intervention: Telemedicine consultation with specialist (patient assisted by nurse in taking blood pressure, etc.) Control: Teleconsultation was immediately followed by face to face consultation with the same physician (order of consultations randomised)
Lamminen <i>et al.</i> , 2001	NRT	42 patients with skin and eye problems from single health centre referred to 1 hospital and taking part	Intervention: Telemedicine consultation with GP present

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Reference	Design	Participants	Interventions
		in a non-randomised feasibility study [Finland]	Control: Conventional outpatient appointment
Loane <i>et al.</i> , 2001a	RCT	229 dermatology outpatient referrals (203 new and 26 follow-up) from 2 rural health centres [New Zealand]	Intervention: Telemedicine consultation with GP present Control: Conventional outpatient appointment, with and average round trip to the hospital of 267km
Loane <i>et al.</i> , 2001b	RCT	274 dermatology outpatient referrals [UK, Northern Ireland]	Intervention: 124 randomised to telemedicine consultation in the presence of the GP Control: 148 patients seen in conventional outpatient clinics
Mair and Whitten, 2000	SYST	Papers from 1966 to 1998 were included if they reported patient satisfaction with telemedicine interventions. All clinical trials were included (whether randomised or not), irrespective of sample size or methodology 32 studies met selection criteria: 10 were in psychiatry, 4 in dermatology	
Nordal <i>et al.</i> , 2001	NRT	121 dermatology outpatient referrals in 1 town [Norway]	Intervention: Telemedicine consultation with GP present Control: Face to face consultation with another specialist immediately following the telemedicine consultation
Ohinmaa <i>et al.</i> , 2002	RCT	145 orthopaedic outpatient referrals from single primary care centre [Finland]	Intervention: Telemedicine consultation with GP present Control: Conventional hospital outpatient

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Reference	Design	Participants	Interventions
			appointment
Roine <i>et al.</i> , 2001; Hailey <i>et al.</i> , 2003	SYST	For inclusion, studies had to include a comparison group 50 studies included in the earlier review, 69 in update, 21 of which only examined satisfaction	
Scuffham and Steed, 2002	NRT	20 dental patients from 2 general dental practices [UK, Scotland]	Intervention: Telemedicine consultation with patient's dentist present Control: Face to face consultation with specialist in either hospital or outreach clinic. The method of allocation between the three groups is unclear
Shanit <i>et al.</i> , 1996	SUR/AUD	2563 teleconsultations between 96 GPs in 26 health centres and 1 hospital [UK]	Telephone link transmitted ECG output and GP clinical assessment to hospital specialist (registrar with consultant back-up); immediate feedback on result
Vuolio <i>et al.</i> , 2003	RCT	84 new and 61 follow-up orthopaedic patients at 1 hospital and 1 general practice [Finland] Patients were excluded if referral information suggested they would need MRI imaging	Intervention: Telemedicine consultation with patient's GP present Control: Face to face consultation with specialist
Wallace <i>et al.</i> , 2002a; Wallace <i>et al.</i> , 2002b; Jacklin <i>et al.</i> , 2003;	RCT	Patients referred by 134 GPs in 29 practices, with referrals to 20 specialists in 8 specialties in 2 hospitals 3170 patients referred to gastroenterology, endocrinology, rheumatology, neurology, general	Intervention: Telemedicine consultation with patient's GP present Control: Face to face consultation with specialist

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Reference	Design	Participants	Interventions
Wallace <i>et al.</i> , 2004		medicine, ENT, orthopaedics and urology; 36 patients ineligible (private referrals, language problems or urgent), 1040 declined, 2094 randomised [UK]	
Whited <i>et al.</i> , 2003; Whited, 2006	RCT	275 dermatology referrals in North Carolina [USA]	Intervention: Dermatologist viewed standardised history from referring clinician along with store and forward images Control: Conventional office-based visit to specialist
Whitten <i>et al.</i> , 2002	SYST	24 studies were included in the review, on the basis of original research on telemedicine that examined cost-effectiveness The authors included all comparative studies (as there were virtually no RCTs): 20 provided data only on health service costs; 4 included patient costs	
Wooton <i>et al.</i> , 2000	RCT	203 dermatology outpatient referrals, 4 health centres and 2 hospitals [UK, Northern Ireland]	Intervention: Teleconsultation with patient's GP present Control: Face to face consultation with specialist

Abbreviations: AUD = audit; COCH = Cochrane systematic review; NRT = non-randomised trial; RCT = randomised controlled trial; SUR = survey; SYST = systematic review.

Table 19 Study outcomes: Telemedicine

Reference	Patient outcomes	Process of care	Resource use
Chua <i>et al.</i> , 2001; Chua <i>et al.</i> , 2002	No difference in most aspects of consultation, but telemedicine patients more likely to feel embarrassed ($p=0.005$) about telemedicine link or be concerned about confidentiality ($p=0.017$)	No difference in follow-up rate More investigations in the telemedicine group ($p<0.001$); no difference in prescriptions	
Collins <i>et al.</i> , 2004; Bowns <i>et al.</i> , 2006	No significant difference in patient satisfaction 76% would choose immediate telemedicine consultation over a wait of 'a few weeks' for a face to face consultation		
de Mul <i>et al.</i> , 2004		89% of optometrist images judged satisfactory 81% agreement between findings of optometrist and hospital; 27% screened by optometrist were referred to hospital but fewer than half (11%) attended Implicit assumption that, without optometrist screening, all targeted patients would have been referred to hospital – but actual impact on outpatient attendance was not measured	
Eminovic <i>et al.</i> , 2003		There was complete or partial diagnostic agreement in 51% of	

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Reference	Patient outcomes	Process of care	Resource use
		cases The authors estimated that 23% of hospital outpatient appointments could have been safely avoided using this method of patient-provided web-based information, but the data to support this were not reported	
Granlund <i>et al.</i> , 2003	Patients significantly more satisfied after telemedicine consultation than conventional outpatient appointment. In both groups, 83% would prefer the same type of consultation again	Consultant significantly more confident about assessment and examination in conventional consultation. Management plans were similar in the two groups, but more advice given to GP after teleconsultations	
Hands <i>et al.</i> , 2004		Of 22 patients, 6 were managed by primary care, 13 referred to hospital for further tests, 4 referred for surgery. Reported saving of 27 outpatient consultations	
Harno <i>et al.</i> , 2000		The general medical referral rate per 1000 population in the hospital with the intranet was double that in which only conventional referrals were available In the hospital offering the service, 37% of referrals were requests for online advice only; 43% of all referrals (whether for	Online consultation (GP to specialist) was much cheaper than conventional outpatient clinic attendance, but no attempt was made to allow for the fact that more patients were referred via the intranet system It is not clear from the data presented whether the actual rate of outpatient attendance was

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Reference	Patient outcomes	Process of care	Resource use
		advice or clinic appointment) resulted in outpatient attendance versus 79% in the control hospital 78% of patients where advice was requested were dealt with by advice alone; 32% of patients where a clinic visit was requested could be dealt with by advice from the specialist	greater in the 'intranet-enabled' hospital or not
Harno <i>et al.</i> , 2001		The surgical referral rate per 1000 population was 'similar' to the 2 hospitals In the hospital where there was a choice of referral system, 168 (75%) patients received a conventional outpatient appointment and 57 (25%) were selected for telemedicine consultations Two-thirds of the selected referrals could be resolved in a telemedicine consultation (in the opinion of the orthopaedic surgeon). Overall the authors suggested that 25% of orthopaedic referrals from GPs could be dealt with by a telemedicine consultation	Analysis of direct costs suggested they were 45% higher for conventional a outpatient visit compared to a videoconference due mainly to hospital 'service charges' (€135 versus €18 – these are not explained). If throughput of videoconferences was raised, then marginal costs decreased, making videoconference 'even more cost-effective'

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Reference	Patient outcomes	Process of care	Resource use
Krousel Wood <i>et al.</i> , 2003	Patient satisfaction was generally high. Patients reported significantly greater satisfaction with technical quality of care in face to face encounters, and greater satisfaction with the length of the consultation in face to face visits (though the physicians reported that they were actually shorter)	Physicians reported significantly increased workload, mental effort and stress in the telemedicine consultations	
Lamminen <i>et al.</i> , 2001			Telemedicine consultations were more expensive. Economic modelling of the break-even point for establishing telemedicine services suggested that they would be cost-effective in terms of health service costs at a minimum of 110 ophthalmology or 92 dermatology patients per year
Loane <i>et al.</i> , 2001a		No difference in clinical outcomes (no detailed data presented)	Telemedicine consultations had higher health service costs, with higher staff costs (specialists' time and additional GP time) Patient costs were much lower for telemedicine consultations. Taking all costs together, telemedicine consultations were slightly cheaper (\$279 versus \$284), and the marginal cost of providing additional telemedicine

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Reference	Patient outcomes	Process of care	Resource use
			consultations was considerably less than additional conventional consultations (\$135 versus \$284)
Loane <i>et al.</i> , 2001b		Similar proportions attended again in outpatients (53% telemedicine consultations versus 56% conventional outpatient), though dermatologists asked a higher proportion of telemedicine consulters to return (70% versus 56%) GPs estimated that their referrals might reduce by 20% as a result of the knowledge they acquired during telemedicine consultations	There were no major differences in health service costs between the two types of consultation because of increased GP and equipment costs for the telemedicine consultations, and increased consultant costs for the conventional consultations. No tests of statistical significance were reported There was an advantage for costs to rural patients in having a telemedicine consultation; this was less marked for urban patients. No tests of statistical significance were reported
Mair and Whitten, 2000	Because of the diversity of studies and their poor quality, the authors were not able to conclude anything more than that telemedicine appears acceptable in a variety of circumstances, but that some disquiet may be expressed about communication between patient and provider. Meta-analysis was not possible owing to the heterogeneity and poor quality of many of the studies		

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Reference	Patient outcomes	Process of care	Resource use
Nordal <i>et al.</i> , 2001	No overall difference in patient evaluations for telemedicine consultation and face to face consultation Embarrassment in exposing ano-genital areas reported in some telemedicine consultations	Complete diagnostic agreement in 72% of patients, complete or partial agreement in 86%; 20% of patients required management that could not be provided over the video link (e.g. direct palpation, immunofluorescence)	
Ohinmaa <i>et al.</i> , 2002			Outline results presented only, without tests of statistical significance. Fixed costs were greater for hospital consultations versus telemedicine consultations, but variable costs (per consultation) were lower for hospital consultations. Including health service and patient costs, the telemedicine service was cost-effective at a workload of 80 patients per year. The inclusion or exclusion of transport costs made a big difference to the cost-effectiveness analysis, especially the small number of patients who would require ambulance transport to a hospital appointment (average distance 170km)
Roine <i>et al.</i> , 2001; Hailey <i>et al.</i> , 2003			The diversity of studies and poor quality of many makes it impossible to draw overall conclusions about the

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Reference	Patient outcomes	Process of care	Resource use
			effectiveness or cost-effectiveness of telemedicine, and cost-effectiveness is likely to be context dependent, especially if patient costs are taken into account. Looking across disciplines, the greatest savings were likely to be found in radiology (not included in this scoping review)
Scuffham and Steed, 2002			Consultation costs for specialists were higher in teledentistry than for outreach or conventional consultations General dental practitioner costs higher for telemedicine Patient costs were higher for conventional consultations – especially for patients in Orkney, who had to travel to Aberdeen (though these costs were counted as health service costs)
Shanit <i>et al.</i> , 1996		With telemedicine consultations, GPs were able to manage 81% of cases without further referral GPs reported service to be useful alternative to outpatient or accident and emergency referral	'Simple comparative cost analysis' suggested savings in direct costs – but very limited data are provided to support this
Vuolio <i>et al.</i> , 2003		No difference between the two	

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Reference	Patient outcomes	Process of care	Resource use
		groups in whether the proposed management plan was still followed at 1 year follow-up (the main outcome) Authors commented that with the patient's history and radiographs, and checking of joint mobility by the GP, the specialists were generally able to make management decisions without themselves examining the patient	
Wallace <i>et al.</i>, 2002a; Wallace <i>et al.</i>, 2002b; Jacklin <i>et al.</i>, 2003; Wallace <i>et al.</i>, 2004	Higher satisfaction in virtual outreach group than for control group (mean score 3.97 versus 3.64 on Ware Visit specific Satisfaction Questionnaire; $p < 0.001$). Enablement did not differ between the two groups. Main differences (though statistical analysis not presented for individual items) were waiting time and convenience, though all items, including technical skill of doctor and personal manner of doctor, scored higher in outreach clinics No between-group differences in health status (SF-12 or Child Health Questionnaire)	More patients in virtual group offered follow-up appointment (52% versus 41%), with the difference most marked in orthopaedics and ENT. Authors suggested that this relates to need for specialists to conduct their own examinations in these specialties Fewer tests and investigations in virtual outreach group (3.22 versus 4.01; $p < 0.001$)	Overall 6-month costs greater for telemedicine consultations (£724 versus £625 per patient). Telemedicine consultations had increased costs for GPs, consultants, and equipment Direct patient costs were £8 less in the virtual group, and £11 less in terms of loss of productive time than in the control
Whited <i>et al.</i> , 2003;			Store and forward 'consultations' were not cost-effective. Modelling showed that they could have been

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Reference	Patient outcomes	Process of care	Resource use
Whited, 2006			cost-effective if travel costs had been higher (the Veteran Affairs hospital service meets travel costs for low-income patients), or if dermatologists had become more confident in making diagnoses from still images
Whitten <i>et al.</i> , 2002			The methodological quality of studies was generally poor. There were widespread claims for cost-effectiveness, but little data to back up these claims. The costs of providing a telemedicine service appeared to be less than face to face consultations in some circumstances, but the authors found little overall evidence of cost-effectiveness. A number of studies commented on how the intervention could be more cost-effective if introduced on a wider scale. The review did not allow any general conclusions to be drawn about the cost-effectiveness of telemedicine interventions. The cost-effectiveness of a particular intervention is likely to be highly context specific
Wooton, 2000		No between-group differences in proportion requiring further outpatient visit. The mean number of follow-up primary and	Health service costs were much greater for the telemedicine consultations (£201 versus £49). Health service costs would be

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Reference	Patient outcomes	Process of care	Resource use
		secondary care visits was lower in the telemedicine group than the conventional consultation group (1.63 versus 2.12 visits) GPs estimated that the knowledge they gained might reduce their rate of referral by 20%	much reduced if a specialist nurse was used Net societal cost £132 for telemedicine consultations versus £49 for conventional consultations. With one morning session a week, the costs of the two methods would have been equal if the round-trip distance that patients travelled increased from 26km to 78km

Abbreviation: SF-12 = Medical Outcomes Study Short-Form (12-item) Health Survey.

4.4 Relocation to primary care: Attachment of specialist to primary care team

4.4.1 Introduction

This model of care involves the addition of specialists to the primary care team. Examples of this include counsellors, physiotherapists and some specialist nurses. In many ways, this model resembles the shifted outpatient model described above (Section 4.2). The difference here is that the specialist is integrated within the primary care team and is often employed by them. Primary care teams, rather than hospitals, determine the criteria for referral to their 'in-house' specialist. This way of working has the potential to change the referral behaviour of primary care teams. Patients might be managed by specialists within the primary care team as an alternative to outpatient referral (direct effect). Primary care clinicians may acquire skills from specialists that might enable them to manage patients without referral to specialists (indirect effect).

Anticipated benefits and risks

The potential benefits of 'attachment' services include an improvement in the quality of care resulting from increased access to specialist services. Attachment services may encourage interaction between specialists and GPs, providing opportunities for GP education, enhanced inter-professional communication and better co-ordination of care. Attachment services are likely to reduce patient travel time and costs, and the provision of care in familiar surroundings may improve the patient experience. If deployed to populations in areas with poor access to hospitals, this model has the potential to improve equity in care provision.

The potential disadvantages of this approach include a lowering of the referral threshold. As services are made more accessible, there is an increased likelihood that patients who do not require specialist care are nonetheless referred to the specialist. There may also be a loss in economies of scale. Specialists may be able to manage a higher caseload when situated in outpatient clinics rather than in primary care teams.

4.4.2 Methods

Search strategy

The reference lists of papers identified by the standard search strategy were screened for additional relevant publications. No other searches were undertaken.

Inclusion criteria

Studies describing attachment services (as defined above) and reporting any usable outcome data were included. Where a good-quality systematic review was found, the studies included in the review were not separately extracted. However, some of the papers included in reviews were re-examined to obtain additional information of specific relevance to our review. Decisions to include or exclude studies were made by one investigator (Ruth McDonald).

Data extraction

Data were extracted by one investigator (Ruth McDonald) into a standardised form developed for this purpose (Appendix 2). Assessment of the quality of included studies was informed by a hierarchy of evidence (Table 2) that gave greatest weight to Cochrane systematic reviews and least weight to descriptive evaluations.

Data synthesis

Data synthesis was qualitative.

4.4.3 Results

Description of studies

Seven papers evaluating six studies of attachment models were identified, of which five were systematic reviews, including two Cochrane reviews. Studies included were as follows:

- two systematic reviews of physiotherapy
- one Cochrane review of mental health workers in primary care (data to 2000)
- two systematic reviews of epilepsy nurses and clinics, including one Cochrane review (data to 2001)
- one audit of on-site mental health workers.

The characteristics of included studies are reported in Table 20. The study outcomes are detailed in Table 21 and summarised below.

Quality of studies

The availability of five well-conducted systematic reviews meant that the overall quality of included studies was high.

Patient outcomes

Patient outcomes were assessed in three studies. Two systematic reviews of physiotherapy suggested that health outcomes were better in primary care clinics than conventional outpatient clinics (Hensher, 1998; Roberts and Stevens, 1997). In contrast, a systematic review of epilepsy nurses in primary care found no differences between primary

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care and outpatient clinics in seizure-free periods or depression rates in one randomised controlled trial, and no difference in medical or psychological outcomes in one controlled before and after study (Meads *et al.*, 2002).

Service outcomes

Two systematic reviews of physiotherapy found that the waiting time between presentation and treatment was shorter for primary care-based clinics than conventional outpatient services (Hensher, 1998; Roberts and Stevens, 1997).

Five studies reported on outpatient referral volumes. Of the two studies examining on-site mental health workers (reported in three papers: Ashworth, 2002; Bower and Sibbald, 1999; Bower and Sibbald, 2000), the Cochrane review found some evidence that patients under the care of on-site workers were less likely to be referred off site in the short term, but the effects were not consistent. For mental health patients not under the direct care of the on-site specialist, the evidence was mixed, with some studies reporting decreases in off-site referral rates and others reporting increases. The audit study found no relationship between psychiatric referral rates and the presence of an on-site mental health worker (Ashworth, 2002). The systematic review of epilepsy nurses identified one study in which outpatient attendance was higher in primary care than outpatient clinics, although this did not reach statistical significance (Meads *et al.*, 2002). The two systematic reviews of physiotherapy found that primary care services reduced overall demand on hospitals when compared with conventional outpatient clinics (Hensher, 1998; Roberts and Stevens, 1997).

Two studies investigated the impact of direct access on primary care workload. One study included in the systematic review of epilepsy nurses reported a trend towards greater use of GP consultations in the intervention group, but this did not reach statistical significance (Meads *et al.*, 2002). In the Cochrane review of on-site mental health workers, results were mixed (Bower and Sibbald, 1999). Consultation rates were lower in two of eight studies reporting the statistical significance of post-intervention differences; no significant differences were observed in the remaining six studies. Five studies did not report the statistical significance of differences; four of these found lower rates in the intervention group and one found a higher rate.

Costs

Cost of care was investigated in three studies. Two systematic reviews of physiotherapy showed that patient costs were lower for primary care clinics than conventional outpatient clinics (Hensher, 1998; Roberts and Stevens, 1997). Overall cost per patient was also lower for primary care clinics than conventional outpatient clinics, but savings were partially offset by increased demand in primary care.

One study included in the Cochrane review of on-site mental health workers found higher referral costs in the control group (Bower and Sibbald, 1999).

4.4.4 Conclusions

The quality of reviews was generally high, but the research they encompassed had limitations (for example, the short-term nature of follow-up), which made it difficult to draw firm conclusions. The available evidence suggests that basing epilepsy nurses or mental health workers in primary care teams has no appreciable or enduring effect on off-site referral rates. In addition, there appears to be little impact on health outcomes for patients or GP workload. A possible reason for the lack of impact made by on-site mental health workers on service outcomes (i.e. off-site referrals or GP workload) is that the caseload they manage is often small in relation to the large volume of potentially eligible patients. As in the shifted outpatient model (see Section 4.2), GPs do not appear to acquire skills from their specialist colleagues that enable them to manage more challenging patient problems on their own.

In contrast, basing physiotherapists in primary care teams reduced overall demand on hospitals when compared with conventional outpatient clinics. Such services may also reduce waiting times and improve outcomes, though further research would be required to substantiate these effects. From the limited cost data available, it appears primary care-based physiotherapy services are more cost-effective than conventional outpatient clinics. Overall service costs may, however, be higher because primary care-based clinics generate an increase in demand.

Table 20 Study characteristics: Attachment of specialist to primary care team

Reference	Design	Participants	Interventions
Ashworth, 2002	AUD	622 referrals to hospital psychiatry services from 29 practices within an inner-city area of south London during April 1998 to March 1999 [UK]	Assessment of relationship between number of on-site mental health workers (18 counsellors and 11 psychologists in 72% [21/29] of practices) and psychiatric referral rates for non-psychotic illness
Bower and Sibbald, 1999; Bower and Sibbald, 2000	COCH	Cochrane Effective Practice and Organisation of Care Register (June 1998), Cochrane Controlled Trials Register (June 1998), MEDLINE® (1966–1998), EMBASE (1980–1998), PsycINFO (1984–1988), CounselLit (June 1998), National Primary Care Research and Development Centre skill-mix bibliography and reference list of articles. 38 studies were included [UK, n=29; USA n=6; Australia, n=1; New Zealand, n=1; Germany, n=1]	Cochrane review of studies of on-site mental health workers either replacing primary care providers as providers of mental health care ('replacement' models, n=26) or providing collaborative care/support to primary care providers managing patients' mental health problems ('consultation/liaison' models, n=12)
Bradley and Lindsay, 2001	COCH	Cochrane Controlled Trials Register (Issue 4), MEDLINE®, GEARS, EMBASE, ECRI, Effective Healthcare Bulletin, Effectiveness Matters, Bandolier Evidence-Based Purchasing, National Research Register, PsycINFO databases. 3 UK-based RCTs were included	Cochrane review of studies of specialist epilepsy nurses compared to routine care
Hensher, 1998	SYST	MEDLINE® and Physiotherapy Index searched for period 1982–1993. 6 studies of variable quality were included. Data synthesis was qualitative	Systematic review of economic evaluations of physiotherapy provided through conventional outpatient clinic, direct-access clinic or primary care clinic

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Meads <i>et al.</i> , 2002	SYST	MEDLINE®, PsychLit, EMBASE, Healthplan, GEARS, BIDS ISI, UKCHHO, international health technology assessment websites, InterTASC databases and the Cochrane Library to September 1999. 1 RCT and 2 other studies on epilepsy clinics and 4 RCTs and a controlled trial on epilepsy nurses were found; only 2 studies were attachment models	Review of evidence on specialist epilepsy clinics compared to general neurology clinics and specialist epilepsy nurses compared to usual care
Robert and Stevens, 1997	SYST	MEDLINE® and Healthplan Index searched for period 1981–96. 8 studies of variable quality were included. Data synthesis was qualitative	Systematic review of physiotherapy provided through conventional outpatient clinic, direct-access clinic or primary care clinic

Abbreviations: AUD = audit; COCH = Cochrane systematic review; SYST = systematic review.

Table 21 Study outcomes: Attachment of specialist to primary care team

Reference	Patient outcomes	Service outcomes	Costs
Ashworth, 2002		Outpatient attendance No relationship between the referral rates and the allocation of mental health workers to each practice	
Bower and Sibbald, 1999; Bower and Sibbald, 2000		Primary care workload Consultation rates were lower in 2 of 8 studies reporting significance of post-intervention differences; no difference in remaining 6 of 8. 5 studies did not report statistical significance: 4 of these found lower rates in intervention group and one higher rates Outpatient referrals Mental health – direct effects: Of 6 RCTs reporting this, 3 reported a significant reduction in the intervention groups. A further 3 did not report statistical significance of outcomes Overall referrals (including non-mental health): Of 3 studies examining this, 1 found higher rates in intervention, 1 found lower and 1 found no difference Indirect effects: Of 5 studies examining this, 1 found higher referral rates to clinical psychology services, but no difference in other referrals; 1 found higher rates before the intervention and lower rates post-intervention, though comparability of study practices was unclear; 1 found an increase in referrals. The remaining 2	Hospital costs 1 study found higher referral costs in the control group

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Reference	Patient outcomes	Service outcomes	Costs
		studies had conflicting findings in the different intervention practices studied Prescribing behaviour Some evidence of significant short-term reductions in psychotropic prescribing by primary care provider but results not reliable	
Bradley and Lindsay, 2001		Concluded little evidence to support view that specialist epilepsy nurses could improve quality of care, but research base was small and further research needed Reported range of outcomes but data synthesis combined specialist nurses running hospital clinics (doctor-nurse substitution model) with specialist nurses in primary care (attachment model). Contains only 1 attachment model study (Ridsdale – reported in Meads <i>et al.</i>, 2002, below)	
Hensher, 1998	Health status In 2 studies, clinical outcomes were similar for conventional outpatient clinics, direct-access clinics and primary care clinics	Waiting time In 1 study, mean waiting time for primary care clinic was 2-fold lower than for direct-access clinic and 7-fold lower than for conventional outpatient clinic Hospital workload In 4 studies, primary care clinics generated higher demand than direct-access clinics, which, in turn, generated higher demand than conventional outpatient clinics	Patient costs In 1 study, patient costs were lowest for primary care clinic, intermediate for direct-access clinic, and highest for conventional outpatient clinic Societal costs In 3 studies, direct-access and primary care clinics appeared more cost-effective than conventional outpatient clinic In 3 studies, direct access led to reduced consumption of non-

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Reference	Patient outcomes	Service outcomes	Costs
			physiotherapy care (e.g. prescribing) versus a primary care clinic, which in turn, had a lower rate of consumption than a conventional outpatient clinic
Meads <i>et al.</i> , 2002	Health outcomes The RCT showed no difference in rates of being seizure-free or rates of depression. The controlled study found no difference in medical or psychological outcomes between intervention and control groups	Hospital outpatients In the controlled study there was a trend towards greater use of hospital outpatient clinics in the attachment group but this did not reach significance (odds ratio 2.11; p=0.15) GP consultations In the controlled study there was a trend towards greater use of GP consultations in the attachment model group but this did not reach significance (odds ratio 1.97; p=0.06)	
Robert and Stevens, 1997	Health status In 2 of 3 studies, patient valuations of health status were better with direct-access than conventional outpatient clinics 1 of 3 studies found recovery time was shorter with direct-access than conventional outpatient clinic	Waiting time In 5 studies, the mean waiting time for primary care clinics was lower than for direct-access clinics, which, in turn, was lower than for conventional outpatient clinics Hospital workload In 2 studies, subsequent use of outpatient services was lower in patients referred to direct-access clinics than conventional outpatient clinics Service quality In 4 studies, treatment duration was similar for conventional outpatient clinics, direct-access	Hospital costs One study found that direct access increased hospital costs by £3,300 per annum. Although the cost per patient was lower for direct access than conventional outpatient access, direct access generated an increase in workload by treating patients who would not previously have been treated Patient costs In 1 study, patient costs were

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Reference	Patient outcomes	Service outcomes	Costs
		clinics and primary care clinics	lowest for primary care clinic, intermediate for direct-access clinic, and highest for conventional outpatient clinic

Abbreviations: RCT = randomised controlled trial; SUR = survey.

4.5 Summary and conclusions

The key findings in respect of each model of care reviewed above are given in Table 22. These suggest that relocating specialist services to primary care settings is generally associated with improved access for patients. Greater equity in care provision may be achieved by locating services in communities with poor access to secondary care services (e.g. remote rural areas). The evidence on quality of care and health outcomes for patients is insufficient to draw firm conclusions. There is a similar paucity of evidence regarding the impact on hospital and primary care services, including use of outpatient services. Attachment of specialists to primary care was shown to reduce outpatient attendance for only one of the three specialties evaluated (physiotherapy). Costs are context dependent. Services located in under-served populations and areas tend to be more cost-effective than those located in urban, advantaged populations.

Overall, relocating secondary services to primary care is a plausible strategy for improving access and equity of care provision for populations with poor access to hospitals. There is no evidence to suggest that such interventions can otherwise enhance the effectiveness or efficiency of outpatient services. Indeed, in well-served urban populations, service effectiveness and efficiency may be diminished.

Table 22 Summary of findings: Relocation of services to primary care

Model Sub-type	Outcomes					
	Access/equity	Quality/health	Hospital impact	General practice impact	Cost	Feasibility
Shifted outpatient clinic	Improved access Potential to improve equity if located to populations with poor access to secondary care	Insufficient evidence In theory, quality should be unchanged	Insufficient evidence on outpatient use Some patients will require additional outpatient visit because primary care lacks diagnostic facilities	Insufficient evidence on workload No gains in GP knowledge or skills	Clinics serving urban, advantaged populations are not cost-effective due to loss of economies of scale	Requires expansion in specialist workforce to compensate for loss of economies of scale
Telemedicine	Improved access for remote populations Potential to improve equity if located in populations with poor access to secondary care	Insufficient evidence on health outcomes Diagnosis more difficult for some specialties (e.g. dermatology) but may improve with advances in technology	Insufficient evidence on outpatient use Some patients will require additional outpatient visit because primary care lacks diagnostic facilities	Insufficient evidence but likely to increase primary care workload	Cost-effectiveness is highly context dependent but generally better when telemedicine clinics are located in remote areas where patient travel costs to outpatient clinics are high	Requires substantial investment in equipment and training of clinicians

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Model Sub-type	Outcomes					
	<i>Access/equity</i>	<i>Quality/health</i>	<i>Hospital impact</i>	<i>General practice impact</i>	<i>Cost</i>	<i>Feasibility</i>
<i>Attachment of specialist</i>	Improved access	No change	Variable Reduces outpatient referrals in some specialties (physiotherapy) but not others	No change	Variable Appears cost-effective for some specialties but not for others	Requires expansion of specialist workforce and deployment to primary care teams

Section 5 Liaison with primary care

5.1 Introduction

This section deals with joint working between primary and secondary care clinicians in the management of individual patients. Closer contact between specialists and primary care clinicians is expected to improve the knowledge and skills of the latter and so reduce the need to refer patients to outpatient clinics for specialist advice or treatment.

Two types of models are reviewed here:

- Shared care in the management of chronic diseases – which specifies the division of responsibility between the GP and specialist in joint management of a patient whom the GP would otherwise be unable or unwilling to manage alone (Section 5.2).
- Consultation-liaison psychiatry – in which a hospital specialist and a primary care clinician hold face to face meetings and conduct joint consultations to assess and manage a patient (Section 5.3).

5.2 Liaison with primary care: Shared care

5.2.1 Introduction

Shared care is a model of working in which a hospital specialist and a primary care practitioner agree a joint management plan that specifies which elements of care for a particular patient are to be delivered by each clinician. This enables the primary care practitioner to manage a patient that he or she would otherwise be unable or unwilling to manage alone. The expectation is that outpatient attendances will decline without compromising the quality of care. Patients should benefit by receiving more of their care in facilities closer to their place of residence.

5.2.2 Method

As shared-care arrangements have recently been reviewed elsewhere, we did not undertake any new searches in this area. We instead drew on the reviews of available research presented by Sibbald *et al.* (2006) and Smith *et al.* (2006). The high-quality Cochrane Review conducted by Smith *et al.* (2006) bundles together a number of interventions – outreach, liaison, shared care, etc. – of which only one was relevant to this section of the review. Empirical research and previously published reviews of shared care (as defined by us above) were summarised by Sibbald *et al.* (2006), but their methodological approach was much weaker than that of Smith *et al.* (2006). Despite this limitation, we have drawn most heavily on the synopsis presented by Sibbald *et al.* (2006) as this specifically addresses the model of care of interest here.

5.2.3 Results and conclusions

The Cochrane review of shared care by Smith *et al.* (2006) is currently underway. This will encompass empirical studies that collectively cover the following types of interventions:

- Community clinics: Specialists attend or run a clinic in a primary care setting with primary care personnel. Communication is informal and depends on the specialists and primary care team members meeting on site.
- Basic model: A specific, regular communication system is set up between the specialty and primary care. This may be enhanced by an administrator who organises appointments and follows up and recalls defaulters from care.
- Liaison: A liaison meeting attended by specialists and the primary care team where the ongoing management of patients within the service is discussed and planned.

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- Shared-care record card: A more formal arrangement for information sharing where an agreed data-set is entered on to a record card that is usually carried by the patient.
- Computer-assisted shared care/e-mail: A data-set is agreed upon and collected in both the specialty and primary care settings. This is then circulated between the two sectors using computer systems such as a central repository or e-mail. This system may also include centrally co-ordinated computerised registration and recall of patients.

Of these, only the 'basic model' is relevant to this review but it will not be separately assessed by Smith *et al.* in their ongoing research (2006). Preliminary findings across all types of intervention suggested that these models of care had the capacity to improve outcomes in patients with chronic diseases. Improvements were noted in relation to treatment satisfaction, medication adherence and care delivery, but health outcomes were not demonstrably improved. The quality of studies and the range and complexity of interventions studied meant that it was not possible to say which elements of share care were most effective.

Sibbald *et al.* (2006) draws on empirical research and previous reviews of shared care (as defined by us) in the management of asthma and diabetes. The empirical evidence on cost-effectiveness was mixed. For asthma, shared care used fewer resources; there were few differences in clinical and health outcomes, but patients receiving shared care were less satisfied (Grampian Asthma Study of Integrated Care, 1994; Eastwood and Sheldon, 1996). In diabetes care, most studies reported that clinical and health outcomes were similar to conventional hospital-based care; however, the studies that included costs produced conflicting results (Greenhalgh, 1994). Overall, further evidence still needs to be gathered, as results seem to be specific to each context and depend on good communication between specialists and generalists (Eastwood and Sheldon, 1996; Hampson *et al.*, 2002).

5.3 Liaison with primary care: Consultation liaison

5.3.1 Introduction

The consultation-liaison model places great emphasis on joint working between specialists and primary care clinicians in the management of individual patients. The main aim is to improve the quality of care delivered by primary care providers (PCPs). The model has been described as having the following features:

- Regular face to face contact between the visiting specialist and the primary care team/GP.
- Referral of patients to the specialist only takes place after face to face meeting to discuss patient.
- Some episodes of illness are managed by the primary care team without referral to the specialist but only after face to face meeting to discuss patient.
- When referral does take place, there is feedback to the primary care team and management by them.

All of the studies reviewed here focus on consultation-liaison services in mental health where the model was first developed and has been most rigorously evaluated.

Anticipated benefits and risks

Consultation liaison may have two distinct effects on PCPs' clinical behaviour. The first concerns the influence of the specialist on PCP behaviour towards patients under their joint care (direct effect). The second effect concerns the influence of the specialist on the behaviour of the PCP towards the wider patient population under the care of the PCP alone (indirect or spill-over effect). The principal expected benefit of consultation liaison is higher-quality care delivered by PCPs to patients managed by PCPs alone or jointly with specialists. The principal risk is that PCP behaviour is not changed, leading to a waste of the specialist resources invested in PCP support and education.

5.3.2 Methods

Search strategy

Relevant papers cited in the studies identified from the standard interface search strategy were obtained. No other searches were undertaken.

Inclusion criteria

Studies describing consultation-liaison services (as defined above) and reporting any usable outcome data were included. Where a good-quality systematic review was found, the studies included in the review were not separately extracted. However, some of the papers included were checked if there was insufficient detail on the outcomes of interest to us in the reviews. Decisions to include or exclude studies were made by one investigator (Ruth McDonald).

Data extraction

Data were extracted by one investigator (Ruth McDonald) into a standardised form developed for this purpose (Appendix 2). Assessment of the quality of included studies was informed by a hierarchy of evidence (Table 2) that gave greatest weight to high-quality systematic reviews and least weight to descriptive evaluations.

Data synthesis

Data synthesis was qualitative.

5.3.3 Results

Description of studies

Of the papers evaluating consultation-liaison models we identified four studies, as follows:

- one Cochrane review (data to 2000)
- one randomised controlled trial
- one controlled before and after study
- one audit.

The characteristics of included studies are summarised in Table 23. Study outcomes are summarised below and are detailed in Table 24.

Quality of studies

The quality of studies was variable, but the inclusion of one comprehensive high-quality Cochrane review (Bower and Sibbald, 1999) means that it is possible to draw some evidence-based conclusions with regard to this model.

Patient outcomes

In the controlled before and after study (Carr *et al.*, 1997), a sub-group of intervention patients showed a significantly greater reduction in

symptoms and a greater degree of improvement in both emotional health and ability to perform everyday duties when compared to unmatched controls. However, as this sub-group had higher initial levels of morbidity, regression towards the mean may partly explain their greater improvement. No difference in improvement in psychiatric morbidity was observed in the intervention sub-group when compared with symptom-matched controls. The randomised controlled trial (Emanuel *et al.*, 2002) found no difference between the liaison and control groups with regard to clinical outcomes. However, self-rated social functioning improved significantly in the liaison group compared with the control group. This was the only study to measure patient satisfaction and no difference was found between the consultation-liaison and control groups.

Service outcomes

Only two studies examined the impact of consultation liaison on hospital outpatient referrals. The Cochrane review (Bower and Sibbald, 1999) reported that two of three studies examining PCP direct effects found no difference between rates. One randomised controlled trial reported PCP indirect effects on referrals and found little change in referrals to hospital outpatient clinics. The controlled before and after study (Carr *et al.*, 1997) examined rates of referral within the consultation-liaison group and found, perhaps not surprisingly, that the group with the greatest psychiatric morbidity were more likely to be referred.

With regard to primary care workload, the Cochrane review (Bower and Sibbald, 1999) reported no significant increase in consultation rates in all four studies reporting the significance of post-intervention differences. Two studies compared referral rates with and without consultation liaison but failed to report the statistical significance of differences. One found higher rates in the intervention group and one found similar rates in both the intervention and control groups. In the audit (Carr and Donovan, 1992), GPs said they took sole responsibility for psychiatric treatment in 60.8% of cases and jointly managed a further 24.1% of patients; however, these estimates are based on self-reported retrospective data without a comparison group or control.

The Cochrane review (Bower and Sibbald, 1999) reported some evidence of a direct effect of consultation liaison on PCP prescribing behaviour when used as part of a complex, multi-faceted intervention. However, these effects appeared short-term and limited to patients under the direct care of the specialist.

Costs

Two studies reported cost data. The Cochrane review (Bower and Sibbald, 1999) found that in the two studies that examined primary care costs, these were higher in the intervention group. In the two studies that

examined the cost of specialty mental health outpatient visits, these were higher in the control group. The randomised controlled trial (Emanuel *et al.*, 2002) compared total costs of care and found that the mean cost per patient over 6 months was higher in the intervention group.

5.3.4 Conclusions

While the quality of included studies was variable, there is some consistency with regard to findings across studies. The potential benefits of consultation liaison include more appropriate care delivered by PCPs to patients managed by consultation-liaison methods and to the wider practice population. However, consultation-liaison models do not appear to improve clinical outcomes and reductions in PCP prescribing appear short-term and limited to patients under the direct care of the specialist. Consultation-liaison models appear to have no impact on outpatient referral rates. With regard to the costs of care, there is limited good-quality data on which to base firm conclusions. However, as there is no evidence that consultation-liaison models are effective (in terms of improvement in reported outcomes), they are highly unlikely to be cost-effective.

Table 23 Study characteristics: Liaison

Reference	Design	Participants	Interventions
Bower and Sibbald, 1999; Bower and Sibbald, 2000	COCH	Cochrane Effective Practice and Organisation of Care Register (June 1998), Cochrane Controlled Trials Register (June 1998), MEDLINE (1966–98), EMBASE (1980–1998), PsycINFO (1984–1988), CounselLit (June 1998), National Primary Care Research and Development Centre skill-mix bibliography and reference list of articles. 38 studies were included [UK, n=29; USA n=6; Australia, n=1; New Zealand, n=1; Germany, n=1]	Cochrane review of studies of on-site mental health workers either replacing PCPs as providers of mental health care ('replacement' models, n=26) or providing collaborative care/support to PCPs managing patients' mental health problems ('consultation/liaison' models, n=12)
Carr and Donovan, 1992	AUD	172 patients referred to a liaison-attachment psychiatrist between July 1989 and Dec 1990 by 4 participating general practices. Practice selection criteria included interest in dealing with mental health problems [Australia]	A half-day clinic per week was held in each practice by a psychiatric registrar working in collaboration with each GP (18 GPs in total). Psychiatrist and GP met to discuss patient management after patient interviewed by psychiatrist
Carr <i>et al.</i> , 1997	CBA	86 patients referred to a consultation-liaison psychiatry service in general practice [Australia]	Intervention: Liaison psychiatry in general practice Control: No referral/usual GP only care
Emanuel <i>et al.</i> , 2002	RCT	Patients aged >16 years from 4 general practices referred to any part of the adult or elderly mental health services [UK]	Intervention: Key-worker enhanced liaison, emphasis on improved communication with primary care team Control: Usual care

Abbreviations: AUD = audit; CBA = controlled before and after trial; COCH = Cochrane systematic review; RCT = randomised controlled trial.

Table 24 Study outcomes: Liaison

Reference	Patient outcomes	Service outcomes	Costs
Bower and Sibbald, 1999; Bower and Sibbald, 2000		Primary care workload No significant increase in consultation rates in all 4 studies reporting significance of post-intervention differences. Of studies not reporting significance, 1 found higher rates in intervention group and one similar rates in both groups Outpatient referrals 2 of 3 studies examining direct effects found no difference between rates. 1 RCT reported indirect effects on referrals and reported little change in referrals to hospital outpatients Prescribing behaviour Some evidence of direct effect on primary care provider prescribing behaviour when used as part of a complex, multi-faceted intervention	Primary care costs 2 studies examined these costs and found them to be higher in the intervention group Hospital costs 2 studies examined the cost of specialty mental health outpatient visits and found higher costs in control groups
Carr and Donovan, 1992		Subsequent patient management Based on self-reported retrospective data GPs said they took sole responsibility for psychiatric treatment in 60.8% of cases after liaison/advice and jointly managed a further 24.1% of patients Quality of outcome When asked to evaluate quality of outcome, GPs reported satisfactory resolution of problem in 37.8% of cases and satisfactory ongoing management in a further 33.7%. The outcome was unknown in 19.2% of cases and	

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Reference	Patient outcomes	Service outcomes	Costs
		unsatisfactory (7.6%) or required referral to another health service (1.7%) Outpatient referrals Based on self-report estimates and a 5-category scale ranging from 'not at all' to 'almost always' to record referral patterns before and after the scheme, a fall in referrals to psychiatrists in private practice was reported. A downward trend for referral to public mental health services and other mental health practitioners was only slight and not statistically significant	
Carr <i>et al.</i> , 1997	Outcomes One sub-group of intervention patients showed significantly greater reduction in symptoms and a greater degree of improvement in emotional health and ability to perform everyday duties compared with unmatched controls. However, this intervention sub-group had higher levels of morbidity than the controls, which may explain why these patients appeared to have greater improvements No improvement in psychiatric morbidity in the other intervention sub-group versus symptom-matched	Outpatient referrals Within the intervention group, the high-morbidity sub-group was significantly more likely than the lower-morbidity sub-group to be referred to specialist psychiatry services (74.1% versus 36.2%; $p < 0.001$)	

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Reference	Patient outcomes	Service outcomes	Costs
	(comparable morbidity) controls		
Emanuel <i>et al.</i> , 2002	Patient satisfaction No difference between liaison and control groups Clinical outcomes No difference between liaison and control groups Self-rated social functioning Significant improvement in liaison versus control group (p=0.05)	NHS workload Collected for cost estimates but no detail provided Liaison with primary care team Less than half of the key workers in the liaison group felt that they had involved the primary care team more in patient care	Total NHS costs Mean (standard deviation) cost per patient over 6 months was £1874 (£2733) in the intervention group and £1401 (£1708) in the control group

Abbreviations: CI = confidence interval; RCT = randomised controlled trial.

5.4 Summary and conclusions

The key findings in respect of each model of care reviewed above are given in Table 25. These suggest that liaison models of working may sometimes improve the quality of primary care but have little impact on health outcomes. Reductions in outpatient attendance are occasionally – but not consistently – achieved. Patient satisfaction may sometimes be reduced. Cost savings are context dependent and are only achieved in those instances where outpatient attendance was reduced. Successful delivery depends heavily on good communication between primary and secondary care clinicians, which is not always present. Overall, liaison models may have the potential to enhance outpatient efficiency but there is little evidence to suggest that they do so in practice.

Table 25 Summary of findings: Relocation to primary care

Model sub-type	Outcomes					
	Access/equity	Quality/health	Hospital impact	General practice impact	Cost	Feasibility
Shared care	Insufficient evidence	No change Evidence of reduced patient satisfaction in some studies	Variable In some cases resource use was lower	Uncertain In theory expect increased workload	Savings are dependent on reductions in outpatient use that were not always achieved	Dependent on good communication between GP and specialist
Consultation liaison	Insufficient evidence	Quality improved but no change in health outcomes	No change in referral rate	No change in GP workload; possible small reduction in prescribing	Uncertain but not likely to be cost-effective as costs are higher and health outcomes unchanged	Requires major revision to working practices of specialists and GPs

Section 6 Professional behaviour change

6.1 Introduction

This section deals with strategies intended to alter the referral behaviour of primary care teams. The range of strategies is wide, including referral guidelines, audit and feedback, educational interventions, organisational interventions, and financial incentives. Our review draws heavily on the recent, high-quality, systematic review by the Cochrane Collaboration of interventions intended to improve outpatient referrals from primary to secondary care (Section 6.2). The review covers the full range of strategies that have been researched.

6.2 Interventions to change referral behaviour

6.2.1 Introduction

There is a large body of evidence that suggests that the process of GP referral to specialists could be improved. Patients may be referred to specialists unnecessarily or may not be referred when they should. This section summarises the findings from a recent Cochrane review of interventions to improve outpatient referrals from primary to secondary care (Grimshaw *et al.*, 2005). No searches were undertaken by us to update this review.

The aims of the Cochrane review were to:

- identify which interventions have been evaluated to change primary care outpatient referral rates or improve referral appropriateness
- estimate the effectiveness of interventions to change primary care outpatient referral rates or improve referral appropriateness.

6.2.2 Methods

Types of studies

Randomised controlled trials, controlled clinical trials, controlled before and after studies and interrupted time series were eligible for inclusion.

Types of participants

Participants were primary care physicians, defined broadly as any medically qualified professional who provides primary health care.

Types of interventions

Only studies reporting explicitly that the primary objective was to influence referrals were included.

Search strategy

Using the terms 'refer*' and 'consultation*' with the term 'outpatient*' a search of the Cochrane Effective Practice and Organisation of Care (EPOC) Register was undertaken. A search of the MEDLINE® database (1995 to 1999) identified 6000 records (after records identified by the EPOC search were excluded). No additional potentially relevant studies were identified when the investigators screened the first 500 records and no further MEDLINE® searches were therefore undertaken. The UK National Research Register was searched using the terms 'outpat*' and 'refer*'. MEDLINE® was then searched for reports of completed projects using the name of the lead researcher.

6.2.3 Results

Description of studies

Seventeen studies met the inclusion criteria for the review, all but one of which were published after 1990. The great majority were based in the UK.

Characteristics of the intervention

Nine studies evaluated professional educational interventions, three studies evaluated organisational interventions and five studies examined financial interventions.

Reviewers' findings

Ineffective strategies

These included:

- passive dissemination of local referral guidelines (two studies)
- feedback of referral rates (one study)
- discussion of referral rates with an independent medical adviser (one study)
- changes in patient co-payments designed to make it financially more advantageous for patients to self-refer to family practitioners rather than specialists (one study).

Effective strategies

Interventions designed to change professional behaviour:

- dissemination of referral guidelines with a structured referral sheet that prompted the GP about important elements of pre-referral investigation and management (four out of five studies). It was noted that the administrative burden for GPs of completing structured referral sheets was high, suggesting their use should be restricted
- involvement of consultants in educational activities designed to support local referral guidelines (three studies).

Organisational interventions:

- patients managed by family physician instead of specialist in internal medicine (one study). See Section 3.4 for further information about the transfer of medical care from specialists to GPs
- attachment of physiotherapist (one study) but not mental health specialist (Cochrane review) to the primary care team. See Section 4.4 for further information about the attachment of specialists to primary care teams
- requirement for a second, 'in-house' opinion prior to referral (one study).

Financial interventions targeted to reducing referral rates:

- moving from a capitation-based to a mixed capitation-based and fee-for-service system (one study)
- moving from a fee-for-service to a capitation-based system with an element of risk sharing for secondary care services (one study)
- GP fundholding in the UK (two studies).

6.2.4 Conclusions

The Cochrane review concluded that there are a limited number of rigorous evaluations on which to base policy. The available evidence suggests that referral guidelines, supplemented by structured referral sheets or local educational interventions from secondary care specialists, are the only interventions shown to reduce referral rates without compromising the quality of care. Financial incentives also change referral rates but their impact on the appropriateness of referral is unknown; unselected reductions in both necessary and unnecessary referrals may occur. Newer innovations, such as obtaining an 'in-house' second opinion prior to referral, appear promising but require further investigation.

6.3 Summary and conclusions

Table 26 summarises the key findings in respect of each intervention found to be effective in changing referral behaviour. These include:

- structured referral sheets that prompt GPs to conduct any necessary pre-referral tests or treatments
- educational outreach by specialists
- in-house second opinion
- financial incentives, i.e. payment systems that discourage referral.

Of these four interventions, only the first two – structured referral sheets and educational outreach – have a sufficient body of evidence to suggest that they are effective in reducing inappropriate referrals. The third approach – in-house second opinion – is promising but there is, as yet, insufficient evidence to give confidence in its effectiveness. The fourth intervention – financial incentives – has been shown to reduce referral rates but there is a high risk that reductions may apply to both necessary and unnecessary referrals.

Ineffective interventions include: passive dissemination of referral guidelines; audit and feedback of referral rates; discussion of referral rates with an independent medical advisor; and adjusting patient co-payments to encourage self-referral to a primary care doctor instead of a specialist.

Table 26 Summary of findings: Professional behaviour change

Model sub-type	Outcomes					
	<i>Access/equity</i>	<i>Quality/health</i>	<i>Hospital impact</i>	<i>General practice impact</i>	<i>Costs</i>	<i>Feasibility</i>
<i>Structured referral sheet</i>	Insufficient evidence	Appropriateness of referral improved	Appropriate reductions in outpatient attendance	Increased workload	Insufficient evidence	Development of referral sheets Increased workload in primary care may restrict use to small number of clinical problems
<i>Educational outreach by specialist</i>	Insufficient evidence	Appropriateness of referral improved	Appropriate reductions in outpatient attendance	Insufficient evidence	Insufficient evidence	No obvious impediments to adoption but specialists and GPs must give time to education initiatives
<i>In-house second opinion</i>	Insufficient evidence	Insufficient evidence Appropriateness of referral may be improved	Insufficient evidence but could reduce unnecessary outpatient attendance	Insufficient evidence In theory should increase workload	Insufficient evidence	No obvious impediments to adoption but increase in GP workload is unknown and requires assessment
<i>Financial incentives</i>	Insufficient evidence	Insufficient evidence In theory, could reduce quality by discouraging	Reduced outpatient attendance but appropriateness of this unknown	Insufficient evidence	Insufficient evidence	Requires development and testing of financial incentives High risk of perverse behavioural response

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Model sub-type	Outcomes					
	<i>Access/equity</i>	<i>Quality/health</i>	<i>Hospital impact</i>	<i>General practice impact</i>	<i>Costs</i>	<i>Feasibility</i>
		appropriate referral				

Section 7 Interventions not involving primary care

7.1 Introduction

This review is concerned with strategies involving primary care that may improve outpatient effectiveness and efficiency. Two other models do not involve primary care but are included here for completeness, as they may reduce demand on hospitals. The models are:

- Introduction of intermediate care services: Services provided by community-based specialists that may reduce demand on hospitals by preventing admission or facilitating discharge. We consider community mental health teams and hospital-at-home schemes.
- Changes to hospital care: Reorganisation of hospital services to improve outpatient throughput or reduce outpatient attendance without direct involvement of primary care. We consider rapid-access chest pain clinics, treatment centres, and hospital-outreach nurses for chronic obstructive pulmonary disease.

Although we did not conduct rigorous reviews of these interventions, we briefly describe their attributes, including anticipated benefits and risks, and discuss evidence relating to their impact where possible.

7.2 Introduction of intermediate care

The term 'intermediate care' refers to a wide range of services at the interface between primary and secondary care. The NHS plan proposed that intermediate care services should help patients recover and regain independence more quickly, bring about swifter discharge from hospital and avoid unnecessary long-term care (Department of Health, 2000). Detailed guidance on intermediate care was issued in January 2001 in the context of substantial investment by health and social services in intermediate care services, largely aimed at supporting older people (Department of Health, 2001). The definition of intermediate care contained in this guidance emphasised care provision on the basis of a comprehensive assessment, resulting in a structured, individual care plan, that involves active therapy, treatment or opportunity for recovery. While these intermediate care schemes for older people are time-limited and usually short-term interventions, other intermediate care schemes exist that employ a similar structured care plan approach for longer-term patient management. In particular, in the context of mental health patients, community mental health teams (CMHTs) provide such care and these are also included in this section of the review.

7.2.1 Community Mental Health Teams

CMHTs are multi-disciplinary teams (drawn from nurses, psychiatrists, psychologists, and social workers) that aim largely to replace hospital-based care for patients with mental illness. They are the main method of providing community-based mental health services in the NHS.

Anticipated benefits and risks

Management of mental illness by CMHTs is intended to improve health outcomes for patients by providing flexible long-term support. The improved patient outcomes may also lead to reduced costs, especially in the form of reduced hospitalisations. The main risk is that some patients, especially those with severe mental illness, will not be managed appropriately by CMHTs.

Results

A 1998 Cochrane review of CMHTs versus standard hospital-based care for patients with severe mental illness (Tyrer *et al.*, 1998; Simmonds *et al.*, 2001) found five randomised controlled trials, three from the UK, one from Australia and one from Canada. Despite problems in comparing the studies, meta-analysis suggested that versus hospital-based care, CMHTs had reduced mortality rates, especially for suicide; fewer patients dropped

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out of CMHT care; and CMHTs reduced hospitalisations. CMHTs also appeared to lead to a reduction in health service costs. There were no significant differences on measures of psychiatric or social functioning.

A more recent overview of systematic evidence on community and hospital care for mental health services for working-age adults, prepared for the World Health Organization Regional Office for Europe's Health Evidence Network, examined 141 review articles and several Cochrane reviews (Thornicroft and Tansella, 2004). The authors argued that different combinations of hospital and community care are appropriate for health services with different levels of resourcing. They placed what they labelled as 'generic' CMHTs in the medium level of resources category. The literature surveyed suggested that, compared with a variety of alternatives including hospital-based care, CMHTs led to increased user satisfaction and improved adherence to treatment. There was no evidence of improvement in symptoms or social functioning. More specialised CMHTs, which provide assertive community treatment targeted at patients with severe mental illness, and early-intervention teams targeted at early-episode psychosis, were argued to be appropriate for health services with a high level of resources. The evidence surveyed suggested that assertive community treatment reduced use of hospitals and improved patient satisfaction, though its applicability to the UK was questioned because of the higher levels of continuity of care with the standard care alternative in the UK. The evidence on early-intervention teams was too preliminary to enable a judgement to be made about their impact.

Conclusions

The evidence suggests that CMHTs, whether generic or more specialised, reduce hospital use for more severely ill patients, improve compliance, and increase patient satisfaction. There is no evidence for improved social or psychiatric functioning and any cost reductions that arise from reduced use of hospitals may be offset by other cost increases.

7.2.2 Hospital at home

Hospital at home is defined as a service that provides active treatment by health care professionals in the patient's home of a condition that otherwise would require acute hospital inpatient care, always for a limited period (Shepperd and Illiffe, 2005). Patients can be admitted to hospital at home from hospital or directly from the community.

Anticipated benefits and risks

Hospital-at-home schemes are intended to free up capacity in hospitals either by discharging patients earlier or by preventing their admission to hospital. Hospital at home may facilitate recovery and rehabilitation, as

services are provided within the familiar surroundings of the patient's home rather than within a hospital ward. The risk is that early discharge of patients may result in readmission and a lengthier episode of illness, which may increase the overall costs of care. A related risk concerns the quality of care provided and the extent to which care outside of hospital can produce health outcomes of similar quality.

Results

A review of the literature including 27 studies (of which the majority were randomised controlled trials) from seven different countries (Berendsen *et al.*, 2002) found no differences in health outcomes between patients allocated to hospital at home and inpatient care, providing there was careful patient selection and the home met a number of basic conditions. Good organisation, communication and funding were essential conditions for the success of this form of care. Patients and their carers rated hospital at home positively. The findings were, however, disappointing with regard to expected reductions in costs to the health services. Benefits appeared to be primarily attained with schemes designed to avoid admission to hospital for the elderly.

A more recent systematic review of randomised controlled trials assessed the efficacy of hospital-at-home schemes compared with inpatient care in patients with acute exacerbations of chronic obstructive pulmonary disease (COPD) (Ram *et al.*, 2003; Ram *et al.*, 2004). Studies were only included if they involved patients presenting to the emergency department with an exacerbation of their COPD. All patients randomised to home support were discharged from hospital within 72 hours of presenting to the emergency department and after an initial assessment by the hospital medical team. Seven trials with 754 patients were included in the review. Hospital readmission and mortality were not significantly different when hospital-at-home schemes were compared with inpatient care, although hospital-at-home schemes were associated with cost savings as well as freeing up hospital inpatient beds. However, interventions varied from admission avoidance using nurses based in an emergency department, through to admission and next-day discharge, and early discharge with support at home with or without GP care. Owing to the paucity of data on costs of these different interventions, no firm conclusions can be made about their cost-effectiveness. The intensity of home support was also variable. Both patients and carers preferred hospital-at-home care to inpatient care. However, only one in four patients was suitable for hospital-at-home schemes.

A Cochrane review (Shepperd and Illiffe, 2005) of hospital-at-home schemes for adults, excluding maternity, mental health, paediatric and long-term care programmes, identified 23 eligible studies. Fifteen of these were concerned with elderly medical patients, four recruited patients

following elective surgery and one recruited patients following a hip fracture. Two trials concerned terminally ill patients and another recruited patients with a mix of surgical and medical conditions. Most trials evaluated early discharge schemes, while a few focused on schemes set up either in the community or in an emergency department to prevent patients being admitted to hospital. The authors found some evidence that patient satisfaction may be higher at home, though carers' views were mixed. The review did not support the widespread development of hospital-at-home services as a cheaper substitute for inpatient care within health care systems that have well-developed primary care services. Nor did it demonstrate that hospital at home is so hazardous or expensive that existing schemes for elderly medical patients, patients who have had elective surgery or those with a terminal illness should be discontinued.

Conclusions

The available evidence suggests that hospital at home enhances patient satisfaction and can safely substitute for hospital care in the management of a wide range of severely ill patients. Models of hospital-at-home care vary widely and further research is needed into which components of delivery in which types of patients delivered by whom (specialist versus generic staff) are required to produce care that is both effective and safe (Ram *et al.*, 2003). Hospital at home can reduce demand for hospital care but its impact on overall service costs is unclear. There is a paucity of good-quality data on health-related quality of life and costs, which makes it difficult to draw conclusions about overall cost-effectiveness.

7.3 Changes to hospital care

Hospitals may redesign outpatient care in ways that are intended to improve the quality of care, speed access to specialist services, and reduce outpatient attendance. Three models are considered here.

- 1 Rapid-access clinics provide short waiting times of generally less than 2 weeks for patients with a condition requiring urgent attention. Rapid access may be to a clinic that combines:
 - Clinical assessment and diagnostic testing in a single visit with treatment initiated at a second visit.
 - Clinical assessment, diagnostic testing, and treatment in a single visit, known as a 'one-stop shop'.
- 2 Treatment centres are a special type of one stop shop service that are provided separately from conventional hospital services, often by private sector providers under contract to the NHS. The intention here is to expand NHS capacity by removing care to non-NHS facilities.

- 3 Hospital outreach services deploy hospital specialists, usually nurse practitioners, to provide additional support and care to outpatients living in the community. The intention is to improve the quality of care and reduce subsequent demand on both outpatient and inpatient services.

7.3.1 Rapid-access chest pain clinics

The majority of published descriptions of rapid-access clinics relate to cancer (especially breast cancer) and heart disease. These relate specifically to NHS initiatives to guarantee a first outpatient referral within 2 weeks in patients whom the GP suspects might have cancer, and to provide rapid-access chest pain clinics (RACPCs) for patients suspected of having heart disease (with a clinic appointment generally guaranteed within 2 weeks of referral). Here we consider RACPCs as an example of this model of working.

Anticipated benefits and risks

As noted above, rapid-access clinics may be organised to combine clinical assessment with diagnostic testing or to combine both diagnostic testing and treatment. Such services are intended to reduce patient waiting time from presentation to diagnosis and treatment. The number of outpatient visits should also be reduced. However, if patients are referred appropriately, the overall time and resources expended by the hospital on each patient will remain the same but it will be concentrated in a smaller number of visits. If patients are referred inappropriately, diagnostic and treatment facilities will be wasted, so adding to costs. Rapid access to outpatient services (however organised) is indicated only for patients in whom early intervention reduces morbidity and mortality. In summary, these models of outpatient provision are expected to speed access and improve health outcomes for some patients, but the benefits will be achieved at increased cost and without reducing outpatient workload.

Results

A systematic review of investigation facilities for chest pain (Mant *et al.*, 2004) included nine studies of RACPCs. The designs of these studies were generally weak relying, for example, on physicians' stated intentions rather than actual changes in care. Bearing this in mind, the review found some evidence to suggest that RACPCs might lead to better recognition of acute coronary syndrome, earlier assessment of exertional angina, earlier diagnosis of non-cardiac pain, and reduced hospital admission for patients with non-cardiac pain. In some settings, the establishment of RACPCs was associated with long waits for further investigation (especially angiography). A simulation exercise for this situation showed that the benefits of the rapid-access clinics would be lost. The establishment of

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RACPCs was generally associated with increased hospital costs compared with traditional methods of assessing chest pain (e.g. conventional outpatient referral or direct access to exercise electrocardiograph).

This review only included papers published up to 1999. A more recent study by Dougan *et al.* (2001) suggested that RACPCs were associated with overall reduced costs for patient care, though their cost estimates were based on what physicians judged would have happened to patients in the absence of clinics.

Conclusions

Generally speaking, the introduction of RACPCs in the NHS appears to have met the objective of enabling patients with suspected heart disease to be seen rapidly, including the assessment of heart failure and arrhythmias (Fox *et al.*, 2000; Martins *et al.*, 2004). Where this is not followed by extended waits for investigation, there should, in theory, be benefits for a group of patients who would get earlier access to treatment. However, the general weakness of design of published evaluations makes it very difficult to estimate the size of this benefit. The frequency with which such clinics are provided may affect how they are used (Byrne *et al.*, 2002), with a daily 'immediate-access' clinic potentially having the greatest effect in reducing unnecessary admissions for non-cardiac chest pain (Newby *et al.*, 1998).

7.3.2 Treatment centres

As noted above, treatment centres often combine diagnostic and treatment facilities in a single visit. The combined service is provided separately from conventional hospital services, often by private sector providers under contract to the NHS.

The anticipated advantages and disadvantages of treatment centres are the same as those described above for rapid-access clinics. The principal difference between these two models of care lies in the arrangements for service commissioning. By placing contracts for treatment centres with private sector providers, the government seeks to expand capacity and reduce demand on NHS hospitals. The principal risk is that treatment centres will draw upon NHS staff to deliver services and therefore compete with the NHS rather than expand capacity, though some contracts have been written specifically to avoid this possibility.

Research into the effectiveness and efficiency of treatment centres compared with conventional models of hospital provision has been commissioned by the Service Delivery and Organisation Research and Development Programme. Findings from this work are expected in Spring 2007.

7.3.3 Hospital outreach

Rather than treat patients in a hospital setting, hospital specialists may treat patients in their own homes. Usually these schemes deploy specialist 'outreach' nurses to provide support and care for patients living in the community and often they are concerned with care for patients with chronic diseases. Here we consider home care by outreach nurses for COPD as an example of this model of working.

Anticipated benefits and risks

Outreach health care delivery in the community may benefit patients, particularly those with chronic diseases, by encouraging self-management behaviour. Regular visits by hospital specialists are likely to permit greater surveillance of patients, which may result in earlier detection of deterioration in the patient's condition. The desired outcome of such outreach care programmes is to maintain the patient's optimal health state, with a consequent reduction in hospital admissions. Reducing the cost of hospital inpatient episodes may offset the extra cost of specialist input. However, there is a risk that costs will increase if the desired outcomes in terms of health status and hospital admission are not realised.

Results

A Cochrane review evaluating the effectiveness of outreach respiratory health care worker programmes for patients with COPD was published in 2001 (Smith *et al.*, 2001). These programmes comprised home visits by a respiratory nurse or similar respiratory health worker to facilitate health care, provide education, provide social support, identify respiratory deteriorations promptly and reinforce correct technique with inhaler therapy. Patients in the control group received routine care without respiratory nurse/health worker input.

Four randomised controlled trials published between 1987 and 1999 were included in the review. The reviewers concluded that home care by nurses may be of some help to people with less severe COPD (emphysema or chronic bronchitis) but it does not improve outcomes when COPD is severe. The reviewers concluded that this is an expensive form of care and one that has not been shown to improve lung function. There may be some benefits for patients with less severe disease, but more research is needed to demonstrate this.

More recently, a systematic review of COPD interventions that were led, co-ordinated or delivered by nurses identified nine randomised controlled trials (including the four from the Cochrane review) published between 1987 and 2003 (Taylor *et al.*, 2005). The authors divided the studies into brief (1 month) and longer-term (around a year) interventions and

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included studies in which nurse support in patients' homes featured as part of a case management approach. Hospital-at-home schemes (see Section 7.2.2) were excluded. Only two studies examined the effect of brief interventions and these found little evidence of any benefit. There was evidence that the long-term interventions had not improved patients' health-related quality of life, psychological well-being, disability or pulmonary function. The evidence on the impact on hospital readmissions was equivocal.

Conclusions

Based on the available evidence for COPD outreach nurses, the expected reductions in hospital admissions and associated cost savings have not materialised. Impacts on health outcomes for patients are equivocal. Outreach models are intended to reduce admissions by providing care and assessment at home and by facilitating self-management. From the available evidence it is not possible to assess the effects of each of these components in isolation. However, an evaluation of the Expert Patient Programme, which is intended to facilitate self-management in patients with chronic diseases, is currently underway and due to report in early 2007. This is likely to increase our understanding of the impact of the facilitation of self-management on NHS services.

7.4 Summary and conclusions

There was considerable variation in how any one model of care was implemented and little evidence to suggest which variants might be more effective than others.

The available evidence suggests that the introduction of intermediate care services, such as CMHTs or hospital-at-home schemes, reduces use of hospitals for more severely ill patients and increases patient satisfaction. Health outcomes are not adversely affected. Overall cost-effectiveness has not been thoroughly evaluated but there is evidence to suggest that cost savings to hospitals are offset by increased costs elsewhere.

Redesigning hospital-provided services may also improve outpatient effectiveness and efficiency. The introduction of RACPCs can enable patients with suspected heart disease to be seen rapidly, but speed of access depends on how frequently such clinics are provided (e.g. daily versus weekly). Where clinic attendance is not followed by extended waits for investigation, health gains for patients are to be expected. However, the general scientific weakness of published evaluations makes it difficult to estimate the size of this benefit or to assess overall cost-effectiveness.

The introduction of private sector-run treatment centres can, in theory, reduce demand on NHS hospitals, although research into their actual impact will not be available until 2007.

In contrast, there is little evidence to suggest that community outreach by hospital-based nurses is either effective or efficient. Based on the available evidence relating to outreach for COPD, hospital admissions are not reduced and there is no consistent improvement in health outcomes for patients.

Section 8 Conclusions

8.1 Overall conclusions

Our aim was to identify strategies and processes involving primary care that influence the efficiency and effectiveness of outpatient services. Four broad strategies were reviewed:

- **Transfer:** The substitution of services delivered by hospital clinicians for services delivered by primary care clinicians. This included: minor surgery, diabetes care, GPs with special interests (GPSIs), discharge from outpatient follow-up, and direct access for GPs to hospital tests and services.
- **Relocation:** Shifting the venue of specialist care from outpatient clinics to primary care without changing the people who deliver the service. This included: shifted outpatient clinics, telemedicine (as a 'virtual' form of relocation); and attachment of specialists to primary care teams.
- **Liaison:** Joint working between specialists and primary care practitioners to provide care to individual patients. This included shared care and consultation liaison.
- **Professional behaviour change:** Interventions intended to change the referral behaviour of primary care practitioners, including referral guidelines, audit and feedback, education and financial incentives.

The paucity of high-quality research for any one intervention was striking, making it risky to draw firm conclusions. Nonetheless, there was a surprisingly high degree of consistency in outcomes across the range of interventions included within each of the four strategies listed above. The findings broadly suggest that transfer and professional behaviour change are generally effective strategies for reducing outpatient demand, whereas relocation and liaison are largely ineffective.

8.2 Effective strategies: Summary

8.2.1 Transfer to primary care

We identified two effective ways in which outpatient care could be transferred to primary care, so reducing demand on hospitals.

- Discharge of outpatients to: (i) no follow-up, (ii) patient-initiated follow-up, or (iii) general practice follow-up, as alternatives to routine follow-up in hospital outpatient clinics (Section 3.5).

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Feasibility: Unacceptable to a substantial minority of patients and clinicians, so it cannot fully substitute for conventional outpatient care. Large-scale movement to patient-initiated access requires major revision to outpatient booking systems. Discharge to general practice increases primary care workload.

Research priorities: Research to identify conditions for which follow-up confers no clinical benefit.

- Direct access for GPs to: (i) hospital-based diagnostic tests and investigations or (ii) hospital-provided treatments, without the prior approval of a specialist in an outpatient clinic (Section 3.6).

Feasibility: Direct access to diagnostic tests requires expansion of hospital diagnostic services and is suitable only for tests that GPs understand well. Direct access to services (routine surgery, hearing aid fitment, etc.) requires change in hospital policy; introduction of GP referral guidelines; and is suitable only for conditions that GPs can diagnose with high certainty. Uptake by GPs is often low.

Research priorities: Clinical trials of extending direct access to a wider range of tests and services.

In addition we identified two promising strategies that merit further investigation.

- GPSIs acting as substitutes for outpatient specialists (Section 3.4).

Feasibility: Requires training of GP workforce. Hospital specialists are often resistant to change.

Research priorities: Models of GPSI care vary greatly and it is not yet clear which reduce demand on hospitals or are cost-effective.

- Transfer of medical care for common chronic conditions from secondary to primary care (Section 3.3).

Feasibility: Requires training of primary care workforce. Greatly increases workload in primary care.

Research priorities: Most general practices now have clinics for managing common chronic diseases such as asthma, diabetes and heart disease. The scope for extending this model to other clinical areas merits investigation.

Policy implications

The principal risk with these strategies is that primary care practitioners will not be sufficiently knowledgeable and skilled to undertake the work previously provided by specialists. For example, one area where the available research suggests that transfer has resulted in significant decrements to the quality of care is minor surgery in general practice. Some interventions (discharge to no follow-up or patient-initiated follow-up) place few demands on primary care and therefore pose little risk. For other interventions (direct access to many routine diagnostic tests and specialist services), the available research suggests that primary care teams already possess the necessary competencies to substitute for specialists. However, as research is generally conducted with enthusiastic volunteers, it is possible that quality will not be maintained should the intervention be extended to rank and file clinicians. If transfer is broadened to include a wider range of tests and services, it will be important to assess the general competency of primary care teams and institute any necessary educational programmes before implementation proceeds. Service quality should be audited in all cases before and after implementation to detect any important changes in quality.

A second concern is that transfer to primary care will generate service-led increases in demand. The available research shows that this prediction is borne out in practice. In some instances (e.g. direct access) there was evidence that service expansion was targeted to unmet need without lowering of treatment thresholds. In other areas (e.g. GPSIs) it appears treatment thresholds may have been lowered. If transfer is intended to substitute primary care in place of secondary care, it will be important to discontinue comparable secondary care services after transfer. To do otherwise will simply expand service capacity. This occurred with minor surgery where primary and secondary services ran in parallel.

8.2.2 Professional behaviour change

We identified two strategies for changing the referral behaviour of primary care clinicians that were effective in reducing inappropriate referrals to outpatient clinics.

- Structured referral sheets that prompt GPs to conduct any necessary pre-referral tests or treatments (Section 6.2).

Feasibility: Requires development of referral sheets. Increased workload in primary care may restrict use to a small number of common clinical problems.

Research priorities: Identify which clinical problems should be

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targeted (i.e. common conditions where referral is frequently inappropriate); develop structured referral sheets.

- Educational outreach by specialists (6.2).

Feasibility: No obvious impediments to adoption but specialists and GPs must give time to education initiatives.

Research priorities: None indicated.

In addition, we identified one promising strategy that merits further investigation.

- 'In-house' second opinion prior to referral (Section 6.2).

Feasibility: No obvious barriers to implementation and no major risks.

Research priorities: This has been demonstrated to be effective in only one study and merits further evaluation in controlled trials.

Policy implications

The principal risk with strategies intended to change the referral behaviour of primary care clinicians is that they discourage both necessary and unnecessary referrals. Available research suggests that the strategies we have identified above as 'effective' or 'promising' largely avoid this risk. Other types of intervention, notably financial incentives (Section 6.2), have been shown to be effective in reducing referrals, but their impact on the appropriateness of referral is unknown. Such strategies therefore carry a high risk of provoking perverse behaviour and should, in our opinion, be avoided.

8.3 Ineffective strategies: Summary

Relocating secondary services or specialists to primary care settings was generally ineffective in reducing demand on outpatient services (Section 4). An exception to this general finding was the attachment of physiotherapists to primary care teams. This reduced hospital attendance, whereas the attachment of other types of specialists (mental health specialists, epilepsy nurses) did not. All relocation interventions appeared ineffective in improving the skills or reducing the workload of primary care clinicians. However, all were effective in improving access to specialist care and increased patient satisfaction. They also had the potential to improve equity in care provision if deployed to populations with poor access to specialists (e.g. remote rural areas).

Joint working between secondary and primary care specialists in the management of individual patients was generally ineffective in reducing

demand on outpatient services (Section 5). While there was some evidence to suggest that these strategies might improve the quality of care, patient health outcomes were little affected. Overall, we found no convincing evidence to suggest these models of working merited implementation.

In addition, we identified a number of behaviour change strategies that appeared to be ineffective (Section 6.2). These included: passive dissemination of referral guidelines; audit and feedback of referral rates; and discussion of referral behaviour with an independent medical advisor. Stopping such interventions where they are currently practiced will save resources that could be diverted to more effective activities.

8.4 Other possible strategies: Summary

Although outside the remit of this review, we looked briefly at interventions not involving primary care that might improve outpatient effectiveness and efficiency. This overview suggested that the introduction of intermediate care services might reduce use of hospitals for more severely ill patients and improve patient satisfaction. Overall cost-effectiveness is uncertain and merits further investigation. Redesign of outpatient clinics to provide rapid access for patients with life-threatening conditions can reduce waiting times, with potential health gains for patients. Costs are increased and the impact on routine outpatient attendance is unknown. Private sector provision of care in treatment centres has the potential to expand NHS capacity but research into overall cost-effectiveness is not yet complete. Specialist outreach into the community (bypassing primary care) does not appear to improve outpatient effectiveness or efficiency.

8.5 Balance of evidence and the need for future research

The quantity of available research varied widely across individual interventions, showing a marked relationship to contemporaneous changes in NHS policy. That is to say, we formed the impression that research was triggered by changes in policy and predominantly targeted to assessing whether new initiatives fulfilled their stated policy objectives. Unintended consequences and impacts on allied health sectors received less attention.

The research was nonetheless useful in identifying the potential benefits and disadvantages associated with each broad strategy for reducing outpatient demand. No effective strategy involving primary care was without risk. As noted above, transfers to primary care risk decrements in service quality and duplication of hospital services, and may generate

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service-led increases in demand. Strategies to alter the referral behaviour of primary care providers may sometimes reduce necessary as well as unnecessary referrals. Identifying these risks means, however, that policy-makers and managers can take steps to mitigate their effects. For example, better education of primary care practitioners taking on new clinical roles could diminish the risk of decreasing quality when services are transferred from hospitals. Service-led increases in demand might be countered by coupling transfer with interventions shown to be effective in altering referral behaviour. Duplication of hospital services might be avoided through active managerial interventions to downsize outpatient services and redirect resources to more valuable services.

Many new changes are planned at the interface between primary and secondary care following publication of the 2006 NHS white paper '*Our Health, Our Care, Our Say: a new direction for community services*'. The precise form these interventions will take is not yet clear, but the proposals appear to blend a number of the strategies reviewed here for reducing outpatient demand, namely transfer of services to primary care, relocation of specialist services, liaison between primary and secondary care practitioners and professional behavioural change. This conceptual framework should help commissioners of future research to determine the extent to which their questions about the benefits and risks of new initiatives have already been addressed by research. This will be aided by reference to the summary table at the end of each section for the four strategies involving primary care – transfer to primary care; relocation of secondary care services to the community; joint working between primary and secondary care; and interventions intended to change the referral behaviour of primary care clinicians – which list the likely impact of each strategy to reduce outpatient demand.

Future evaluations should, wherever possible, be robust and employ (quasi) experimental designs e.g. randomised controlled trials or controlled before and after studies. While this is not always possible when new policies are implemented, the literature we surveyed showed the unhelpful nature of weak study designs e.g. the telemedicine literature, which is dominated by case reports and commentaries, with initial claims often not substantiated by subsequent rigorous research.

From our analysis of the literature, and from discussions with senior managers and NHS policy-makers, some assumptions are widely made in the health service that are not necessarily supported by available evidence. These include:

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Common assumption	Comment	Implications for future research
<i>Care can safely be transferred from specialists to primary care practitioners</i>	This is not always the case (e.g. some evaluations of minor surgery). Other transferred services cannot be assumed to be safe, e.g. GPSIs where there is inadequate liaison or support from specialist colleagues	Research into further transfer of care into the primary care sector should include issues of quality and safety
<i>Care in the community is cheaper than care in hospitals</i>	This is often not the case due to a loss of the economies of scale or because of overall expansion in service capacity Most evaluations focus on NHS costs. With the new commissioning arrangements, prices charged by providers may be as important as costs	Evaluation of new community-based services should include robust assessment of NHS costs With the change in commissioning arrangements, economic assessment should include both costs and prices (these may be different where a GP is bidding to provide specialist services directly)
<i>Transferring care into the community will not increase overall demand</i>	There is a serious risk that increasing provision (e.g. GPSIs) may increase demand (by patients, or increased referral from GPs)	Evaluation of new community-based services should include an assessment of the impact on overall demand for care
<i>Care in the community is popular with patients and should therefore be encouraged</i>	Bringing care closer to patients' homes is indeed generally popular. However, possible loss of quality and efficiency are important potential downsides to such shifts	Patient evaluation is inadequate as the sole or main assessment of the success of the reorganisation of a service

One area that has been difficult to address comprehensively in this report, but is likely to be of considerable significance, is the manner in which a new intervention is implemented. Two examples can be used to illustrate this. The first example is that of liaison psychiatry. In general, this has flourished only where there is an individual psychiatrist with the vision and drive to develop liaison services. In the absence of such an individual, services are often not sustained. The second example is that of GPSI

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services, which have sometimes been introduced without support – and occasionally in the face of outright opposition – from local specialists, leading to service fragmentation. These examples have a number of features in common. They both represent ‘good ideas’ that may depend for their success on the calibre of local individuals. However, they do not have the management support that would be required to ensure a high-quality and sustainable service. It is therefore important that future evaluations take into account how local contextual factors affect the implementation of new interventions. This means that qualitative work will need to be conducted alongside the quantitative research we have advocated above.

In summary, we believe it important to include an appropriately broad range of outcomes in future research. In particular, it is important that new initiatives be evaluated in terms of:

- quality of care and patient safety
- NHS *costs* in providing the new service, also taking into account *prices* charged by providers and actual savings realised in other parts of the service
- overall effect on demand for care, whether from patients or GPs.

Outcomes should be assessed using robust (quasi) experimental designs. Allied qualitative research will be needed to assess the extent to which successful implementation depends on local contextual factors that may not be transferable e.g. the attitudes, enthusiasm or skills of key players.

References

- Adlard JW, Joseph J, Brammer CV, Gerrard GE. 2001. Open access follow-up for lung cancer: patient and staff satisfaction. *Clinical Oncology*, 13: 404–8.
- Agrawal S, Danbauchi SS, Goodfellow J, Robson SA, Reid DS. 1999. Technician run open access exercise electrocardiography. *Heart* 82: 378–82.
- Aphorpe LA, Daly CA, Morrison ID, Field S. 1998. Direct access MRI for general practitioners – influence on patient management. *Clinical Radiology* 53, 58–60.
- Ashworth M. 2002. Psychiatric referral rates and the influence of on-site mental health workers in general practice. *British Journal of General Practice* 39–41.
- Atherton WG, Faraj AA, Riddick AC, Davis TR. 1999. Follow-up after carpal tunnel decompression – general practitioner surgery or hand clinic? *Journal of Hand Surgery (Edinburgh, Lothian)* 24: 296–7.
- Atkin K, Hirst M, Lunt N, Parker G. 1994. The role and self-perceived training needs of nurses employed in general practice: observations from a national census of practice nurses in England and Wales. *Journal of Advanced Nursing* 20: 46–52.
- Audit Commission. 2004. *Quicker Treatment Closer to Home*. London: Audit Commission.
- Bailey J, Roland M, Roberts C. 1999. Is follow up by specialists routinely needed after elective surgery? A controlled trial. *Journal of Epidemiology and Community Health* 53: 118–24
- Baker, R, Sanderson-Mann J, Longworth S, Cox R, Gillies C. 2005. Randomised controlled trial to compare GP-run orthopaedic clinics based in hospital outpatient departments and general practice. *British Journal of General Practice* 55: 912–7.
- Barton E, Gallagher S, Flower CD, Hanka R, King RH, Sherwood T. 1987. Influence on patient management of general practitioner direct access to radiological services. *British Journal of Radiology* 60: 893–6.
- Berendsen AJ, Schuling J, Meyboom-De Jong B. 2002. Hospital at home; a review of the literature on the effects of a form of transmural care. *Nederlands Tijdschrift Voor Geneeskunde* 146: 2302–8.
- Bower P, Sibbald B. 1999. On-site mental health workers in primary care: effects on professional practice. *The Cochrane Database of Systematic Reviews* Issue 4: Article No. CD000532. DOI: 10.1002/14651858.CD000532.

Outpatient Services and Primary Care: A scoping review

- Bower P, Sibbald B. 1999. On-site mental health workers in primary care: effects on professional practice. *The Cochrane Database of Systematic Reviews* Issue 4: Article No. CD000532. DOI: 10.1002/14651858.CD000532.
- Bower P, Sibbald B. 2000. Do consultation-liaison services change the behavior of primary care providers? A review. *General Hospital Psychiatry* 22: 84–96.
- Bower P, Sibbald B. 2000. Systematic review of the effect of on-site mental health professionals on the clinical behaviour of general practitioners. *British Medical Journal* 320: 614–7.
- Bowns IR, Collins k, Walters SJ, McDonagh JG. 2006. Telemedicine in dermatology: a randomised controlled trial. *Health Technology Assessment* 10: 1–58.
- Bradley P, Lindsay B. 2001. Specialist epilepsy nurses for treating epilepsy. *The Cochrane Database of Systematic Reviews* Issue 4: Article No. CD001907. DOI: 10.1002/14651858.CD001907.
- Bramble MG, Cooke WM, Corbett WA *et al.* 1993. Organising unrestricted open access gastroscopy in South Tees. *Gut* 34: 422–7.
- Brown JS, Smith RR, Cantor T, Chesover D, Yearsley R. 1997. General practitioners as providers of minor surgery – a success story? *British Journal of General Practice* 47: 205–10.
- Brown L, Payne S, Royle G. 2002. Patient initiated follow up of breast cancer. *Psycho-Oncology* 11: 346–55.
- Bruusgaard N. 1980. Specialists visiting rural general practices in Norway. *Journal of the Royal College of General Practitioners* 10: 1–2.
- Buhrich N, Teesson M. 1996. Impact of a psychiatric outreach service for homeless persons with schizophrenia. *Psychiatric Services (Washington, D.C.)* 47: 644–6.
- Byrne J, Murdoch D, Morrison C, McMurray J. 2002. An audit of activity and outcome from a daily and a weekly 'one stop' rapid assessment chest pain clinic. *Postgraduate Medical Journal* 78: 43–6.
- Carr VJ, Donovan P. 1992. Psychiatry in general practice. A pilot scheme using the liaison-attachment model. *Medical Journal of Australia* 156: 379–82.
- Carr VJ, Lewin TJ, Reid ALA, Walton JM, Faerhrmann C. 1997. An evaluation of the effectiveness of a consultation-liaison psychiatry service in general practice. *Australian and New Zealand Journal of Psychiatry* 31: 714–25.
- Chait I, Glynne-Jones R, Thomas S. 1998. A pilot study exploring the effect of discharging cancer survivors from hospital follow-up on the workload of general practitioners. *British Journal of General Practice* 48: 1241–3.

Outpatient Services and Primary Care: A scoping review

- Charlesworth CH, Sampson MA. 1994. How do general practitioners compare with the outpatient department when requesting upper abdominal ultrasound examinations? *Clinical Radiology* 49: 343–5.
- Chawda SJ, Watura R, Lloyd DC. 1997. Magnetic resonance imaging of the lumbar spine: direct access for general practitioners. *British Journal of General Practice* 47: 575–6.
- Cheung WY, Dove J, Levy B, Russell IT, Williams JG. 2002. Shared care in gastroenterology: GPs' views of open access to out-patient follow-up for patients with inflammatory bowel disease. *Family Practice* 19: 53–6.
- Chua R, Craig J, Esmonde T, Wootton R, Patterson V. 2002. Telemedicine for new neurological outpatients: putting a randomized controlled trial in the context of everyday practice. *Journal of Telemedicine and Telecare* 8: 270–3.
- Chua R, Craig J, Wootton R, Patterson V. 2001. Randomised controlled trial of telemedicine for new neurological outpatient referrals. *Journal of Neurology, Neurosurgery and Psychiatry* 71: 63–6.
- Coast J, Noble S, Noble A, Horrocks S, Asim O, Peters TJ, *et al.* 2005. Economic evaluation of a general practitioner with special interests led dermatology service in primary care. *British Medical Journal* 331: 1444–9.
- Coid DR. 1990. General practitioner minor surgery facilitated by a Fife District General Hospital. Evaluation of a pilot project. *Health Bulletin* 48: 132–6.
- Collins K, Walters S, Bowns I. 2004. Patient satisfaction with teledermatology: quantitative and qualitative results from a randomized controlled trial. *Journal of Telemedicine and Telecare* 10: 29–33.
- Colquhoun IR, Saywell WR, Dewbury KC. 1988. An analysis of referrals for primary diagnostic abdominal ultrasound to a general X-ray department. *British Journal of Radiology* 61: 297–300.
- Connor SE, Banerjee AK. 1998. General practitioner requests for upper abdominal ultrasound: their effect on clinical outcome. *British Journal of Radiology* 71: 1021–5.
- Coopers and Lybrand Associates. 1983. *The Cost Effectiveness of General Practice. A General Medical Services Committee discussion document.* London: British Medical Association.
- Cox NH, Wagstaff R, Popple AW. 1992. Using clinicopathological analysis of general practitioner skin surgery to determine educational requirements and guidelines. *British Medical Journal* 304: 93–6.
- Craig JJ, McConville JP, Patterson VH, Wootton R. 1999. Neurological examination is possible using telemedicine. *Journal of Telemedicine and Telecare* 5: 177–81.

Outpatient Services and Primary Care: A scoping review

- Currell R, Urquhart C, Wainwright P, Lewis R. 2000. Telemedicine versus face to face for patient care: effects on professional practice and health care outcomes. *The Cochrane Database of Systematic Reviews* Issue 2: Article No. CD002098. DOI: 10.1002/14651858.CD002098.
- Davies A, Buxton MJ, Patterson DLH, Webster-King J. 2000. Anti-coagulant monitoring service delivery: a comparison of costs of hospital and community outreach clinics. *Clinical and Laboratory Haematology* 22: 33–40.
- de Mul M, de Bont A, Reus N, Lemij HG, Berg M. 2004. Improving the quality of eye care with tele-ophthalmology: shared-care glaucoma screening. *Journal of Telemedicine and Telecare* 10: 331–6.
- Department of Health. 2000. *The NHS Plan: A Plan For Investment, a Plan for Reform*. London: Department of Health.
- Department of Health. 2001. *Health Service Circular 2001/01: Intermediate Care*. London: Department of Health.
- Department of Health. 2005. *Creating a Patient-led NHS—Delivering the NHS Improvement Plan*. London: Department of Health.
- Department of Health. 2006. *Our Health, Our Care, Our Say: A New Direction for Community*. London: Department of Health.
- Department of Health, Scottish Home and Health Department, Welsh Office. 1989. *General Practice in the NHS, the 1990 Contract. The Government's Programme for Changes to General Practitioners' Terms and Conditions of Service and Remunerative Systems*. London: The Stationery Office.
- Donald IP, FitzGerald Frazer JS, Wilkinson SP. 1985. Sigmoidoscopy/proctoscopy service with open access to general practitioners. *British Medical Journal* 290: 759–61.
- Donaldson LA, Karas MP, Charles AE, Adams GG. 2002. Paediatric community vision screening with combined optometric and orthoptic care: a 64-month review. *Ophthalmic and Physiological Optics* 22: 26–31.
- Dougan JP, Mathew TP, Riddell JW, Spence MS, McGlinchey PG, Nesbitt GS, et al. 2001. Suspected angina pectoris: a rapid-access chest pain clinic. *QJM: Monthly Journal of the Association of Physicians* 94: 679–86.
- Duckett S, Casserly H. 2003. Orthopaedic GP Fellowship: does it work? *Annals of the Royal College of Surgeons of England* 85: 195–6.
- Eastwood AJ, Sheldon TA. 1996. Organisation of asthma care: what difference does it make? A systematic review of the literature, *Quality in Health Care* 5: 134–43.

Outpatient Services and Primary Care: A scoping review

- Egred M, Corr L. 2002. Establishment and feasibility of community-based general-practitioner-led cardiology clinics. *QJM: Monthly Journal of the Association of Physicians* 95: 299–303.
- Elford R, White H, Bowering R, Ghandi A, Maddigga B, St John K, *et al.* 2000. A randomized, controlled trial of child psychiatric assessments conducted using videoconferencing. *Journal of Telemedicine and Telecare* 6: 73–8.
- Eminovic N, Witcamp L, Ravelli A, Bos J, van den Akker TW, Bousema MT, *et al.* 2003. Potential effect of patient assisted dermatology on outpatient referral rates. *Journal of Telemedicine and Telecare* 9: 321–7.
- Emmanuel JS, McGee A, Ukoumunne OC, Tyrer P. 2002. A randomised controlled trial of enhanced key-worker liaison psychiatry in general practice. *Social Psychiatry and Psychiatric Epidemiology* 37: 261–6.
- Faulkner A, Mills N, Bainton D, Baxter K, Kinnersley P, Peters TJ, *et al.* 2003. Systematic review of the effect of primary care based service innovations on the quality and patterns of referral to specialist hospital outpatient and outreach care. *British Journal of General Practice* 53: 878–84.
- Finn L, Crook S. 1998. Minor surgery in general practice – setting the standards. *Journal of Public Health Medicine* 20: 169–74.
- Florey CV, Yule B, Fogg A, Napier A, Orbell S, Cuschieri A. 1994. A randomized trial of immediate discharge of surgical patients to general practice. *Journal of Public Health Medicine* 16: 455–64.
- Fox GC, Sharp JF. 1994. Direct hearing aid referral: the effect upon outpatient waiting times in a district general hospital. *Journal of the Royal Society of Medicine* 87: 215–6.
- Fox KF, Cowie MR, Wood DA, Coats AJ, Poole-Wilson PA, Sutton GG. 2000. A rapid access heart failure clinic provides a prompt diagnosis and appropriate management of new heart failure presenting in the community. *European Journal of Heart Failure* 2: 423–9.
- Gaskell A, McLaughlin A, Young E, McCristal K. 2001. Direct optometrist referral of cataract patients into a pilot 'one-stop' cataract surgery facility. *Journal of the Royal College of Surgeons of Edinburgh* 46: 133–7.
- Gear MWL, Wilkinson SP. 1989. Open-access upper alimentary endoscopy. *British Journal of Hospital Medicine* 41: 438–44
- Gerada C, Limber C. 2003. General practitioners with special interests: implications for clinical governance. *Quality in Primary Care* 11:47–52.
- Gilmour E, Campbell SM, Loane MA, Esmail A, Griffiths CE, Roland MO, *et al.* 1998. Comparison of teleconsultations and face to face

Outpatient Services and Primary Care: A scoping review

- consultations: preliminary results of a UK multi-centre teledermatology study. *British Journal of Dermatology* 139: 81–7.
- Glueckauf RL, Ketterson TU. 2004. Telehealth interventions for individuals with chronic illness: Research review and implications for practice. *Professional Psychology, Research and Practice* 35: 615–27.
- Grampian Asthma Study of Integrated Care (GRASSIC). 1994. Integrated care for asthma: a clinical, social and economic evaluation. *British Medical Journal* 308: 559–64.
- Granlund H, Thoden CJ, Carlson C, Harno K. 2003. Realtime teleconsultations versus face-to-face consultations in dermatology: immediate and six-month outcome. *Journal of Telemedicine and Telecare* 9: 204–9.
- Greenhalgh PM. 1994. *Shared Care Diabetes: A Systematic Review*. Occasional Paper 67. London: Royal College of General Practitioners.
- Griffin S, Kinmonth A. 2002. Systems for routine surveillance for people with diabetes mellitus. In: The Cochrane Library, Issue 3. Oxford: Update Software.
- Griffin S, Kinmonth AL. 1998. Systems for routine surveillance for people with diabetes mellitus. *The Cochrane Database of Systematic Reviews* Issue 1: Article No. CD000541. DOI: 10.1002/14651858.CD000541.
- Grimshaw JM, Winkens RAG, Shirran L, Cunningham C, Mayhew A, Thomas R, *et al.* 2005. Interventions to improve referrals from primary to secondary care. In: *The Cochrane Database of Systematic Reviews* Issue 3: Article No. CD005471.
- Gruen R, Bailie R. 2004. Specialist clinics in remote Australian Aboriginal communities: Where rock art meets rocket science. *Journal of Health Services and Research Policy* 9 (Suppl. 1): 56–62.
- Gruen RL, Weeramanthri TS, Knight SE, Bailie RS. 2003. Specialist outreach clinics in primary care and rural hospital settings. In: The Cochrane Database of Systematic Reviews. Issue 4. Chichester, UK: John Wiley and Sons Ltd.
- Grunfeld E, Gray A, Mant D, Yudkin P, Adewuyi-Dalton R, Coyle D, *et al.* 1999a. Follow-up of breast cancer in primary care versus specialist care: Results of an economic evaluation. *British Journal of Cancer* 79: 1227–1233.
- Grunfeld E, Fitzpatrick R, Mant D, Yudkin P, Adewuyi-Dalton R, Stewart J, *et al.* 1999b. Comparison of breast cancer patient satisfaction with follow-up in primary care versus specialist care: results from a randomized controlled trial. *British Journal of General Practice* 49: 705–10.
- Hailey D, Ohinmaa A, Roine R. 2003. *Recent Studies on Assessment Of Telemedicine: Systematic Review of Study Quality and Evidence of*

Outpatient Services and Primary Care: A scoping review

- Benefit*. Alberta, Canada: Institute of Health Economics.
www.ihe.ca/documents/ihe/publications/papers/2003-04paper.pdf.
- Hampson JP, Roberts RI, Morgan DA. 2002. Shared care: a review of the literature, *Family Practice* 19: 53–6.
- Hands JL, Jones RW, Clarke M, Mahaffey W, Bangs I. 2004. Use of telemedicine in the management of vascular surgical referrals. *Journal of Telemedicine and Telecare* 10 (Suppl. 1): 38–40.
- Harno K. 1999. Telemedicine in managing demand for secondary care services. *Journal of Telemedicine and Telecare* 5: 189–92.
- Harno K, Paavola T, Carlson C, Viikinkoski P. 2000. Patient referral by telemedicine: effectiveness and cost analysis of an intranet system. *Journal of Telemedicine and Telecare* 6: 320–9.
- Harno K, Arajärvi E, Paavola T, Carlson C, Viikinkoski P. 2001. Clinical effectiveness and cost analysis of patient referral by videoconferencing in orthopaedics. *Journal of Telemedicine and Telecare* 7: 219–25.
- Hensher M. 1998. Improving general practitioner access to physiotherapy: A review of the economic evidence. *Health Services Management Research* 10: 225–30.
- Herd RM, Hunter JA, McLaren KM, Chetty U, Watson AC, Gollock JM. 1992. Excision biopsy of malignant melanoma by general practitioners in south east Scotland 1982–91. *British Medical Journal* 305: 1476–8.
- Hersh W, Helfand M, Wallace J, Kraemer D, Patterson P, Shapiro S, et al. 2001. Clinical outcomes resulting from telemedicine interventions: a systematic review. *BMC Medical Informatics and Decision Making* 1: 5.
- Hersh W, Helfand M, Wallace J, Kraemer D, Patterson P, Shapiro S et al. 2002. A systematic review of the efficacy of telemedicine for making diagnostic and management decisions. *Journal of Telemedicine and Telecare* 8: 197–209.
- Hewlett S, Mitchell K, Haynes J, Paine T, Korendowych E, Kirwan JR. 2000. Patient-initiated hospital follow-up for rheumatoid arthritis. *Rheumatology (Oxford)* 39: 990–7.
- Hewlett S, Kirwan J, Pollock J, Mitchell K, Hehir M, Blair PS, et al. 2005. Patient initiated outpatient follow up in rheumatoid arthritis: six year randomised controlled trial. *British Medical Journal* 330: 171.
- Honey S, Small N. 2005. General practitioners with special interests: The potential benefits and possible risks for primary care. *Primary Health Care Research and Development* 6: 5–16.
- Hungin AS. 1987. Use of an open-access gastroscopy service by a general practice: Findings and subsequent specialist referral rate. *Journal of the Royal College of General Practice* 37: 170–1.

Outpatient Services and Primary Care: A scoping review

- Jaatinen PT, Aarnio P, Remes J, Hannukainen J, Koymari-Seilonen T. 2002. Teleconsultation as a replacement for referral to an outpatient clinic. *Journal of Telemedicine and Telecare* 8: 102–6.
- Jacklin PB, Roberts JA, Wallace P, Haines A, Harrison R, Barber JA, *et al.* 2003. Virtual outreach: Economic evaluation of joint teleconsultations for patients referred by their general practitioner for a specialist opinion. *British Medical Journal* 327: 84.
- Jennett PA, Affleck Hall L, Hailey D, Ohinmaa A, Anderson C, Thomas R, *et al.* 2003. The socio-economic impact of telehealth: A systematic review. *Journal of Telemedicine and Telecare* 9: 311–20.
- Johnson RC, Pullan RD, Hedges AR, Stamatakis JD. 1996. Is an outpatient appointment required for patients referred for a minor operation under local anaesthetic? *Annals of the Royal College of Surgeons of England* 78(5 Suppl.): 223–5.
- Joliffe VML, Harris DW, Morris R, Wallace P, Whittaker SJ. 2001. Can we use video images to triage pigmented lesions? *British Journal of Dermatology* 145: 904–10.
- Jones R, Bartholomew J. 2002. General practitioners with special clinical interests: a cross-sectional survey. *British Journal of General Practice* 52: 833–4.
- Joshi A, Doyle L, Worthington HV, Rood JP. 2000. Direct access day case oral surgery. *British Dental Journal* 188: 452–6.
- Kavanagh S, Knapp M. 1998. The impact on general practitioners of the changing balance of care for elderly people living in institutions. *British Medical Journal* 317: 322–7.
- Kennedy AP, Nelson E, Reeves D, Richardson G, Roberts C, Robinson A, *et al.* 2004. A randomised controlled trial to assess the effectiveness and cost of a patient orientated self management approach to chronic inflammatory bowel disease. *Gut* 53: 1639–45.
- Kerrigan DD, Brown SR, Hutchinson GH. 1990. Open access gastroscopy: Too much to swallow? *British Medical Journal* 300: 374–6.
- Khorshid SM, Pinney E, Bishop JAN. 1998. Melanoma excision by general practitioners in North-East Thames region, England. *British Journal of Dermatology* 138: 412–7.
- Kirwan JR, Mitchell K, Hewlett S, Hehir M, Pollock J, Memel D, *et al.* 2003. Clinical and psychological outcome from a randomized controlled trial of patient-initiated direct-access hospital follow-up for rheumatoid arthritis extended to 4 years. *Rheumatology* 42: 422–6.
- Krousel Wood MA, Re RN, Abdoh A, Bradford D, Kleit A, Chambers R, *et al.* 2001. Patient and physician satisfaction in a clinical study of telemedicine in a hypertensive population. *Journal of Telemedicine and Telecare* 7: 206–11.

Outpatient Services and Primary Care: A scoping review

- Kumar BN, Walsh RM, Courteney-Harris RG, Wilson PS, Carlin WV. 1998. 'Direct listing' for tonsillectomy by general practitioners. *Clinical Otolaryngology* 23: 91–2.
- Lamminen H, Lamminen J, Ruohonen K, Uusitalo H. 2001. A cost study of teleconsultation for primary-care ophthalmology and dermatology. *Journal of Telemedicine and Telecare* 7, 167–73.
- Laurant M, Hermens R, Braspenning J, Grol R, Sibbald B. 2005. Substitution of doctors for nurses. Systematic Review. In: The Cochrane Library. April 2005. Oxford: Update Software.
- Leiba A. 2002. Evaluation of a specialist outreach clinic in a primary healthcare setting: the effect of easy access to specialists. *Clinician in Management* 11: 131–6.
- Loane MA, Oakley A, Rademaker M, Bradford N, Fleischl P, Kerr P, *et al.* 2001a. A cost-minimization analysis of the societal costs of realtime teledermatology compared with conventional care: results from a randomized controlled trial in New Zealand. *Journal of Telemedicine and Telecare* 7: 233–8.
- Loane MA, Bloomer SE, Corbett R, Eedy DJ, Evans C, Hicks N, *et al.* 2001b. A randomised controlled trial assessing the health economics of realtime teledermatology compared with conventional care: An urban versus rural perspective. *Journal of Telemedicine and Telecare* 7: 108–18.
- Lowy A, Brazier J, Fall M, Thomas K, Jones N, Williams BT. 1993. Minor surgery by general practitioners under the 1990 contract: effects on hospital workload. *British Medical Journal* 307: 413–7.
- Lowy A, Brazier J, Fall M, Thomas K, Jones N, Williams BT. 1994. Quality of minor surgery by general practitioners in 1990 and 1991. *British Journal of General Practice* 44: 364–5.
- MacKenzie S, Norrie J, Vella M, Drummond I, Walker A, Molloy R, *et al.* 2003. Randomized clinical trial comparing consultant-led or open access investigation for large bowel symptoms. *British Journal of Surgery* 90: 941–7.
- Maddison P, Jones J, Breslin A, Barton C, Fleur J, Lewis R, *et al.* 2004. Improved access and targeting of musculoskeletal services in northwest Wales: targeted early access to musculoskeletal services (TEAMS) programme. *British Medical Journal* 329: 1325–7.
- Mahadevan VS, Earley A, McClements B. 2005. Open access echocardiography has diagnostic yield similar to outpatient echocardiography and is highly rated by general practitioners and patients. *International Journal of Cardiology* 99: 389–93.
- Mair F, Whitten P. 2000. Systematic review of studies of patient satisfaction with telemedicine. *British Medical Journal* 320: 1517–20.

Outpatient Services and Primary Care: A scoping review

- Mant J, McManus RJ, Oakes RA, Delaney BC, Barton PM, Deeks JJ, *et al.* 2004. Systematic review and modelling of the investigation of acute and chronic chest pain presenting in primary care. *Health Technology Assessment* 8: 1–158
- Martins JL, Fox KF, Wood DA, Lefroy DC, Collier TJ, Peters NS. 2004. Rapid access arrhythmia clinic for the diagnosis and management of new arrhythmias presenting in the community: a prospective descriptive study. *Heart* 90: 877–81.
- McClements BM, Campbell NPS, Cochrane D, Stockman S. 1994. Direct access electrocardiology: a new service that improves the management of suspected ischaemic heart disease in the community. *British Heart Journal* 71: 531–5.
- McKessock L, Smith BH, Scott A, Graham W, Terry PB, Templeton A, *et al.* 2001. A randomized controlled trial of direct access for laparoscopic sterilization. *Family Practice* 18: 1–7.
- Meads C, Burls A, Bradley P. 2002. Systematic reviews of specialist epilepsy services. *Seizure* 11: 90–8.
- Mills P, Joseph AEA, Adam EJ. 1989. Total abdominal and pelvic ultrasound: incidental findings and a comparison between outpatient and general practice referrals in 1000 cases. *British Journal of Radiology* 62: 974–6.
- Murray S. 1998. Evaluation of shifted out-patient clinics, psychiatry. *Audit Trends* 6: 64–7.
- Myles S, Wyke S, Ibbotson T, Macintyre S, McEwen J, Kelly M. 1996. Costs and remuneration for cervical screening in general practice in the west of Scotland. *Journal of Health Services and Research Policy* 1: 217–23.
- National Institute for Clinical Excellence. 2002. *Guidance on Cancer Services: Improving Outcomes in Breast Cancer. Research Evidence for the Manual Update*. London: National Institute for Clinical Excellence.
- Newby DE, Fox KA, Flint LL, Boon NA. 1998. A 'same day' direct access chest pain clinic: improved management and reduced hospitalisation. *QJM: Monthly Journal of the Association of Physicians* 91: 333–7.
- Nocon A, Rhodes PJ, Wright JP, Eastham J, Williams DR, Harrison SR, *et al.* 2004. Specialist general practitioners and diabetes clinics in primary care: a qualitative and descriptive evaluation. *Diabetic Medicine* 21: 32–8.
- Nordal EJ, Moseng D, Kvammen B, Lochen ML. 2001. A comparative study of teleconsultations versus face-to-face consultations. *Journal of Telemedicine and Telecare* 7: 257–65.

Outpatient Services and Primary Care: A scoping review

- O'Cathain A, Brazier JE, Milner PC, Fall M. 1992. Cost effectiveness of minor surgery in general practice: a prospective comparison with hospital practice. *British Journal of General Practice* 42: 13–7.
- Ohinmaa A, Vuolio S, Haukipuro K, Winblad I. 2002. A cost-minimization analysis of orthopaedic consultations using videoconferencing in comparison with conventional consulting. *Journal of Telemedicine and Telecare* 8: 283–9.
- Oztas MO, Calikoglu E, Baz K, Birol A, Onder M, Calikoglu T, *et al.* 2004. Reliability of web-based teledermatology consultations. *Journal of Telemedicine and Telecare* 10: 25–8.
- Patterson V, Humphreys J, Chua R. 2004. Email triage of new neurological outpatient referrals from general practice. *Journal of Neurology, Neurosurgery, and Psychiatry* 75: 617–20.
- Paul VE, Sulke AN, Norris ADC. 1990. Open access exercise electrocardiology: does it improve management of cardiovascular disease in the community? *Journal of the Royal Society of Medicine* 83: 143–5.
- Payne S, Ramaiah RS, Jones DT. 1987. Open access to orthopaedic appliances for general practitioners. *British Medical Journal* 294: 485–6.
- Pedersen LL, Leese B. 1997. What will a primary care led NHS mean for GP workload? The problem of the lack of an evidence base. *British Medical Journal* 314: 1337–41.
- Pockney P, George S, Primrose J, Smith H, Kinley H, Little P, *et al.* 2004. Impact of the introduction of fee for service payments on types of minor surgical procedures undertaken by general practitioners: observational study. *Journal of Public Health* 26: 264–7.
- Pockney P, George S, Primrose J, Smith H, Little P, Kinley H, Lattimer V, Lowy A, Kneebone R. 2005. A randomised controlled trial of minor surgery in general practice and in hospital. *British Journal of Surgery* 92 (2 Suppl. 1): 2.
- Polmear AF, Kenney IJ, Barnard SA. 1999. Should GPs have direct access to imaging for children with urinary tract infections? An observational study. *British Journal of General Practice* 49: 115–7.
- Powell J. 2002. Systematic review of outreach clinics in primary care in the UK. *Journal of Health Services and Research Policy* 7: 177–83.
- Ram FSF, Wedzicha JA, Wright J, Greenstone M. 2004. Hospital at home for patients with acute exacerbations of chronic obstructive pulmonary disease: systematic review of evidence. *British Medical Journal* 329: 315–8.
- Ram FSF, Wedzicha JA, Wright J, Greenstone M. 2003. Hospital at home for acute exacerbations of chronic obstructive pulmonary disease. *The*

Outpatient Services and Primary Care: A scoping review

Cochrane Database of Systematic Reviews Issue 2: Article No. CD003573. DOI: 10.1002/14651858.CD003573.

- Renton T, McGurk M. 1999. Direct referral day case oral surgery for dental practitioners: a pilot investigation. *British Dental Journal* 186: 334–7.
- Riley K, Kirby R. 1996. Outreach clinics. Practice does not make perfect. *Health Service Journal* 106: 29.
- Robert G, Stevens A. 1997. Should general practitioners refer patients directly to physical therapists? *British Journal of General Practice* 47: 314–8.
- Robinson A, Thompson D, Wilkin G, Roberts C. 2001. Guided self-management and patient-directed follow-up of ulcerative colitis: a randomised trial. *Lancet* 358: 976–81
- Robling M, Kinnersley P, Houston H, Hourihan M, Cohen D, Hale J. 1998. An exploration of GPs' use of MRI: a critical incident study. *Family Practice* 15: 236–43.
- Rogers A, Kennedy A, Nelson E, Robinson A. 2004. Patients' experiences of an open access follow up arrangement in managing inflammatory bowel disease. *Quality and Safety in Health Care* 13: 374–8.
- Roine R, Ohinmaa A, Hailey D. 2001. Assessing telemedicine: a systematic review of the literature. *Canadian Medical Association Journal* 165: 765–71.
- Roland M, Bewley B. 1992. Boneline: Evaluation of an initiative to improve communication between GPs and specialists. *Journal of Public Health Medicine* 14: 307–9.
- Rosen R, Jones R, Tomlin Z, Cavanagh, M. 2005. *Evaluation of General Practitioners with Specialist Interests: Access, Cost, Evaluation and Satisfaction with Services*. London: NHS Service Delivery and Organisation Research and Development Programme.
- Salisbury C, Noble A, Horrocks S, Crosby Z, Harrison V, Coast J, et al. 2005. Evaluation of a general practitioner with special interest service for dermatology: randomised controlled trial. *British Medical Journal* 331: 1441–6.
- Sanderson D. 2002. *Evaluation of the GPs with Special Interests (GPwSIs) Pilot Projects within the Action On ENT Programme*. York: York Health Economics Consortium.
- Sanderson D. 2003. To the ENT degree. *Health Service Journal* 113: 26–7.
- Scott A, Vale L. 1998. Increased general practice workload due to a primary care led National Health Service: The need for evidence to support rhetoric. *British Journal of General Practice* 48: 1085–8.
- Scott A, Wordsworth S. 1998. The effects of shifts in the balance of care on general practice workload. *Family Practice* 16: 12–7.

Outpatient Services and Primary Care: A scoping review

- Scuffham PA, Steed M. 2002. An economic evaluation of the Highlands and Islands teledentistry project. *Journal of Telemedicine and Telecare* 8: 165–77.
- Shah C, Griffiths M, Moralee S. 1997. Direct listing for adult tonsillectomy. *Journal of the Royal College of Surgeons of Edinburgh* 42: 45–6.
- Shakil AO, Ellis A, Faizallah R, Cochrane AM. 1995. Sigmoidoscopy service in a district general hospital: Open-access versus hospital-referred. *British Journal of Clinical Practice* 49: 25–7.
- Shanit D, Cheng A, Greenbaum R. 1996. Telecardiology: supporting the decision-making process in general practice. *Journal of Telemedicine and Telecare* 2: 7–13.
- Shepperd S, Iliffe S. 2005. Hospital at home versus in-patient hospital care. *The Cochrane Database of Systematic Reviews* Issue 3: Article No. CD000356. DOI: 10.1002/14651858.CD000356.
- Shrank AB. 1991. General practitioners and minor surgery. *British Journal of Dermatology* 125: 599–600.
- Sibbald B, Laurant M, Scott A. 2006. Section 5. Changing task profiles. In: Saltman A, Rico A and Boerma W (eds.), *Primary Care in the Driver's Seat? Organizational Reform in European Primary Care*. Madrid: European Health Observatory.
- Sibbald B, Shen J, McBride A. 2004. Changing the skill-mix of the health care workforce. *Journal of Health Services Research and Policy* 9: 28–38.
- Sim MF, Stone M, Johansen A, Ho P, Pettit RJ, Evans WD. 2004. An analysis of an open access general practitioner bone densitometry service. *International Journal of Clinical Practice* 58: 300–5.
- Sim VMF, Davies J. 1998. Open access echocardiography clinic – Newport experience. *British Journal of Cardiology* 5: 286–90.
- Simmonds S, Coid J, Joseph P, Marriot S, Tyrer P. 2001. Community mental health team management in severe mental illness: a systematic review. *British Journal of Psychiatry* 178: 497–502.
- Smith B, Appleton S, Adams R, Southcott A, Ruffin R. 2001. Home care by outreach nursing for chronic obstructive pulmonary disease. *The Cochrane Database of Systematic Reviews* Issue 3: Article No. CD000994. DOI: 10.1002/14651858.CD000994.
- Smith FC, Gwynn BR. 1995. Direct access surgery. *Annals of the Royal College of Surgeons of England* 77: 94–6.
- Smith S, Allwright S, O'Dowd T. 2006. Effectiveness of shared care across the primary-specialist care interface in chronic disease management. *The Cochrane Database of Systematic Reviews*. 2006, Issue 1: Article No. CD004879.

Outpatient Services and Primary Care: A scoping review

- Sulke AN, Paul VE, Taylor CJ, Roberts RH, Norris AD. 1991. Open access exercise electrocardiography: A service to improve management of ischaemic heart disease by general practitioners. *Journal of the Royal Society of Medicine* 84: 590–4.
- Taylor SJ, Candy B, Bryar RM, Ramsay J, Vrijhoef HJM, Esmond G, *et al.* 2005. Effectiveness of innovations in nurse led chronic disease management for patients with chronic obstructive pulmonary disease: systematic review of evidence. *British Medical Journal* 333: 485.
- Thomas RE, Grimshaw JM, Mollison J, McClinton S, McIntosh E, Deans H, *et al.* 2003. Cluster randomized trial of a guideline-based open access urological investigation service. *Family Practice* 20: 646–54.
- Thornicroft G, Tansella M. 2004. Components of a modern mental health service: a pragmatic balance of community and hospital care: an overview of systematic evidence. *British Journal of Psychiatry* 185: 283–90.
- Thwaites BS, Torbolm I, Nyunt R, Wallace A. 1996. Appropriateness of open access exercise electrocardiography for general practitioners. *British Journal of Cardiology* 3: 212–5.
- Tyrer P, Coid J, Simmonds S, Joseph P, Marriot S. 1998. Community mental health teams (CMHTs) for people with severe mental illnesses and disordered personality. *The Cochrane Database of Systematic Reviews* Issue 4 Art. No: CD000270. DOI: 10.1002/14651858.CD000270.
- Vipond MN, Moshakis V. 1996. Four-year evaluation of a direct-access fiberoptic sigmoidoscopy service. *Journal of the Royal College of Surgeons* 78: 23–6.
- Vuolio S, Winblad I, Ohinmaa A, Haukipuro K. 2003. Videoconferencing for orthopaedic outpatients: One-year follow-up. *Journal of Telemedicine and Telecare* 9: 8–11.
- Wallace P, Barber J, Clayton W, Currell R, Fleming K, Garner P, *et al.* 2004. Virtual outreach: a randomised controlled trial and economic evaluation of joint teleconferenced medical consultations. *Health Technology Assessment* 8: 1–119.
- Wallace P, Haines A, Harrison R, Barber JA, Thompson S, Roberts J, *et al.* 2002a. Design and performance of a multi-centre randomised controlled trial and economic evaluation of joint tele-consultations [ISRCTN54264250]. *BMC Family Practice* 3: 1.
- Wallace P, Haines A, Harrison R, Barber J, Thompson S, Jacklin P, *et al.* 2002b. Virtual Outreach Project. Joint teleconsultations (virtual outreach) versus standard outpatient appointments for patients referred by their general practitioner for a specialist opinion: a randomised trial. *Lancet* 359: 1961–8.

Outpatient Services and Primary Care: A scoping review

- Watura R, Lloyd DCF, Chawda S. 1995. Magnetic resonance imaging of the knee: direct access for general practitioners. *British Medical Journal* 311: 1614.
- White PM., Halliday-Pegg JC, Collie DA. 2002. Open access neuroimaging for general practitioners—diagnostic yield and influence on patient management. *British Journal of General Practice* 52: 33–5.
- Whited JD. 2006. Teledermatology research review. *International Journal of Dermatology* 45: 220–9.
- Whited JD, Datta S, Hall RP, Foy ME, Marbrey LE, Grambow SC, *et al.* 2003. An economic analysis of a store and forward teledermatology consult system. *Telemedicine journal and e-Health: The Official Journal of the American Telemedicine Association* 9: 351–60.
- Whitten PS, Mair FS, Haycox A, May CR, Williams TL, Hellmich S. 2002. Systematic review of cost effectiveness studies of telemedicine interventions. *British Medical Journal* 324: 1434–7.
- Williams JG, Cheung WY, Russell IT, Cohen DR, Longo M, Lervy B. 2000. Open access follow up for inflammatory bowel disease: pragmatic randomised trial and cost effectiveness study. *British Medical Journal* 320: 544–8.
- Wooton R, Bloomer SE, Corbett R, Eedy DJ, Hicks N, Lotery HE, *et al.* 2000. Multicentre randomised controlled trial comparing real time teledermatology with conventional outpatient dermatological care: societal cost benefit analysis. *British Medical Journal* 320: 1252–6.

Appendix 1 Details of search strategies

MEDLINE® 1966–2005 January (Week 3) (Ovid)

Searched 3 February 2005

1644 records retrieved

- 1 primary health care/
- 2 family practice/
- 3 physicians, family/
- 4 primary care.ti,ab.
- 5 primary health care.ti,ab.
- 6 general practice\$.ti,ab.
- 7 family practice\$.ti,ab.
- 8 (family adj (physician\$ or doctor\$)).ti,ab.
- 9 general practitioner\$.ti,ab.
- 10 primary care practitioner\$.ti,ab.
- 11 (gp or gps).ti,ab.
- 12 or/1–11
- 13 gatekeeping/
- 14 gpws\$.ti,ab.
- 15 ((gp\$ or practitioner\$) adj2 special adj2 interest\$).ti,ab.
- 16 ((outreach or specialist\$ or satellite) adj clinic\$).ti,ab.
- 17 (liaison adj3 (service\$ or provid\$ or provision or organis\$ or organiz\$ or deliver\$ or attachment\$)).ti,ab.
- 18 gatekeep\$.ti,ab.
- 19 shared care.ti,ab.
- 20 (integrated adj2 care).ti,ab.
- 21 (discharge adj (guideline\$ or procedure\$ or arrangement\$ or routine\$)).ti,ab.
- 22 ((primary or gp or gps) adj3 secondary care).ti,ab.
- 23 ((practice\$ or practitioner\$) adj3 incentive\$).ti,ab.
- 24 ('model of care' or 'models of care').ti,ab.
- 25 or/13–24
- 26 12 and 25
- 27 outpatients/

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28 ambulatory care facilities/
29 pain clinics/
30 surgicenters/
31 exp ambulatory care/
32 outpatient clinics, hospital/
33 ambulatory surgical procedures/
34 Surgical Procedures, Minor/
35 outpatient\$.ti,ab.
36 day surgery.ti,ab.
37 day case surgery.ti,ab.
38 day care surgery.ti,ab.
39 or/27–38
40 12 and 39
41 'referral and consultation'/
42 referral\$.ti,ab.
43 waiting lists/
44 (waiting adj (time or times or list or lists)).ti,ab.
45 appointment\$.ti,ab.
46 Patient Admission/
47 'Appointments and Schedules'/
48 admission\$.ti,ab.
49 or/41–8
50 40 and 49
51 26 or 50
52 exp great britain/
53 exp united states/
54 netherlands/
55 exp scandinavia/
56 new zealand/
57 or/52–6
58 51 and 57
59 limit 58 to (english language and yr=1980–2005)
60 letter.pt.
61 59 not 60

MEDLINE® In-Process and Other Non-Indexed Citations 31 January 2005 (Ovid)

Searched 3 February 2005

71 records retrieved

- 1 primary care.ti,ab.
- 2 primary health care.ti,ab.
- 3 general practice\$.ti,ab.
- 4 family practice\$.ti,ab.
- 5 (family adj (physician\$ or doctor\$)).ti,ab.
- 6 general practitioner\$.ti,ab.
- 7 primary care practitioner\$.ti,ab.
- 8 (gp or gps).ti,ab.
- 9 or/1-8
- 10 gatekeep\$.ti,ab.
- 11 gpwsi\$.ti,ab.
- 12 ((gp\$ or practitioner\$) adj2 special adj2 interest\$).ti,ab.
- 13 ((outreach or specialist\$ or satellite\$) adj clinic\$).ti,ab.
- 14 (liaison adj3 (service\$ or provid\$ or provision or organis\$ or organiz\$ or deliver\$ or attachment\$)).ti,ab.
- 15 shared care.ti,ab.
- 16 (integrated adj2 care).ti,ab.
- 17 (discharge adj (guideline\$ or procedure\$ or arrangement\$ or routine\$)).ti,ab.
- 18 ((practice\$ or practitioner\$) adj3 incentive\$).ti,ab.
- 19 ((primary or gp or gps) adj3 secondary care).ti,ab.
- 20 ('model of care' or 'models of care').ti,ab.
- 21 or/10-20
- 22 9 and 21
- 23 day surgery.ti,ab.
- 24 day case surgery.ti,ab.
- 25 day care surgery.ti,ab.
- 26 outpatient\$.ti,ab.
- 27 or/23-6
- 28 9 and 27
- 29 referral\$.ti,ab.

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- 30 (waiting adj (time or times or list or lists)).ti,ab.
- 31 appointment\$.ti,ab.
- 32 admission\$.ti,ab.
- 33 or/29-32
- 34 28 and 33
- 35 22 or 34
- 36 limit 35 to (english language and yr=1980-2005)

EMBASE 1980–2005 (Week 5) (Ovid)

Searched 3 February 2005

619 records retrieved

- 1 exp primary health care/
- 2 general practice/
- 3 general practitioner/
- 4 primary care.ti,ab.
- 5 primary health care.ti,ab.
- 6 general practice\$.ti,ab.
- 7 family practice\$.ti,ab.
- 8 (family adj (physician\$ or doctor\$)).ti,ab.
- 9 general practitioner\$.ti,ab.
- 10 primary care practitioner\$.ti,ab.
- 11 (gp or gps).ti,ab.
- 12 or/1–11
- 13 gatekeep\$.ti,ab.
- 14 gpwsi\$.ti,ab.
- 15 ((gp\$ or practitioner\$) adj2 special adj2 interest\$).ti,ab.
- 16 ((outreach or specialist\$ or satellite) adj clinic\$).ti,ab.
- 17 (liaison adj3 (service\$ or provid\$ or provision or organis\$ or organiz\$ or deliver\$ or attachment\$)).ti,ab.
- 18 shared care.ti,ab.
- 19 (integrated adj2 care).ti,ab.
- 20 (discharge adj (guideline\$ or procedure\$ or arrangement\$ or routine\$)).ti,ab.
- 21 ((primary or gp or gps) adj3 secondary care).ti,ab.
- 22 ((practice\$ or practitioner\$) adj3 incentive\$).ti,ab.
- 23 ('model of care' or 'models of care').ti,ab.
- 24 or/13–23
- 25 12 and 24
- 26 outpatient department/
- 27 pain clinic/
- 28 exp ambulatory care/
- 29 minor surgery/
- 30 outpatient/

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31 outpatient\$.ti,ab.
32 ambulatory surgery/
33 day surgery.ti,ab.
34 day case surgery.ti,ab.
35 day care surgery.ti,ab.
36 or/26–35
37 12 and 36
38 patient referral/
39 referral\$.ti,ab.
40 hospital admission/
41 (waiting adj (time or times or list or lists)).ti,ab.
42 appointment\$.ti,ab.
43 admission\$.ti,ab.
44 or/38–43
45 37 and 44
46 25 or 45
47 United Kingdom/
48 United States/
49 netherlands/
50 exp scandinavia/
51 new zealand/
52 or/47–51
53 46 and 52
54 limit 53 to (english language and yr=1980–2005)
55 letter.pt.
56 54 not 55

*Health Management and Information Consortium
(HMIC) Health Management and Policy database
(January 2005) (Ovid)*

Searched 3 February 2005

1674 records retrieved

- 1 primary care/
- 2 exp general practice/
- 3 exp general practitioners/
- 4 primary care.ti,ab.
- 5 primary health care.ti,ab.
- 6 general practice\$.ti,ab.
- 7 family practice\$.ti,ab.
- 8 (family adj (physician\$ or doctor\$)).ti,ab.
- 9 general practitioner\$.ti,ab.
- 10 primary care practitioner\$.ti,ab.
- 11 (gp or gps).ti,ab.
- 12 or/1-11
- 13 gatekeep\$.ti,ab.
- 14 gpws\$.ti,ab.
- 15 pws\$.ti,ab.
- 16 ((gp\$ or practitioner\$) adj2 special adj2 interest\$).ti,ab.
- 17 exp clinics/
- 18 ((outreach or specialist\$ or satellite\$) adj clinic\$).ti,ab.
- 19 (liaison adj3 (service\$ or provid\$ or provision or organis\$ or organiz\$ or deliver\$ or attachment\$)).ti,ab.
- 20 shared care/
- 21 shared care.ti,ab.
- 22 (integrated adj2 care).ti,ab.
- 23 (discharge adj (guideline\$ or procedure\$ or arrangement\$ or routine\$)).ti,ab.
- 24 ((primary or gp or gps) adj3 secondary care).ti,ab.
- 25 ((practice\$ or practitioner\$) adj3 incentive\$).ti,ab.
- 26 ('model of care' or 'models of care').ti,ab.
- 27 or/13-26
- 28 12 and 27

Outpatient Services and Primary Care: A scoping review

- 29 exp out patient services/
- 30 ambulatory care services/
- 31 pain clinics/
- 32 ambulatory care/
- 33 minor surgery/
- 34 day surgery/
- 35 day surgery.ti,ab.
- 36 day case surgery.ti,ab.
- 37 day care surgery.ti,ab.
- 38 outpatient\$.ti,ab.
- 39 or/29–38
- 40 12 and 39
- 41 exp referral/
- 42 referral patterns/ or referral rates/
- 43 referral\$.ti,ab.
- 44 waiting lists/
- 45 waiting list reductions/
- 46 patient waiting time/
- 47 waiting time for consultations/
- 48 (waiting adj (time or times or list or lists)).ti,ab.
- 49 patient appointments/
- 50 appointment\$.ti,ab.
- 51 exp patient admission/
- 52 exp admission rates/
- 53 admission\$.ti,ab.
- 54 or/41–53
- 55 40 and 54
- 56 28 or 55
- 57 limit 56 to yr=1980–2005

Cochrane Database of Systematic Reviews
(Cochrane Library 2005, Issue 1)
(<http://www3.interscience.wiley.com/cgi-bin/mrwhome/106568753/HOME>)

Searched 4 February 2005

9 records retrieved

- 1 MeSH descriptor Primary Health Care, this term only in MeSH
- 2 MeSH descriptor Family Practice, this term only in MeSH
- 3 MeSH descriptor Physicians, Family, this term only in MeSH
- 4 primary next care in Record Title or primary next care in Abstract
- 5 primary next health next care in Record Title or primary next health next care in Abstract
- 6 general next practice* in Record Title or general next practice* in Abstract
- 7 family next practice* in Record Title or family next practice* in Abstract
- 8 general next practitioner* in Record Title or general next practitioner* in Abstract
- 9 family next physician* in Record Title or family next physician* in Abstract
- 10 family next doctor* in Record Title or family next doctor* in Abstract
- 11 primary next care next practitioner* in Record Title or primary next care next practitioner* in Abstract
- 12 gp in Record Title or gps in Record Title or gp in Abstract or gps in Abstract
- 13 (1 OR 2 OR 3 OR 4 OR 5 OR 6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12)
- 14 MeSH descriptor Gatekeeping, this term only in MeSH
- 15 gpwsi* in Record Title or gpwsi* in Abstract
- 16 gp* near special near interest* in Record Title or gp* near special near interest* in Abstract
- 17 practitioner* near special near interest* in Record Title or practitioner* near special near interest* in Abstract
- 18 outreach next clinic* in Record Title or outreach next clinic* in Abstract
- 19 specialist* next clinic* in Record Title or specialist* next clinic* in Abstract
- 20 satellite next clinic* in Record Title or satellite next clinic* in Abstract

Outpatient Services and Primary Care: A scoping review

- 21 liaison near/3 (service* or provid* or provision* or organis* or organiz* or deliver* or attachment*) in Record Title
- 22 liaison near/3 (service* or provid* or provision or organis* or organiz* or deliver* or attachment*) in Abstract
- 23 gatekeep* in Record Title or gatekeep* in Abstract
- 24 shared next care in Record Title or shared next care in Abstract
- 25 integrated near/2 care in Record Title or integrated near/2 care in Abstract
- 26 discharge next (guideline* or procedure* or arrangement* or routine*) in Record Title
- 27 discharge next (guideline* or procedure* or arrangement* or routine*) in Abstract
- 28 (primary or gp or gps) near/3 (secondary next care) in Record Title
- 29 (primary or gp or gps) near/3 (secondary next care) in Abstract
- 30 (practice* or practitioner*) near/3 incentive* in Record Title or (practice* or practitioner*) near/3 incentive* in Abstract
- 31 'models of care' or 'model of care' in Record Title or 'models of care' or 'model of care' in Abstract
- 32 (14 OR 15 OR 16 OR 17 OR 18 OR 19 OR 20 OR 21 OR 22 OR 23 OR 24 OR 25 OR 26 OR 27 OR 28 OR 29 OR 30 OR 31)
- 33 (13 AND 32)
- 34 MeSH descriptor Outpatients, this term only in MeSH
- 35 MeSH descriptor Ambulatory Care Facilities, this term only in MeSH
- 36 MeSH descriptor Pain Clinics, this term only in MeSH
- 37 MeSH descriptor Surgicenters, this term only in MeSH
- 38 MeSH descriptor Ambulatory Care explode all trees in MeSH
- 39 MeSH descriptor Outpatient Clinics, Hospital, this term only in MeSH
- 40 MeSH descriptor Ambulatory Surgical Procedures, this term only in MeSH
- 41 MeSH descriptor Surgical Procedures, Minor, this term only in MeSH
- 42 outpatient* in Record Title or outpatient* in Abstract
- 43 day next surgery in Record Title or day next surgery in Abstract
- 44 day next case next surgery in Record Title or day next case next surgery in Abstract
- 45 day next care next surgery in Record Title or day next care next surgery in Abstract
- 46 (34 OR 35 OR 36 OR 37 OR 38 OR 39 OR 40 OR 41 OR 42 OR 43 OR 44 OR 45)
- 47 (13 AND 46)

Outpatient Services and Primary Care: A scoping review

- 48 MeSH descriptor Referral and Consultation, this term only in MeSH
- 49 referral* in Record Title or referral* in Abstract
- 50 MeSH descriptor Waiting Lists, this term only in MeSH
- 51 waiting next (time or times or list or lists) in Record Title
- 52 waiting next (time or times or list or lists) in Abstract
- 53 appointment* in Record Title or appointment* in Abstract
- 54 MeSH descriptor Patient Admission, this term only in MeSH
- 55 MeSH descriptor Appointments and Schedules, this term only in MeSH
- 56 admission* in Record Title or admission* in Abstract
- 57 (48 OR 49 OR 50 OR 51 OR 52 OR 53 OR 54 OR 55 OR 56)
- 58 (47 AND 57)
- 59 (33 OR 58), from 1980 to 2005

Cochrane Central Register of Controlled Trials
(Cochrane Library 2005, Issue 1)
(<http://www3.interscience.wiley.com/cgi-bin/mrwhome/106568753/HOME>)

Searched 4 February 2005

274 records retrieved

- 1 MeSH descriptor Primary Health Care, this term only in MeSH
- 2 MeSH descriptor Family Practice, this term only in MeSH
- 3 MeSH descriptor Physicians, Family, this term only in MeSH
- 4 primary next care in Record Title or primary next care in Abstract
- 5 primary next health next care in Record Title or primary next health next care in Abstract
- 6 general next practice* in Record Title or general next practice* in Abstract
- 7 family next practice* in Record Title or family next practice* in Abstract
- 8 general next practitioner* in Record Title or general next practitioner* in Abstract
- 9 family next physician* in Record Title or family next physician* in Abstract
- 10 family next doctor* in Record Title or family next doctor* in Abstract
- 11 primary next care next practitioner* in Record Title or primary next care next practitioner* in Abstract
- 12 gp in Record Title or gps in Record Title or gp in Abstract or gps in Abstract
- 13 (1 OR 2 OR 3 OR 4 OR 5 OR 6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12)
- 14 MeSH descriptor Gatekeeping, this term only in MeSH
- 15 gpwsi* in Record Title or gpwsi* in Abstract
- 16 gp* near special near interest* in Record Title or gp* near special near interest* in Abstract
- 17 practitioner* near special near interest* in Record Title or practitioner* near special near interest* in Abstract
- 18 outreach next clinic* in Record Title or outreach next clinic* in Abstract
- 19 specialist* next clinic* in Record Title or specialist* next clinic* in Abstract
- 20 satellite next clinic* in Record Title or satellite next clinic* in Abstract

Outpatient Services and Primary Care: A scoping review

- 21 liaison near/3 (service* or provid* or provision* or organis* or organiz* or deliver* or attachment*) in Record Title
- 22 liaison near/3 (service* or provid* or provision or organis* or organiz* or deliver* or attachment*) in Abstract
- 23 gatekeep* in Record Title or gatekeep* in Abstract
- 24 shared next care in Record Title or shared next care in Abstract
- 25 integrated near/2 care in Record Title or integrated near/2 care in Abstract
- 26 discharge next (guideline* or procedure* or arrangement* or routine*) in Record Title
- 27 discharge next (guideline* or procedure* or arrangement* or routine*) in Abstract
- 28 (primary or gp or gps) near/3 (secondary next care) in Record Title
- 29 (primary or gp or gps) near/3 (secondary next care) in Abstract
- 30 (practice* or practitioner*) near/3 incentive* in Record Title or (practice* or practitioner*) near/3 incentive* in Abstract
- 31 'models of care' or 'model of care' in Record Title or 'models of care' or 'model of care' in Abstract
- 32 (14 OR 15 OR 16 OR 17 OR 18 OR 19 OR 20 OR 21 OR 22 OR 23 OR 24 OR 25 OR 26 OR 27 OR 28 OR 29 OR 30 OR 31)
- 33 (13 AND 32)
- 34 MeSH descriptor Outpatients, this term only in MeSH
- 35 MeSH descriptor Ambulatory Care Facilities, this term only in MeSH
- 36 MeSH descriptor Pain Clinics, this term only in MeSH
- 37 MeSH descriptor Surgicenters, this term only in MeSH
- 38 MeSH descriptor Ambulatory Care explode all trees in MeSH
- 39 MeSH descriptor Outpatient Clinics, Hospital, this term only in MeSH
- 40 MeSH descriptor Ambulatory Surgical Procedures, this term only in MeSH
- 41 MeSH descriptor Surgical Procedures, Minor, this term only in MeSH
- 42 outpatient* in Record Title or outpatient* in Abstract
- 43 day next surgery in Record Title or day next surgery in Abstract
- 44 day next case next surgery in Record Title or day next case next surgery in Abstract
- 45 day next care next surgery in Record Title or day next care next surgery in Abstract
- 46 (34 OR 35 OR 36 OR 37 OR 38 OR 39 OR 40 OR 41 OR 42 OR 43 OR 44 OR 45)
- 47 (13 AND 46)

Outpatient Services and Primary Care: A scoping review

- 48 MeSH descriptor Referral and Consultation, this term only in MeSH
- 49 referral* in Record Title or referral* in Abstract
- 50 MeSH descriptor Waiting Lists, this term only in MeSH
- 51 waiting next (time or times or list or lists) in Record Title
- 52 waiting next (time or times or list or lists) in Abstract
- 53 appointment* in Record Title or appointment* in Abstract
- 54 MeSH descriptor Patient Admission, this term only in MeSH
- 55 MeSH descriptor Appointments and Schedules, this term only in MeSH
- 56 admission* in Record Title or admission* in Abstract
- 57 (48 OR 49 OR 50 OR 51 OR 52 OR 53 OR 54 OR 55 OR 56)
- 58 (47 AND 57)
- 59 (33 OR 58), from 1980 to 2005

*System for Information on Grey Literature (SIGLE)
(1980–June 2004) (SilverPlatter)*

Searched 4 February 2005

54 records retrieved

- 1 primary care in ti,ab
- 2 primary health care in ti,ab
- 3 general practice* in ti,ab
- 4 family practice* in ti,ab
- 5 (family adj (physician* or doctor*)) in ti,ab
- 6 general practitioner* in ti,ab
- 7 primary care practitioner* in ti,ab
- 8 (gp or gps) in ti,ab
- 9 (1 or 2 or 3 or 4 or 5 or 6 or 7 or 8)
- 10 gpwsi* in ti,ab
- 11 ((gp* or practitioner*) near2 special near2 interest*) in ti,ab
- 12 ((outreach or specialist* or satellite) adj clinic*) in ti,ab
- 13 (liaison near3 (service* or provid* or provision or organis* or organiz* or deliver* or attachment*)) in ti,ab
- 14 gatekeep* in ti,ab
- 15 shared care in ti,ab
- 16 (integrated near2 care) in ti,ab
- 17 (discharge adj (guideline* or procedure* or arrangement* or routine*)) in ti,ab
- 18 ((primary or gp or gps) near3 secondary care) in ti,ab
- 19 ((practice* or practitioner*) near3 incentive*) in ti,ab
- 20 ('model of care' or 'models of care') in ti,ab
- 21 (10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20)
- 22 (9 and 21)
- 23 outpatient* in ti,ab
- 24 day surgery in ti,ab
- 25 day case surgery in ti,ab
- 26 day care surgery in ti,ab
- 27 ambulatory care in ti,ab
- 28 minor surg* in ti,ab
- 29 referral* in ti,ab

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- 30 (waiting adj (time or times or list or lists)) in ti,ab
- 31 (23 or 24 or 25 or 26 or 27 or 28 or 29 or 30)
- 32 (9 and 31)
- 33 (22 or 32)

National Research Register (2005, Issue 1)
(<http://www.update-software.com/National/>)

Searched 4 February 2005

121 records retrieved

Issue 1:

- Regional and National (Ongoing) nrroutp1.txt
 - Regional and National (Completed) nrroutp2.txt
 - Single Centre Projects (Ongoing) nrroutp3.txt
 - Single Centre Projects (Completed) nrroutp4.txt
 - Lead Centre for Multi-Centre Projects (Ongoing) nrroutp5.txt
 - Lead Centre for Multi-Centre Projects (Completed) nrroutp6.txt
 - Participating Centres for Multi-Centre Projects (Ongoing) nrroutp7.txt
 - Participating Centres for Multi-Centre Projects (Completed) nrroutp8.txt
 - Cochrane review abstracts nrroutp9.txt
- 1 PRIMARY HEALTH CARE single term (MeSH)
 - 2 FAMILY PRACTICE single term (MeSH)
 - 3 PHYSICIANS FAMILY single term (MeSH)
 - 4 (primary:ti next care:ti)
 - 5 (primary:ti next health:ti next care:ti)
 - 6 (general:ti next practice*:ti)
 - 7 (family:ti next practice*:ti)
 - 8 (general:ti next practitioner*:ti)
 - 9 (family:ti next physician*:ti)
 - 10 (family:ti next doctor*:ti)
 - 11 (primary:ti next care:ti next practitioner*:ti)
 - 12 (gp:ti or gps:ti)
 - 13 (1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12)
 - 14 GATEKEEPING single term (MeSH)
 - 15 (gpwsi*:ti or gpsi*:ti)
 - 16 (gp*:ti near special:ti near interest*:ti)
 - 17 (practitioner*:ti near special:ti near interest*:ti)
 - 18 (outreach:ti next clinic*:ti)
 - 19 (specialist*:ti next clinic*:ti)
 - 20 (satellite:ti next clinic*:ti)

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- 21 ((liaison:ti near service*:ti) or (liaison:ti near provid*:ti) or (liaison:ti near provision:ti) or (liaison:ti near organis*:ti) or (liaison:ti near organiz*:ti) or (liaison:ti near deliver*:ti) or (liaison:ti near attachment*:ti))
- 22 (gatekeep*:ti)
- 23 (shared:ti next care:ti)
- 24 (integrated:ti near care:ti)
- 25 ((discharge:ti next guideline*:ti) or (discharge:ti next procedure*:ti) or (discharge:ti next arrangement*:ti) or (discharge:ti next routine*:ti))
- 26 (primary:ti near (secondary:ti next care:ti))
- 27 (gp:ti near (secondary:ti next care:ti))
- 28 (gps:ti near (secondary:ti next care:ti))
- 29 (practice*:ti near incentive*:ti)
- 30 (practitioner*:ti near incentive*:ti)
- 31 ((model:ti next care:ti) or (models:ti next care:ti))
- 32 (14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31)
- 33 (13 and 32)
- 34 OUTPATIENTS single term (MeSH)
- 35 AMBULATORY CARE FACILITIES single term (MeSH)
- 36 PAIN CLINICS single term (MeSH)
- 37 SURGICENTERS single term (MeSH)
- 38 AMBULATORY CARE explode all trees (MeSH)
- 39 OUTPATIENT CLINICS HOSPITAL single term (MeSH)
- 40 AMBULATORY SURGICAL PROCEDURES single term (MeSH)
- 41 SURGICAL PROCEDURES MINOR single term (MeSH)
- 42 outpatient*:ti
- 43 (day:ti next surgery:ti)
- 44 (day:ti next case:ti next surgery:ti)
- 45 (day:ti next care:ti next surgery:ti)
- 46 (34 or 35 or 36 or 37 or 38 or 39 or 40 or 41 or 42 or 43 or 44 or 45)
- 47 (13 and 46)
- 48 REFERRAL AND CONSULTATION single term (MeSH)
- 49 WAITING LISTS single term (MeSH)
- 50 PATIENT ADMISSION single term (MeSH)
- 51 APPOINTMENTS AND SCHEDULES single term (MeSH)
- 52 referral*:ti

Outpatient Services and Primary Care: A scoping review

- 53 ((waiting:ti next time:ti) or (waiting:ti next times:ti) or (waiting:ti next list:ti) or (waiting:ti next lists:ti))
- 54 appointment*:ti
- 55 admission*:ti
- 56 (48 or 49 or 50 or 51 or 52 or 53 or 54 or 55)
- 57 (47 and 56)
- 58 (33 or 57)

Research Findings Electronic Register (ReFeR)
(http://www.info.doh.gov.uk/doh/refr_web.nsf/Home?OpenForm)

Searched 7 February 2005

11 records retrieved

- 1 gatekeep*
- 2 gpwsi*
- 3 gpsi*
- 4 (gp* or practitioner*) and special and interest*
- 5 'outreach clinic'
- 6 'specialist* clinic'
- 7 'satellite clinic'
- 8 liaison and (service* or provid* or provision or organis* or organiz* or deliver* or attachment*)
- 9 'shared care'
- 10 ('primary health care' or 'primary care' or 'family practice*' or 'family doctor*' or 'family physician*' or 'general practi*' or gp or gps) and integrated and care
- 11 'discharge guideline*' or 'discharge procedure*' or 'discharge arrangement*' or 'discharge routine*'
- 12 (primary or gp or gps) and 'secondary care'
- 13 (practice* or practitioner*) and incentive*
- 14 'model of care' or 'models of care'
- 15 ('primary health care' or 'primary care' or 'family practice*' or 'family doctor*' or 'family physician*' or 'general practi*' or gp or gps) and (outpatient* or 'day surgery' or 'day case surgery' or 'day care surgery' or 'ambulatory surg*' or 'minor surg*')

Index to Theses 1716–updated 19 January 2005
(<http://www.theses.com/>)

Searched 9 February 2005

3 records retrieved

- 1 gatekeep* and (family or care or practi* or gp*)
- 2 gpwsi*
- 3 gpsi*
- 4 gp* and special and interest*
- 5 practitioner* and special and interest*
- 6 'outreach clinic'
- 7 'satellite clinic'
- 8 'specialist* clinic'
- 9 liaison and (service* or provid* or provision or organis* or organiz* or deliver* or attachment*)
- 10 'shared care'
- 11 integrated w/2 care
- 12 'discharge guideline*' or 'discharge procedure*' or 'discharge arrangement*' or 'discharge routine'
- 13 primary and 'secondary care'
- 14 gp* and 'secondary care'
- 15 practi* and incentive*
- 16 'model* of care' and family
- 17 'model* of care' and practi*
- 18 'model* of care' and gp*
- 19 'model* of care' and primary
- 20 outpatient* and (primary or family or practi* or gp*)
- 21 day and surgery and (primary or family or practi* or gp*)
- 22 (ambulatory or minor) and surg* and (primary or family or practi* or gp*)

*Campbell Collaboration Social, Psychological,
Educational and Criminological Trials Register (C2-
SPECTR) (1950-06.09.2004.pdt)
(<http://geb9101.gse.upenn.edu/RIS/RISWEB.ISA>)*

Searched 10 February 2005

5 records retrieved

- 1 {gatekeep} or {gpwsi} or {gpsi} or {outreach clinic} or {specialist clinic} or {satellite clinic} or {shared care}
- 2 {gp} and {special} and {interest} OR {practitioner} and {special} and {interest} OR {Integrated} and {care} OR {primary} and {secondary care} OR {gp} and {secondary care} OR {practi} and {incentive}
- 3 {liaison} AND {service} or {provid} or {provision} or {organis} or {organiz} or {deliver} or {attachment}
- 4 {discharge guideline} or {discharge procedure} or {discharge arrangement} or {discharge routine}
- 5 {model of care} or {outpatient} AND {gp} or {primary} or {family} or {practi}
- 6 {day} or {ambulatory} or {minor} AND {surg} AND {gp} or {primary} or {family} or {practi}

Appendix 2 Standardised form used for data extraction

Outpatient Services and Primary Care: A scoping review

ID:	Full Ref:			
Reviewer RM				
Reject? (Y/N)	Reason for rejection			
EITHER INSERT TICK IN BOXES OR 'X' – WHICHEVER YOU FIND EASIER	Relevant but in later systematic review ☐			
	Doesn't meet protocol criteria ☐	Descriptive/commentary no useful data ☐		
		Outside scope of review ☐		
		Other ☐		
Type of Study	e.g. RCT ☐	Non-randomised trial ☐	Controlled before and after study ☐	Before and after study ☐
Cohort ☐	Review (Cochrane) ☐	Systematic review ☐	Review (other) ☐	Audit ☐
	Survey ☐	Descriptive evaluation ☐	Editorial ☐	Policy commentary ☐

Outpatient Services and Primary Care: A scoping review

Dates	Systematic review dates	Start	End	
	Data collection (if stated) otherwise leave blank:			
Quality of study design	High ☐	Medium ☐	Low ☐	
Patients	Diagnosis or similar:			
	Numbers:			
Practitioners	Hospital and community:	TYPE		NUMBER
Settings		Hospitals		
		General Practices		
		Other		

Outpatient Services and Primary Care: A scoping review

Country (plus region if relevant)	UK		

Outcomes		Recorded Y/N?	Standard of Evidence A/B/C (A=best)	Findings (description including actual data and stats)
Patients	Satisfaction			
	Other			
Services	Outpatient attendance			
	Waiting time (IP)			
	Waiting time (OP)			
	Service quality			
	GP workload			

Outpatient Services and Primary Care: A scoping review

	Other			
ADD IN OUTCOMES WHICH ARE SPECIFIC TO YOUR AREA BY INSERTING ROWS IN THE TABLE HERE.				
Costs	Hospital			
	Primary care			
	Patient			
	Other			
Any other comments about the study				
Notes including papers that may need to be obtained				

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