



SERVICE INNOVATIONS BACKGROUND RESEARCH RAPID REVIEWS

SIBR³

Report 5

Review of Strategies Shaping Demand
for Care

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REVIEW OF STRATEGIES SHAPING DEMAND FOR CARE

‘What are the effective strategies that are responsible for shaping the demand for care, which can be identified in current health research literature?’

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Contents

- 1. Introduction**
- 2. The Background Environment.**
- 3. Methods**
- 4. The research questions**
- 5. Variations and Managing Demand**
- 6. Front line care coverage: managing the increasing demand for out of hours primary care**
- 7. Managing the Primary Secondary Care Interface**
- 8. Reducing Secondary Care admission Rates**
- 9. Intermediate Care**
- 10. Technological Innovations**
- 11. Funding and Policy**
- 12. Quality Enhancement**
- 13. Informing the consumer and participation in decision making**
- 14. Human Resource Management**

1. Introduction

This paper is a report on currently available background research evidence relating to the following question:

What are the effective strategies that are responsible for shaping the demand for care, which can be identified in current health research literature?

The purpose of this report is to provide health care decision makers with a short reference manual on the existing evidence relating to shaping the demand for care as seen from a wide range of perspectives.

2. The Background Environment.

Health and Social Care communities have conducted Local Modernisation Reviews with the aim of planning and implementing change. Health Improvement and Modernisation Plans contain these change elements. There are the three main areas of priority announced by the Chief Executive of the NHS:

Improving emergency services in terms of their availability, quality, comprehensiveness and speed.

Reducing waiting throughout the system and in particular for consultations in Primary Care and hospital and admissions to hospital.

Continuing to implement on agreed time scales the national cancer plan and the national service frameworks in coronary heart disease, mental health and services for older people.

Demand for care is an important factor in all of these priority areas. This paper is devised to provide health service managers decision makers with an up to date understanding of the known variables and how their effects may impact upon the components of these priority processes.

3. Methods

Search Strategies

The search strategy for the update review follows a limited version of the framework laid out in the CRD guidelines. The search was carried out through the use of: databases, hand searching, published and grey literature and electronic searches of various journals. This is a rapid review in a broad subject area. Different search strategies have been adopted depending on the category being examined. Where reviews by other authors are referred to, they are appropriately cited and referenced.

Data bases searched:

Medline
Cinhal

DARE

HTA

NHS Economic Evaluation database

ARIF

NICE

SEEK

SPOTLIGHT

TRIP (using the search terms for Medline for ratification)

The Department of Health databases of Circulars (COIN) and Publications (POINT) were searched for documents using the key words.

National Electronic Library of Health

ZETOC (British Library's Electronic Table of Contents database)

www.idealibrary.com

www.pubmed.oupjournals.org

In addition the following web sites were examined for publications:

Kings Fund

University of Exeter

ENB Health Care Database

Caresearcher UK

Cochrane Library

ECHHSR database

Effective Health care Bulletins

CRD Reports

APC Journal Club

Bandolier

Evidence Based Health Policy and Management

Annals of Internal Medicine

Kings Fund

Department of Health - press releases, executive letters and circulars

Effectiveness Matters

Health Technology Assessment

Evidence Based Medicine

Best Evidence

Evidence

Audit Commission

Medline (PubMed) Search terms:

Embase (key word and author searches were performed) The key word search term were:

| | | | |
|-----|------------------|-----|------------------|
| 001 | admissions.tw. | 014 | evaluation.tw. |
| 002 | appropriate.tw. | 015 | substitution.tw. |
| 003 | readmissions.tw. | 016 | diversion.tw. |
| 004 | utilisation.tw. | 017 | 1 and 2 |
| 005 | preventable.tw. | 018 | 1 and 5 |
| 006 | recurrent.tw. | 019 | 1 and 6 |
| 007 | referral.tw. | 020 | 2 and 7 |
| 008 | emergencies.tw. | 021 | 9 and 10 and 11 |
| 009 | hospital.tw. | 022 | 1 and 12 |
| 010 | services.tw. | 023 | 1 and 4 |
| 011 | review.tw. | 024 | 4 and 14 |
| 012 | inpatient.tw. | 025 | 1 and 15 and 16 |
| 013 | aep.tw. | 026 | 8 and 15 and 16 |

Hand searching

The following Journals were hand searched:

Health Service Journal 2000-2002

Journal of Public Health Medicine 1996-2002

Journal of Health Services Research and Policy 2000-2002

Medical Care 1998- 2002

International Journal of Health Services 1998-2002

International Journal for Quality in Health Care 1998 –2000

Quality in Health Care 1998-2002

Australian Health Review 1998-2002

Search terms:

Effective service modification

Strategy

Policy

Care pathways

service modification

Demand

Fast-Track.

Search terms were cross referenced with:

Further searches including all headings were further cross referenced with:

4. The research questions

‘What are the effective strategies that are responsible for shaping the demand for care, which can be identified in current health research literature?’

This is obviously a very broad question with which to address such a complex a system as a health service. There are a some very different academic approaches, all justifiable, which if conducted in depth would each be capable of providing a very large academic report in there own right. Examples might include some of the following: a detailed economic analysis studying demand-side factors, balanced against supply-side factors, offset against population need and costs; a structural analysis investigating social care, community care, primary, secondary and tertiary health care in relation to need, demand, strategic commissioning and policy development; a study of how enhanced quality and outcomes and technological innovation can drive the demand for care; a detailed analysis of community, carer and user perceptions of need and demand for care; a trend analysis of human resource needs and availability in response to projected demands for care.

The purpose of this paper is to provide a relatively rapid response to current questions being faced by strategic decision makers and persons responsible for innovation in policy development. It is a practical exercise limited by expediency and not intended to be exhaustive. The approach therefore is a mixed one which hopes to address the subject by identifying major scientific and articles and reviews as well as reports and news from the health press across specific areas or categories. The categories are as follows:

5. Variations and Managing Demand

Much has been written on variations in practice particularly since the 1960s, so that variation studies are now frequently used as a baseline for demonstrating health inequities and access deficiencies, and for managing change in health systems. Much of the access to formal health and social care in the NHS is channelled through primary care. This has been one major reason for moving strategic decision making processes to Primary Care Trusts. (Gillam et al. 1998). In a series of articles on managing the demand for health care Pencheon (1998) points out that, while the challenge of meeting the demand for public services which are free at the point of use is increasing, health care appears unique amongst the cited examples (water, higher education and road space) in failing to manage demand. He shows that unlike the other services which are controlled through either reducing demand or increasing supply that the opposite pertains in health care. Demand is increased by raising expectations and supply is cut through lack of resources.

Demand for health care is undoubtedly rising. The average number of consultations for children in each of the first years of life appeared to rise in the 1980 and 90s. (Del Mar AR. 1996). While day time GP consultation rates have increased only slightly over the past 10 years but out of hours calls have escalated more dramatically. Hospital productivity increased substantially over the 1980s and 1990s. Over two thirds more patients were treated using two fifths fewer beds, between 1982 and 1997/8. In the 1990s day surgery has seen four to five fold increases. In the same period there has been a concomitant growth in the private sector, particularly in the provision of nursing home beds, but also in social care and local authority care provision and the private acute sector. (Hensher & Edwards 1999). It is suggested that managing the pressure on the health service is as much about managing the expectations and rights of professionals to treat as it is about managing the expectations of patients to be treated. **'Demand Management'**, is described as the process of identifying where, how, why, and by whom demand for health care is made, and then deciding on the best methods of managing this demand, such that the most cost effective, appropriate, and equitable health care system can be developed (Vickery et. al. 1995). There are three common loci proposed for action: *Promotion of Self Care* helping people make more appropriate decisions about their own health, through a variety of information sources. *Gate keeping or filtering into primary care* through telephone advice and interactive information sources, sharing knowledge and decision making, self help and community agencies. *Filtering from primary care* by supporting general practitioners and their patients in managing demand more extensively, providing more graduated access from primary care to secondary care (or other statutory and voluntary services). A subsequent article in the series identifies, from the literature, factors which modify accessibility to services. These include proximity, social resources, financial resources, the organisation of primary care in terms of numbers of GP partners, appointment systems, same day access and telephone or email services, individual

and local perceptions and previous experience and interaction with their doctors expectations. (Pencheon *ibid.*, Rogers *et al.* 1998). Coulter (1998) suggests the filtering role of general practitioners is an important mechanism for managing demand in the NHS contributing to the lower cost of health care relative to other countries. It ensures that most care is contained within general practice directing referrals to the most appropriate specialist according to need at the discretion of the GP. It is, as such a restrictive practice giving general practitioners a monopoly over primary medical care and restricting patients' freedom of choice. In general, however, the perception that GPs usually refer to secondary care, in response to patient demand, maintains the profession's esteem in the eyes of most patients. UK primary to secondary care referral rates at 5% are not consistently low compared to countries which spend more on health care *eg.* Germany 5% and France 2.6% (RCGP 1992). What may be more of a filter than secondary care gate-keeping is the limited access that UK general practitioners have to certain diagnostic and therapeutic interventions, which are traditionally been restricted to hospital practitioners such as imaging, therapies allied to medicine and certain pathological investigations. Gillam *et al.* (1998) suggested that telephone triage systems (both in and out of hours) offer enormous opportunities to change existing workloads, and NHS Direct appears to be bearing this out in restraining increasing demand, (Munro *et al* 2000). Other proposals included technological advances in electronic data interchange and near patient testing may offset the need for some urgent referrals

6. Front line care coverage: managing the increasing demand for out of hours primary care

A 1994 telephone survey of patients at five UK primary care centres found a majority of patients were not prepared to attend central primary care facilities after hours the main reasons given being no transport or too ill. At that time urban doctors dealt with a third of out of hours calls with telephone advice, yet over 9 out of ten respondents expected a home visit and 2 in ten expected to be referred to hospital. The study found that those who did attend were seen more quickly and had similar prescription rates (c.81.5%) and hospital referral rates (c.5.5%) to those who were seen at home (Cragg *et al.* 1994). A report from a telephone survey of family health service authorities published in 1994 showed out of hours care to be highest in urban areas, with about a third of visits provided by deputising services, up to a quarter of health authorities showed weakness in their overall knowledge of services and the majority had limited information on inter-practice co-operation (Hallam *et al* 1994). A randomised controlled trial of care provided by patients own GPs, compared with that provided by deputising services, in four urban areas in England, showed patients' satisfaction to be higher with their own doctors. This preference was mainly in relation to timeliness, there was no demonstrable difference in health outcomes, (McKinley *et al.* 1997).

A modification to clause 13 of the General practitioners' terms and conditions of service (DoH 1989) in 1996 has reinforced the GP's right to determine whether and where an out of hours consultation takes place (Hallam 1996). Rapid appraisal of health and social needs in general practice using a range of quantitative and qualitative survey methods have been proposed as a method for development of out of hours services (Ong *et al.* 1991, Ong 1994, Murray *et al.* 1994). A project describing such methods in South London reports on how it provides a baseline for monitoring service development as well as identifying appropriate partnership and stake holder involvement (Dale *et al.* 1996). A follow up paper reported on the types of users for different services and ways in which collaborations may be developed (Shipman *et al.* 1997).

A recent 12 month observational study of approximately 0.9million out of hours telephone calls to 20 co-operatives in England and Scotland has shown the average rate to be 159 calls per 1000 patients per year, with little 'day of the week' or seasonal variation. The deprived to non-deprived area of residence ratio was 1.7 : 1. The child (under 5) to adult ratio was 4:1. 46% of calls were handled with telephone advice, 24 % with a visit to the centre and 30% with a home visit. In Denmark prior to 1992 out of hours GP services were provided on the basis of single GPs or practices, local small town rosters and urban deputising services. In 1992 a system of co-ops and shared computer records was introduced which sees GPs providing a triage between home visits, consultations and telephone advice (Olsen et al.1994). The main results have been to substantially reduce on-call hours for general practitioners and replace a significant proportion of home visits with telephone advice. The home visit rate dropped from 46% to 18% and the telephone advice rate doubled (Christensen et al. 1998).

7. Managing the Primary Secondary Care Interface

The whole system approach to care has provided increasing incentives to develop intermediate care services. While popularity and clinical viability of such services increase, Edwards et al. (1998) noted that evidence on the demand management potential for them remains unclear. The fact that substitutes for acute care are not measured in the same 'currency' as acute care (the inpatient episode), means that there is no measurable way to discern if a new service has indeed substituted or alternatively expanded the existing service. This could happen through taking on care of patients who would not have otherwise be admitted to hospital, or by not addressing the approximately 30% of inpatient bed days (O'Neill et al. 1999) where patients are not receiving acute care. There is an urgent need to develop this common currency.

A systematic review on communication across professional boundaries found that existing methods of transferring information were poor, the timing of information transfer was a major problem, formal communication was widely reported as unreliable, informal telephoning was frequently preferred but its informality leads to weaknesses in responsibility and accountability, hospital staff prioritise hospital needs and are frequently unaware of community workers. There was little evidence of the use of electronic computerised information transfer systems. Information breakdown was associated with: perceived busyness, lack of role understanding, lack of priority for planning, lack of co-ordination, fragmentation of knowledge between different professionals, erroneous assumptions about family support issues made by those discharging the patients, and lack of consensus on the use of key workers, (Payne et al. 2001).

Improving the quality of care delivered at the interface between primary and secondary care has been the subject of intensive study, much of which has been summarised in the literature review contained in Report No. 4 section 5.1 (Interventions examining the primary and secondary care interface and GP referrals).

Audit at the primary-secondary care interface is seen as an opportunity for closing the gaps between two groups who have little contact and little knowledge of each others experiences and a potential opportunity for major enhancement to the quality of care. (Szecsenyi 1996). A survey of such activities in 1996 found such audits were relatively common, though most were initiated in response to a particular perceived problem, with only a minority being

initiated collaboratively and most audits stopped short of implementing change (Eccles et al. 1996).

8. Reducing Secondary Care admission Rates

Increasing hospital productivity has been referred to above. Other reasons for the increase in acute admissions can include demographic changes, changes in the ethnic and socio-economic composition of the population, changing exposure to certain risk factors for example obesity, alcohol consumption, changing societal patterns of care, economic incentives for health care organisations, changes in the prevalence of illnesses, increased expectations of patients, and an increased number of deputising services for after hours GP care.

The New Zealand Health Technology Assessment (NZHTA) Clearing House has conducted a critical appraisal of the literature on acute medical admissions which includes a section on interventions to reduce hospital admissions (1998). This excellent review is of high quality and enormously extensive and detailed coverage. The review's main findings along with some additional research findings are presented here:

8.1 Macro-management strategies to reduce acute admissions

8.1.1 Hospital closure(s)

Possibly the most effective method to reduce unnecessary hospital usage is simply to close hospital beds by eliminating surplus capacity and instituting the optimal hospital bed to population ratio, bench marking against best practice hospitals. (Edwards, 1997, Wennberg, 1996). Wennberg's ecological approach suggests that any reduction in an area's hospital bed capacity can not harm patients, because research does not support any relationship between the number of hospital beds in a population and the mortality rates for that population (Wennberg et al., 1989). Hospitals have traditionally closed wards to meet budgetary constraints for a long time. However, relatively little is known about the effects of changes in an area's hospital bed capacity and its relationship with population-based outcomes. The effects are likely to be complex and multifactorial, with unpredictable results in different locations. A study comparing the population health outcomes of substantial hospital closure areas with non-closure areas demonstrated no differences in mortality (Rosenbach et al. 1995). Less drastic, but however unpleasant, differences may be associated, such as trolley wait times and other parameters of care quality as have been monitored in areas of substantial bed stock change, for example during the changes arising from LIG report, (LIG 1994). An alternative approach to capacity control is to conduct detailed audit of the appropriateness of each individual admission and subsequent days of stay using criteria audit tools in utilisation review studies. Although it is possible that one effect of hospital closure may be to reduce the amount of hospital admissions in an area, other effects on the mortality and morbidity of the local population have not been sufficiently well explored to enable any conclusions to be made about the relative merits of this intervention.

8.1.2 *The effect of changes in hospital reimbursement on admission rates*

The three most important developments which determine how hospitals and primary care practitioners (mainly general practitioners) are reimbursed for their services have emerged since the eighties: a) Prospective DRG payment. b) Fundholding or budget-holding. c) Health maintenance organisations (HMOs).

a) Prospective DRG payment

Increasingly, hospitals are paid by contracts that prospectively specify the number of service units (DRG) for different conditions (Wilkinson et al., 1995). Prospective payment systems have been credited with reducing the inappropriate expansion and to be effective at containing admission rates and hospital costs. (Marks, 1995, Duckett 1998). Both lower admission rates (Altman et al. 1993, Scheffler et al. 1994, Powers 1997) and lower costs (often by as much as 40%) have been recorded (Rosko et al. 1987; Manton et al. 1993; Robinson, 1996 a; Miller, 1994; Robinson et al. 1995). There is, therefore, consistent evidence that prospective payment is associated with a reduction in hospital admission rates. However, concerns have been expressed that this reduction may be at the expense of some quality of care. (Wilkinson et al. *ibid.*) Also, some of the reduction in admission rates associated with DRG-based payments may have been artefactual, associated with ‘gaming’ the coding to the benefit of the payee (Iezzoni, 1990).

b) Fundholding or budget-holding

Fundholding or budget-holding involves the allocation of set budgets to (usually) general practitioners for the purchase of selected treatments for a specific group of patients. Practitioners are motivated to provide the most efficient services to their patients (Wilton et al. 1998). It appears from the limited evidence available that budget-holding has a mixed effect on the admission rate of patients with acute medical conditions.

c) Effect of HMOs on admission rates

HMOs started to appear in the United States in the seventies. They provide organised systems of comprehensive prepaid primary and secondary health care to an enrolled population (Kuttner, 1998). They frequently include aspects of prospective payment and budget-holding. A variation, known as PACE, (Programme for All-inclusive Care for the Elderly (PACE) enrolls elderly people in rest homes and provides them with comprehensive acute and long-term primary, secondary and tertiary care (Kunz et al. 1996, Eng et al. 1997). Patients enrolled in an HMO have exhibited lower emergency admission rates. However, it is not clear if HMO membership selectively reduces unnecessary admissions and whether selection bias (that is, healthier people may be preferentially enrolled in HMOs) may account for some of this reduction.

8.1.3 *Public health interventions to reduce admissions*

A large US cohort study found that the provision of influenza vaccination to elderly people markedly reduced their hospital admission created economies in a US HMO (Nichol et al., 1994). Several cross-sectional studies have consistently a marked reduction in paediatric admission rates since the introduction of haemophilus influenza type B immunisation e.g. (Liptak et al. 1997; Gorelick et al. 1994). An ecological study recorded a 66% decrease in the number of burn admissions in Australia between 1970-1994, (Streton et al. 1997). The reduction was suggested to be the result of mandatory changes in sleepwear standards, allied

to a health promotion. Another ecological study, based in Sweden, attributed the reduction in admissions for acute pelvic inflammatory disease to more frequent condom use associated with increasingly widespread safe sex education in Sweden between 1970-1994 (Kamwendo et al. 1996). However, the ecological design has certain weaknesses. A US-based study found that a promotional campaign to increase the number of cyclists and motorcyclists wearing helmets may have contributed to a reduction in hospital admission rates between 1986-1993 (Mock et al., 1995). Although having limitations the study's result is consistent with findings from research based in other countries that has used a similar cross-sectional design (e.g. Rivara et al., 1994) and other studies that have used different methodologies (e.g. case control study by Thompson et al. (1989). Cameron et al., (1994) found that helmet usage markedly increased in the two years after the introduction of legislation in Victoria, and there was an associated significant reduction in both the rates of hospital admission and death amongst cyclists. However, the limitations of the quasi-experimental design used in this trial were made apparent by the results of another study undertaken by Robinson (1996b), who found that although injuries amongst cyclists had declined following the introduction of the legislation, so had the number of people cycling. In addition, Robinson noted that the introduction of the legislation coincided with a major road safety initiative in the state directed at changing the behaviour of speeding or drinking drivers. It was therefore possible that hospital admission and fatality rates among cyclists had reduced in relation to a decline in the number of cyclists and the risks on the roads rather than in response to the effects of the new legislation. The New Zealand HTA review also noted that one other study (Maimaris et al. 1994) could not exclude the possibility that helmet wearers were generally more safety conscious than non-helmet wearers and were therefore less likely to be involved in a serious accident. They concluded that population-based campaigns to reduce hospital admissions related to falls, head injuries and scalds appear to have been effective. However, firm conclusions are difficult because of the large number of potential confounders in the trials.

8.1.4 Provision of home hospital care

Beside the rise in emergency admissions to hospital there are other reasons for the rise in alternatives to hospital care. These include an increasing recognition of the problems associated with hospitalisation, including nosocomial infections, risks associated with prolonged bed rest and potential psychological problems related to institutional care. Allied to the general disquiet associated with the deleterious effects of inpatient care are the rapidly increasing costs associated with the buildings, staff and the other resources needed to maintain modern hospitals (Marks, *ibid.*). Most of these alternatives have grown from local initiatives, and have not emerged from detailed, rational examination of each element of the workload of a hospital and close examination of the cost-effectiveness of which option presents the best health outcome for patients (Harrison et al. 1995). Spiby identified the potential for transfer for each of a number of common hospital admission diagnoses. However, the author stressed that the exercise was closely based on local and may not be generalisable (Spiby, 1995). Hospital-at-home interventions may be appropriate for a significant percentage of patients currently admitted for inpatient care. Leff et al. (1997) presented a prospective record review that found home hospital care may have been appropriate for one third of their sample of 150 elderly patients admitted to US hospitals. A major review by Marks (*ibid.*) of home care identified four parallel streams of literature in hospital-at-home care: substitutes for hospital-based acute care, early discharge programmes, terminal illness care, and the provision of high technology care at home.

8.1.5 Hospital at home for acute illness

The literature on hospital at home treatment for myocardial infarction is now largely redundant with the advent of thrombolytic therapy, which has ensured that inpatient care is now mandatory for this condition. Also systematic reviews of comparisons of stroke care at home with hospital are becoming outdated as patients managed in specialist stroke units were more likely to be alive, and living independently, one year after their stroke. (Warlow et al. 1997). In the light of this result, the most appropriate comparison of the effectiveness of hospital-at-home care it would seem to be with that provided at specialist units. No trials that had attempted to undertake this analysis were identified by the NZHTA review. Two small descriptive studies consistently found that hospital-at-home care was a safe and effective option for the management of a DVT (Ting et al. 1998, Montalto 1998). Although promising the methodological limitations of the studies prevented any conclusions from being made about the relative efficacy of home care for DVT treatment.

8.1.6 Hospital at home to assist early discharge

The review suggested that small studies were too weak to contribute much and that large prospective randomised controlled trials are necessary to conclusively find if hospital-at-home care is safe and effective. A Cochrane review group reported the effectiveness of hospital-at-home interventions to assist with the early discharge of medical and surgical patients (Shepperd et al. 1997). The studies reviewed generally found that patients discharged early to hospital-at-home care expressed greater satisfaction than those who remained in hospital. None of these studies were able to find a statistically significant difference between the net overall health care costs and the reviewers concluded that there was insufficient evidence to support, or discontinue, hospital-at-home schemes for early discharge.

Two more recently published controlled trials (Shepperd et al., 1998b; Richards et al., 1998), conducted more rigorously, and associated with cost-minimisation studies (Shepperd et al., 1998a; Coast et al., 1998). found no differences in health outcomes associated with the provision of hospital-at-home care for the early discharge of medical and surgical patients compared to usual inpatient care. Furthermore the different cost findings, between the two studies tended to suggest that hospital-at-home schemes therefore appear to shift costs within the health sector from secondary to primary care organisations and from the health sector to social services and (perhaps) to the patient. Larger multicentre ongoing controlled trials may provide more insight into the cost-effectiveness of home care, at least when it is applied to early discharge (Iiffe, 1998).

8.1.7 Hospital at home for terminal care

The Cochrane Review (Shepperd et al. 1997) mentioned above examined a study for the use of hospital at home to provide terminal care, (Hughes et al., 1992) It was unable to find a statistically significant difference between the study groups for a number of outcomes including patient satisfaction, length of institutional stay, functional capacity, and the utilisation or costs of health services. Another recent systematic review has also examined the effectiveness of home care for patients with incurable cancer on their quality of life and time spent in hospital in several studies (Smeenk et al., 1998). Most actually found a significantly positive effect from home care on these outcomes. Some concerns remain, however, about the validity of these conclusions, because the studies themselves were all US based and because the quality of the literature in this area is generally very poor.

8.1.8 High technology at home

Home enteral/parenteral nutrition.

Home parenteral nutrition has been shown to be cost-effective using a long-term indwelling silastic catheter (Detsky et al., 1986). Another small cost utility study based in the United Kingdom also found a favourable result for home-based parenteral nutrition in relation to the treatment of intestinal failure (Richards and Irving, 1996). Although based on small and selected patient groups, these results are encouraging. Furthermore, home enteral nutrition could possibly even be applied to a wider group of patients because it is easier to administer and less costly (Marks, 1991). Home enteral and parenteral nutrition are examples of potentially successful hospital-at-home interventions that merit further research attention (Marks, 1991).

Intravenous antibiotics

In general, the findings from studies that have described the home-based administration of intravenous antibiotics suggest, but have not proven, that outpatient antibiotic delivery can be clinically acceptable and resource efficient although some concerns still exist about professional liability and the reimbursement policies of health funders (Clarke, 1997; Natwhani and Davey, 1996; Marks, 1991). A significant lack of high-quality research from controlled trials exists (Montalto, 1996).

Renal dialysis and peritoneal dialysis.

In relation to home treatment for renal disease, Marks (1991) estimated that treatment at home by continuous ambulatory peritoneal dialysis was associated with less than half the costs of hospital.

Oxygen therapies

Several studies have addressed home ventilation. Typically these studies have involved small numbers of highly selected patients.

8.1.9 Community hospitals/GP beds

The NZHTA reviewers noted that any evaluation of community hospitals is significantly hampered by the lack of any generally accepted definition of these hospitals. ***This issue has been addressed at length in a previous SIBR3 Review (Report 4 Section 4.5.5).*** The single systematic review examining the effectiveness of community hospitals identified in the NZHTA project found the quality of the evaluations was poor, most being only descriptive reviews written by partisan supporters of a particular service. The few cost effectiveness studies that have been undertaken were hampered by variations between hospitals in their case mix, differences in which costs had been included and variations in the method by which costs have been assessed (Anglia and Oxford Intermediate Care Project, 1997). Estimates for the use of community hospitals as a substitute for acute hospital care concluded that between 5–60% of patients admitted to a general hospital could be treated in a community hospital (Coast et al., 1995; Tomlinson et al., 1995; Durham and Durham, 1990; Jones, 1988; Baker et al., 1986). In conclusion the authors said, ‘Despite the reported interest in GP beds and community hospitals as an alternative to inpatient care in a general medical hospital, limited evidence exists from well-designed trials to either confirm or refute the safety and effectiveness of these hospitals. Much of the problem in the literature relates to the lack of any agreed definition of what constitutes a community hospital and the wide variations in the case mix attending the different hospitals that have been described in the literature.’

8.1.10 Patient hotels

Patient hotels have been defined as separate buildings adjacent to hospitals that provide good quality hotel accommodation for mobile patients who can perform some self-care (NHS Management Executive, 1995). The NZHTA reviewers concluded: ‘There has been surprisingly little evaluation of patient hotels as an alternative to inpatient care in an acute hospital. The two studies that have attempted to estimate the percentage of patients appropriate to receive care in a patient hotel instead of an acute hospital both found that about 10-14% of patients were eligible for hotel care. In general, most of these patients were eligible on the basis of their appropriateness for immediate discharge to a hotel bed after a brief inpatient stay in a general hospital in order to assess their condition and begin an appropriate therapy or rehabilitation that could then be maintained in a less medically-intensive setting. The validity of the findings from these two studies was significantly limited by their essentially descriptive methodology. Both failed to provide any analysis of the clinical and financial outcomes associated with care provided in a patient hotel.

8.2 Micromanagement strategies to reduce acute medical admissions

8.2.1 Primary care

A central concept in the literature is the assumption that a significant number of hospital admissions are due to poor access to, or inferior, primary care. The corollary of this assumption is that alterations to the way that primary care is delivered can reduce hospital utilisation. Studies evaluating the relationship between GP characteristics and hospital admission rates have reported mixed results. While studies that have examined the effect of changes in access to primary care have produced mixed results, specific interventions based in primary care have been found to reduce hospital admission rates, especially for defined conditions. Details of the studies referred to can be found from the original research at <http://nzhta.chmeds.ac.nz/acute.htm>. *Much of this research is also covered in the literature review included as part of a previous SIBR3 Review, (Report 4 Section 5).*

8.2.2 Hospital outpatient-based interventions to reduce admissions

The NZHTA review identified a number of studies which have assessed the ability of services provided (usually) by multi-disciplinary teams in hospital-based outpatient (OP) departments to reduce the demand for inpatient care. They studies focused around five broad types of intervention: Outpatient-based education delivered to individual patients. Outpatient-based education delivered to groups of patients. Increased outpatient facilities or enhanced patient access to these facilities via their GP. Outreach services provided by hospital outpatient departments. The provision of an urgent referral service for GPs to hospital consultants. They concluded as follows: ‘Outpatient-based patient services have expanded in recent years in most western countries (Pancheon et al., 1995). Unfortunately research to examine the effect of these augmented services on the demand for inpatient care has not kept pace. There was no evidence from the assessed literature that education delivered to either individual or groups of patients in an outpatient setting reduced acute medical admissions. By contrast, the provision of more outpatient-based treatments or an enhanced ability for GPs to refer patients directly to

either a routine or an urgent outpatient appointment appeared to have some potential to reduce admissions, particularly when it was associated with other measures to improve communication between consultants and GPs.’

8.2.3 *Emergency department interventions*

The review found that most Emergency Department (A&E) based interventions to reduce acute admissions have not been evaluated by randomised controlled trials. Therefore, the effectiveness of increasing ED-based services, increased patient education, or the provision of either more senior staff or social workers remains uncertain. By contrast, the use of GPs in the ED appears to be effective at reducing admissions.

8.2.4 *Emergency Observation Units*

The review cites the following: An observation unit has been defined as a "designated area within and under the direction of the ED for patients who require further treatment or evaluation" (Brillman et al., 1995). Their function "to be an active filter into the hospital: an investigation and urgent treatment centre with near patient testing and imaging facilities" (Pancheon et al. 1995). Consequently, the provision of an observation unit enables the admission procedure to become a two-stage process. In this process the unit offers an intermediate stage with services that cater for patients who may require observation or treatments that do not obviously require the intensive services of an acute medial hospital bed. The rationale for these units is therefore that they aim to improve the quality of care for patients through extended ED-based evaluation and treatment while reducing inappropriate admissions and health care costs. Observation units included in, or attached to, ED departments have become increasingly common in the UK (Pancheon et al., 1995). Observation units have also become common in Australia (Jelinek and Galvin, 1989), although there is some variation in the way they have been used in different hospitals (Jelinek and Galvin, 1989). Brillman (1995) identified key success features: The period of observation should have a focused goal. The unit should be located near the ED. Staffing levels are important, regular rounds need to be made by senior clinicians to enable patients to be rapidly evaluated and discharged. Experienced nurses can relieve some of the pressure on junior medical staff. Units need access to 24-hour diagnostic support services. The intensity of service needs should be limited. The patient’s illness severity should be limited. The clinical condition should be appropriate for observation.

The reviewers found that many (but not all) descriptive studies have found favourable results associated with the introduction of an observation unit in an ED. Experimental studies have found mixed results in relation to the effectiveness of observation units in reducing admissions. All four experimental studies were noted to have significant methodological deficiencies. Consequently there still remains some uncertainty about whether observation units can effectively reduce hospital admissions. No firm conclusions can be made from an evaluation of the literature examining the effectiveness (or cost-effectiveness) of these units to improve health outcomes because of the methodological deficiencies of the available studies. The use of observation units to undertake several functions (observation, investigation and treatment) has created some confusion in the literature. It is difficult to compare the effectiveness of units that are fulfilling different functions. Aside from the use of observation units to reduce unnecessary admissions, the units may offer other benefits such as relieving

pressure on ward-based staff, minimising disruption to patients on hospital wards and enabling hospitals some flexibility in responding to different admission loads. In addition, a centralised admission site can improve the efficiency of admission for both the medical staff and patients by reducing their respective need to visit a number of wards or travel to several venues for investigations.

8.2.5 *Chest pain observation units*

The NZHTA review noted that number of admissions for chest pain has increased substantially in a number of countries. From their review they concluded that: ‘Evidence is accumulating which suggests that the evaluation of a low-risk patient in the cardiac observation unit is a safe and cost-effective alternative to hospital admission. The proper development of these units requires close co-operation between emergency physicians and cardiologists as many current protocols require that a patient should receive a consultation with a specialist and/or specific investigations that are arranged by a consultant. It is likely that these centres will become increasingly popular in the future, albeit mainly located in major centres where a reasonable patient caseload could justify the provision of 24-hour cover by consultant cardiologists.’

8.2.6 *Maximising bed utilisation*

Another way to manage the increase in medical admissions is not to increase the number of alternative beds but to improve the allocation, organisation and management of beds to maximise the efficient use of existing bedstock. The reviewers found that more efficient use of existing bedstock may be an alternative way to accommodate the rise in acute medical admissions. Although interventions such as bed management consortia, discharge expeditors and departure lounges have been described there is a scarcity of formal evaluations of the effectiveness of these interventions.

8.2.7 *Interventions to reduce acute medical admissions in the elderly*

Having reviewed an exhaustive amount of literature the NZHTA produced the following conclusions: ‘Not all evaluations have found that case management is unsuccessful. Several have found that admissions can be reduced and/or costs limited with the introduction of case management (Weissert and Hedrick, 1994). Many found case management improved their quality of life even if health service utilisation was not reduced. A large quasi-experimental study by Kemper (1988b) evaluated the substitution of case management and enhanced community supports with nursing home care for a large population of frail elderly people. The study found that case management was unable to significantly reduce the need for nursing home care among the elderly and also did not reduce their frequency of acute medical admissions. The group who received case management exhibited significantly higher scores on the quality of life and well-being scales but failed to realise any significant difference in total health care costs. Some evidence exists (although it is not definitive) that home care surveillance by health professionals and home response alarms are efficacious at reducing hospital admissions. A small US-based study found that home response alarms also had a favourable cost benefit profile.’

8.2.8 Utilisation review to reduce inappropriate admissions

The review found the following; ‘Utilisation review (UR) was developed in the US with the aim of controlling rapidly escalating health care costs. In UR each hospital admission and day of stay is reviewed against standard criteria, and only if the criteria are met is that admission (stay) deemed appropriate. It has been associated with reports of cost savings in US-based Health Maintenance Organisations. The results of experimental studies, however, offer only inconsistent evidence for the effectiveness of UR in relation to its ability to reduce inappropriate hospital admissions.’

8.2.9 Use of guidelines/protocols/critical pathways/ treatment algorithms

All of these interventions broadly seek to reduce inappropriate provider variation in patient care by removing some of the clinical uncertainty associated with the management of some conditions. The reviewers looked at the various types of interventions and concluded as follows: ‘A critical problem identified by Roland and Coulter (1992) with many evaluations of the effectiveness of guidelines, critical pathway and algorithms was their frequent assessment by means of a description of the number of people that had used the device, rather than any assessment of the health outcome(s) associated with (including the effects on resource utilisation) utilisation of the intervention. A recognised problem with the evaluation of any intervention to change practitioner behaviour (such as guidelines/critical pathways and protocols) is the Hawthorne Effect. That is, the possibility that the group receiving the intervention might improve their practice simply because they were aware that their behaviour was under scrutiny. While acknowledging these methodological issues, there is still a remarkable lack of published, well-designed, controlled trials that have evaluated the effect of the introduction of a guideline/critical pathway/protocol to determine which patients were most appropriate to be admitted to a medical hospital. This lack of evidence is surprising because several authors have maintained that guidelines need to be developed regionally in order to increase the likelihood that they will be adopted by local practitioners (Newton et al., 1996). The absence of a significant body of research does not facilitate guideline development by the large number of local groups who could potentially benefit from evidence-based information. An alternative to assisting providers with admission decisions is to provide decision support to patients in their choices about when (and if) they choose to see a doctor and, after they have attended, whether or not they demand admission. Limited evidence suggests that, in general, patients may be more risk averse than doctors. However, it is unclear whether a patient would perceive greater risk in remaining at home or in demanding hospital admission with the knowledge that their symptoms may be the harbinger of a serious medical illness.’

8.2.10 Interventions to reduce medication-related admissions

The reviewers found the although drug-related problems were identified in as a significant potential cause of increased admissions, relatively few studies have specifically examined interventions to prevent drug-related admissions either due to iatrogenic causes among adults or accidental ingestion by children.

8.2.11 Studies evaluating specific medical interventions that have used hospital admission as their primary endpoint

The review identified several studies which had assessed specific treatments or medical interventions for defined conditions in relation to their effectiveness at reducing acute admissions and reported as follows:

New cardiology interventions that reduce admissions

Implantable cardiac defibrillator:

The implantation of a cardiac defibrillator was found by Valenti et al. (1996) to reduce the rate of hospitalisation among recipients. The findings are limited by the lack of a control group and the restrictive selection of patients for the intervention in the study.

Low dose amiodorone:

A large, multi-centre, randomised controlled trial (Doval et al. 1994) found that low-dose amiodorone (300 mg or less) was able to reduce hospital admissions for patients with severe heart failure.

Carvedilol:

Another randomised controlled multi-centre trial found that carvedilol (a beta adrenergic blocking agent) significantly reduced hospital admission rates among the 415 participants over a 12 month period (Australia and New Zealand Heart Failure Research Collaborative Group, 1997). The trial, however, was too small and too short to provide any definitive evidence of the effectiveness of the new medication at reducing admissions or improving either the mortality or the quality of life of patient with congestive heart failure.

Amrinone infusions:

A retrospective review of admission rates for patients with severe heart failure found the introduction of regular outpatient-based infusions of amrinone reduced (by 56%) the number of hospital admissions in the six months after starting treatment compared to the six months before the treatment (Levinoff Roth et al., 1993). However, the validity of this result is limited.

Transmyocardial laser revascularisation:

A number of new technologies have been trialled and suggested to be effective at reducing the need for inpatient care. Horvath et al. (1997) provides a typical example of a prospective cohort study which found that patients not amenable to coronary artery bypass grafting or angioplasty who were undergoing transmyocardial laser revascularisation reduced their hospital admission rate for myocardial infarction over their average 10+/-3 months of follow-up. However, the validity of the results from this study is limited. This intervention requires evaluation by a large prospective randomised controlled trial that includes information about the costs of care.

Increased use of ACE Inhibitors in the treatment of heart failure:

A large meta-analysis by Linn (1996) that included 30 randomised controlled trials concluded that the risk of hospitalisation for people with moderate to serious heart failure was reduced by 35% among those patients who had been prescribed ACE inhibitor medication. The results of the SOLVD trial extended this conclusion to asymptomatic patients, significantly reducing their risk of hospitalisation by over 20% (SOLVD Investigators, 1992). There is now overwhelming evidence based on large randomised controlled trials that the use of ace inhibitor medication is effective at reducing the risk of hospital admission among patients with all classes of heart failure (Doughty et al., 1997) (Cody, 1995).

Use of digoxin for patients with heart failure:

The large randomised double blind trial described by Gosselink et al. (1997) recently reported on the efficacy of digoxin in people who had heart failure but remained in sinus rhythm. The

study concluded that the drug had no effect on overall mortality but significantly reduced hospital admission rates among recipients (van Veldhuisen et al., 1996).

Comprehensive heart failure programme:

A comprehensive heart failure programme that included a detailed review and then subsequent management by a multi-disciplinary team, who provided adjustments to medication and intensive patient education, found there was an 85% reduction in admissions combined with an increase in functional status for the intervention group (Fonarow et al., 1997).

Other interventions that may reduce hospital admissions

Low molecular heparin:

A systematic review by Innes et al. (1997) concluded from an assessment of five randomised controlled trials that low molecular heparin provided more reliable and safer anticoagulation than heparin infusion, without the associated need for hospitalisation.

The diagnosis of thromboembolic disease:

A recent review article has examined the dilemmas associated with the diagnosis of thromboembolic disease. (Egermayer et al., 1997). In particular the paper reported evidence to suggest that any patient who presented with clinical symptoms suggestive of thromboembolic disease should have a plasma D-dimer level measured. This test was reported to have high negative predictive value (0.96), which suggested that patients with a normal result could safely be treated as outpatients.

A diagnostic test for appendicitis:

The efficacy of using Tc-99m-HMPAO white blood cell scanning to exclude appendicitis and reduce unnecessary hospital admissions of patients presenting in an ED with abdominal pain was assessed in a study by Rypins et al. (1997). The study found that the test had high sensitivity (98%) and specificity (95%) and was safely able to reduce unnecessary hospital admissions when appendicitis was not present. It is difficult to generalise the study result to other areas because it was based on a small (124) number of highly selected patients at a single centre.

Recombinant Dnase therapy:

The use of recombinant human Dnase therapy has been documented in a randomised controlled trial to reduce admissions for respiratory tract infections among patients with cystic fibrosis (Oster et al., 1995). The 15% reduction was noted over the 24 weeks of the study. However, the result could have been due to bias, as the intervention group received closer follow-up and was more likely to receive earlier treatment for respiratory tract infection than the control group.

Inhaled antibiotics for children with cystic fibrosis:

Another specific intervention that is intended to reduce the need for acute inpatient care, is the provision of inhaled aerosolized antibiotics to patients with cystic fibrosis. Several studies have found there is a significant reduction in admission rates for patients receiving aerosolized antibiotics. A number of limitations are apparent with these studies. They have addressed a wide variety of treatment regimens but have all involved a small study sample with a short duration of follow-up. Longer follow up duration and larger patient samples would be needed to exclude any possible negative side effects from the medication or the possibility that bacterial resistance to the antibiotic may be encouraged by this treatment.

9 Intermediate Care

This subject has been dealt with in detail in a previous SIBR3 Review (See Report No. 4)

10 Technological Innovations

10.1 Health Technology Assessment

In England and Wales the first national body with responsibility for Health Technology assessment, the National Institute for Clinical Excellence (NICE) was set up in 1999. To provide patients, health professionals and the public with authoritative, robust and reliable guidance on current “best practice”. A study of the first 22 technologies it assessed was published in 2001(Raftery). It found that 19 technologies were recommended, following assessment, in the first instance and on other on subsequent review. Clinical benefit was cited in all instances of recommendation, cost per QALY was able to be cited in only about half. With one exception, restrictions on recommended use kept the cost per QALY below c. £30,000. The high cost per QALY was cited in one of the provisional recommendations against use.

10.2 Influencing Practice through Health Technology Assessment. Identifying and evaluating new technologies.

The success of health technology assessment has been limited by a number of factors. These include failure to assess the effect of the new technologies on the organisations which adopt them, the complexity of the health technology knowledge and the perceptions of those who have to interpret them. The clinical and economic focus of assessments is not helpful to managerial decision makers. The knowledge about technologies is dynamic and can change after assessment. (Rosen et al. 1999). New technologies are identified as a major pressure on health services, in terms of economics, research capacity and organisation. There is a need to further refine the ways that the system identifies, evaluates and prioritises technologies for assessment through development of research methods and dissemination. Stevens et al.(1999) have recommended that in addition to mainstream efficacy trials and Cochrane reviews pragmatic research in the form of rapid reviews, modelling, economic evaluation and pragmatic trials (Sculpher et al. 1997,Lilford et al. 1998, Lilford et al. 1999).

10.3 Information technology

Implementation of electronic patient records across the NHS is envisaged by 2005 (DoH 2001). The critical need for major changes to clinical practice to make implementation successful has been highlighted by Wyatt et al.(2001). Evaluation of computer use by doctors has been limited. A recent study in Norway where three quarters of hospitals have electronic medical record systems has reported a low level of use of all electronic medical record systems with doctors using the systems for less than half the tasks for which they were functional, (Laerum et al. 2001). A before and after study of a system implementation at specialised liver unit has demonstrated a 17% reduction in daily chemistry test requests with and a 48% reduction in out of hours tests per patient costs down by 28% and the average number of tests carried out on each down by 24%. Protocol compliance, duplication and patient interventions were all improved. (Nightingale et al. 1994). Another study showed how a computer system was able to demonstrate efficiencies and inefficiencies in emergency admission practice. The observational study of acute medical patients admitted through an A&E Department showed that 25% of urgent biochemistry requests from the A&E and 22%

from the admissions ward were accessed within an hour. A further 15% and 19% were accessed within 3 hours. 45% and 29% were never accessed on the ward terminals and 3% of A&E were never accessed at all. (Kilpatrick et al 2001). A recent review of computerised medication ordering showed error reduction rates between 55% and 83%. The author cited the evidence which shows that between 28% and 56% of adverse drug events were preventable in advocating the use of electronic systems for improving drug safety (Bates 2000).

10.4 Telemedicine

Telemedicine has exerted most of its effects to date through improving remote and rural access to expertise and through timely assistance. An overview assessment of an electronic referral and teleconsultation system between secondary and primary care, was conducted by the Finnish Office for Health Technology Assessment. It found that the system allows more patients to be treated at lower expense, the information flow between the outpatients and GP clinics was speeded up, more than half of the patients were managed at their own GP surgery while outpatient clinics were able to run more smoothly to their priorities. Possible by-products were improved co-operation between hospital and health centres, improved knowledge exchange, and possible improvements to quality and effectiveness of care. As this was an overview rather than experimental research, it is mainly observational. It therefore holds up a wide number of possible hypotheses for testing, (Harnoet al. 1999). The use of telemedicine between Physician Assistants and Specialists in remote rural USA is reported to have burgeoned, this is likely to be in response to the clustering of rural health care into networks and systems and a transformation of health care funding, (Asprey et al 2001, Ricketts 2000). A BMA discussion document published in March 2002 proposed the use of nurses in primary care as first point of access for minor ailments, new powers for nurses to prescribe antibiotics were announced at the same time, and nurses give treatment advice through NHS direct (Dyer 2002). There is potential for future U.K. developments in areas such as that described for telemedicine in the U.S

10.5 Patients and the Internet

Since widespread availability of the internet there has been much anecdotal evidence about patients becoming increasingly well informed about conditions which concern them. A review of the development of health-related on-line support groups reported on the proliferation of these communities on the world wide web. Such groups support users differently. Advantages include the fact that they do not use face to face. They do not have to be dealt with in real time, they avoid geographic and transportation barriers, the anonymity may be easier for people with stigmatising disorders as well as overcoming socio- demographic barriers. They may have significant economies of scale.

There are also disadvantages, the individual must have internet access this excludes many. They must also be able to read and write and type. The message boards can be clogged up and slow. Messages can be misinterpreted, there is no face to face or aural support, and the services may be unmoderated, open to anyone. There can be mis-information. The authors discuss the implications for health education. (White et al. 2001)

10.6 Medical Technologies

While morbidity patterns in general do not change over the period of a decade or two, the emergence of technology occurs at such a pace as to exert significant effects on demand, supply and patterns of care. Prediction of future health technology is difficult in that technological research sometimes promises and does not deliver. Gene therapies, for example, were promoted in the eighties as being around the corner. They subsequently sustained a decade of disappointing results and are only now starting to become reality in selected circumstances. The art of health care prediction has itself matured in that period, through the organisation of production-line health technology assessment and the growth of health service research. In a 1999 article on hospitals of the future Charles Wilson, Director of the Institute for the Future in California, identified likely developments in the current decade. (Wilson 1999).

Some new pharmaceuticals may replace some procedures decreasing the need for hospital admission. The incidence of atherosclerosis, coronary heart disease, peripheral vascular disease and stroke may be reduced. At the same time the use of other procedures may increase the appropriateness of, and hence need for, hospital admission. The opening of stenotic arteries and dissolution of thrombi with clot busting drugs may progress beyond heart disease. Some highly specific products which can prevent, modify or treat cancers are emerging as well as technical methods which will customise drug regimes to individual patient's cancers. The role of anti infective agents in modifying the progression of certain common chronic conditions, such as cervical cancer, peptic ulcer, arteriosclerosis, diabetes, and certain other cancers, is expected to enlarge.

The search for effective vaccines for diseases such as Hepatitis C, Human papilloma virus, specific cancers, type 1 diabetes and HIV goes on and their emergence would have the potential to radically alter patterns of morbidity and mortality.

Minimally invasive surgery is moving forward towards robotic procedures. Coronary artery bypass grafting can already be done in this way. Intravascular surgery will widen to a larger variety of procedures including aortic and intra-cerebral aneurisms and gene therapy delivery. Radio surgery continues to expand and replace many conventional neurosurgical procedures.

Patient implantable and stick-on sensors are being developed for monitoring the majority of functions currently examined by laboratory tests. This has the potential to modify a whole range of services and care types, particularly architecturally constrained monitoring areas such as theatres, intensive care, etc.

If the potential of Xenotransplantation of transgenic pig organs is realised to the full, it could benefit thousands of patients waiting for donor organs and result in a dramatic modification in the way that such patients are managed.

Advances in imaging will see much more portability of images to patient areas via computer links and incorporation into medical records, promoting telemedicine, education and remote consultation.

The response of services to these changes in technologies are likely to increase the move towards more specialised hospitals. *This issue has been discussed further in another SIBR3 Review (See report No.1)*

11 Funding and Policy

In the mid nineties much of the healthcare debate in the U.K. was around the subject of rationing (Mechanic 1995, New 1996), it has since then moved on. By 1997 the sustainability of the NHS at existing funding levels was the focus of discussion (Dixon et al. 1997, Harrison et al. 1997). With projected increases in spending the topical funding issue these days relates to different systems of payment. Reference has already been made to HMOs, DRGs and fund holding in the NZHTA review.

A recent ruling in the European Court of Justice (1998) has been interpreted as stating that if member states failed to provide the full range of medically recognised procedures without undue delay, then citizens had the right to travel elsewhere in Europe for those treatments (Berman et al. 2002). The government's establishment of pilot health authorities to test out commissioning services across the channel has coincided with debate on alternative methods of funding for Health Care in the U.K. Alternative European options are up for discussion. The main alternative to centrally run and funded services are those provided by social insurance systems. Social health insurance relies on wage levied contributions, managed by mutual funds, providing comprehensive benefits in the form of highly defined items of care with insurer and provider choice. Elemental details vary from country to country. This compares with national health type systems which rely on non-specific taxation, managed by government (central or local), with no insurer choice and limited provider choice, providing non-specific comprehensive benefits defined by commissioner strategies and restricted by queues. Major practical differences from the user point of view are found in: individual transactions, co-payments or alternative additional costs in top-up or gaps, additional costs in person time spent queuing, flexibility or inflexibility of access to services across sectors (public and private), flexibility or inflexibility of access to investigations, allied health services, secondary care and social care. Major issues in the funding of all the systems are the difficulty in managing shifts between contributions from wages, hypothecated health taxes, national insurance/ social security and general taxation, and the difficulties in managing deficits, and /or the effects of rationing. Some of these dilemmas have been raised by Dixon et al. (2002) in proposing a national debate on the subject.

At the operational level funding incentives change in relation to policy development. Bond (2002) has examined the achievements of Primary Care Groups /PCTs to date. The major achievement thus far appears to be 'the feat of radically reorganising primary care without crisis'. After that clinical governance and prescribing are areas where progress has been made. Their record on commissioning and health improvement is poor. They have not exploited their potential to change the NHS in an environment where opportunities for being creative exist. In many ways it is understandable that organisations of limited size with limited managerial and policy staff limit themselves to sustaining the service and developing one or two priority issues. The author of the above article (a health services researcher) may also have his own biases which lead to expectations beyond the capacity of a management team predominated by experience in specific delivery of primary care.

One possible way of being creative in primary care would be to examine the ways in which the relatively steady world of the PCT compares with systems with similar goals operating in different environments. A study comparing the NHS with a HMO (Feachem et al. 2001) might provide indicators of areas to focus on. Feachem and colleagues

Showed that for similar per capita costs HMO patients experienced more comprehensive and convenient primary care services, much more rapid access to specialist services and hospital admissions and lower overall hospitalisation rates. Other creative strategies are reported in the literature. A systematic review of 11 randomised controlled trials to determine whether financial incentives increase patients compliance with healthcare treatments showed a positive effect in 10 of the 11 trials. Such initiatives could possibly be used to improve the care and offset the compliance failure costs of intractable situations. A recent study of inequalities in hospital utilisation in East Kent has shown that potentially avoidable episodes of hospital admission for diabetic ketoacidosis were four times higher than average in the population with the highest 10% deprivation. (Jenkins et al. 2001).

12 Quality Enhancement

The literature on quality is extremely large. A small number of studies are considered here to demonstrate ways in which quality enhancement may have an impact on shaping demand. Marshall (1999) has identified seven barriers to improving quality in general practice, faced by health authorities, in the context of the NHS reforms. They are - absence of an explicit strategic plan for general practice, competing priorities for attention of the general practice, sensitivity of health professionals, lack of information due to poor quality of clinical data, lack of authority to implement change, unclear roles and responsibilities of managers, within organisations, isolation from other authorities or organisations facing similar change. Gray and Donaldson (1996) reported the findings from a study on health authority practice in improving the quality of health care. They said that health authorities' approach to quality improvement, through specifications in service contracts was inconsistent and unlikely to achieve the desired goals. Koeck in a BMA editorial on organisational change (1998) pointed out that "The literature on organisational behaviour and management is full of valuable insights on how to run complex organisations. Most health care delivery systems could benefit from looking at these accounts, but only a few have dared to do so."

13 Informing the consumer and participation in decision making

There is a definitive source of evidence on informed decision making. An ongoing annotated bibliography and systematic review of informed decision making has been in place since 1996. It has covered 336 RCTs, 114 non-randomised concurrent studies and 34 historical and 63 'before and after same-sample studies. Any interventions that could reasonably be expected to effect informed decision making such as change in information provision, cost or service provision are considered. (Bekker et al. 1999).

A wealth of literature on individual evaluations of small experiments in participation and local partnerships exist. They are frequently highly specific and may be weak in generalisability. Certain large studies used to inform population priority setting are reported. Stronks et al (1997) have described the use of panel data analyses devised in implementing the Dunning report on national priorities in the Netherlands. Strobl et al. (2000) have described the development of a WHO health Cities Plan.

14 Human Resource Management

Martinez and Martineau (1998) have reviewed the key human resource issues in tackling major health service reform. Their work addresses cost reduction and efficiency, staff performance, equitable distribution of services and Human Resource (HR) policy and planning capacity development. Buchan (2000) has assessed the H R dimension of the NHS reforms in the U.K. addressing three central requirements of the HR function, maintenance of effective staffing levels and skill mix, establishment of appropriate employee relations, policy and procedures, involvement in pay determination.

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