

Policy Brief

The significance of hospitals

Hospitals are a key component of the health care system and are central to the process of health system reform, but as institutions they have received remarkably little attention from policy-makers and researchers. They have long been regarded as “a black box” whose workings are impenetrable. But this is changing: policy-makers are demanding information on what hospitals should look like, how they should interact with the wider health care environment, and how they can be changed. Researchers, in turn, are responding to these questions. Those embarking on health care reform should also focus their attention on hospitals.

The pressures for change

Hospitals do not exist in isolation. They have to adapt constantly to changing circumstances within the hospital, in their interaction with the rest of the health care system, and in the wider social and economic environment. The hospital faces challenges in three broad areas: demand-side pressures such as the changing health needs of the population that it serves; supply-side pressures such as the new

opportunities offered by advances in technology; and the expectations and constraints placed upon it as a consequence of wider societal and economic changes.

Ten reasons why hospitals are significant elements in health system reform

- Hospitals take a large part of the health care budget, up to 70% in some eastern European countries.
- Hospitals employ up to half of physicians and three quarters of nurses.
- Health care systems differ across Europe with hospitals more dominant in the east than the west.
- Their position at the apex of the health care system means that hospital policies and practices have an enormous impact on health care.
- Hospitals do not just treat patients: they play important roles in education, research and local economies.
- Health sector reform often has unintended consequences, for one or more of these roles.
- Yet hospitals can be resistant to change, in spite of intensifying pressures to do so: changing populations, new illness patterns, new opportunities provided by new drugs and technology, and new ideas about the role of the hospital.
- The interfaces with primary and social care are changing continually. As a consequence, treatment patterns are changing enormously: sicker patients spend less time in hospital and ambulatory care is expanding.
- Hospitals are being “re-engineered” with new models of governance, more regulation of performance and new methods for paying hospitals.
- Hospitals have symbolic importance: they are the visible sign of the health care system.

Demand-side pressures

In planning hospital services for the future we need to be aware that changes in behaviour now will only be apparent in disease patterns several decades hence.

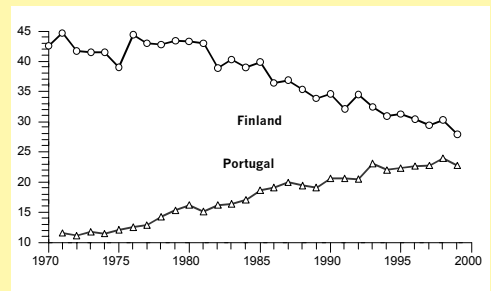
The work of a hospital should reflect the nature of the population that it serves. Populations change through births, aging and migration. To take two examples, the rapid drop in the birth rate since the 1970s in most western European countries has obvious implications for obstetric care; and aging populations are more likely to present complex, multi-system disorders, which require sophisticated procedures to coordinate the many different professional inputs that they need, as illustrated by the success of multidisciplinary stroke units. Growing population movements have produced increasingly diverse societies and migrants may have specific health needs. One example is for haemoglobinopathy services in areas where there are many people of Afro-Caribbean or Mediterranean origin.

Patterns of disease also change within populations. In the late 1950s orthopaedic surgeons had to find new roles after an effective polio vaccine was introduced and chemotherapy for tuberculosis rendered tendon transplants and some forms of back surgery unnecessary. Since the 1970s, deaths from ischaemic heart disease in many industrialized countries have almost halved, reflecting improved treatment and, more importantly, changes in diet and falling rates of smoking among men.

In planning hospital services for the future we need to be aware that changes in

behaviour now will only be apparent in disease patterns several decades hence. For example, an increase in the rate of smoking among teenagers will be apparent as a rise in lung cancer 40 years hence. This means that we can predict with some confidence that the future need for thoracic surgical facilities will decline in Finland but increase in Portugal.

Fig. 1. Age-standardized death rate from cancer of the lung, bronchus and trachea per 100 000 population in Finland and Portugal, all ages, 1970–2000



Source: WHO Regional Office for Europe health for all database, 2001.

While some diseases, such as diphtheria, have almost disappeared, others have emerged, with AIDS the best-known example. Another is new variant Creutzfeldt-Jakob disease in the United Kingdom, and while the number of cases is still small, the requirement to adopt disposable instruments for many surgical procedures has enormous financial implications for hospitals. The rise of hospital-acquired (nosocomial) infections is an enormous concern to hospitals in some countries, exacerbated by the increase in antibiotic-resistant microorganisms.

The battle against hospital-acquired infections

The adoption of aseptic and antiseptic techniques from the late nineteenth century and the later invention of antibiotics led many to think that the battle against hospital-acquired infection had been won. This complacency is not warranted since rates of hospital-acquired infections again are rising across industrialized countries. About 10% of hospital patients acquire an infection, with the prevalence highest in units such as intensive care, burns, neonatal care and those treating immuno-suppressed patients. Such infections not only damage the health of patients but increase treatment costs since such patients spend over twice as long in hospital. Although comparative data across Europe are limited, rates in some countries appear substantially higher. Some countries have assessed the scale of this problem. For example, the estimated annual cost to the National Health Service in England is £1.6 billion, since about 1 in 11 patients contracts an infection in hospital, with an estimated 5000 deaths per year in hospitals, making hospital-acquired infection a more common cause of death than road accidents.

Sources: National Audit Office (2000) *The management and control of hospital-acquired infections in acute NHS trusts in England*. London: The Stationery Office; Plowman R, Graves N, Griggin M. et al (1999) *The socioeconomic burden of hospital acquired infection*. London: Central Public Health Laboratory.

Finally, hospitals must take account of changing public expectations. For example, in many countries patients no longer accept a lack of privacy, so that many-bedded wards are being turned into shared or single rooms. Also, better access to clinical information, fuelled by the internet, means that some patients will be better informed than their physicians. The hospital must also take account of the diversity of expectations; for example, migrants and those from minority communities may have specific linguistic or cultural needs.

Supply-side pressures

The second set of factors relate to the opportunities and constraints hospitals face in managing their patients. The consequences of changing technology are especially difficult to predict. Some capital-intensive innovations may create pressure to concentrate services in larger hospitals. Others, such as telemedicine may enable care to be dispersed. The key point is that health policy-makers must recognize that, as the pace at which knowledge is acquired and technology adopted becomes ever faster, a process of life-long learning is essential. A professional qualification can no longer be considered to equip one to practise for life, leading to pressure for systems of professional revalidation.

Changes in the workforce, including gender mix, family structure and expectations, also have major implications for hospitals. Many countries are emulating existing best practice of providing staff with facilities for childcare in all hospitals, in part as a means of retaining skilled female staff in the workforce.

Wider societal pressures

The wider policy environment, particularly the economic climate, also greatly influences hospital activities. For example, the growth in health care expenditure slowed across western Europe in the early 1990s as countries struggled to contain costs and to meet the convergence criteria for monetary union. The context in which hospitals operate

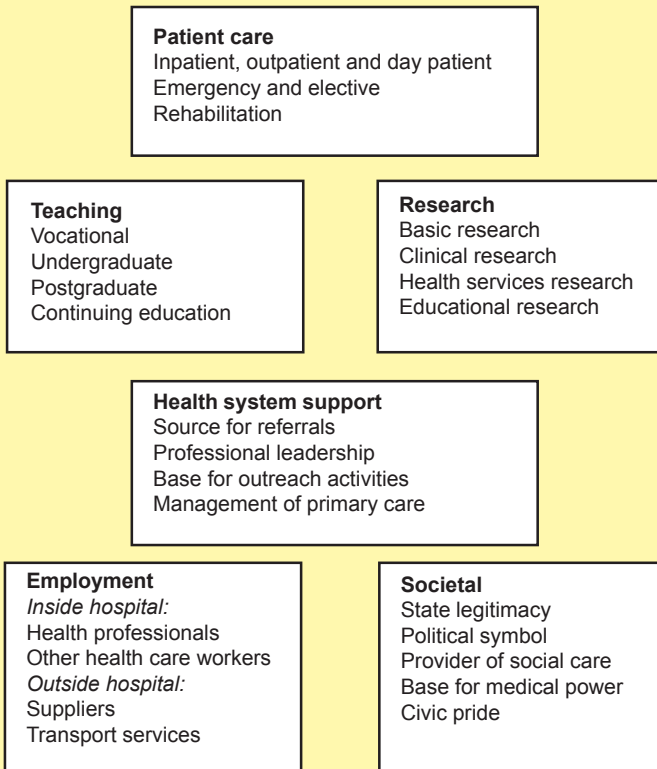
in the former Soviet Union has been greatly affected by the post-transition recession.

Those responsible for planning hospitals must also take account of the wider roles of the hospital, which go well beyond patient care. (Fig. 2). Hospitals train health professionals and conduct much of the research that underpins advances in health care. As a result, they must adapt to changes in education policy, such as the transfer to universities of much nursing training in some countries. Changes in patterns of hospitalization mean that more medical training is taking place in outpatient clinics, with implications for how these facilities are designed and organized.

Hospitals must also adapt to the changing nature of medical research, with fewer and larger centres competing in a global marketplace.

The hospital also plays an important role in its surrounding community. Thus the European Union has recognized the contribution that hospitals make to local economies, especially in regions where there are few alternative sources of employment. This contribution extends beyond those directly employed by the hospital to affect suppliers and contractors. The existence of a hospital may make it easier to attract inward investment. Conversely, the closure of a hospital may be the final blow to a

Fig. 2. Functions of an acute care hospital



Source: Healy and McKee, chapter 4.

community suffering from industrial decline. These factors, appropriately, weigh heavily on the politicians who make the final decisions on hospital developments.

It is apparent that those designing hospitals today face enormous uncertainty in predicting the future needs for hospital services. Some things can be predicted but many cannot. The clear implication is that whatever physical and organizational designs are chosen for the hospital of today, these must be flexible enough for the hospital of the future to adapt to very different circumstances.

Trends in hospital systems

Fewer hospital beds are being used much more intensively with shorter average lengths of inpatient stays.

Trends in hospital capacity and utilization show marked changes across Europe. However, the limitations of international comparisons should be noted. There are apparently problems with such basic concepts as “hospitals” and “beds”. A bed, in its own right, is no more than a mattress on four legs. What is important is what comes with it. Thus, it may be one of twenty staffed by a single nurse in a basic facility in a small country town or in an intensive care unit of a large tertiary university hospital in a capital city. Nevertheless, despite such caveats, three very broad patterns are evident across Europe.

The 15 countries of the former Soviet Union have by far the most hospital beds (both acute and long-term) but began to

reduce these during the 1990s. The 12 countries of central and eastern Europe have fewer hospital beds, while the 15 European Union countries have the fewest. Fig. 3 shows steady reductions in acute care beds in the European Union since at least 1980, reductions in central and eastern Europe since the early 1990s, and a precipitate drop in the former Soviet Union from the mid-1990s.

The gradual but steady decline, on average, in numbers of acute beds, masks continuing and considerable national diversity. For example, Germany has nearly twice the European Union average ratio of acute care beds to population, and despite a slightly steeper decline, Italy still has almost 90% more than the United Kingdom, where the number of beds is now believed to be inadequate to meet current demands, thus stimulating a major expansion programme.

In the European Union, sicker patients are being treated far more quickly in far fewer beds. The number of hospital admissions in relation to population increased in most countries throughout the 1990s. This rise would be far more dramatic if one-day admissions were included in the measure since although comparative international data are not available, day case activity has increased enormously in many countries.

Fewer hospital beds are being used much more intensively with shorter average lengths of inpatient stays. Stays in acute hospitals in the former Soviet Union countries still average around 14 days but have dropped steadily in the European Union to less than 9 days (see Fig. 4). There is also considerable diversity across Europe in hospital stays; for example, patients in the United Kingdom stay less than half as long as those in Germany,

where there have been structural obstacles to diverting patients to ambulatory care. The rise in admissions of patients that stay for shorter periods, as well as the increases in day-cases and outpatient attendances, mean that hospitals are increasingly busy places.

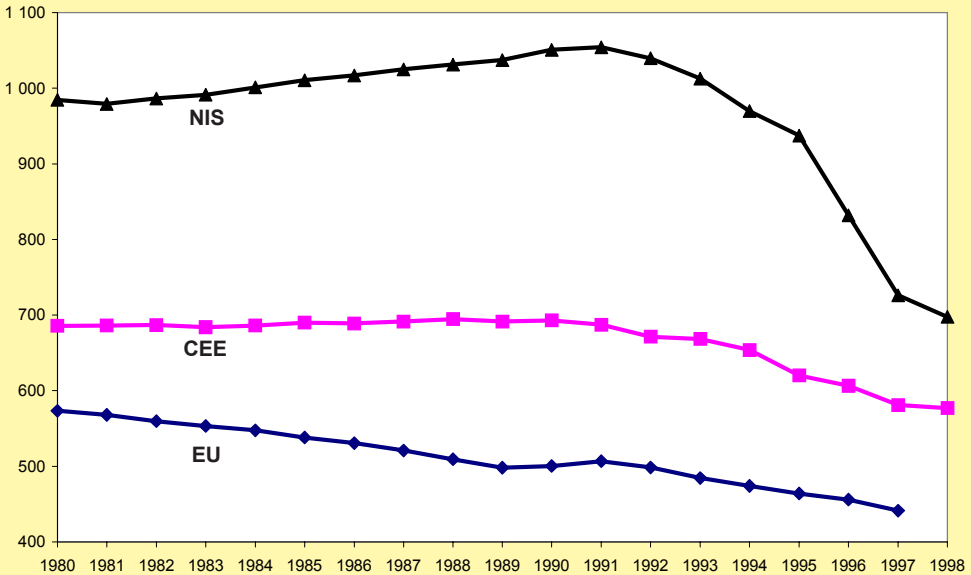
The reasons for these changes are complex. Patients who would previously have remained in hospital for long periods are being discharged to nursing homes or to their own homes with help from community-based health and social care services. Developments in minimally invasive surgery and anaesthesia mean that new categories of patient are becoming candidates for surgery. Stays following surgery have shortened due to earlier mobilization. Also, there is increasing pressure upon hospital managers to reduce the costs per patient. However, some of the observed changes are misleading

as some patients who previously would have stayed for a prolonged period now undergo repeated admissions and discharges. This phenomenon, which is widely recognized if imperfectly quantified, has important implications for the organization of care, implying the need for “case managers” to coordinate a patient’s path through a complex sequence of treatment throughout the health care system, a role that a senior nurse would previously have undertaken for inpatients.

Are bigger hospitals better?

What is the optimal size of a hospital? The answer to this question depends, of course, upon the type of hospital, its catchment area, its cost structure and its function in the wider

Fig. 3. Beds in acute hospitals per 100 000 population in the European Union (EU), countries of central and eastern Europe (CEE) and countries of the former Soviet Union (NIS)



Source: WHO Regional Office for Europe health for all database, 2001.

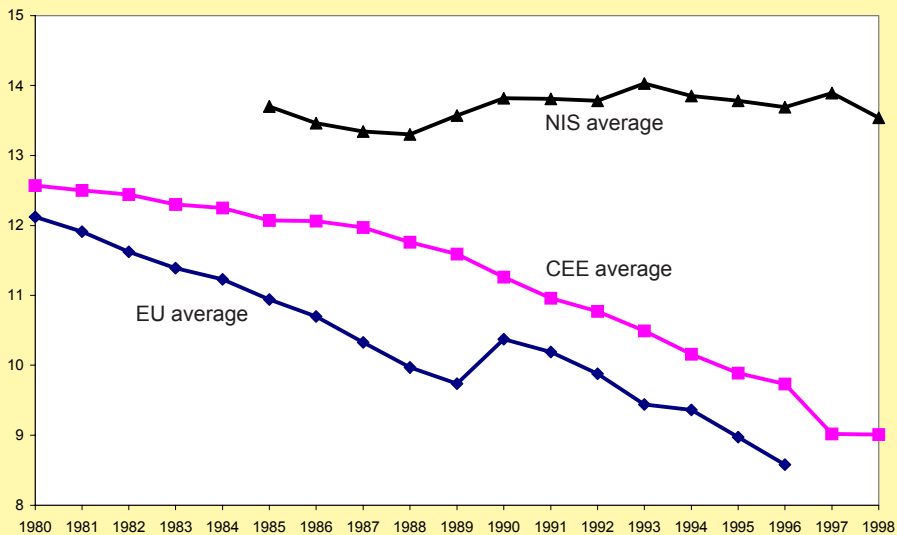
The widely-held view that bigger hospitals are better must be modified.

health care system. Research has focused upon acute care general hospitals, mainly in the United States and the United Kingdom, so that it is important to remember that its more general applicability is open to question. The trend in these countries has been to concentrate hospital services in acute care general hospitals that each covers a large population of between 150 000 and 1 million.

The overall conclusion, based on a systematic review of the international evidence, is that the widely-held view that bigger hospitals are better must be modified. The first issue is that of scale. There has been a trend towards larger hospitals, on grounds of pre-

sumed efficiency. Research shows, however, that if a hospital already is operating at maximum efficiency, economies are exploited at quite a low level, of around 200 beds, and diseconomies of scale become evident at over 650 beds. However, economies of scope should also be considered. The hospital contains a complex set of inter-related functions. One of the factors driving the growth of modern general hospitals was to gather the specialties together under one roof. There may be strong arguments for creating larger hospital units to facilitate links between related specialties, to strengthen multi-disciplinary teams, to ensure optimal use of expensive equipment such as scanners or operating theatres, or to support the hospital's training role. Thus, decisions on the size of a particular hospital involve applying the evidence to the specific context.

Fig. 4. Average length of stay (in days) in acute hospitals in the European Union (EU), countries of central and eastern Europe (CEE) and countries of the former Soviet Union (NIS), 1980–1998



Source: WHO Regional Office for Europe health for all database, 2001.

The second argument is that greater volume leads to better outcomes (in other words, that practice makes perfect). The conclusion here is that the high volume view should be modified. Despite the considerable methodological problems of this type of research, certain findings do emerge. The volume of procedures at which optimal results are achieved is often relatively low. For example, in the case of coronary artery bypass grafting there is no significant improvement in outcome in hospitals undertaking over 200 procedures per year. In most industrialized countries, few hospitals undertake such a low volume of cases. These studies also suggest, however, that the collective expertise of the whole surgical team is more important than that of the individual surgeon.

While the existing research on hospital configurations has limitations, it does provide little support for concentrating care in very large hospitals, on grounds either of efficiency or effectiveness, but some concentration may be required to achieve economies of scope, which should then be made explicit. This leads to a more complex pattern of care, with concentration of some functions but possible dispersion of others, such as clinics and free-standing treatment centres.

Reconfiguring hospitals: successes and failures

Although reduction in bed numbers has been a common policy goal across western Europe, reflecting changes in patterns of disease and clinical management, it has been easier to close beds rather than entire hospitals. For

example, Germany closed 7% of hospital beds between 1991 and 1997 but the total number of hospitals remained the same, while Kyrgyzstan in central Asia closed nearly one quarter of hospital beds but the number of hospitals actually increased. Closures of beds alone do not release significant savings since a considerable proportion of hospital cost is associated with buildings and other fixed costs. The mechanisms used to reconfigure hospital systems have varied, in part reflecting the tools available to the countries and agencies concerned.

Hospital reconfigurations have been more successful where several hospitals have been grouped under one management structure, as they have in Ireland and the United Kingdom. Belgium used a regulatory approach in the 1980s with some success in capping hospital beds and accrediting categories of hospitals. In Denmark, where counties are responsible for hospitals, the government encouraged collaboration between adjacent counties, leading to the merger of many small facilities. France established regional boards that combined closures of beds in both public and private hospitals with a major rebuilding programme, creating new, more appropriate facilities.

Change is difficult where ownership, both formal and informal, is diffuse and incentives are mixed. In Switzerland, there has been little reduction in capacity, since funding is divided between taxation and health insurance, and ownership is decentralized involving cantons, municipalities and the private sector. Change has been slower in countries that set up an internal market, where purchasing and provision was separated and where individual hospitals were given

autonomy. The political visibility of hospitals makes it very difficult for politicians to distance themselves from unpopular mergers and closures, even when they seek to transfer responsibility to “the market”.

Changes in the configuration of hospitals usually require the expansion of ambulatory care and the construction of new facilities since hospital reform often is faced with many large but obsolete buildings. Countries that have overhauled their hospital systems, such as France, Spain, Norway and the United Kingdom, have done so partly by mobilizing investment.

The hospital in the health care system

A key question for modern hospitals is what types of health care should be provided within the hospital and what elsewhere. The hospital is only one element in a health care system in which patients move between levels, types and locations of care. There are opportunities at the interface with other forms of health care both to ease access to the hospital and to divert people to more appropriate services. Best practice includes strategies in the following three areas.

- improving the coordination of care;
- shifting organizational and care boundaries; and
- bypassing or substituting for hospital or inpatient care.

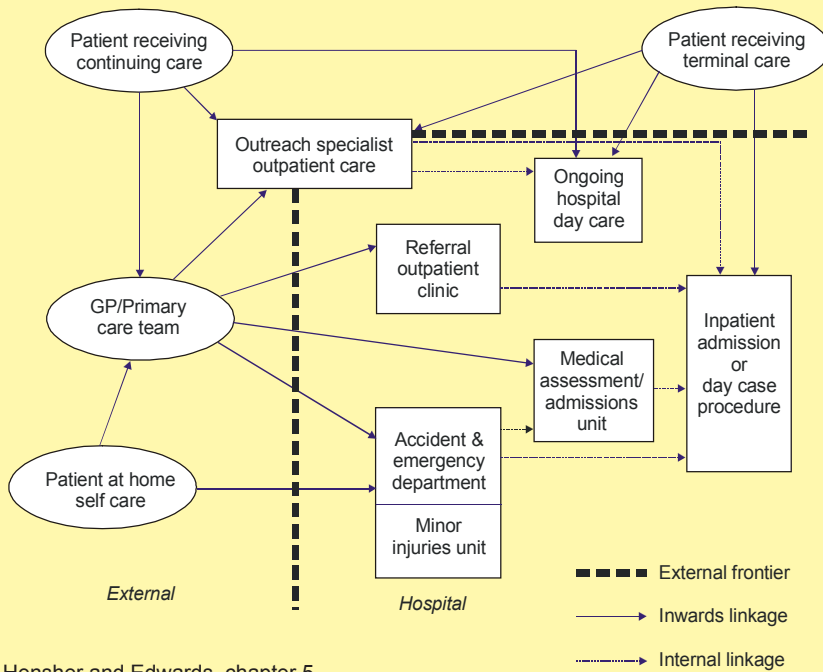
As the boundaries of hospitals shift, successful policies often involve adopting combinations of these strategies. For

example, the “filters” set up at the point of admission include strengthening the role of general practitioners as “gatekeepers”, setting up medical assessment units and expanding outpatient services (Fig. 5). In addition, hospitals have put considerable effort into a variety of early discharge schemes, such as “hospital-at-home” care and mobilizing community-based health and social care, particularly for older people. Some hospitals have engaged in “vertical” integration by taking over other forms of health services such as running outreach ambulatory care clinics, rehabilitation day hospitals and nursing homes.

Improving hospital performance

The principle of stewardship makes clear that governments retain ultimate responsibility for health system performance. Governments, or those acting on their behalf, cannot avoid playing an active role in the direction taken by the hospital system, and they have at their disposal many potential levers for change. These levers for change, which may involve enabling, specifying, monitoring or rewarding, might use both resources and guidelines/directives to act upon a hospital in relation to its facilities (physical capital), its people (human capital such as staff), and/or knowledge (intellectual capital). Here, we outline the three main approaches used to improve hospital performance: incentives for optimizing clinical performance, changes in payment mechanisms and changing the organizational environment.

Fig. 5. “Inward” hospital interface linkages



Source: Hensher and Edwards, chapter 5.

Optimizing clinical performance

Governments retain ultimate responsibility for health system performance.

There is growing evidence that clinical performance in hospitals in many countries is sub-optimal. The strategies used to address this problem include quality assurance and clinical audit, the assessment of hospital performance against a set of indicators, and the new concept of clinical governance in which quality is a shared managerial and clinical responsibility.

One assumption is that quality assurance activities and continuing professional

development lead to improved quality of care. Unfortunately, the available evidence, mostly drawn together from the Cochrane Collaboration, demonstrates that clinical behaviour is quite resistant to change. Freemantle draws the rather depressing conclusion that physicians (whether working inside or outside a hospital) incorporate new evidence-based information in their routine clinical practice only to a limited extent, particularly where only a single strategy is used, whether this is the dissemination of clinical guidelines, training programmes or case audit. Behavioural change is more likely to follow a package of interventions that are mutually reinforcing. This suggests that both external and internal interventions are required using a range of approaches; thus some countries

are moving to more active methods of promoting effective clinical practice.

The public disclosure of rankings of clinical outcomes achieved by hospitals (“league tables”) has aroused interest in many countries, both as a strategy for improving standards by “naming and shaming” hospitals and for empowering patients, a move that is both controversial and unsupported by evidence that it improves care. Whatever the reason for adopting such a system, it must be accompanied by a determination to challenge sub-optimal (or as is increasingly recognized, dangerous) practice, and it also requires researchers to tackle the substantial conceptual and technical problems involved in measuring hospital performance.

The concept of clinical governance is a major innovation, first developed in England, which requires a hospital to integrate financial control, service performance and clinical quality, the latter encompassing activities such as improving information systems, instituting professional development and developing peer review systems.

Fiscal incentives

The second main approach to improving the quality of care is the use of financial incentives through new methods for paying hospitals. Eastern European countries are moving away from input-based funding, such as line-item historical budgets, to more performance-oriented approaches. Systems of payment per day and per case, from relatively simple to unnecessarily complicated, have been adopted in central and eastern Europe, while a mix of case-mix

Clinical performance indicators: England

England has among the European countries the most developed range of activities aimed at improving standards of hospital care. The Department of Health has developed a set of performance indicators to measure each National Health Service (NHS) hospital trust in England, and since 1999 the published results have allowed hospitals and the public to compare performance. The framework sets out measures in six main areas: improvements in people’s health, fair access to services, the delivery of effective care, efficiency, the experiences of patients and their carers, and health outcomes. The six clinical indicators include measures such as deaths in hospital within 30 days of surgery, and rates of emergency readmission to hospital within 28 days of discharge.

While the principle of monitoring hospital performance is not contested, there have been many problems in actually doing so, although this approach has focused attention on hospital goals and provided an incentive to improve data collection. The government also established two national agencies in 1999 to work towards improving standards of health care. The National Institute for Clinical Excellence will assess evidence on the cost-effectiveness of existing and new treatments and produce clear guidelines for clinicians. The Commission for Health Improvement will monitor hospital performance through rolling reviews of the 200 NHS Trusts in England and Wales and also help to develop the clinical governance capacity of the NHS trusts.
Source: Department of Health (1999) *The NHS performance framework*. London: Department of Health.

adjustment and global budgeting is now applied in many western European countries. The ideal mechanism would be one that offered incentives for producing effective, efficient and equitable treatment, with no perverse incentives and with minimal transaction costs. In practice, many of the systems fail on one or more of these counts and a perfect system is not achievable, since there are inevitable trade-offs. Financial incentives, while good at pushing behaviour

in a certain direction, are less good at preventing opportunistic behaviour. In each case it is important to identify, on the basis of empirical evidence, the positive and negative effects of each model of payment and then to monitor the effects in practice.

Financial incentives can act as powerful levers for change although their effects are sometimes unexpected or conflicting. Jakab, Preker and Harding argue that the incentives created outside the hospital must be consistent with those used inside it. They explore why hospitals in eastern Europe have not responded as expected to a range of incentives, noting the conflicts between their external incentive environments and structures and practices within the hospital. Hospital reform in the future will depend upon realigning internal incentives to do with decision rights and accountability mechanisms.

Organizational culture

A third main approach to improving the quality of care has emerged from research on the relationship between organizational culture and quality of care. Certain hospitals (“magnet” hospitals) were identified that were widely regarded by nurses as offering a good environment in which to practice nursing (but where patient outcomes were unknown). These hospitals were characterized by greater nursing autonomy and better relationships between doctors and nurses. These hospitals were matched with controls and, after adjustment for severity, the “magnet” hospitals achieved a significantly lower inpatient mortality rate. Other work has

reached similar conclusions, finding tangible benefits to patients from a supportive culture among clinical staff. For example, organizational and professional job satisfaction among nurses is a strong predictor of process measures of quality of care. In intensive care units, the best predictors of better patient outcomes are organizational factors such as a patient-centred culture, strong medical and nursing leadership, effective collaboration, and an open approach to problem-solving.

This research has several important implications. First, it helps us understand why some hospitals perform better than others. Second, it highlights the fact that hospitals are complex human service organizations, and not just assemblies of industrial units to be reconfigured at will. Major organizational change can have profound implications for a hospital workforce and, while a hospital must adapt to a changing environment, radical restructuring may adversely affect the quality of patient care if it damages staff morale and a collegial ethos.

The hospital of the future

Hospitals have always adapted to changing circumstances, albeit less rapidly than might be desirable. In the future, however, the pace of societal and environmental change will accelerate. But hospitals cannot change rapidly; for example, their structures are quite literally set in concrete, while their cultures are hard to transform.

A key finding is that a hospital must be considered as part of the wider health care system as well as within its regional and national context. Each country has inherited

a particular hospital system, which draws on different levels of resources and faces different challenges for the future. Thus hospital system reconfiguration is easier when undertaken from the perspective of the overall health care system. A system-wide planning approach is needed since any change to one part of the health care system has repercussions for other parts. For example, those countries that fragmented their health care provision in the interests of enhancing local autonomy, such as Hungary, have found change extremely difficult, while the internal market proved unable to tackle the over-supply of hospitals in central London.

A second finding is that change requires investment. These external inputs include funds for investment in facilities, trained staff and the knowledge needed to provide effective care. Governments and those acting on their behalf have a responsibility to ensure that hospitals have access to these inputs but also that they use these resources wisely. It will often be necessary to build new facilities that are more appropriate for modern models of care, and this may require a reassessment of what the hospital is seeking to achieve, and the tools at its disposal. This will often lead to the conclusion that elements of care currently provided in hospitals would be better undertaken elsewhere, or that organizational and specialty links within the hospital need to be redefined.

Europe has extremely diverse hospitals, health care systems, values and beliefs, and enormous changes are under way in many countries. Nevertheless, three basic messages apply everywhere. First, hospitals exist to improve the health of the population, a task

they fulfil not only by providing health care that responds to the needs and expectations of their patients but also through teaching and research. Second, hospitals are only one element of a health care system. They cannot be considered in isolation from each other or from the health and social care provided in other settings. Third, improving health and providing responsive and appropriate care are a shared responsibility, involving both hospitals and those responsible for the wider health care system.

Related publications

- Edwards N, McKee M. The future role of the hospital. *J Health Serv Res Pol* 2002; 7: 1–2;
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- Why hospitals have to change to improve their performance. *Private Hospital Healthcare Europe* London: Camden, 2001. p. 23.

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