Lying in Wait:
The Use of
Medical Beds in
Acute Hospitals

The Audit Commission for Local Authorities and the National Health Service in England and Wales
Lying in Wait: The Use of Medical Beds in Acute Hospitals
Preface

The Audit Commission became responsible for external audit of the National Health Service (NHS) in England and Wales in October 1990. As well as reviewing the financial accounts of all health service bodies, the Commission's auditors have a duty to examine the economy, efficiency and effectiveness of health authorities' use of resources. Each year several health service topics or service areas are selected for special study.

The Commission's aim is to help those who manage and work in the NHS to deliver the best possible service within the expenditure level determined by Government. Sometimes this means finding ways of doing things more efficiently and cheaply, thus freeing resources which may be used elsewhere in the service. Ultimately, the objective must be to ensure that NHS expenditure makes the maximum contribution to enhancing the health status of the population.

The topics selected for the audit year November 1991 to October 1992 are ward nursing, community health services and the subject of this report, the use of medical beds in acute hospitals. It is important from the perspective of both the patient and the taxpayer funding the service, that beds should be properly managed. In other words, that patients are admitted to hospital whenever appropriate, that they should be quickly placed in a bed on a ward most suited to their needs, that they should stay in hospital no longer than is necessary, and that bed numbers are carefully matched to this activity.

The report concentrates on adults requiring medical rather than surgical treatment (though many of the recommendations are relevant to other specialties). Most medical patients are admitted as emergencies which take precedence over elective admissions. Better management of medical patients will therefore increase a hospital's capacity in other areas, such as elective surgery.

The focus adopted is deliberately practical. The aim has been to present managers and clinicians with a comprehensive check-list of actions which can be taken to improve performance locally. This study also forms the basis of local audits of arrangements in each district which will be conducted by the Commission's auditors over the next 12 months.

The research behind the conclusions in the report has four main components:
— analysis of national, regional and local data on in-patient activity and bed usage;
— a questionnaire survey of over 100 acute units in England and Wales;
— visits to ten hospitals, whose problems and practices were reviewed in detail; and
— a review of published research on hospital in-patient activity and bed utilization in the UK and elsewhere.

An advisory group of clinicians, managers and health service experts supported the study and many others have assisted in the work and commented on drafts of the report. The Commission is grateful for their help and interest. A list of advisors, contacts and staff working on the study is given in Appendix I.
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Summary

The hospital bed has for a long time been a major unit of currency in the NHS. Not so long ago, the status of most consultants was judged in part by the number of beds that they could claim to control.

But the currency is rapidly losing value. Recent decades have seen a shift in the pattern of illness towards more chronic, degenerative diseases which cannot feasibly be managed entirely by in-patient care. At the same time, there have been improvements in primary health care and community services, and advances in medical technology allowing faster diagnosis or less invasive treatment. As a result, the hospital bed should be seen as just one of a number of hospital and community-based resources used to provide integrated health care.

Such factors are partly responsible for the changes that have already taken place in the way in which hospital beds are used. The average number of in-patients treated over the course of a year in each acute hospital bed (the ‘throughput’) increased by almost 60 per cent between 1974 and 1988–89. This increased efficiency enabled more admissions to hospital (a rise of 23 per cent over the period) while the number of beds has fallen.

Yet there are still large variations between districts, both in the availability of beds and in the efficiency with which they are used. This suggests that further improvements are possible. Wide variations in the patient throughput cannot be explained entirely by differences in the age or case-mix of the patients treated. Inefficiencies in clinical and hospital management are important contributory factors.

There are problems in five areas.

— **Admission.** It is clear that some patients are referred to hospital inappropriately. In some places, admission procedures are poorly organized. Junior doctors often admit inappropriately if they are inexperienced and lack guidance.

— **Placement.** Some patients are placed on inappropriate wards and subsequently moved. This can be distressing for them and may adversely affect the quality of care.

— **Stay.** There are many unexplained variations in lengths of stay and a lack of consensus between consultants on the most appropriate periods of stay and treatment regimes. Aspects of the way clinicians work also serve to increase lengths of stay unnecessarily. For example, patients who are fit to leave hospital frequently have to wait for their consultant's next ward round before their discharge is approved.

— **Discharge.** Discharge procedures are often poorly organized. There are frequent delays in arranging transport and take-home medicines as well as longer delays because of the need to organize domiciliary support. Discharges are sometimes also delayed because residential or nursing home places cannot easily be found.

— **Bed availability and management.** The number of beds available has in the past been adjusted only infrequently, often as part of formal strategic plans. The Audit Commission's
survey found that 60 per cent of acute hospitals had not considered bed allocations to specialties for at least a year. Historical inequalities have been perpetuated, leaving some districts with too few beds in relation to the population they serve while others are relatively well off. Some of this variation is necessary, because of the age and morbidity of the population served, but more of it is unnecessary and accounted for either by lengths of stay being longer than they would be for the same patients elsewhere, or by some hospitals carrying a greater reserve of empty beds than others.

Correcting the inefficiencies in these areas would result in a reduced need for in-patient beds. If this were combined with investment in community services allowing a shift in clinical practice towards shorter lengths of stay, the reduction in beds would be substantial. For example, if all districts reduced their lengths of stay to those of the lowest 25 per cent (after allowing for the effect of age), and matched bed numbers more closely to their use, the current level of medical in-patient treatment in England could be provided with 27,000, or almost a third, fewer beds. The improved organization resulting from removing current inefficiencies would result in turn in improved quality of hospital care, seen from the patient’s point of view.

A package of solutions to be implemented by clinicians and managers aims to address this task.

— Admission. Hospital managers should monitor referral rates from each general practice and promote dialogue between consultants and GPs. Admissions procedures should be clear and regularly reviewed. There should always be an experienced junior doctor to vet admissions and all new patients should be seen by their consultant within an agreed period.

— Placement. To ensure that patients are properly placed within the hospital, a clear picture of the location and number of empty beds and imminent discharges must be maintained. There should be plans to deal with temporary peaks in workload which may cause bed shortages, and policies on the transfer of inappropriately placed patients.

— Stay. There should be regular examinations of profiles of average lengths of stay for common conditions for individual consultants. Medical audit should address variations identified and monitor the quality of health care by involving GPs and other health care professionals in clinical outcome audit. Managers and clinicians should examine aspects of medical administration, such as ward rounds and delegation arrangements and agree changes where necessary.

— Discharge. Procedures should be introduced to promote the prompt and efficient discharge of patients. In particular, close attention should be paid to planning and co-ordinating discharge for patients needing domiciliary support or places in residential or nursing homes. This involves establishing close links with local community services and GPs.

— Bed availability and management. Co-ordinated bed management is required at hospital level, but with as much devolution as possible to wards and clinical directorates. Efficiency can be improved by gender pooling and pooling at sub-specialty level. 5-day medical wards and planned investigations units are also promising avenues which are tried and tested in some hospitals.

These management actions should take place within an environment in which the availability of beds is closely matched to the expected patient workload. With the advent of the
purchaser/provider split under the NHS reforms, beds are no longer a strategic resource to be 
determined centrally. They should be used flexibly at a local level in response to workload.

Improved efficiency in bed use need not jeopardize the quality of patient care. Ideally, any 
changes in activity and resources would be informed by evaluations of the effectiveness of different 
methods of patient care. But such evaluation is rare. In its absence it is necessary to monitor health 
outcomes, or their proxies such as the number of unplanned readmissions to hospital.

Implementing the changes recommended will require the involvement of all staff, especially 
managers and senior doctors and nurses. The Commission's auditors will review practices across 
the country over the next year to identify needed improvements from hospital to hospital. But 
to ensure continued progress, managers will need to monitor a set of key indicators which are 
agreed by the hospital's clinical staff to be accurate reflections of performance.
Introduction

1. The NHS has been using its stock of beds more and more efficiently over the last 15 years. Publicity has focused on bed closures, drawing attention away from a steady increase in the number of patients treated in the beds available.

2. Between 1974 and 1988–89* the number of acute in-patients treated by the NHS increased by 22 per cent while bed numbers fell by a similar percentage. This increased the average annual number of patients treated in each acute hospital bed (the 'throughput') from 26 to 41. Treating more patients in fewer beds has been made possible by shorter average lengths of stay and reducing the time for which beds remained empty between patients (Exhibit 1).

Exhibit 1
IN-PATIENT ACTIVITY, ENGLAND, ALL ACUTE SPECIALTIES (1974 to 1988–89)
Treating more patients in fewer beds has been made possible by shorter average lengths of stay and reducing the time for which beds remained empty between patients

* 1988-89 is the latest year for which reliable national data are available on bed use
3. In the light of this experience it may seem perverse to argue that a further great leap forward could be achieved without any increase in the resources devoted to patient treatment. Yet the evidence suggests that this is possible. Routinely available statistics show large variations between districts both in the availability of beds and the apparent efficiency of their use (Exhibit 2). Some variation is appropriate because of differing health care needs of the populations served. But even after allowing for factors such as age, case-mix and gender there remains significant variation in the average length of hospital stay which is one of the prime determinants of throughput (Exhibit 3).

Exhibit 2
THE AVAILABILITY OF MEDICAL BEDS AND THROUGHPUT, ENGLAND (1989-90)

Routinely available statistics show large variations between districts in the availability of beds ... ...and in the apparent efficiency of their use

Source: Department of Health - Health Service Indicators (1991)

4. There is no one change, however, which can be recommended to achieve a further increase in efficiency. Rather, a wide range of incremental improvements is needed, covering the full range of hospital management and clinical practice.

5. The report suggests ways of optimizing the current level and quality of service within the available resources. In essence this means improving the efficiency and consistency with which patients are admitted, treated and discharged, while keeping empty beds to a minimum. Achieving the latter is complicated because the available beds are divided into wards catering for specific specialties, functions, intensities of treatment and genders; and they may be located in a number of hospitals. Moreover, a number of empty beds is always required to meet the unpredictability of emergency admissions.

6. Improved efficiency in bed use must not jeopardize the quality of patient care. Ideally, any changes in activity and resources would be informed by standards based on an evaluation of the effectiveness of patient care. But such evidence is rare. In its absence it is necessary to monitor the quality of the care process and health outcomes. Quality monitoring and assurance
systems, such as the examination of unplanned readmissions to hospital, should be developed as a co-operative venture between purchasers and providers.

7. A review of the efficiency and effectiveness with which beds are used is timely in view of the NHS reforms and their emphasis on activity rather than resource levels. Before the reforms, each district was provided with funds to run the number of beds judged necessary to meet the health needs of its catchment population, and so patients were matched to the available beds. In future, provider units will be awarded contracts to treat patients, so generating revenue with which to fund patient care. Beds should now be matched to contracted patient workload like any other resource. In theory, hospitals can now only be under-bedded relative to the contracts they are trying to meet. But in practice, history has left wide variation between hospitals in the availability of acute beds and their workload. At the extremes, some have too few beds for the patients they are currently seeking to treat, while others are relatively well off.

8. The report is primarily concerned with hospital activity but it is important to consider the effect that activity has on costs. The high proportion of hospital costs which are fixed regardless of activity, and the incremental nature of many variable costs, mean that marginal changes to activity often have little or no effect on total cost. The financial implications of changing in-patient activity are discussed in Appendix II.
1. Current Issues and Problems

9. The report looks first at the flow of patients through a hospital before examining how beds are managed and allocated. The efficient use of hospital beds can be achieved by good practice in five key inter-related areas: (Exhibit 4)

— admission (how patients are referred and admitted to hospital);
— placement (how they are allocated to a bed and under which consultant);
— stay (how the time in hospital is organized and controlled);
— discharge (how and when arrangements are made for patients to leave hospital); and
— bed availability and management (how the hospital's beds are matched to the patient workload).

Exhibit 4
ELEMENTS OF THE STUDY
The efficient use of hospital beds can be achieved by good practice in five inter-related areas

Source: Audit Commission

10. In each area the analysis points to the existence, in some hospitals at least, of practices and problems which militate against optimal bed use. The next chapter suggests ways these obstacles may be overcome.

11. The areas are inter-related which makes it difficult to know if apparent problems with one activity are fundamental or are merely symptomatic of more profound problems elsewhere. For example, a high rate of transferring patients between wards may be due to misplacement of patients caused by a poor bed management system, but could equally be due to a host of other
factors such as too few beds, over-long lengths of stay, high admission rates and so on. Analysis should always try to distinguish symptoms from underlying problems. Similarly, interpretation of a hospital's activity should be sensitive to local circumstances. For example, the availability of good primary care services may obviate the need for admission to hospital, just as a patient's social circumstances may have as much bearing as their clinical condition on their use of acute hospital services.

ADMISSION

12. There is significant variation in the likelihood of being admitted to hospital in different districts which cannot be explained entirely by differences in age, sex or morbidity (Exhibit 5).

13. There are several routes to gain admission to an acute hospital. If a GP thinks that a patient needs immediate admission to hospital, he or she refers them to one of the medical firms receiving admissions that day. If patients refer themselves directly to hospital, they are usually seen by staff in the Accident and Emergency (A&E) department who may in turn refer them to a receiving medical firm. In 1989-90, 37 per cent of admissions to the medical and geriatric specialties followed GP referral for admission and 37 per cent were by self-referral. A further 13 per cent were urgent admissions, usually through out-patients or following a domiciliary visit. Only 13 per cent were elective admissions (Exhibit 6).

GP REFERRALS

14. Though few hospitals collect data on general practice referral rates for emergency admission, analysis of such information as is available shows wide variation between general practices in the frequency of referral for emergency admission to hospital (Exhibit 7). Studies have pointed to a four-fold variation in the rate of referral for emergency admission from general practices (Ref. 1).

15. The pressure on the screening process may be increased if GPs are not explicit about their reasons for emergency referral. Some GPs use emergency referrals because they are the quickest way of obtaining an urgent second opinion.

16. Hospital practices on admitting GP emergency referrals often depend on perceptions of the quality of local GPs. One hospital visited estimated that half the GP referrals for emergency admission were refused. At others, virtually all GP referrals for emergency admission were accepted as the GPs were considered highly reliable and not to be contradicted by junior hospital doctors.
There are several routes to gain admission to an acute hospital.

Exhibit 6
REFERRAL ROUTES INTO HOSPITAL FOR MEDICAL SPECIALTIES, ENGLAND (1989-90)

There is wide variation between general practices in the frequency of referral for emergency admission to hospital.

Exhibit 7
GP REFERRAL RATES FOR ADMISSION TO ONE HOSPITAL (1990-91)

The extent of self referral to hospital varies considerably between districts (Exhibit 8).

Exhibit 8
THE PROPORTION OF EMERGENCY MEDICAL ADMISSIONS THAT ARE SELF REFERRED, ENGLAND (1989-90)

The extent of self referral to hospital varies considerably between districts.

SELF REFERRALS

17. The extent of self referral to hospital varies considerably between districts (Exhibit 8). The proportion of self referrals is usually greater in urban areas where many people are not registered with a GP. Self referrals commonly include a large proportion who do not need admission, and this results in an increased workload for the A&E department. In districts with many self referrals, there are likely to be more avoidable admissions unless there are adequate procedures to assess the need for admission.
EMERGENCY REFERRALS NOT ADMITTED

18. Demand for emergency admission fluctuates, and there will at times be a danger that people needing admission are refused, particularly if beds are difficult to find. Yet at none of the hospitals visited were there any routinely collected data to quantify this, nor any examination of the consequences for the individuals concerned.

PROCEDURES FOR DEALING WITH ADMISSIONS

19. Inappropriate patient selection may arise because admission procedures are either absent or inadequate. Specifically:

(i) it may be unclear who decides on admission and what criteria are to be applied;

(ii) procedures that do exist may be misunderstood or ignored;

(iii) junior doctors are frequently unaware of procedures in the hospital because of the rapid rotation of training placements; and

(iv) in the absence of clear clinical protocols, admission thresholds may be affected by bed availability and individual practice. It is common experience that some doctors consistently admit more patients than other doctors of the same grade.

ROTATION AND EXPERIENCE OF THE DOCTORS ON DUTY

20. Matching patients to beds is affected by the hospital’s arrangements for the rotation of medical firms in receiving admissions, known colloquially as 'the take'.

21. At nights and at weekends, the doctors on duty from the team on-take may be relatively inexperienced and are therefore understandably cautious when deciding whether to admit a patient. This can lead to unnecessary admission. On-take staffing levels are usually fixed for long periods of the day, failing to reflect the often marked diurnal variation in referrals for admission.

LIMITED OPTIONS FOR ADMITTING SOME GROUPS OF PATIENTS

22. Some groups of patients may only need to stay in hospital for a short period while staff monitor their symptoms or arrange community support. Examples include:

(i) patients with minor head injuries;

(ii) patients who have taken a drug overdose; and

(iii) elderly patients with inadequate home support.

It is often inappropriate either to admit such patients to a main ward or to refuse them admission, yet these are frequently the only options.

DOMICILIARY VISITS

23. Domiciliary visits, whereby the GP invites the consultant to visit a patient at home, are a way of assessing the need for admission. Opinion varies on the virtue of such visits. Some physicians regard them as an indispensable means of avoiding unnecessary admission, whereas others feel that they are a waste of resources. The number of domiciliary visits has declined in recent years but in England and Wales they currently cost approximately £15 million annually in fees to consultants and there is considerable variation in their use between consultants of the same specialty in the same district.
PLACEMENT

24. Once a decision has been taken to admit a patient, he or she should be placed quickly in a bed on the most appropriate ward and under the most appropriate consultant. If prompt and appropriate placement is not possible, patients may be delayed in the A&E department or placed on an inappropriate ward from where they may later be transferred. A medical firm's patients may also become dispersed throughout the hospital. Difficulties with placement may arise because there is a shortage of empty beds, or because of problems with placement procedures. There may be further problems if the hospital's policies on the care of elderly patients are unclear.

DELAY IN PLACEMENT

25. Untimely or unreliable information on bed states is a common problem which can lead to junior doctors and nurses wasting time finding beds while patients are kept waiting in the A&E department. This is poor quality care, poor use of doctors’ and nurses’ time, and poor use of A&E facilities. Occasionally it is not possible to place patients, so they are either transferred to another hospital or have to wait in the A&E department. The Commission's survey found that in five per cent of units in the last year, patients had on occasion been left overnight on trolleys in the A&E department.

PATIENTS PLACED ON AN INAPPROPRIATE WARD

26. Patients placed on wards not normally providing the type of treatment they ideally require (either of specialty or intensity) may receive poorer quality care. The correct nursing skills or specialist equipment may not be available, and they may have fewer visits from their consultant and medical team. At a number of hospitals visited, medical patients were occasionally placed inappropriately even though there were empty beds on the right type of medical ward.

27. There is also the risk that emergency admissions may spill over into the beds planned for elective admissions. In 90 per cent of units surveyed, emergency medical admissions had on occasion during the previous year spilled over into beds earmarked for surgery, thereby increasing the chances that elective patients would have their admissions cancelled. There are several other options which can be considered before cancelling elective patients, but there is seldom a coherent plan or defined responsibility for doing so. The decision is also sometimes taken precipitately by administrative staff without information on the relative priorities of elective patients.

PATIENT TRANSFERS

28. Some patient transfers are required for clinical reasons (for example, transfer from intensive care to a general ward), but after inappropriate placement patients are sometimes transferred between wards providing the same type of care purely for administrative convenience. There are significant differences between districts in the amount of internal transferring of patients (Exhibit 9, overleaf). It is unlikely that this is entirely due to clinical need. Some of the differences may be due to the use of admissions wards and others may be due to differences in policy. 45 per cent of hospitals have a policy of always transferring outlying patients to the ward of first choice as soon as possible.
Exhibit 9
WARD STAYS PER DISTRICT SPELL IN GENERAL MEDICINE IN TWO DISTRICTS
(FEBRUARY 1991)
There are significant differences between districts in the amount of internal transferring of patients.

Source: Audit Commission analysis of data from two districts

29. Although patient transfers disrupt the continuity of nursing care and can be unsettling for patients, few hospitals actively monitor transfers. Only 20 per cent of hospitals set a target limit on the number of transfers for an individual patient.

30. Appropriate placement is made more difficult where the unit operates on a split site. Transferring patients between sites by ambulance is cited as a particular problem in London. At one unit with two hospital sites, the ambulance service required 48 hours notice to arrange a patient transfer. This caused intense pressure on beds at the site with the A&E department, while there were many empty beds on the other site. The hospital often found it necessary to threaten to close the A&E department in order to get the '48 hours' rule waived.

MEDICAL FIRMS’ PATIENTS SPREAD TOO WIDELY
31. Patient transfers other than for clinical need are best avoided, but might sometimes be justified to prevent medical firms' patients being spread too widely. Doctors face logistical difficulties if their patients are spread across a number of wards; a problem which increases with the amount of sub-specialization. At one hospital visited, consultants regularly had patients on six or more of the ten general wards. The problem is not just one of inconvenience: wasting doctors' time results in poorer overall quality of patient care.

UNCLEAR POLICIES TOWARDS THE CARE OF ELDERLY PATIENTS
32. The rules for placing elderly patients under the care of a geriatrician or a physician are often unclear. Almost two-thirds of patients admitted to the combined general medical and geriatric specialties are aged 65 or over (Exhibit 10) and the proportion of very elderly patients will increase between now and the end of the century.

33. Patients with a single acute illness need the services of a general or specialist physician, but as they grow older patients are more likely to have multiple pathologies or need rehabilitation. The difficulty for the hospital lies in matching the patients' needs to the available skills and
facilities. There are essentially two arrangements to provide care for elderly patients: an integrated approach or a separate specialty approach.

(i) The integrated approach makes few distinctions between the work of physicians and geriatricians. Medical firms receive patients from the acute take regardless of age or need, though there may be one physician trained in and with special responsibility for elderly patients. This model was endorsed by the Royal College of Physicians (Ref. 2), but a shortage of consultant geriatricians who are also accredited physicians (and could join in the acute take) has limited its general application.

(ii) The separate specialty approach provides separate specialties for medicine and geriatrics. Each patient is in theory assigned to either specialty on the basis of personal need but in practice the approach sometimes leads to junior doctors or GPs making arbitrary decisions. So it is common to have age-related policies which use a chronological age as a proxy for need to determine whether patients are referred initially to a physician or a geriatrician. This gives the GP and the junior doctor clear guidance but chronological age is only a rough guide to need and such rules are often waived.

34. Age-related policies are the most common, with 75 years being the most common age threshold for admission under a geriatrician (Exhibit 11). The two approaches are discussed in more detail in Appendix III.

Exhibit 10
EPISODES OF CONSULTANT CARE FOR GENERAL MEDICINE AND GERIATRICS BY AGE GROUP, ENGLAND (1989-90)
Almost two-thirds of patients admitted to the combined general medical and geriatric specialties are aged 65 or over

Exhibit 11
HOSPITAL POLICIES ON THE CARE OF ELDERLY PATIENTS
Age-related policies are the most common, with 75 years being the most common age threshold for admission under a geriatrician
The average length of stay for patients in general medicine and geriatrics varies considerably between districts and between individual consultants. This is partly due to the different ages and medical conditions of the patients, but these factors alone do not account for all the variation. Even after standardization to account for variation in case-mix, studies show that lengths of stay for given treatments and conditions vary both between (Ref. 3) and within countries. For example, even after standardization for age and using diagnostic related groups to standardize for case-mix, the average lengths of stay for one specialty in 25 hospitals still differed from those expected by an average of 1.5 days, and in some cases by up to three days (Exhibit 12). Alternatively, there is striking variation between districts in average lengths of stay for a single condition and a particular age group (Exhibit 13).

Exhibit 12
RESIDUAL VARIATION IN LENGTH OF STAY AFTER ACCOUNTING FOR AGE AND FOR CASE-MIX USING DIAGNOSTIC RELATED GROUPS
Even after standardization, the average lengths of stay for one specialty in 25 hospitals still differed from those expected by an average of 1.5 days, and in some cases by up to three days.

36. Residual variation in average length of stay for common medical conditions (ie that which is not due to age or case-mix) results from a number of factors, including:

* Stay refers to the period before a patient is judged to be no longer in need of acute medical care
(i) data problems;
(ii) individual clinical practice; and
(iii) medical administration.

**DATA PROBLEMS**

37. If an average length of stay is thought to be unduly high or low, the first question to ask is whether the information is trustworthy. Data errors can occur at the point of collection or during analysis, and the data may be incomplete. Simple checks on data accuracy can reveal alarming inconsistencies, even for relatively well-defined items such as patients’ dates of admission. For example, 182 records were selected from the patient administration systems in two districts and the dates of admission and discharge and the name of the consultant on discharge were then checked against the medical notes. There was disagreement between the computerized records and the medical notes on at least one of these items in 36 per cent and 7 per cent of cases in the two districts. Such data audit is relatively easy, yet it is not commonly performed.

38. Even if the data have been shown to be correct, they may be insufficiently detailed to enable them to be interpreted properly. Average lengths of stay are crude indicators. Comparison of lengths of stay needs to take into account differences in the ages of patients or the case-mix of conditions. This may be done either by standardization or by making the comparison at lower levels of aggregation, such as comparing lengths of stay for a particular diagnosis between individual consultants. But the extra data required for more sophisticated and meaningful interpretation are even more likely to be affected by problems of incompleteness and inaccuracy. An analysis of 26 hospitals in one region showed that an average 27 per cent of diagnostic coding was incomplete, ranging from 6 per cent to 63 per cent.

39. Even if data are valid and sufficiently detailed to allow meaningful comparisons, interpretation must still be sensitive to local circumstances. For example:

(i) the average length of stay of general medical in-patients would be higher if some patients with short-stay medical conditions were admitted to and discharged from beds attached to the A&E department without ever being registered as patients of a consultant physician (the Commission’s survey shows that those hospitals with A&E beds have a significantly longer average length of stay for general medicine, no doubt because the medical specialties in these hospitals would not be ‘credited’ with the short-stay patients treated under the A&E consultant);
(ii) an integrated policy on the care of elderly patients increases the average age and therefore the average length of stay of patients in general medicine;

(iii) the location of medical beds on more than one site may delay necessary transfers and increase lengths of stay; and

(iv) the availability of effective primary care services may reduce lengths of stay.

INDIVIDUAL CLINICAL PRACTICE

40. The lengths of stay which clinicians deem appropriate for various conditions often have only a weak scientific basis. Many studies demonstrate the point (Ref. 4). A perennial problem in the NHS has been that such key decisions involving the use of resources have been made by clinicians with little incentive to control costs.

41. Resource management is now intended to supply the incentive, and medical audit* to provide the information and means, to address and reduce variations. But both initiatives are in their infancy with huge agenda. Audit is particularly problematic for non-surgical specialties which tend to deal with multiple pathology and chronic disease for which it can be difficult to categorize discrete episodes of treatment. Although much has been achieved, some medical audit meetings are poorly organized with unclear agenda, and sometimes audit lacks influence on professional practice.

MEDICAL ADMINISTRATION

42. Besides clinical decisions about individual patients, doctors make decisions about the way they work that can have a general effect on the lengths of stay of patients under their care. For example:

(i) Ward Rounds

A consultant’s ward round is often the only time when discharge is approved. Ward rounds seldom happen every day, the commonest frequency being twice a week. This results in more discharges on certain days of the week (Exhibit 14), yet there is no medical reason why discharges should differ significantly by day of the week. Fridays often

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* Throughout this report the term 'medical audit' is used because it is familiar, but audit of medical specialties needs to involve and address other health care professionals besides doctors, so strictly the term 'clinical audit' is more accurate.
have the highest number of discharges despite access to community support being more difficult to obtain at weekends. The timing of the ward round is also important. If the ward round is held late in the day, it may not be possible to organize patients’ discharge for the same day, which means that they spend an extra night in hospital.

(ii) The timing of the take may influence discharge decisions
Consultants often time some discharges to create a number of empty beds on the wards where they usually work in readiness for their next period on-take. This ‘on-take:discharge’ cycle has the advantage of concentrating admissions for one firm in a few wards, but also results in patients being discharged too soon, too late or without adequate notice. Such practice is widespread and is, indeed, explicitly stated in some placement procedures. Phrases such as ‘tactical blocking’ are commonly used to describe it, indicating how deeply ingrained it is in many hospitals. Where such practice exists, it may suggest other problems such as too few beds for the specialty’s workload, or poor management of the available beds.

(iii) Poor organization of investigations
Lengths of stay may be increased because of problems with the organization of tests and investigations. Such problems may be due to poor planning but more commonly result from delays in investigations departments. Slow turnaround times may be exacerbated by doctors who anticipate delays and order tests en bloc rather than in a logical sequence. Moreover, some patients who could be investigated as out-patients are kept in hospital because their doctors consider that the waiting times for out-patient investigations are unacceptable.

OCCUPATIONAL THERAPISTS AND PHYSIOTHERAPISTS

A patient’s length of stay may be reduced (and outcome improved) through effective rehabilitation by occupational and physiotherapists. However, the rehabilitation of some patients does not always start as early as possible in their stay in hospital; and their discharge may be held up, especially when home adaptations have to be organized. Analysis at one hospital showed that only half the patients requiring occupational therapy assessment were referred to the service in the first week of their stay. There is wide variation in the deployment of therapists, such as a five-fold variation in the number of occupational therapists (per head of population) employed in English districts. Shortages are commonly compounded by inadequate organizational arrangements at a local level. For example, the patients who would most benefit from therapy do not always receive it because of the often haphazard way those needing rehabilitation are identified. Moreover, as therapists are commonly employed by the acute unit, the community unit and the local authority, there are difficulties co-ordinating their activities across the three agencies which can lead to duplication of effort or cause important tasks to go by default.

DISCHARGE

Even after the patient is deemed medically fit, factors inside or outside the hospital may delay discharge. Many researchers have conducted surveys of the reasons why patients are in hospital. They invariably find that a proportion of patients could be discharged immediately, either to their home or to a less acute bed (Exhibit 15, overleaf).
Exhibit 15
RESEARCH INTO DELAYED DISCHARGE
Surveys of hospital populations invariably find that a proportion of patients could be discharged immediately, either to their home or to a less acute bed.

<table>
<thead>
<tr>
<th>Author</th>
<th>Date</th>
<th>Sample</th>
<th>Location</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross &amp; Crombie</td>
<td>1959</td>
<td>All patients in medical wards</td>
<td>Birmingham</td>
<td>25% of patients did not require specialist facilities</td>
</tr>
<tr>
<td>MacKintosh, McKeown &amp; Garratt</td>
<td>1961</td>
<td>4274 patients – all specialties</td>
<td>Birmingham</td>
<td>13% of patients were fit for immediate discharge</td>
</tr>
<tr>
<td>Loudon</td>
<td>1970</td>
<td>602 medical &amp; geriatric patients</td>
<td>Oxford</td>
<td>14% of bed days could be saved by admissions to non-acute hospitals</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>18% of bed days could be saved by earlier discharge (home or community)</td>
</tr>
<tr>
<td>Murphy</td>
<td>1977</td>
<td>325 surgical patients</td>
<td>Newham</td>
<td>16% of patients had no need to be in hospital</td>
</tr>
<tr>
<td>Farag &amp; Tinkler</td>
<td>1985</td>
<td>100 patients in a geriatric unit</td>
<td>Glamorgan</td>
<td>25% of patients had had their discharge delayed – mostly for social reasons</td>
</tr>
<tr>
<td>Beech et al.</td>
<td>1987</td>
<td>400 general medical &amp; general surgical patients</td>
<td>Lambeth</td>
<td>4% of patients could have been treated elsewhere</td>
</tr>
<tr>
<td>Anderson et al.</td>
<td>1988</td>
<td>847 general medical &amp; general surgical patients</td>
<td>Oxford</td>
<td>62% of patients did not need an acute bed</td>
</tr>
</tbody>
</table>

Source: Ref. 5

GENERAL ADMINISTRATIVE DELAYS

45. Fewer than ten per cent of patients discharged from hospital do not return to their usual place of residence (Exhibit 16). For many, there should be no delay in discharge after they are said to be medically ready, yet such administrative delays do occur and reduce the quality of patient care. It is important to save hours as well as days in streamlining administrative arrangements if the hospital is to run as efficiently as possible. Common administrative problems are:

(i) delays in ordering, dispensing and distributing take-home medicines may keep patients waiting on the ward; and

(ii) delays in obtaining transport. Nurses may compound the problem by ordering ambulances when a hospital car would suffice; or if faced with unreliable patient transport, may worsen the problem by booking an ambulance 'just in case' it is needed, knowing that it can always be cancelled without penalty at the last moment. Up to 48 hours notice is required to book an ambulance, which presents obvious difficulties when the time of discharge cannot be readily predicted.
Exhibit 16
THE DESTINATION ON DISCHARGE OF GENERAL MEDICAL AND GERIATRIC PATIENTS, ENGLAND (1989-90)
Fewer than ten per cent of patients discharged from hospital do not return to their usual place of residence

Source: Audit Commission analysis of data from Regional Hospital Episode statistics supplied via OPCS (1991)

46. Achieving a trouble-free discharge is often jeopardized by poor communication with the patient, their GP and outside agencies. One survey by a Community Health Council discovered that half the patients received less than 12 hours notice of discharge and a further third less than three hours notice. Another study (Ref. 6) found that only 12 per cent of discharge summaries were received by the GP within one week of the patient's discharge. As well as being late, discharge letters often fail to inform the GP adequately about 'social' topics such as transport needs, social services support and whether the patient has been told of their prognosis.

DOMICILIARY SUPPORT

47. Many of those who return to their usual place of residence need domiciliary support to be organized before they can be discharged. Discharge is often delayed because the package of care patients require from community health, local authorities and GPs is poorly planned and managed.

48. Studies suggest that much of the delay in the discharge of elderly patients may be due to problems with arranging social services support (Ref. 7). The time required to arrange home-help visits varies from one to three working days between social services departments. One study (Ref. 8) found that only 23 per cent of the total delay in discharge from a geriatric unit could be accounted for by factors within the hospital. A further 12 per cent of the delay was due to transport problems and the remaining 65 per cent was for reasons that included waiting for families to finalize arrangements, finding long-term placements, and making adaptations to homes.

PATIENTS NEEDING INSTITUTIONAL CARE

49. Of all general medical and geriatric patients, seven per cent do not return to their usual place of residence. This includes patients for whom the acute hospital stay represents a watershed
in their ability to cope at home. They subsequently need placement in residential or nursing homes. Although this group is relatively small in number, they can be delayed for long periods in the acute hospital, and have a disproportionate effect on the use of beds. A number of London hospitals visited had between 10 per cent and 15 per cent of the available general medical and geriatric acute beds occupied by patients waiting for discharge to less acute accommodation. Patients discharged to institutional care are likely to have longer lengths of stay than those with the same condition who return home (Exhibit 17).

Exhibit 17
THE PROPORTION OF PATIENTS REMAINING IN ONE HOSPITAL DURING THE FIRST YEAR AFTER ADMISSION WITH A STROKE
Patients discharged to institutional care are likely to have longer lengths of stay than those with the same condition who return home

![Graph showing the proportion of patients remaining in one hospital during the first year after admission with a stroke.]

Source: Ref. 9

50. However good the quality of the hospital's management arrangements, its success in discharging 'watershed' patients is ultimately determined by the availability of residential and nursing home places. There is at least a two-fold variation in the availability of local authority and private residential accommodation in England and wide variation within regions. Moreover, discharge may be determined by the patient's ability and willingness to pay for continuing care in a non-NHS institution.

51. Finding places for those unable to return to their usual place of residence is time-consuming and requires good knowledge of local facilities and their current availability. Despite this, in about half of acute hospitals there is no clear responsibility for this task (Exhibit 18). Where a particular staff group is responsible it is usually the hospital social workers but in some hospitals the ward sisters or ward clerks take responsibility.

COMMUNITY LIAISON

52. Many hospital managers are dissatisfied with their relationship with local authority social services departments. Complaints include social workers failing to attend ward rounds and
THE RESPONSIBILITY FOR FINDING PLACES IN LONG TERM CARE

In about half of acute hospitals there is no clear responsibility for this task.

Source: Audit Commission survey

53. Such problems are cause for concern in view of the enhanced role to be played by social services after 1993 as required by the 1990 NHS and Community Care Act. The Act transfers the care element of social security budgets to local authorities for use by care managers appointed by social services, who will purchase packages of care for individuals. Local authorities will thus become crucial in facilitating effective discharge from hospital. Close co-operation between hospital and local authority staff will be essential in assisting patients in finding nursing and residential accommodation.

54. Responsibilities have yet to be allocated precisely between the NHS and local authorities. Successful community care will require that health care is linked to the continuing social care provided by the local authority through effective co-ordination arrangements. There is an overriding concern that resources transferred from social security budgets will not all find their way into the local authority community care budgets. (Two forthcoming Audit Commission reports, on Community Health Services and Personal Social Services and Community Care will address these issues.)

BED AVAILABILITY AND MANAGEMENT

55. Bed provision varies widely between districts. Some variation is necessary because of differing age structures and morbidity patterns, and some reflects differences in admission thresholds and lengths of stay. The remainder of the variation corresponds to bed availability, either above or below the average.

56. These sources of variation have been quantified for 135 English districts using data on bed numbers, length of stay and admissions in different age groups for general medicine and geriatrics combined. On average, 41 per cent of the variation is explained by districts’ age structures and by their admission rates which vary due to differences in demography and morbidity. But 59 per cent bears no obvious relation to populations' needs for health care: 27 per cent of the variation is due to differences in lengths of stay for particular age groups, which are likely to result from differing medical opinion and administrative practice; and the remaining
Exhibit 19
THE CONTRIBUTION OF VARIOUS FACTORS TO THE VARIANCE BETWEEN THE ACTUAL AND EXPECTED NUMBER OF MEDICAL BEDS, ENGLAND (1988-89)
On average, 41 per cent of the variation is explained by districts’ age structures and by their admission rates. But 59 per cent bears no obvious relation to populations’ needs for health care.

Source: Audit Commission analysis of KH01 statistics and Department of Health - Health Service Indicators (1990)

32 per cent is due, in large measure, to a failure of pre-reform allocation methods to provide the right number of beds for an individual district’s needs (Exhibit 19).

57. How can the fact that only 41 per cent of the variation in bed numbers is obviously related to need be reconciled with the fact that many clinicians speak of a permanent bed crisis? Firstly, evidence suggests that the need to be in hospital cannot be defined precisely. For example, length of stay for the same condition varies so much between countries that it is most unlikely to reflect differences in disease severity (Exhibit 20). Secondly, empty beds seldom remain empty for long. The tendency for demand to be related to levels of provision has been confirmed by many studies (Ref. 10). These have demonstrated that both admissions and lengths of stay increase with bed availability which implies that there is no realistic level of bed provision which would fully satisfy demand. Such findings are corroborated by data from the Health Service Indicators which show that bed availability and throughput per bed are inversely correlated (Exhibit 21). Most of the variation in throughput is due to differences in length of stay rather than turnover interval.

58. If all districts could achieve lengths of stay and turnover intervals at least as low as the current best 25 per cent of districts (even after allowing for the effect of age), there would be the potential to provide the present level of activity in medicine with 58,000 beds rather than the 85,000 currently in use. Part of the reduction would result from removing the organizational inefficiencies identified in this report. This would also do much to improve the quality of patient care. But the rest of the reduction could not be achieved without investment in community services to enable the lower quartile of standardized length of stay to be achieved. Such changes will take time and must be achieved against a background of careful monitoring of health care outcomes to ensure that they do not deteriorate.
INTERNATIONAL VARIATION IN LENGTH OF STAY (1986)
Length of stay for the same condition varies so much between countries that it is most unlikely to reflect differences in disease severity.

Source: Ref. 12

THE RELATIONSHIP BETWEEN (AGE ADJUSTED) THROUGHPUT PER BED AND BED PROVISION IN GENERAL MEDICINE AND GERIATRICS, ENGLAND (1989-90)
Bed availability and throughput per bed are inversely correlated.

Source: Audit Commission analysis of Department of Health – Health Service Indicators (1991) and data from Regional Hospital Episode Statistics supplied via OPCS (1991)
59. The association between bed numbers and the efficiency with which they are used has been demonstrated by so many studies that the accumulated evidence to support direct causality is overwhelming. In other words, if fewer beds are made available, practice adjusts to reduce lengths of stay and turnover intervals. At some point, admission thresholds will also rise. Many managers are aware of these relationships and have manipulated admission rates and length of stay by reducing bed numbers.

60. It is clear from this that bed numbers must be allocated in numbers carefully matched to workload. There will only be one correct answer: too many or too few beds will have adverse effects.

61. Achieving the correct number of beds is difficult. In many hospitals, no one individual is held accountable for the effective management of beds and there is often confusion as to whether it is the manager's job or the clinicians'. Often, responsibility falls between the two. Furthermore, the way in which beds are currently made available in acute hospitals presents several problems which stand in the way of optimizing their use.

STRUCTURAL LIMITATIONS

62. In many districts, beds in a single specialty or in allied specialties are provided on different sites. For example, the geriatric specialty may be located in another hospital off the main acute site. This will make transfer difficult and may deprive elderly patients of full acute diagnostic and treatment facilities. As well as impeding the efficient use of beds, such arrangements add to the problems of allocating beds accurately to reflect workload.

63. Most hospital wards have traditionally catered for all the possible types of admission expected for one specialty. The use of single specialty wards allows the concentration of specialist medical and nursing skills and is organizationally convenient. Variations from this occur when:

(i) specialty bed requirements do not fit into multiples of 24 or 30 (the typical number of beds per ward) which leads to some shared wards; or

(ii) the needs of patients have to be met by multi-specialty units such as those for intensive therapy.

Consequently, the numbers of beds for most specialties are often set at levels determined by the usual ward sizes rather than their precise needs.

COMPARTMENTALIZATION OF BEDS BY GENDER

64. Beds are often compartmentalized to provide separate wards for men and women. The reason may be historical, rather than deriving from a clearly thought-out policy. About 25 per cent of hospitals adopt strict segregation of patients in separate wards, fewer than ten per cent have mixed bays and most have single sex bays in mixed wards. There is no significant difference between specialties in their choice of gender policy.

65. At one hospital visited, the medical wards were mixed while the surgical wards of exactly the same design were single sex. At another, male medical patients were placed on male surgical wards even if there were beds available on the female medical ward. Yet for most patients, quality of care is more likely to be jeopardized by being on a ward of the wrong specialty, rather than by being on a ward which also has some patients of the opposite sex.
INAPPROPRIATE ALLOCATION OF BEDS BY SPECIALTY

66. Traditionally, each consultant had admitting rights to a fixed number of beds, thus implicitly controlling the associated staff resources. As long ago as 1972 (Ref. 11) ringfencing of beds to individual consultants was shown to be wasteful but about 15 per cent of acute units still operate this policy.

67. There may also be inappropriate allocation of beds by specialty or by function which does not match the hospital's current workload. A failure to review the allocation of beds often results in beds being used by specialties other than those intended (Exhibit 22). The Commission's survey showed that although 39 per cent of units had reviewed their allocation of beds to specialties in the last year, 44 per cent had not undertaken such a review within the last three years (Exhibit 23, overleaf).

Exhibit 22
BED BORROWING IN ONE HOSPITAL (1989-90)
Beds are often used by specialties other than those intended

SEASONAL AND DALY VARIATIONS IN BED USE

68. There is greater demand for hospital beds for emergency admissions during the winter, and sometimes also on certain days. This can leave too many empty beds at other times. Analysis of patterns of admission sometimes shows variations in emergency admissions by day of the week, with small peaks on Mondays and Fridays. This may be explained by people waiting until after the weekend to see their GPs, or the GPs seeking to obtain an admission prior to the weekend.

MANAGEMENT INFORMATION

69. Effective management of beds is often hindered by inadequate or unreliable information. For example, figures on the total number of beds do not always take account of temporary closures,
Exhibit 23
THE TIME SINCE THE ALLOCATION OF BEDS TO SPECIALTIES WAS LAST REVIEWED

Although 39 per cent of units had reviewed their allocation of beds to specialties in the last year, 44 per cent had not undertaken such a review within the last three years.

and bed borrowing by specialties is often not recorded accurately. In many hospitals there is no clear picture of the total information needed for bed management. Perhaps this is not surprising in view of the way beds have been regarded in the past; as a structure laid down by district and regional planners on which all other resources were hung. At a unit level, bed numbers have been taken as largely fixed, so management information and the bed management function have tended to focus on day-to-day aspects of bed use.

Source: Audit Commission survey
2. Action to Address the Issues and Problems

70. No hospital visited exhibited all the problems set out in Chapter 1. But nor could any hospital claim to have none of them. This chapter presents a series of actions to address the problems described. It should be seen as a menu from which relevant items can be selected, according to local circumstances. Auditors will be using this framework in each district over the next year.

ADMISSION

71. The response of provider units to problems at the admissions stage needs to be agreed with their client purchasing districts. For instance, each purchaser:provider partnership should decide which party is to discuss referral arrangements with local GPs. Once it is decided who is to be responsible for which aspects of managing the interface between primary and secondary care, problems may be addressed by action in the following areas:

— Improving the appropriateness of GP referral
— Improving in-patient selection
— Procedures for dealing with admission
— On-take arrangements
— Domiciliary visits
— Observation beds

IMPROVING THE APPROPRIATENESS OF GP REFERRAL

72. Hospitals should seek to increase the proportion of acute patients referred appropriately by:

(i) Monitoring referral rates to each specialty from each general practice

Since April 1990, GPs have been required to supply information about referral to hospital, whether for admission, investigation or to out-patients, as part of their annual reports to Family Health Service Authorities (FHSAs). Hospitals should have access to this information and use it regularly to review referral and admission patterns, looking especially at variation between different general practices. This might best be done jointly with the FHSA. The objective should not necessarily be to reduce high rates of referral. It would be wrong, and costly in the long run, to delay the referral of patients who would benefit from early intervention.

The results of such a review need careful interpretation. For example, an increase in the number of A&E admissions may be the result of more patients being sent to the A&E department by GPs who have had problems admitting patients by contacting the on-take medical team. GPs may feel that it is more efficient and less time consuming to do this (or refer the patient to a bed
bureau) if they become accustomed to receiving refusals of admission by junior doctors who cannot find beds.

(ii) Improving communication with GPS

For many patients, being in hospital is only one chapter in the history of their condition. But some hospital staff tend to see that chapter as comprising the whole book. There needs to be more dialogue between hospital staff and GPs about their respective roles and responsibilities. The following are recommended.

(a) Managers should monitor the hospital's communications with the public and GPs, examining, for example, delays at hospital switchboards and surveying satisfaction with the service. Some hospitals provide direct access telephone lines for GPs' enquiries and fax machines or computer links for sending test results and discharge summaries.

(b) It may be possible to provide GPs with improved access to an urgent second opinion and so reduce inappropriate referral. This could be achieved by more sensitive scheduling of urgent out-patient appointments, or the on-take consultant being available for telephone consultation at a fixed time during the day to discuss any case where the GP is in doubt about whether to refer for admission.

(c) Mutually agreed referral and treatment protocols can help to optimize referral thresholds and reduce variation between practice referral rates. Consultants and GPs should meet regularly to review them. Several hospitals visited had developed shared protocols for diabetes, asthma and hypertension. At another, physicians had recently advised GPs of their views on the immediate management of myocardial infarction (Exhibit 24). Development is probably best achieved by central initiatives, but leaving scope for local adjustment. The medical Royal Colleges are starting to respond to this need.

(d) GPs should be informed immediately when their patients are admitted to hospital.

(e) Hospitals should discuss with GPs the use of structured referral letters which make explicit the reasons for referring (Box A, overleaf).
We welcome your views on the immediate management of myocardial infarction and will try to incorporate your comments into the revised draft of the guidelines.

At one hospital, physicians had recently advised GPs of their views on the immediate management of myocardial infarction.

Exhibit 24

Local GPs

An example of good communication between an acute hospital and local GPs

The importance of good communication between an acute hospital and local GPs.

Local vs.

An example of good communication between an acute hospital and local GPs.

Exhibit 24
**Box A**

**A STANDARD GP REFERRAL LETTER**

Hospitals should discuss with GPs the use of structured referral letters which make explicit the reasons for referring

The letter should include details of reasons such as:
- diagnosis
- investigation
- advice on management only
- specialist management
- patient needs reassurance or a second opinion
- admission requested

and provide details of:
- the presenting complaint
- diagnosis or early signs and symptoms
- investigations and treatment performed
- any chronic disease
- current continuous medication
- relevant details of home circumstances
- what information the patient has been given
- the patient's functional ability

*Source: Audit Commission*

**IMPROVING IN-PATIENT SELECTION**

73. To improve the hospital’s procedures for screening potential admissions, the following are recommended.

(i) An experienced junior doctor (ideally a registrar) should be available at all times to assess patients on admission.

(ii) Junior doctors tend, not unreasonably, to err on the side of caution when admitting patients, so all patients should be seen as early as possible by their consultant to confirm the appropriateness of admission and sanction the ordering of expensive or invasive investigations. Managers will need to negotiate such a policy, for instance through the annual job planning process, and then collect information to measure the degree of compliance.

(iii) Wherever possible, consultants should delegate to experienced junior doctors the decision to discharge obviously inappropriate admissions at an early stage.

(iv) It is good practice to monitor people refused admission, for example by examining a random sample in conjunction with GPs.

**PROCEDURES FOR DEALING WITH ADMISSION**

74. Written procedures for dealing with admission should be introduced (Box B). They need to be reviewed regularly and promulgated as part of the induction of all staff involved with admissions. Only by committing to paper an agreed procedure dealing with admission and placement is it likely that doctors, nurses, managers and administrators will have a clear and common understanding of local arrangements.
Box B

ADMISSIONS AND PLACEMENT PROCEDURES

Written procedures for dealing with admission should be introduced which include:

- details of firms, the on-take rotas and handover arrangements
- how to deal with GP referrals (e.g. details of where the patient is to be seen)
- who takes the decision to admit
- any clinical protocols in use and where to find them
- the hospital’s policy on the care of elderly patients
- documentation to be completed on admission (e.g. preliminary assessment / discharge planning arrangements)
- arrangements for liaison with other firms (e.g. a medical house officer needs to know arrangements for liaison with geriatric and psychiatric firms)
- transfer arrangements for outlying patients
- rules for the transfer of readmissions to the previous consultant
- there is a requirement for consultants to see new patients within a specified time period

Source: Audit Commission

75. Some things cannot be committed to paper and must rely on good personal contact. This applies particularly to the extent of consultant delegation to junior staff. Consultants must make explicit to each individual the extent of their delegated powers. The admissions procedure needs to cover arrangements for admission when beds are scarce. Priorities must be agreed between specialties and patients categorized by the urgency of their needs (Exhibit 25).

Exhibit 25

ADMISSIONS PRIORITIES: A SAMPLE SCHEDULE

Priorities must be agreed between specialties and patients categorized by the urgency of their needs

<table>
<thead>
<tr>
<th>Urgency of need</th>
<th>Definition</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency</td>
<td>Possibility of imminent death or disability if not admitted</td>
<td>Acute myocardial infarction (medicine); perforated duodenal ulcer (surgery)</td>
</tr>
<tr>
<td>Urgent</td>
<td>Possibility of death, disability or increased morbidity within hours to days if not admitted</td>
<td>Rule out myocardial infarction (medicine); suspicion of acute surgical abdomen (surgery)</td>
</tr>
<tr>
<td>Semi-urgent</td>
<td>Within days to weeks the problem will possibly become greater if not handled by admission</td>
<td>Investigate chronic gastrointestinal bleeding with anaemia (medicine); gradually worsening intermittent claudication due to peripheral vascular disease (surgery)</td>
</tr>
<tr>
<td>Elective</td>
<td>Lower probability of serious trouble within weeks</td>
<td>Colonoscopy with biopsy in an elderly infirm patient (medicine); cholecystectomy for gall stones (surgery)</td>
</tr>
<tr>
<td>Alternative</td>
<td>Admission to an acute in-patient bed could have been avoided by treating the patient in an alternative manner</td>
<td>Day case procedures; out-patient investigations; nursing home care; rehabilitation facility</td>
</tr>
</tbody>
</table>

Source: Ref. 13
76. There is merit in providing junior doctors with protocols for the treatment of common conditions, but there may be difficulties in securing their use. A recent medical audit exercise on the treatment of asthma (Ref. 14) showed that a specific protocol was not adhered to in 47 per cent of cases, and junior staff were generally unaware of it.

ON-TAKE ARRANGEMENTS

77. The usual arrangement is to have firms on-take continuously for 24 hours. This can lead to doctors delaying the discharge of patients to coincide with their firm's take, and to such large numbers of patients being admitted by the same firm that they have to be placed widely throughout the hospital. If there are problems caused by the 24 hour take, managers and clinicians should consider the other systems occasionally used (Exhibit 26).

Exhibit 26
ON-TAKE ARRANGEMENTS
If there are problems caused by the 24 hour take, managers and clinicians should consider one of the other systems occasionally used

<table>
<thead>
<tr>
<th>System</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Each team on-take for 12 hours</td>
<td>Less chance of discharging patients to coincide with the take</td>
<td>More frequent takes and visits to new patients</td>
</tr>
<tr>
<td></td>
<td>Less chance of patients being spread throughout hospital</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Shorter shifts for junior doctors. May be important in view of reductions in junior doctors' hours</td>
<td></td>
</tr>
<tr>
<td>All teams on-take simultaneously and patients admitted in rotation, unless they are readmissions</td>
<td>Smooth the firms' workloads</td>
<td>Conflicts with other activities</td>
</tr>
<tr>
<td></td>
<td>Reduces spreading of patients</td>
<td>Requires good contact with several wards, placing a premium on bed management systems</td>
</tr>
<tr>
<td></td>
<td>Allows easier scheduling of nursing staff</td>
<td></td>
</tr>
<tr>
<td>Each consultant admits to a limited number of wards and is on-take for only as long as there are empty beds available on them</td>
<td>Concentrates the medical firms' patients</td>
<td>Strong association between discharge and take</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Patients transferred to create empty beds for the take</td>
</tr>
<tr>
<td></td>
<td></td>
<td>System may be easily abused by not emptying beds</td>
</tr>
</tbody>
</table>

Source: Audit Commission visits to a number of hospitals

DOMICILIARY VISITS

78. Judicious use of domiciliary visits may prevent unnecessary admission to acute facilities and ensure more appropriate access to care. The use of the service needs careful scrutiny. Managers should examine patterns of use by particular consultant and GP pairings and ensure that variation is explained and justified.
OBSERVATION BEDS

79. Observation beds attached to the A&E department may offer an alternative to the stark choice of immediate admission to a general ward or sending the patient home. Such facilities provide expertise in the management of certain types of patients, protect the hospital’s general wards for planned admissions, and provide a filter for inappropriate admission.

80. Several studies (Ref. 15) have shown that such facilities reduce pressure and improve bed use on general wards. However, it is important that their use is carefully monitored. Clear guidelines and firm control at consultant level are essential. In particular, an agreed maximum period of stay should be strictly adhered to after which patients must be discharged or transferred to a general ward. At one hospital visited, there was a written policy that patients in the observation beds should stay for no longer than 48 hours, but many patients stayed longer and one had stayed for four months.

81. In England and Wales, about one third of acute hospitals have observation beds, and they tend to be in urban areas. About 70 per cent of urban hospitals have beds attached to their A&E departments, compared with only about 30 per cent of non-urban hospitals. Managers should periodically review categories of admissions to consider whether there are sufficient numbers of patients who could be placed in observation beds to make such a facility worthwhile in the light of the possible advantages and disadvantages (Box C).

Box C
THE ADVANTAGES AND DISADVANTAGES OF OBSERVATION BEDS
Managers should consider whether there are sufficient numbers of patients who could be placed in observation beds to make such a facility worthwhile in the light of the possible advantages and disadvantages

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>▼ They provide an option between admission to a main ward and refusal of admission</td>
<td>▼ There is some doubt whether medical patients should be under the care of A&amp;E consultants</td>
</tr>
<tr>
<td>▼ They are appropriate for certain categories of patient, eg:</td>
<td>▼ Occupancy tends to be low because of the unpredictability of demand, and consequently costs are high</td>
</tr>
<tr>
<td>– elderly patients with uncertain home circumstances</td>
<td></td>
</tr>
<tr>
<td>– patients with simple overdoses</td>
<td></td>
</tr>
<tr>
<td>– patients with minor head injuries</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Issues</td>
<td></td>
</tr>
<tr>
<td>▼ Rules are required for clearing the ward and time limits must be set on length of stay in the ward</td>
<td></td>
</tr>
<tr>
<td>▼ Strong management under a consultant is essential to ensure effective use of the facility</td>
<td></td>
</tr>
</tbody>
</table>

Source: Audit Commission
PLACEMENT

82. Placement problems may be addressed by action in the following areas:

— Procedures for placing acutely ill patients
— Procedures for transferring patients
— Policies on the care of elderly patients
— Admissions wards

PROCEDURES FOR PLACING ACUTELY ILL PATIENTS

83. The placement of patients is illustrated by a flowchart of key decisions (Exhibit 27). There should be a regular review of placement problems over time. Managers need a set of performance measures such as the number of admissions delayed because beds were not available or could not be found; and the number of patients placed in wards outside the specialty’s planned allocation and the number of subsequent transfers.

Exhibit 27
THE PLACEMENT OF PATIENTS
The placement of patients is illustrated by a flowchart of key decisions

Source: Audit Commission

84. The hospital must maintain a clear picture of the number and location of empty beds, and of imminent discharges. These beds can be matched with the demands of both elective and emergency admissions and patient transfers. Where beds are pooled within or between specialties it is necessary for someone to have an overview of their use and the respective priority of demands for them. Individual firms with elective admissions have no knowledge of the demands of other firms or of the number of emergency admissions arriving at the hospital.

85. Some hospitals have a central office to co-ordinate all admissions. A well-organized admissions office can improve the dissemination of information and reduce the time junior doctors and nurses spend ringing wards to find empty beds.
86. Many discharges are decided at morning ward rounds, so without prior notice of imminent discharges the total number of beds available for the day is not known until the early afternoon. Even then, beds may not be emptied promptly, and delays of even a few hours are a problem if the beds are being intensively used.

87. A variety of methods is used to monitor the bed state, from sophisticated computer systems through coloured peg boards to simple paper systems. They all require co-operation and trust between medical teams, nurses and the admissions office. Regular visits to wards are required to validate reported bed states. Placement procedures must distinguish between bed finding arrangements operating during the day and those at night. By day, there are more GP referrals and elective admissions. At night, there are more emergency self referrals. By day an up-to-date bed state needs to be maintained by an admissions office which co-ordinates elective admissions, requests from clinicians to receive emergency or urgent admissions, and requests for inter-hospital transfers. Last thing in the evening, the admissions office should provide details of the bed state to whoever will be responsible for placing admissions during the night, usually someone located in the A&E department.

88. Placement procedures must define the respective responsibilities of:

(i) doctors in the 'on-take' firms;

(ii) nursing staff;

(iii) the admissions office; and

(iv) the bed manager (if any).

89. Placement procedures should include contingency plans for taking action on bed shortages (Exhibit 28, overleaf). A clear hierarchy of actions and criteria on who can initiate each successive step, and in what circumstances, is required. The Commission's survey suggests that 70 per cent of units do not have such plans.

PROCEDURES FOR TRANSFERRING PATIENTS

90. There should be clear procedures for considering the transfer of inappropriately placed patients which include weighing the priority of such patients against new admissions. These procedures also cover the transfer to general wards of patients from 'special' wards such as intensive treatment units and coronary care units. Hospital policies vary. Some automatically transfer every outlying patient to the most appropriate ward before that ward receives new admissions, some transfer only convalescent patients, while others transfer patients only if there is an immediate clinical reason. Provision for such transfers should be made in assessing the number of beds available for the next day's emergency admissions.

91. In advising which patients to transfer, clinicians should, if time permits, consult other relevant members of staff. It is especially important that unnecessary transfers of elderly patients are minimized. The question whether to transfer is one of balance: although continuity of individual patient care is undermined when patients are transferred, the inefficiency resulting from a rigid system may lead to an overall reduction in the quality of care. The best solution is to ensure that placement is correct first time. Managers and clinicians should monitor the average number of ward stays per consultant episode and monitor performance against agreed targets.
POLICIES ON THE CARE OF ELDERLY PATIENTS

92. There should be a coherent policy on the care of elderly patients which optimizes the use of the available bed stock and medical skills in each district. Whatever policy is chosen, there is a common set of key requirements for the effective care of elderly patients (Exhibit 29). All acute elderly patients must have access to the full diagnostic and treatment facilities that would be expected for adult general medicine in a District General Hospital. There should also be ready access to rehabilitation services for all patients, whether under the care of a physician or a geriatrician.

93. As well as establishing clear working relationships between general medicine and geriatrics, a close working relationship is essential between these two specialties and psychiatry.
Exhibit 29
THE CARE OF ELDERLY PATIENTS
There is a common set of key requirements for effective care

(both acute intervention and psychiatry of old age) if misplacement is to be avoided. Arrangements should be published and circulated to GPs and other concerned agencies at regular intervals.

ADMISSIONS WARDS

94. About 10 per cent of acute units have designated one or more wards to receive all acutely ill patients. Some hospitals with high seasonal variations in the number of emergency admissions (usually to general medicine, geriatrics and orthopaedics) operate a winter admissions ward. Where there is an admissions ward, patients typically spend the first critical 24 or 48 hours of their stay on the ward before being transferred to a less acute general ward. The purpose of admissions wards must be clearly defined and understood. In particular, they should not be confused with observation beds attached to the A&E department, which are used for the observation of patients who do not require active medical treatment.

95. There are a number of advantages, disadvantages and issues to be considered when evaluating admissions wards (Box D, overleaf). The decision to operate one will depend on local circumstances. For example, if a hospital faces problems with constant misplacement of patients, or patients being discharged solely to provide beds for the next take, managers may consider that the benefits of solving these problems outweigh the costs and risks of introducing an admissions ward.
THE ADVANTAGES AND DISADVANTAGES OF ADMISSIONS WARDS

There are a number of advantages, disadvantages and issues to be considered when evaluating admissions wards.

<table>
<thead>
<tr>
<th>Advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>▼ They ‘buy time’ to find the most suitable bed</td>
</tr>
<tr>
<td>▼ On-take firms know where all new patients are</td>
</tr>
<tr>
<td>▼ They prevent disturbance at night of patients sleeping on the main wards</td>
</tr>
<tr>
<td>▼ The staffing requirements on all wards tend to be more stable</td>
</tr>
<tr>
<td>▼ They eliminate the practice of discharging patients for a future take</td>
</tr>
<tr>
<td>▼ They aid the planning of work on the main wards</td>
</tr>
<tr>
<td>▼ They act as a filter to inappropriate admission</td>
</tr>
<tr>
<td>▼ They allow for better use of split sites</td>
</tr>
<tr>
<td>▼ The concentration of expertise can improve the quality of care of acutely ill patients</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>▼ Beds are further sub-divided</td>
</tr>
<tr>
<td>▼ One transfer is inevitable - particularly a problem for elderly patients</td>
</tr>
<tr>
<td>▼ They run counter to the concept of primary nursing</td>
</tr>
<tr>
<td>▼ Staff on main wards may feel devalued</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>▼ Deciding on the correct size of the admissions ward</td>
</tr>
<tr>
<td>▼ Strong management is essential to ensure that patients are transferred promptly from the ward</td>
</tr>
<tr>
<td>▼ Nurse staffing must be adjusted to reflect the lower intensity of treatment on other wards</td>
</tr>
</tbody>
</table>

Source: Audit Commission

STAY

96. Many of the problems relating to length of stay described in the last chapter may be addressed by actions in the following areas:

— Collection of management information
— Medical audit
— Resource management
— Medical administration
— Occupational and physio-therapists

COLLECTION OF MANAGEMENT INFORMATION

97. Managers should examine length of stay profiles at a specialty level and the implications for resource use of groups of patients with different lengths of stay (Exhibit 30). Additionally, there should be regular audits of data accuracy, reviews of length of stay patterns and systems for detecting and investigating abnormally long lengths of stay. Even with regular data audits, complete elimination of error is seldom possible, and often unnecessarily expensive. Greater accuracy and completeness may be achieved by occasional duplication of information collection.
Managers should examine length of stay profiles and the implications for resource use of groups of patients with different lengths of stay.

Source: Ref. 16

and subsequent analysis and regular comparisons between different sources of information. Managers and clinicians should examine profiles of length of stay (or at least means and medians) for particular age groups, consultants and common conditions (Exhibit 31). Averages are often misleading and would fail to pick up, for instance, the greater than expected number of patients whose lengths of stay are multiples of seven days. Managers and clinicians should receive exception reports on individual patients who exceed an agreed threshold for length of stay.

Exhibit 31
THE PROFILE OF LENGTH OF STAY FOR GENERAL MEDICINE IN AGE GROUP 75 TO 84, ENGLAND (1989-90)
Managers and clinicians should examine profiles for particular age groups, consultants and common conditions.

Source: Audit Commission analysis of data from Regional Hospital Episode statistics supplied via OPCS (1991)
perhaps based on national data (Exhibit 32).

Exhibit 32
POSSIBLE EXCEPTION REPORT THRESHOLDS FOR LENGTHS OF STAY FOR GENERAL MEDICAL AND GERIATRIC PATIENTS
Managers and clinicians should receive exception reports on individual patients who exceed an agreed threshold for length of stay

<table>
<thead>
<tr>
<th>Age group</th>
<th>General Medicine</th>
<th>Geriatrics</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 to 64</td>
<td>20 days</td>
<td>67 days</td>
</tr>
<tr>
<td>65 to 74</td>
<td>24 days</td>
<td>80 days</td>
</tr>
<tr>
<td>75 to 84</td>
<td>36 days</td>
<td>81 days</td>
</tr>
<tr>
<td>85+</td>
<td>50 days</td>
<td>100 days</td>
</tr>
</tbody>
</table>

Source: Audit Commission analysis of data supplied by Regional Hospital Episode Statistics via OPCS (1991)

98. Accurate coding of all in-patient information is important, not least for contracting purposes. Some hospitals have devolved the responsibility for clinical coding to staff working closely with clinicians. Whatever the organizational arrangements, the importance of accurate data needs to be continually emphasized and regular feedback should be given to the staff responsible.

99. In addition to such routine analysis, managers and clinicians should undertake regular reviews of all patients occupying hospital beds and the reason for their continued hospitalization (see paragraph 126).

MEDICAL AUDIT

100. Consultants have different views on ideal lengths of stay for common, uncomplicated cases resulting from factors such as their tolerance of uncertainty or perceptions of risk and probability. Such differences should be studied by those responsible for managing resources in the organization and attempts made to explain them. Most hospital information systems permit the analysis of length of stay by principal diagnosis and individual consultant.

101. Some variation arises because consultants often practice in isolation. Consultants invited to 'consensus conferences' often voice surprise at the variation in colleagues' opinions and practices. The development of medical audit should increase the extent to which consultants examine and question such decisions. Medical audit also needs to result in clear guidance on the treatment of common conditions. Such protocols are valuable in providing clear guidance to junior doctors. One hospital produces 'filofax' pointers to better practice (Box E).
102. As the medical specialties deal mainly with chronic illness, effectiveness of outcome can only be assessed by reference to the total package of health care, not just the part provided by consultant physicians or geriatricians. Accordingly, other professionals in the hospital and community, particularly GPs, need to be involved in audit.

Box E

CLINICAL PROTOCOLS FOR COMMON CONDITIONS
One hospital produces ‘filofax’ pointers to better practice

103. Unit and District General Managers should receive details of the District Medical Audit Advisory Committee’s forward programme of topics, an annual report of progress and regular reports which are sufficiently detailed, firstly, to assure them that effective audit is taking place and, secondly, to identify areas where management action is needed. Audit meetings should be formally organized with a chairman, agenda and minutes against which progress is monitored at subsequent meetings.

104. Managers and clinicians should monitor audit and consider:

— do the issues addressed include resource use and quality indicators?
— Are the results acted upon?
— Is it adequately supported?
— Are other professionals involved?

105. At present audit is in its infancy with huge agenda to address. Some hospitals have concentrated on appointing audit assistants and installing IT systems, while others have started with simple reviews of patients' notes which can provide information to assist the effective management of patients and beds.

106. Medical audit is currently funded for two years by the Department of Health and the Welsh Office. Managers may thereafter have to find internal funds to continue support for medical audit.

RESOURCE MANAGEMENT

107. Incentives to alter practice may be provided by resource management. It has two strands:

(i) involving doctors, nurses and other clinical and management staff in strategic and operational decision making; and

(ii) ensuring that such a process is underpinned by patient-based financial and management information systems which are timely, credible and accessible to all participants.

108. The central principle of resource management is that if those responsible for key decisions affecting patients are also responsible for costs, budgetary responsibility will lead to improved efficiency without any sacrifice of quality.

MEDICAL ADMINISTRATION

109. Medical administration is not concerned with the treatment of individual patients but with how doctors organise their work generally. Such arrangements should come under closer scrutiny by managers and clinicians as they have a significant influence on lengths of stay and resource use.

(i) Ward rounds

Even if all administrative and social arrangements for discharge have been made, length of stay may be prolonged if patients have to wait for their consultant's next ward round. Many consultants only consider discharge at their routine twice-weekly ward rounds and this is reflected in the pattern of discharges (Exhibit 14). Some consultants avoid this problem by delegating responsibility for the discharge of selected patients to their junior staff or to the ward sister, on condition that the patient's recovery proceeds as expected. Such delegation is not widespread despite its potential for prompter discharge. Nurses especially express frustration that they are not allowed to discharge patients who remain in hospital for nursing or social assessment but with no medical component to their care.

The alternative to more delegation is more frequent visits to selected patients to assess their suitability for discharge. Such practice is not uncommon in other specialties or health care systems. Paediatricians place a high priority on prompt discharge and most are prepared to see their patients each day. And in the USA, Medicare brings pressure to bear on specialists to see...
patients every day. It undertakes a sample audit of the specialist's Medical Attestation Statements (invoices) and has comparisons made with the case notes. If the two do not tally (e.g. if the specialist claims for ten days care but has not written in the patient's case notes each day), Medicare subsequently audits 100 per cent of that specialist's invoices.

The timing of the ward round can also affect discharge. Patients discharged at afternoon ward rounds frequently remain in hospital overnight because there is no time to implement discharge arrangements. A number of managers are discussing ward round arrangements as part of the annual job planning process with consultants.

Managers and clinicians should examine information on individual consultant's discharges by day of the week and relate it to ward rounds. If there is a significant excess on certain days of the week it should be explained, and either justified or remedial action taken.

(ii) Investigation delays

Many laboratory services operate routinely between 9 am and 5 pm, with requests for services outside these times being met by on-call arrangements. If laboratories are constrained by their own budgets, their managers may be loath to extend working hours. But the cost to the hospital overall could be small compared to the cost of increased lengths of stay caused by delays in getting tests analysed or the results back, to say nothing of the detriment to the quality of patient care. The financial disincentive could be resolved by establishing trading accounts for such central services and charging service departments on the basis of an agreed level of service.

(iii) Allowing the on-take rota to influence discharges

There should be careful monitoring of firms' discharge patterns to highlight any relationship between their on-take days and premature or delayed discharge. Some hospitals have considered rotating consultants' on-take days to break the relationship with discharge patterns, while others see virtue in a designated admissions ward which provide consultants with beds for their next take.

OCCUPATIONAL AND PHYSIOTHERAPISTS

110. The patient's initial assessment should determine whether he or she requires rehabilitation. Acute care and rehabilitation should then be run concurrently, not consecutively. To achieve this, occupational and physiotherapists should form part of a multi-disciplinary team and work closely with other clinicians. To make the best use of available resources, careful targeting is required of the patients who would most benefit from therapy. There also needs to be effective co-ordination and direction of the therapists employed by the acute unit, community unit and local authority.

DISCHARGE

111. Discharge problems may be addressed by action in the following areas:

— Administrative arrangements for discharges
— Discharge planning and co-ordination
— Access to resources outside the hospital
Relations with hospital social workers
Collection of management information

112. A hospital has to organize the discharge of three main groups of patients:

(i) those likely to return immediately to their usual place of residence with relatively little need of continuing support;

(ii) those likely to return to their usual place of residence with domiciliary support; and

(iii) those likely to need residential or nursing care for the first time.

The hospital must examine arrangements to:

(i) categorize patients accurately;

(ii) minimize the administrative delays affecting the first group; and

(iii) ensure proper discharge planning and co-ordination for the second and third groups.

Administrative arrangements for discharge

113. Joint planning is essential if patients with continuing care needs are to resume independent life at home. The Department of Health's circular HC(89)5 requires that all districts draw up discharge procedures. The Department's booklet *Discharge of Patients from Hospital* (1989) outlines model procedures. Circular LAC (89)7 draws local authorities' attention to their role in the discharge process.

114. All patients require assessment on admission and a target discharge date should be entered in the medical and nursing notes, either on admission or as soon as their condition has stabilized. This process of assessment will identify those patients requiring more detailed discharge planning. The assessment sheet and where appropriate the associated discharge plan are attached in some hospitals as an aide-memoire to the front of the patient's notes. Planning for discharge should start on admission with basic information being collected about home circumstances, involvement of other services, especially community health and social services, and input from partners or relatives.

115. Many patients return home after their stay in hospital with little need for special support. It is important that their discharge is not delayed by administrative problems such as delays with take-home medicines, transport and appointments to see specialist staff. One study (Ref. 17) showed that up to 20 per cent of bed days in an acute medical ward could be saved through such administrative efficiencies, planning investigations and reviewing patients' progress to minimize discharge delays. Nurses or ward clerks have a key role in ensuring that such arrangements are properly organized.

116. Nurses sometimes spend time chasing the patient's take-home medicines and on occasion have to collect them themselves. Delays in receiving medications before discharge can cause immense frustration to the patient. Designated portering services to deliver medications to the wards are used by some hospitals to save nursing time. Some hospitals have pre-discharge wards or discharge holding areas to receive patients immediately prior to discharge. This enables
them to leave the general ward, so that their bed can be made ready for the next patient. Maximum waiting times in such areas need to be agreed and strictly adhered to.

117. Nurses need to be fully aware of the range of transport available, and discharge planning should make explicit each patient's requirements. Ultimately budgets for in-patient transport should be transferred to clinical staff who could then buy services as they required them. This would allow individual patient's needs to be matched with appropriate transport.

118. Patients should receive the maximum possible notice of leaving hospital and written information about matters such as when to contact their GP, out-patient appointments, any special diet, medication, community or voluntary agencies and current health education literature. Time should be taken to explain after-care to elderly patients. Managers should conduct periodic sample surveys to ensure that these things are done.

DISCHARGE PLANNING AND CO-ORDINATION

119. The aim of discharge planning is to ensure prompt and well-orchestrated discharge from acute care and that adequate care is continued thereafter, whether in the patient's home or in residential or nursing accommodation. Careful discharge planning is typically focused on elderly patients with unsuitable housing, dwindling family assistance or the need for practical help to get them through convalescence. Discharge planning has to be considered for each vulnerable patient and requires multi-disciplinary collaboration and genuine consultation with relatives and GPs. It requires the establishment of a clearly defined role for all staff involved. At first sight, the individuals' roles may appear obvious and further enquiry unnecessary, but unless hospital managers take the trouble to establish who does what, and how that corresponds to what other people do, there is every likelihood that important tasks will be missed, or that others may be duplicated.

120. In practice, much of the responsibility for discharge planning rests with nurses and it is sometimes argued (Ref. 18) that all ward nurses should see discharge planning as a priority and that it should be considered an integral part of the nursing process. Furthermore, a number of studies (Ref. 19) have stressed the importance of discharge co-ordination for vulnerable patients. One study in Aberdeen (Ref. 20) describes how nursing liaison sisters were attached to clinical firms to establish close links with the community nursing services. These nurses discussed the care of patients with the hospital, community services, the patients and their families. The scheme led to earlier discharge, fewer subsequent out-patient attendances, improved after-care and decreased readmission rates for all patients. The nursing liaison officers also contributed to the quality of patient care by discussing arrangements with the patients.

121. Designated discharge co-ordinators are valuable for a number of reasons: Firstly, time constraints in hospitals often mean that current acute problems take precedence over future planning. Making arrangements for the placement of elderly patients in residential or nursing accommodation is time-consuming. The patient's continuing needs must be matched with the facilities available in residential accommodation and while clinical staff need to be involved with such deliberations, responsibility for the detailed paperwork represents poor use of their time. At Ealing hospital, a 'Placements Officer' was faced, on appointment in August 1989, with around 30 'bed blockers'. One such patient had occupied an acute bed for over ten years,
representing inappropriate care and a lost opportunity of treating around 400 patients with an average length of stay. Over the following 12 months the Placements Officer was able to place all these patients and a further 90 in private residential or nursing accommodation.

Secondly, many parties are involved in discharge planning in cases where there are multiple problems and these individual parties need to be co-ordinated. Poor communication between different care groups can lead to a fragmented approach and inaction.

Thirdly, a discharge co-ordinator can undertake an important audit function, checking the compliance of actual discharge planning with agreed procedures, and that all patients likely to benefit from such planning have access to it.

ACCESS TO RESOURCES OUTSIDE THE HOSPITAL

122. The provision of residential or nursing care places (including community hospitals) either in the public or the private sector, can have a considerable impact on the ability of a hospital to achieve prompt and effective discharge. At one long-stay hospital visited, an in-house survey had shown that 160 out of 200 patients required residential accommodation, not hospital beds. If there are genuine shortages, managers should gather supporting evidence and bring it to the attention of purchasers, together with evidence that the hospital's discharge procedures are satisfactory.

RELATIONS WITH HOSPITAL SOCIAL WORKERS

123. The Community Care White Paper states 'It continues to be the responsibility of the health authority to ensure that discharge procedures are in place and agreed with the local authority so that people can return home with the support they need or move to appropriate care'. The principal operational link between the hospital and the local authority is via the hospital social workers. Social workers are an essential component of each multi-disciplinary team and need proper support, accommodation and a designated line manager. Communication could be improved by introducing social workers to all junior doctors, and allowing social workers to write in patients' case notes. In some hospitals, social workers assess patients in the A&E department including those who are not admitted, to identify those likely to benefit from their services.

124. The importance of involving social workers at an early stage of discharge planning was reiterated in LAC89(7). Where continuing domiciliary care is needed, social services staff 'should be involved in assessing the patients' social care needs and home circumstances at an early stage before discharge'. If adaptations are required 'any immediate necessary adaptations should have been made, or at least a firm timetable agreed before the patient leaves hospital'.

125. In view of the changes introduced by the 1990 NHS and Community Care Act, hospital managers should examine joint arrangements with local authorities for planning and co-ordinating the discharge of 'watershed' patients and those needing domiciliary support. The staff currently responsible for facilitating the discharge of patients from acute hospitals to private residential or nursing facilities could extend their role to joint liaison with local authorities to ensure that the needs of such patients are afforded high priority.
COLLECTION OF MANAGEMENT INFORMATION

126. Managers need to monitor cases of delayed discharge and summarize the consequences clearly. They should receive information from both routine and ad hoc sources. For example:

(i) a list of patients fit to leave hospital who have not been discharged (Exhibit 33);

Exhibit 33
REGISTERING DELAYED DISCHARGE
Managers need to monitor cases of delayed discharge...

Note: all personal identifiers are fictitious

...and summarize the consequences clearly

Source: Enfield DHA
(ii) a statement of the proportion of patients staying more than 4, 6, 8 etc. weeks, for comparison with national norms, regional norms, or figures from similar districts for assessing trends;

(iii) periodic surveys of all patients occupying hospital beds and the reason for their continued hospitalization can yield valuable information (Exhibit 34). Such surveys are easy to carry out, and can be used to focus on the reasons for prolonged lengths of hospital stay. Careful interpretation is essential.

Exhibit 34
WHY PATIENTS OCCUPY ACUTE HOSPITAL BEDS
Periodic surveys of reasons for patients' continued hospitalization can yield valuable information

Source: Audit Commission analysis of all medical and acute geriatric patients at one hospital (survey conducted by hospital consultants)

(iv) unplanned readmissions should be monitored and a sample referred to the appropriate medical audit forum for assessment of which were avoidable and whether early discharge might have been a contributory factor.

BED AVAILABILITY AND MANAGEMENT

127. Problems with bed availability and management may be addressed by actions in the following areas:

— The current deployment of beds by specialty

— Bed use by day of the week

— Bed use by season

— Bed pooling

— Bed management

— Structural innovations
THE CURRENT DEPLOYMENT OF BEDS BY SPECIALTY

128. Demand for emergency admission is unpredictable, so there is always the need to strike a balance between having too few beds to meet demand at all times and having too many empty beds. Having sufficient beds only to meet average demand would lead to a frequent need to make provision for the additional patients on other wards. On the other hand, having enough beds to meet demand at all times would result in many wasted bed days, in turn depriving other patients of health care.

129. It is important that this balance is determined jointly by clinicians and managers as part of a regular review of the number of beds required by each specialty. The debate should be based on the future workload of the specialty, the contracts held by the unit, and an understanding of desired levels of bed emptiness given:

(i) a target average length of stay for the specialty;

(ii) a target average turnover interval (the number of empty bed days between patients);

and

(iii) the proportion of admissions that are emergencies.

130. For example, it may be agreed that an average turnover interval of one day is necessary for good quality of care (ie to give nurses time to change bedding and attend to other duties). The Barber-Johnson diagram (Appendix IV) can be used to inform debate between clinicians and managers. It presents information about average length of stay*, average turnover interval, throughput per available bed and bed emptiness, on one diagram (Exhibit 35, overleaf). If a specialty has an average length of stay of four days and a target turnover interval of one day, a level of bed emptiness of 20 per cent would have to be planned. Knowing the expected admissions for a period of time and the average length of stay, enables the required number of beds to be calculated using the formula shown below. It is then necessary to check that this level of beds will accommodate the required proportion of the peaks in admissions due to emergencies.

**Formula for calculating the number of beds required**

\[
\text{Required number of beds} = \frac{\text{Average length of stay}}{\text{Number of admissions in period}} \times \frac{100}{\text{Number of days in period}} \times 100 - \% \text{ bed emptiness}
\]

*It is important to ensure that the data used with the Barber-Johnson approach are based on hospital lengths of stay, not finished consultant episodes. Great care is also needed to ensure that bed availability data and hence turnover intervals are accurate.*
Exhibit 35
THE BARBER-JOHNSON DIAGRAM
The Barber-Johnson diagram can be used to inform debate between clinicians and managers

BED USE BY DAY OF THE WEEK

131. Hospitals may balance the fluctuations in emergency admissions by examining demand over time and increasing elective admissions at times of lower demand. There is sometimes a predictable variation in emergency medical admissions by day of the week offering scope to increase the elective workload.

BED USE BY SEASON

132. The medical specialties use fewer beds in summer and autumn than during the rest of the year. Hospital managers should examine the scope to reallocate beds for elective work during the summer, but there is no evidence from aggregate national data that the spare capacity is used to admit more elective surgery patients (Exhibit 36).

BED POOLING

133. More intensive use of beds can be achieved by pooling them. For example, if a hospital had separate 20 bed wards for each of three specialities with an average occupancy of 80 per cent, then given random demand there would be 49 days each year when there would be insufficient beds. However, if these beds were pooled, there would be only 15 days in the year when there were insufficient beds. In other words, pooling allows a greater effective availability with the same number of beds and results in fewer patient transfers. Pooling may be
Exhibit 36
THE SEASONAL VARIATION IN AVERAGE DAILY IN-PATIENTS IN GENERAL MEDICINE AND GERIATRICS, AND MONTHLY ELECTIVE ADMISSIONS IN GENERAL SURGERY, ENGLAND (1989-90)

The medical specialties use fewer beds in summer and autumn... but there is no evidence that the spare capacity is used to admit more elective surgery patients.

Source: Audit Commission analysis of data from Regional Hospital Episode statistics supplied via OPCS (1991)

(i) between genders or;
(ii) between specialties.

(i) Gender Pooling
Across England and Wales there are widely differing policies towards the mixing of sexes on wards. Essentially, there are three options:

(i) traditional single sex wards;
(ii) mixed wards but with the patients segregated in single sex bays; and
(iii) completely mixed wards, including mixing within bays

Hospitals often do not have consistent policies on gender pooling. Most adopt a combination of (i) and (ii), depending upon the preferences of consultants or nursing staff. Failure to pool can lead to poorer quality of care for the outlying patients, more patient transfers, the cancellation of elective admissions, and less efficient use of beds overall. Hospitals which pool beds across genders have significantly lower turnover intervals than those which segregate.

Clinical staff often hold strong views on gender pooling but few have sought the patients' views. A number of hospitals report no problems with almost complete gender mixing while others pursue policies of strict segregation of day rooms as well as wards. In a few hospitals, patients are given a choice about gender pooling (Box F, overleaf). Hospital managers should undertake surveys to assess their views. They should also monitor the number of transfers that would have been avoided if beds were pooled.
Support for gender pooling may be inferred from the Department of Health's 1990 Building Note on 'Adult Acute Wards' (Ref. 21) which provides guidance on accommodation for acutely ill patients. It stresses that patients require 'auditory and visual privacy, especially when receiving medical or nursing attention.' The emphasis is correctly on privacy. It continues 'mixed gender wards may have therapeutic, organizational and economic advantages. A mixed ward can be utilized more flexibly and intensively than a ward designed for use by one sex only.' The guidance stresses 'the standards set out...essentially apply to the provision of wards in new buildings'...but in existing buildings, 'the principles are equally valid and should be applied as far as reasonably practicable.' The guidance stresses that 'some patients may find this embarrassing and distasteful; it is essential to ensure that patients' privacy and dignity are not impaired.' This is particularly important in the provision and arrangement of sanitary facilities.

**Box F**

**POLICIES ON GENDER POOLING – A CASE STUDY**

In a few hospitals, patients are given a choice about gender pooling

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**THE ROYAL HAMPSHIRE COUNTY HOSPITAL**

The Royal Hampshire County Hospital is a small District General Hospital with around 400 beds arranged either in bays on wards or more traditional Nightingale wards in the older part of the hospital.

Over the last five years, the hospital has moved from a policy of strict separation of the sexes on its wards to a more flexible use of beds. The process began with the orthopaedic wards, where there were concerns about the number of elective patients whose operations had to be cancelled because a bed was not available on a ward catering for their gender. Pooling between the sexes resulted in better bed-use so that fewer elective admissions had to be cancelled. Seeing the benefits of increased flexibility, the mixing of genders was extended throughout the hospital.

Patient choice is central to the hospital's approach. In the case of elective admissions, the policy is explained to patients prior to admission. Should a patient insist on a bed in a single sex bay, then provision is made wherever possible. But for the most part, patients are quite willing to mix within bays as required. The important point is that the patient decides whether to opt for a bed in a mixed bay or remain on the waiting list until a bed in a single sex bay can be ensured. The choice is not made on the basis of staff prejudices which could, if a policy of strict separation were enforced, lead to the unnecessary cancellation of admissions.

In the case of emergency admissions, patients are placed in the most appropriate available bed regardless of sex, and are subsequently transferred if they do not wish to share a bay with members of the opposite sex. All the hospital's Nightingale wards are mixed. Separate toilet facilities for men and women are available on all wards.

Since the move towards greater flexibility five years ago, the Director of Nursing reports that fewer than ten elective patients have not been prepared to come into hospital without the guarantee of a single sex bay, and there have been only three complaints in the last two years.

*Source: Winchester DHA*
(ii) Specialty Pooling

Pooling beds between sub-specialties should be maximized, subject to judgement of whether there is a separate nursing requirement or whether the pattern of work is significantly different. But the matter of pooling beds across main specialties (e.g., between medicine and surgery) needs careful thought.

It is common for emergency medical admissions to spill over into the beds earmarked for planned surgery. The Commission's survey showed that this had happened in 90 per cent of units in the previous year. Allowing medical admissions to spill over into the beds earmarked for planned surgery effectively increases the number of beds to which physicians have access. The report has described how access to more beds is associated with low throughput (especially longer lengths of stay) (Exhibit 21) and it is hard to believe that the relationship is not causal. Free access to surgical beds releases physicians from the need to sort out problems with their own beds, such as patients waiting for a ward round before they are discharged.

Most hospitals now have some contracts for elective work which are remunerated on a cost and volume basis. This provides a strong incentive to avoid overspilling and keep bed use within each specialty's planned allocation. To respond to this and the philosophy of resource management, a number of hospitals have delegated the responsibility for bed management to clinical directors. This approach is designed to place doctors in charge of the resources which they consume and may in time reduce the amount of bed borrowing.

There will be times when overspill is unavoidable (e.g., a flu epidemic), but this should be the exception rather than the rule. The answer is to manage bed borrowing across specialties within clearly laid down and understood rules. Such rules should ideally include arrangements for recharging between specialties to account properly for the use of beds, and state who may authorize bed borrowing.

BED MANAGEMENT

134. Beds have hitherto often been seen as units of resource to be provided in adequate numbers by management for the treatment of patients by clinicians. This report challenges that position and suggests that management now needs, firstly, to be pro-active in influencing how patients flow through the beds and, secondly, to be much more responsive in the provision of beds so that they more precisely meet the needs of the moment. To do this there are a number of key tasks which have to be undertaken. Some are long overdue; others result from the health service reforms and the end of strategic planning for fixed populations, which attempted to define the 'correct' level of resources.

135. The total of all these tasks may be regarded under the generic title of 'bed management'. Some 30 per cent of hospitals have appointed designated 'bed managers', but there is no consistent definition of what this job entails. Many of the current incumbents are former nurses and are usually heavily involved in the day-to-day aspects of patient flow, particularly issues such as placement and transfer. Decisions relating to bed numbers are left to general management, if they are made at all. There is some evidence that even this limited version of bed management may have a significant effect on the efficiency with which beds are
used. Units with a bed manager have significantly lower turnover intervals (Exhibit 37), but whether this relationship is directly causal is uncertain.

136. The components of bed management fall into three areas:

(i) **Strategic decisions affecting the flow of patients**

Essentially this means that there are policies, procedures and standards agreed by the relevant parties for each stage of the flow of patients through the hospital. Where there is likely to be interaction between specialties or operational units, these policies need to be hospital-wide. But for those operational aspects where there is no interaction between specialties, such as discharge planning, the policies may be localized.

(ii) **Day-to-day decisions**

These concern patients and their flow through the hospital. They should be made by individual doctors and nurses within the context of policies, procedures and standards previously agreed. But there are two other tasks which relate to day-to-day patient flow which have a management component. The first is the provision of some mechanism whereby demand for beds can be matched to available beds at a hospital-wide level. The usual solution is an admissions or placements office where staff, supported by real-time information systems deal with the allocation of both emergency and elective patients to wards. The second task is the day-to-day monitoring of patient flow.

(iii) **Bed management strategy**

The prime task here is determining the number of beds required for each unit of clinical activity. This will be derived both from business plans and from information on existing usage. Bed numbers have now to be determined flexibly and responsively so as to match the flow of patients as accurately as possible. The task has become considerably less long term and strategic than it used to be. It nevertheless needs to be carried out against a background of policies on the pooling of beds between both specialties and genders.

137. The Unit General Manager (or Chief Executive in a NHS trust) should be responsible for ensuring that these tasks are carried out and deciding on the extent to which they can be devolved to operating units or directorates. This will depend upon the extent to which genuine resource management has been implemented. Some of the policy formulation, for example on discharge planning, on-take rotas, ward-round frequency and medical audit, may be devolved. It is possible that the functions carried out by an admissions office could also be devolved, but usually...
there will be some scale economies in retaining a central service. However, there is virtue in funding such a service by charging it out to the clinical directorates and making it more customer responsive. Gathering information on activity could be devolved, but central management will require access to such information for monitoring purposes and should carry out periodic data audit. Finally, in most hospitals, decisions on the number of beds required will continue to be made centrally for some time. In the long run, a better solution would be to let clinical directorates decide how many beds they wish to use, but this can only be done where they have full budgetary responsibility and are charged the full cost of making an unstaffed bed available. There would also need to be some minimum period of time, perhaps three months, before they could reassess the decision.

138. Having decided on the components of the bed management task and which ones need to be retained centrally, there remains the need to allocate responsibility for implementation. It may be possible to make one person responsible for all these tasks, although whether many individuals exist with the required wide range of skills is open to some doubt. What is more important is that the tasks are clearly defined and responsibility firmly allocated within the management structure. If there is not to be a central unit with responsibility for all the components, then it is important that there are at least formal channels of communication between those responsible for each of them.

STRUCTURAL INNOVATIONS

139. There are several structural innovations which may benefit the quality of patient care and improve the use of resources.

(i) 5-day medical wards

Because 87 per cent of medical admissions are emergencies, it is often assumed that there is little scope for the use of 5-day wards in the medical specialties. But an examination of the number of medical patients in hospital on each day of the week casts doubt on this assumption. There is a five per cent reduction in the number of general medical and geriatric in-patients at weekends, equivalent to 30 beds per district.

(Exhibit 38).

Exhibit 38
THE AVERAGE NUMBER OF PATIENTS IN HOSPITAL ON EACH DAY OF THE WEEK, GENERAL MEDICINE AND GERIATRICS, ENGLAND (1989-90)

As most elective patients and a proportion of emergency patients have a predictable length of stay, it is possible to estimate the scope for introducing 5-day wards by...
identifying the number of patients admitted during the week and discharged before the following weekend. Analysis of data on length of stay by day of admission for one region indicates that there is scope to transfer 12 to 17 general medical beds to 5-day usage in the average district, depending on the number of emergency admissions to be placed on the ward (Exhibit 39).

**Exhibit 39**

THE AVERAGE NUMBER OF MEDICAL BEDS WHICH COULD BE LOCATED IN A 5-DAY WARD IN A TYPICAL DISTRICT GENERAL HOSPITAL (1990-91)

There is scope to transfer 12 to 17 general medical beds to 5-day usage in the average district

![Bar chart showing the average number of medical beds](chart.png)

Source: Audit Commission analysis of data supplied by Oxford Record Linkage Study (1991)

(ii) **Planned Investigation Units**

A Planned Investigation Unit (PIU) is an in-patient department providing facilities for all major investigations, both medical and surgical. It provides basic minimum nursing care and is suitable for ambulant elective admissions. About a third of acute units have a PIU which typically operate on a 5-day basis. They are appropriate where the first batch of investigations can be determined from the initial out-patient consultation and where the need for further investigations is unlikely.

Units are usually managed by a ward sister but the admitting consultant retains full clinical responsibility for the patient. Both the organization of tests and investigations and the date of admission are the responsibility of the unit. They are incorporated into a timetable agreed with pathology, X-ray and other investigative departments.

The benefits of a PIU are:

(a) admissions are more easily timed to suit the convenience of the patient than if they have to be fitted into wards receiving emergency admissions;

(b) tests are arranged in an orderly clinical sequence;
(c) it avoids unexpected delays in the investigations departments which contribute to inappropriately long lengths of stay;

(d) operation on a 5-day basis is cheaper and aids nurse recruitment and retention; and

(e) careful programming of investigations may reduce their number.

Few criticisms of PIUs are forthcoming. The existence of a unit means that ward rounds and medical cover have to be extended but this is a small inconvenience. Manchester Royal Infirmary’s PIU has operated since 1979 and currently has 29 beds and achieves a throughput of 74 patients per bed per year from a variety of specialties (Exhibit 40).

Exhibit 40
THE ANNUAL THROUGHPUT PER BED IN A PLANNED INVESTIGATION UNIT (1990)
A variety of specialties use the PIU

![Exhibit 40](image)

Source: Analysis of data from Manchester Royal Infirmary

(iii) Patient Hotels
The Swedish health service has pioneered patient hotels attached to acute hospitals. The concept is now attracting interest from a number of UK hospitals. The basic premise is that acute units have a proportion (maybe as many as 15 per cent) of patients who need to be on the hospital site but who do not need to be on an acute ward 24 hours a day. Such patients include:

(a) oncology, radiology or medical patients undergoing prolonged treatment or examination;

(b) recovering general surgery/urology patients;

(c) day surgery and tertiary referred patients who are unable to go home for non-medical reasons, for example those who have travelled from a long distance;

(d) certain recovering psychiatric patients; and

(e) elderly patients fit for discharge but awaiting accommodation.
A central feature of the Swedish approach is the emphasis on a hotel environment. This sets it apart from the very low dependency wards found in some NHS hospitals which tend to retain an institutional atmosphere. Accordingly, in the Swedish model, the hotel is owned by the hospital but operated by a third party with skills and expertise in catering and hotel management. Various financial arrangements are possible.

It is claimed that a patient hotel provides a less stressful atmosphere than acute wards. Hotels are cheaper to build than hospitals because there is no need for expensive service engineering. Staffing costs are also lower: in Sweden, a staff of just 17 to 20 is required to run a 100 bed patient hotel, so the cost per patient day is about 50 per cent cheaper than for acute beds. Advocates also claim that there are therapeutic benefits for some patients which result in shorter length of stay.

The argument for patient hotels in terms of quality is strong, but some important points need to be considered. Only one nurse is on duty at any one time to provide immediate professional advice and evaluate a patient's condition in a crisis, so hospitals must ensure there are effective emergency arrangements in place to provide a rapid response when required. Consequently, selecting suitable patients is vital and clinical criteria have to be strictly observed, although such criteria are hard to define precisely. Adjustments also have to be made elsewhere. Staffing numbers and skill mix on acute wards may have to be adjusted to reflect the higher than average dependency levels, and provision for day attenders from the hotel is required on the acute wards. Nevertheless, such innovations are welcome, and if introduced with due regard to the likely problems, may make an important contribution to the better use of hospital resources and the quality of patient care.
3. The Next Steps and Summary of Recommendations

140. In the long run, the changes proposed in the report will result in greater efficiency, in terms of fewer unnecessary admissions, better placement of patients and fewer transfers, shorter lengths of stay, fewer delayed discharges and fewer empty beds. But achieving change will take time and effort on the part of many staff, both managers and clinical professionals. The extent to which this can be achieved with existing staffing and structures will vary from hospital to hospital. Managers may have to create new posts or restructure departments for the explicit purpose of creating change. The financial incentives introduced by the NHS reforms provide, at least in the long run, the scope to fund some of the good practice measures outlined in the report.

141. Many of the recommendations of the report require considerable input from senior doctors just as they face new demands on their time, such as participation in medical audit. Over the last seven years, the number of consultant posts has increased by around 2.5 per cent each year and this rate of expansion is planned to continue with commensurate increases in senior registrar and career registrar posts. But this rate of increase may be insufficient in some hospitals to allow them to implement all the changes proposed. There is considerable variation between districts in medical staffing levels which is not accounted for by variation in workload. One study (Ref. 22) has revealed at least a three-fold variation in the workload of consultants, junior doctors and nurses in 31 District General Hospitals in three regions.

142. To achieve some of the changes set out in this report, a first step will be to assess the hospital’s current use of its medical beds. Aggregate statistics about beds and their use are important for making comparisons between districts, and may help to identify broad problem areas.

143. Over the next 12 months, the Commission’s auditors will wherever possible make an overall assessment of each hospital’s provision and use of medical beds (Exhibit 41, overleaf). Such analysis will provide an overview, but managers and clinicians need to establish their own set of more sensitive operational indicators which are agreed to be accurate reflections of performance (Box G, overleaf). Such indicators have been suggested in Chapter 2 and will enable attention to be focused on local issues.
**Exhibit 41**

**A HOSPITAL’S PROVISION OF MEDICAL BEDS – AN OVERVIEW**

The Commission’s auditors will wherever possible make an overall assessment of each hospital’s provision in the following way:

The analysis shows an illustrative profile of the provision of medical beds in a tree format. The figures are shown in pairs: the actual provision is shown on the left and the national norm, ‘the expected’, on the right. Overall figures to the left of the tree are broken down into more detail on the right. A final column shows the number of beds which are attributable to the variance from the norm.

Any figures in brackets are negative and imply that, due to variance, the hospital requires fewer medical beds than expected. In the example shown, the hospital would have 201 beds if it were in line with each of the norms. Because its age profile is older than average, it requires 14 more than this, and because its age-specific lengths of stay are above the lower quartile level, it has 20 more and a further 2 because its turnover intervals are higher than the norm.

*Source: Audit Commission*
A POSSIBLE SET OF INDICATORS FOR MONITORING THE USE OF HOSPITAL BEDS

Managers and clinicians need to establish their own set of operational indicators which are agreed to be accurate reflections of performance.

<table>
<thead>
<tr>
<th>INDICATOR</th>
<th>MIGHT BE USED TO PROVIDE AN ASSESSMENT OF:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Number of emergency referrals per thousand population for each general practice.</td>
<td>Extent of appropriate referrals.</td>
</tr>
<tr>
<td>3. Number of patients placed on ward of another specialty.</td>
<td>Adequacy of the number of beds for each speciality.</td>
</tr>
<tr>
<td>4. Average number of ward transfers per patient.</td>
<td>Compliance with transfer procedures.</td>
</tr>
<tr>
<td>5. Length of stay profiles for selected common condition and consultants.</td>
<td>Consistency of clinical decisions.</td>
</tr>
<tr>
<td>6. Discharge by day of the week by consultant, with ward rounds marked.</td>
<td>Whether there are sufficient ward rounds or delegation of discharge decisions.</td>
</tr>
<tr>
<td>7. Reasons for being in hospital for all patients on a particular day.</td>
<td>What proportion of patients need to be in hospital, and the reasons where this is not the case.</td>
</tr>
<tr>
<td>8. Proportion of patients with length of stay greater than some benchmark.</td>
<td>Proper functioning of discharge procedures.</td>
</tr>
<tr>
<td>10. Number of empty beds each ward has each day.</td>
<td>Bed allocations.</td>
</tr>
<tr>
<td>12. Readmission rates for particular conditions within a certain time.</td>
<td>Whether patients are being discharged too soon.</td>
</tr>
</tbody>
</table>

Audit Commission

144. Some managers will already have some of these indicators available but others will have to develop new analyses from existing data sets or collect new data. Such obstacles should not deter them from undertaking the task. Very often there will be ways of obtaining the information without developing major systems, such as the use of periodic sample surveys.

145. Finally, there needs to be a clear plan of who will use the information. They need both to be able to interpret it properly and to have the necessary mandate to take remedial action.

RECOMMENDATIONS

146. The checklist of recommendations which follows identifies the lead responsibility in each area. This should not be taken to imply a firm distinction between the roles of clinicians and managers as the close co-operation of all staff in implementing the proposals is essential.

Action for managers

Introduction or review of existing procedures and arrangements

Introduce written admissions procedures or review existing ones (paragraph 74).
Examine on-take arrangements with clinicians. If there is evidence of problems, consider the other arrangements described in the report (paragraph 77).

Review operational information systems and ensure that they provide a clear picture of the number and location of empty beds, and imminent discharges. Undertake periodic audit of the accuracy of reported bed states (paragraph 84).

Ensure that placement procedures define the respective responsibilities of all staff involved in placing patients and are regularly promulgated. Ensure that the procedures include contingency plans to deal with bed shortages resulting from peaks in the workload (paragraph 88).

Introduce procedures to minimize patient transfers, and monitor the actual number of transfers (paragraph 90).

Examine administrative arrangements affecting discharge, such as take-home medicines, transport and appointments to see specialist staff (paragraph 115).

Ensure that nurses are fully aware of the range of transport available, and that discharge planning procedures make explicit each patient's transport requirements (paragraph 116).

If there are persistent problems with discharge co-ordination and planning, consider the appointment of designated discharge co-ordinators (paragraph 121).

Examine liaison arrangements with local social services departments and agree respective roles. This is particularly important in view of the changes to be introduced to care in the community in 1993 (paragraph 123).

**Review of bed use and availability**

Examine at least quarterly the number of beds required by each specialty. The debate should be based on the future workload of the specialty, contractual obligations, and an understanding of desired levels of bed emptiness given:

— a target average length of stay for the specialty;
— a target average turnover interval; and
— the expected proportion of emergency admissions (paragraph 129).

Examine the scope for greater pooling of beds both by specialty and by gender. Introduce arrangements to manage bed borrowing across specialties (paragraph 133).

Establish a strategic bed management function to adjust bed numbers to meet more precisely fluctuation in workload. The Unit General Manager (or Chief Executive in a NHS trust) should decide on the extent to which each task is to be devolved to operating units or directorates (paragraph 134).

**Possible structural innovations**

Consider the costs and benefits of introducing the following:

— observation beds (paragraph 79);
— admissions wards (paragraph 94);
— 5-day medical wards;
— planned investigation units; and
— patient hotels (paragraph 140)
Medical audit
Ensure that details of the District Medical Audit Advisory Committee's forward programme of topics are made available to managers, with detailed progress reports to assure them that effective audit is taking place and which identify areas where management action is needed (paragraph 100).

Monitor medical audit to ensure that it is properly supported and addressing resource use and quality issues (paragraph 104).

Consider arrangements for the long term funding of medical audit (paragraph 106).

Improve communications with GPs
Provide direct access telephone lines, computer links and fax machines (paragraph 72).
Discuss the introduction of structured referral letters with GPs (paragraph 72).
Discuss criteria for the use of domiciliary visits with those GPs who make extensive use of the service (paragraph 78).
Advise GPs and other concerned agencies of the arrangements for referring elderly patients (paragraph 93).

Review of current accounting arrangements
Trading accounts should be established for central services such as radiology and pathology as soon as possible. Directorates should incur charges which reflect their actual use of the service (paragraph 109).
Similarly, budgets for in-patient transport should be transferred to clinical staff to buy services as they require them (paragraph 116).
A longer term aim should be to charge directorates for their use of beds. This would need to include systems for recharging between specialties for bed borrowing (paragraph 133).

Action for clinicians
Provide GPs with access to an urgent second opinion (paragraph 72).
Discuss local referral and treatment protocols with GPs (paragraph 72).
Advise GPs immediately one of their patients is admitted to hospital (paragraph 72).
Ensure that an experienced junior doctor is available at all times to assess patients on admission (paragraph 73).
Assess all patients within an agreed time after admission to confirm the appropriateness of admission and sanction the ordering of expensive or invasive investigations (paragraph 73).
Allow experienced junior doctors to discharge obviously inappropriate admissions at an early stage on the consultant's behalf (paragraph 73).
Make explicit to individual junior doctors the extent of their delegated powers (paragraph 75).
Examine the scope for introducing clinical protocols for the treatment of particular uncomplicated conditions (paragraph 76).
Review policy on the care of elderly patients to optimize the use of the available bed stock and medical skills in each district. All patients must have access to the full diagnostic and
treatment facilities usually available in a District General Hospital and ready access to rehabilitation services, whether they are under the care of a physician or a geriatrician (paragraph 92).

Consider delegating responsibility for the discharge of selected patients to junior staff or to ward sisters, or alternatively make more frequent visits to selected patients to assess their suitability for discharge (paragraph 109).

Examine the timing of ward rounds and discourage late afternoon ward rounds if they cause delayed discharge (paragraph 109).

Ensure that those patients who most need occupational and physiotherapy receive it (paragraph 110).

Set a target discharge date for all patients either on admission or as soon as their condition has stabilized (paragraph 114).

**Action for others**

Purchasing bodies should work closely with providers in developing appropriate quality monitoring and assurance arrangements (paragraph 6).

Purchasing bodies should agree with provider units the action they wish them to take to control access to secondary care, and their own role and responsibilities (paragraph 71).

The medical Royal Colleges should continue their development of clinical protocols which could form the basis of local protocols (paragraph 72).
Appendix I

LIST OF CONTACTS

Acute units were visited in the following districts:

- Central Manchester
- Ealing
- East Suffolk
- Enfield
- Gwent
- Huddersfield
- Maidstone
- Newham
- North Hertfordshire
- Northampton
- Norwich
- Oxford
- Plymouth
- South Sefton
- West Norfolk and Wisbech
- Winchester

The following organizations were visited:

- Health Economics Research Unit, University of Aberdeen
- British Association of Occupational Therapists
- Emergency Bed Service, London
- Age Concern
- Nuffield Hospital, Essex
- Inter Authority Comparisons and Consultancy
- The Royal Brompton Hospital

The following supplied data:

- North Western RHA
- Mersey RHA
- Oxford Record Linkage Study

The study advisory group was:

- Dr Christopher Bunch, Clinical Reader in Medicine, Nuffield Department of Clinical Medicine, John Radcliffe Hospital, Oxford
- Dr David Costain, Director, Acute Services Programme, The King's Fund Centre for Health Services Development
Professor John Grimley Evans, Professor of Geriatric Medicine, The Radcliffe Infirmary, Oxford
Dr Richard Gibbs, District General Manager, Kingston and Esher DHA
Neil Goodwin, Unit General Manager, St Mary's Hospital
Tony Levi, Director of Nursing and Human Resources, Northwick Park Hospital
Dr Jill Meara, Director of Public Health, Northampton DHA
John Yates, Health Service Management Centre, University of Birmingham

The following organizations were consulted on drafts of this report:

Age Concern
British Geriatrics Society
Royal College of Physicians of London
Faculty of Public Health Medicine
Department of Health
Welsh Office
British Medical Association
National Association of Health Authorities and Trusts
Institute of Health Service Management
Royal College of Nursing
Royal College of General Practitioners
National Union of Public Sector Employees
Confederation of Health Service Employees
Trades Union Congress
The Patient's Association
Association of Community Health Councils

Specific assignments were undertaken by:

Dr James Gray, Independent Consultant
Ian McKinder, District Audit Service
Department of Public Health and Policy, London School of Hygiene and Tropical Medicine
Dr Anita Thomas, Consultant Physician, Plymouth DHA, organized a discussion panel of junior doctors on behalf of the Royal College of Physicians.

The study was undertaken by the following Audit Commission staff:

Dr Jonathan Boyce
Nick Mapstone
Peter McGuirk
Andrew Tighe
THE FINANCIAL IMPLICATIONS OF CHANGING HOSPITAL IN-PATIENT ACTIVITY

1. Increased efficiency in the use of acute hospital beds offers the opportunity to either:
   (i) close the resultant spare capacity (ie the empty beds); or
   (ii) treat more patients.

2. Closing the spare capacity created by increased efficiency does not always yield significant savings because of the high ratio of fixed to variable costs. As a hospital increases efficiency it may achieve savings in a step-wise fashion, only achieving substantial savings by closing whole wards. And even then, it is common that staffing levels are slow to adjust to reductions in bed numbers. One study (Ref. 23) exemplified this relationship between hospital activity and costs. A 16 per cent reduction in bed numbers in a hospital with an annual budget of £49m yielded savings of only £214,670 (or 0.4 per cent). Hospital costs are typically structured in the following proportions:

<table>
<thead>
<tr>
<th></th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overhead costs (mainly fixed)</td>
<td>40</td>
</tr>
<tr>
<td>Hotel costs (variable)</td>
<td>25 to 35</td>
</tr>
<tr>
<td>Treatment costs (variable)</td>
<td>25 to 35</td>
</tr>
</tbody>
</table>

3. The proportion of fixed costs has increased with the introduction of capital charging. Hospitals now pay depreciation plus six per cent interest on the written down current value of their assets.

4. Before the NHS reforms, treating more patients simply increased costs without any effect on income. This represented a strong disincentive to increase efficiency. In one study (Ref. 24) it was estimated that if more patients were treated in the same number of beds as a result of a 10 per cent reduction in hospital length of stay, costs would rise by 3.5 per cent.

5. The NHS reforms have partly removed such disincentives. In particular, if a hospital has a cost and volume contract or a block contract with activity thresholds, treating more patients would increase revenue.
Appendix III

ACUTE HOSPITAL CARE OF ELDERLY PATIENTS

1. As the population ages and as the onset of disease occurs increasingly in the later years of life, the care of elderly patients will assume greater prominence.

2. This has important implications for acute hospitals. They require consultants with special skills in the care of elderly patients but there remain questions about how they should fit into the hospital's structure and how patients are best allocated to consultants. There are essentially two models of hospital medical care for treating elderly patients.

MODEL 1 – SEPARATE MEDICAL AND GERIATIC SPECIALTIES

This approach often uses a defined patient age to separate the responsibilities of the consultant geriatricians and physicians. The age chosen differs widely between districts. Obviously, the lower the age, the greater the share of resources required by the geriatric service. A higher demarcation age, say 75, may necessitate higher overall allocation because of the less direct access of the 65 to 74 age group to specialist rehabilitation facilities.

Advocates of this approach claim it ensures that fewer patients are misplaced. But it should only be implemented if acutely ill patients suffer no medical disadvantage, for instance by loss of access to investigations or sufficiently skilled nursing. Whatever age is chosen, the system must be sufficiently flexible to allow for exceptions. For instance, it may be appropriate to place a 'fit' 85 year old with a heart attack under a physician, while a 60 year old with a stroke may require the services of a geriatrician.

A variation of this model is to allow the GP or the junior doctor to decide whether each patient regardless of age should be referred to a physician or a geriatrician. While this approach stresses the importance of assessing each patient individually, it relies heavily on GPs' and junior doctors' judgement. For example, junior doctors in general medicine tend to select medically 'interesting' cases from the acute take, and this may not always be in the patient's best interest.

The advantages of this model are that:
(i) it reflects the current range of available medical skills in many districts as there are many consultant geriatricians unable to participate in acute medical takes; and
(ii) it concentrates specialist skills where they are most needed.

MODEL 2 – THE INTEGRATED APPROACH

Advocates argue that instead of providing a separate and parallel service for patients on either side of an arbitrary age, the organization and responsibilities of general medical units should be adapted to meet the needs of an increasingly elderly population. In addition to changes in the training and attitudes of medical and nursing staff, this model requires that consultants with special responsibilities for elderly patients should have acute beds in the main acute unit and be involved in determining unit policy for training and organization.
The same physicians should also be responsible for rehabilitation, long-stay and day-hospital facilities.

The advantages of this model are that:

(i) it offers increased efficiency in the use of beds: the unit as a whole would need to start each day with more empty beds if a separate geriatric specialty were on-take in parallel with a separate general medicine service than if an integrated service was able to admit patients to a single pool of beds;

(ii) several studies (Ref. 25) have produced evidence that the attachment of consultant geriatricians to medical units reduces the overall length of stay in hospital for elderly patients. The everyday availability of a consultant with special skills in the care of elderly patients, and ready access for all elderly patients to the facilities of a geriatric service, remove the delays which occur when arrangements require formal requests or consultation procedures;

(iii) services for patients who need continuing rehabilitation after a period of acute care are better if the same doctor is responsible for both. The pattern of care in the acute units can then be integrated with that in the rehabilitation and long-stay areas;

(iv) it makes the care of elderly patients a more attractive career option for some staff; and

(v) there is a single point to which GPs can refer.

3. The fundamental point is that the ability to implement the different models will vary between districts, depending on local circumstances, particularly the skills of the available personnel. Each district should make an explicit decision as to which model it is to pursue, and then adopt a management strategy appropriate to that end, ensuring the following key requirements:

(i) all elderly patients, regardless of their consultant have access to beds with full diagnostic facilities available;

(ii) rehabilitation starts from day one – acute care and rehabilitation should be run in parallel under the same consultant;

(iii) junior medical staff rotations provide expertise and training in the management of elderly patients;

(iv) clear guidance is given to GPs and junior medical staff on how to refer patients to consultants;

(v) arrangements for collaboration between geriatric medicine, orthopaedic surgery, medicine, and psychiatry of old age; and

(vi) the treatment of elderly patients must be responsive to, and actively involve, informal carers (the friends, relatives and neighbours of elderly patients).
THE BARBER-JOHNSON DIAGRAM

1. The Barber-Johnson diagram presents information about average length of stay, turnover interval, throughput per available hospital bed and percentage of bed emptiness on one diagram.

2. The horizontal and vertical axes are turnover interval and length of stay respectively. Percentage bed emptiness lines radiate from the origin and the nearer they are to the x axis, the greater the emptiness. Points on each axis may be joined so that the resultant diagonal lines show the throughput per available bed. The closer such lines are to the origin the higher the throughput.

3. One point on the diagram now gives four figures. Point x represents a six day length of stay, a 2 day turnover interval, 25 per cent bed emptiness and an annual throughput of 45.6 patients per available bed.

Using the diagram

4. The diagram can be used for checking hospital activity data, but its main value lies in its use as an explanatory tool and traditionally for purposes of comparison.
5. **Checking calculations.** The relationship between the four variables enables a quick cross-check of some activity information. If three or four of the figures presented do not produce one point on the diagram, then one of the figures is wrong.

6. A second check is that of figures against feelings about the use of beds. A discussion of the variables on the diagram can help interpretation of statistics and identify whether the information contains glaring anomalies.

7. A third way of looking for errors is to plot information for each year over time. In most specialties, the points for each year will appear in the same area of the diagram. Any point which is some distance away from the others may be explained by a change of bed availability but may also indicate an error in information collection or calculation.

8. **Explaining the relationship between the variables.** The diagram describes the relationship between the four variables displayed. For example, a hospital specialty at point X could not achieve 10 per cent bed emptiness without an impractically low turnover interval. Plotting the four variables on one diagram helps explain the difficulty of achieving low bed emptiness with increasingly short lengths of stay. The explanatory properties of the diagram are helpful in understanding the consequences of changes in policy, such as increasing throughput or assessing the effect of changed bed numbers.

9. **Comparisons over time.** Traditionally, the Barber-Johnson approach has been used for inter-district comparisons of specialty performance, but the replacement of Department of Health SH3 returns with Körner has made this more difficult because bed use by individual specialties is no longer recorded as part of the minimum data set.

**Points to watch**

(i) The basic information must be correct. Figures for bed availability by specialty are particularly unreliable. Recorded bed availability is often poor, particularly in view of cross-specialty bed borrowing. Short term closures and ward decorations are often missed and records of 'available' beds long since taken away may continue unnoticed. 5-day wards may be credited with a 7-day availability. Moreover, it is doubtful whether the midnight census is representative of bed occupancy in very short stay, high turnover wards and it should also be noted that the separation of day cases from other discharges is not always undertaken accurately.

(ii) All four variables are expressed as averages which can be a poor descriptive tool. Before making decisions from the information presented the distribution of each variable should be examined and understood.

(iii) The size of units cannot be identified from the diagram. To compare two different units or one unit over time one should refer to bed availability figures. Small numbers may be the cause of considerable variations when calculating the four variables. Violent fluctuations in the diagram can occur in small specialties or when larger specialties are plotted for short periods of say one month.

A fuller explanation of the use of the Barber-Johnson methodology is provided in reference 26.
Appendix V

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