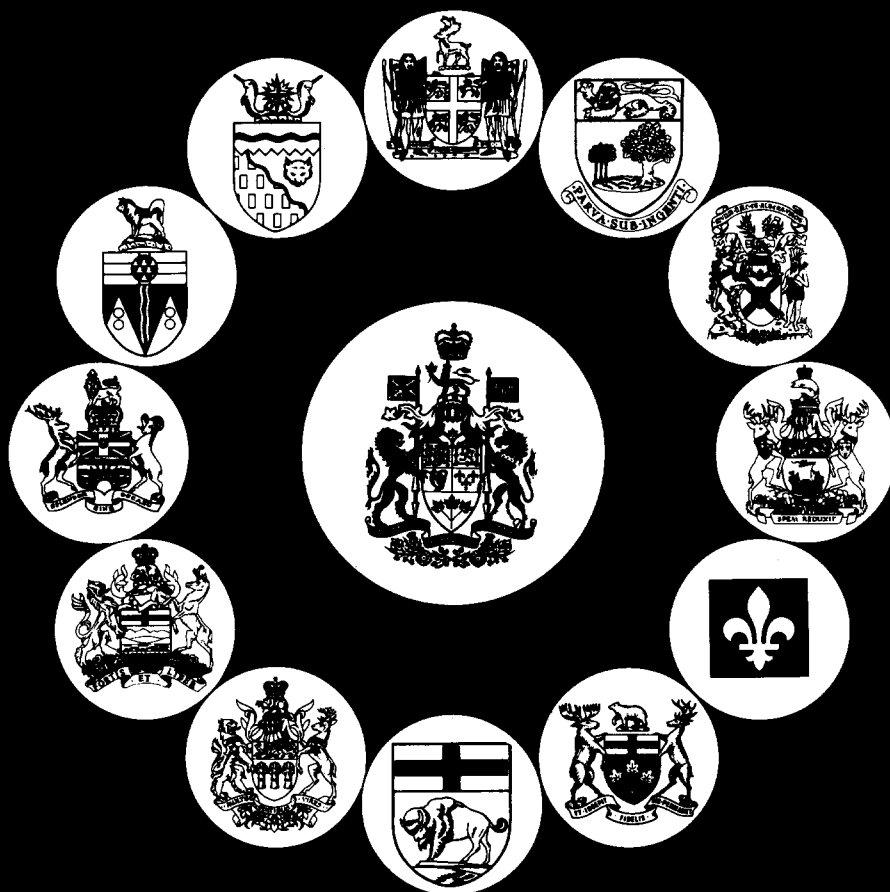


When Less Is Better: Using Canada's Hospitals Efficiently



A paper written for the Conference of
Federal/Provincial/Territorial Deputy Ministers of Health

June 1994

**Egalement disponible en français sous le titre
"Faire mieux avec moins: Pour une utilisation
efficace des hôpitaux Canadiens"**

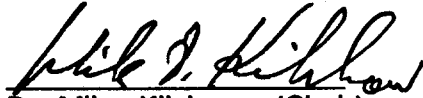
When Less Is Better: Using Canada's Hospitals Efficiently

**A paper written for the Conference of
Federal/Provincial/Territorial Deputy Ministers of Health
by a Working Group on Health Services Utilization
assembled to prepare the document.**

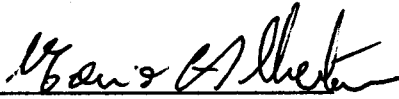
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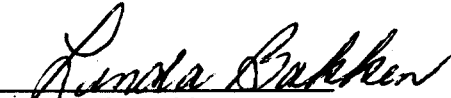
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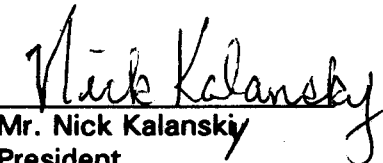
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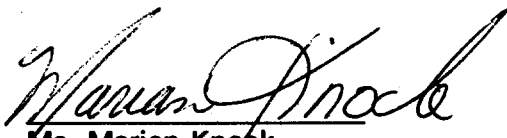
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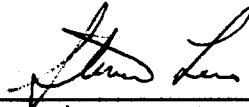
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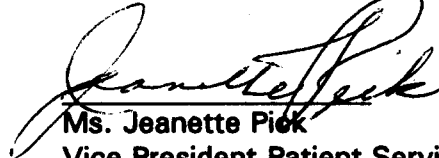
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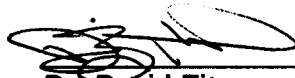
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Executive Summary

Hospitals are the most expensive component of a very expensive health system. Canada has traditionally relied on hospitals for a large proportion of health services. There is considerable evidence that many hospital beds and days are used for non-acute care, which by definition is inappropriate. Fortunately, utilization review and management can significantly reduce inappropriate hospital utilization, which in turn maintains and often increases the quality of services to the public.

The major findings of this report are:

- Both Canadian and international studies of hospitalization reveal high proportions of non-acute admissions and use of patient days in hospitals. The only jurisdiction-wide Canadian study (Saskatchewan) found that from 48% (large urban hospitals) to 65% (small community hospitals) of the patient days in adult medicine were non-acute. More local studies identified about one-third of the patient days as non-acute. The pediatric non-acute rates ranged from 13% to 48% of patient days in Canadian studies.
- There are typically large variations in the way hospitals are used, and local or region-specific utilization review is essential to discovering the circumstances in each part of the country. Within hospitals, individual physician patterns and practices are the key determinants of over utilization.
- Specific programs and services may be required to ensure that small and rural hospitals are used efficiently, e.g., minimal care or self care units using surplus acute care beds.
- There is literature to suggest that merely reducing acute care capacity without introducing utilization review and management techniques does not eliminate only the inappropriate service, nor does it reduce the risks associated with prolonged stays (infections, reduced activation and rehabilitation rates, etc.).
- There are very good, well-validated, low cost assessment tools for carrying out utilization review, several of which have been used successfully in Canada. These instruments assess whether an admission or day of stay is acute using comprehensive severity of illness, intensity of service, admission, and discharge criteria. Some also identify the alternate levels of care required if hospitals are inappropriate, and locate the source of the non-acute use (e.g. physician failure to

discharge, unavailability of community care or long term care, delays in obtaining test results).

- **Clinical Practice Guidelines (CPGs) help reduce variability in medical practice, and can reduce the number of procedures (e.g. hysterectomies, tonsillectomies) performed while improving quality. There are computer-based clinical algorithms based on guidelines available to hospitals as pre-surgical screening tools.**
- **Pre-admission clinics, day surgery, same-day-admit policies, length of stay targets by admission, discharge planning, and other utilization management initiatives have all proven successful in reducing inappropriate hospitalization and saving money. Other measures include case management, short stay units, day care, second opinions for procedures with wide variations in practice, admission/discharge holding areas, and "do not admit to hospital" orders that respect individual and family choice (usually elderly people in long term care).**
- **Diagnostic services (laboratory, imaging) also benefit from utilization review. The literature suggests at least 20% of tests in both categories are redundant or unnecessary. Reviews of diagnostic laboratory services in Canada have revealed a great deal of over-capacity with unrealized potential for centralization and coordination to improve both quality and efficiency in the use of equipment. Expensive imaging technologies have been introduced in some communities without demonstrated need for the specialists they were supposed to help attract.**
- **Emergency Departments are often used inappropriately, as documented by Canadian studies. This can result in apparent over-crowding and less than ideal service for genuine emergent cases as well as inefficiency in the use of expensive resources.**
- **Current fee-for-service physician payment systems appear to result in the provision of more services. Canadian and American studies report reduction in inpatient use of from 20% to 40% on the part of physicians paid by other means.**
- **Careful study of waiting lists typically reveals failures in prioritization and management rather than insufficient capacity in the system. Waiting list numbers by themselves are meaningless; time on the waiting list (correlated with seriousness of the condition, measures to ensure patient comfort, etc.) is a much better indicator of access.**

- **Successful utilization management requires the active support of the medical staff of the hospital. Currently, doctors who use the facilities are responsible for generating the vast majority of costs, yet they are not employees and have few incentives to develop a "corporate loyalty" to the institution. Nor do they incur any financial risk or consequences from their patient management decisions. Including physicians in policy formulation, management processes, information systems development, and as genuine management team members eligible for payment commensurate with their contributions is highly desirable.**
- **The hospital sector will on a per capita basis shrink as utilization review and management become more widespread, and as alternate services expand to meet non-acute needs. These shifts cannot take place smoothly without the full cooperation of health care unions. Rigid job categorization and inflexible education programs also inhibit change. Many health care workers of the future will have to be adaptable to changing circumstances, and the management and educational systems will have to provide adequate opportunities for redeployment.**
- **Hospitals cannot by themselves achieve a totally efficient system. There must be creative partnerships among the health sectors to ensure the services are delivered to those in need in the most effective and efficient manner. Canadian health reform has recognized that geographic area boards promote these partnerships, and the extensive restructuring underway across the country creates opportunities for a system-wide approach to change that has been historically elusive.**
- **Given the vulnerability of the health system to charges of failure based on single case stories and provider-induced complaints, it is essential to engage the public in an informed discussion of the changes proposed in this report and elsewhere. The conflicting expectations of efficiency and reduced taxes on the one hand, and the best service in all circumstances on the other, need to be thought through. Broadening the debate from vested interests with a stake in traditional arrangements to the general public with a society-wide perspective seeking a balance across all sectors is fundamental to a better hospital system.**

Recommendations

These recommendations are directed at provincial Ministries and Departments of Health, and Boards responsible for acute care hospitals. Where the recommendation is also directed at others, this is stated.

- 1. That hospitals identify provision of inappropriate care, and work to reduce inappropriateness by implementing tools of utilization review and utilization management.
(Hospital Chief Executive Officers and Presidents, Hospital Medical Administrators, Chiefs of Staff, Medical Administrators and Vice-Presidents Medicine)**

- 2. That the Canadian Institute for Health Information (CIHI) advise on the collection and provision of provincially standardized data on the utilization of resources which allows for assessment of appropriateness, acuity, quality and outcomes.
(Canadian Institute for Health Information)**

- 3. That every hospital implement concurrent review of admission, continued stay and discharge processes using well validated protocols and criteria, and that this be implemented with a sense of immediacy.**

- 4. That hospitals encourage and assist physicians in the implementations of evidence-based clinical practice guidelines.**

- 5. That hospitals work closely with their medical staff committees to extend the range of treatments and procedures considered suitable for day care, out-patient management and admit day of procedure programs.
(Hospital Chief Executive Officers and Presidents, Hospital Medical Administrators, Chiefs of Staff, Medical Administrators and Vice-Presidents Medicine)**

- 6. That the number of hospital beds be reduced on the basis of data obtained from implementation of utilization review and utilization management techniques.**

- 7. That hospitals apply utilization review and utilization management principles and protocols to all service departments, not just patient care areas, and that laboratory and diagnostic imaging services be specifically identified as high priority areas.**
- 8. That a target of 100% appropriate care and utilization of hospital beds be set for all acute care hospitals.**
- 9. That Hospital Associations and Regional Health Boards educate their public about health issues and about the appropriate use of hospitals.**
- 10. That timely access to services either in the hospital or the community must be guaranteed, and information about waiting times made public.**
- 11. That waiting lists, where they exist, be prioritized by clinical guidelines based on clinical need.**
(Hospital Chief Executive Officers and Presidents, Hospital Medical Administrators, Chiefs of Staff, Medical Administrators and Vice-Presidents Medicine)
- 12. That for those who feel access is limited there be a mechanism whereby patient concerns are registered and addressed, and the existing mechanisms for complaint management be made more explicit.**
- 13. That quality of care will be ensured by ongoing monitoring and publication of patient outcomes as changes are implemented.**
- 14. That physicians, nurses and other hospital workers be provided with easily understood feedback on their own, and their teams' quality and efficiency of performance based on utilization review and utilization management, and that continuous improvements be sought through discussing and negotiating higher levels of performance.**

15. That appropriate workforce planning for health care be undertaken, with cross training and less reliance on specialization of workers; and that management structures be reduced and decentralized.
16. That hospital management be expected to implement utilization management techniques.
17. That evaluation and monitoring of outcomes be integral parts of utilization management.
18. That the costs of high quality appropriate acute care be minimized by a combination of restructuring and efficiency-oriented incentives, including:
 - a) methods of paying physicians in the hospital context
 - b) remunerating physicians for effective quality improvement and utilization review and management activities.
 - c) achieving the most efficient deployment of human resources
 - d) implementing outcome-oriented standards
 - e) ensuring that there are quality and efficiency incentives built into all levels of management and service delivery
 - f) allocating provincial resources on the basis of the successful application of utilization review and utilization management techniques
 - g) sharing the benefits of improved efficiency
19. That responsibility for the coordination and implementation of utilization review and utilization management strategies and activities across the continuum of care be assumed by authoritative Regional and District Health Boards where they exist, or by other geographically defined bodies where they do not.
20. That a national mechanism to broker information on innovations, implementations and outcomes in utilization review and utilization management be developed under the aegis of the Conference of the Deputy Ministers of Health.
(Conference of the Deputy Ministers of Health)

1. Introduction

1.1 *Health Care Costs: Are They Sustainable?*

In the past thirty years the percentage of Gross Domestic Product (GDP) expended on health care in Canada has risen from 5.4% in 1960 to 9.9% in 1991.¹ Acute care hospitals consume approximately 40% of health care resources, collectively cost \$30 billion annually and represent the greatest single consumption of health care resources. It is imperative then that governments and hospital administrations examine this expenditure to ensure that the system is operating efficiently.

This paper will recommend methods which will enable hospitals to reduce costs while at the same time provide a higher quality of care.

1.2 *Canada's Hospital Surplus: How We Got to Where We are Today*

In the 1950s and 1960s the number of hospitals increased in Canada. The increase in hospital capacity was supported by the belief that the best care available was that provided in an acute care hospital. The increasing concern over deficit financing has caused the cost and efficiency of hospitals to come under scrutiny. Since 1984 every province of Canada has established a Royal Commission or other major inquiry to examine its health care system. In general, each review has concluded that the fundamental principles of the Canadian health care system - universality, comprehensiveness, portability, accessibility and public administration, - are sound, and that the overall level of resources currently provided for health care is sufficient to meet the needs of the population.¹ The reviews have also concluded that at present much of the health care being provided in Canada is ineffective, unevaluated, unnecessarily expensive, or otherwise inappropriate.¹

Health care reform is being undertaken across the industrialised world as well as across Canada. In all the countries of the Organization for Economic Cooperation and Development (OECD) common themes thread their way through the different approaches to reform. Such themes are the rediscovery of incentives, an increased emphasis on investigating outcomes, a renewed interest in health promotion, more integration between health and social services, increased accountability to the public and the empowerment of the public in health care decision-making, both at the individual and collective levels.

Against this background major changes in hospital utilization have occurred. Hospitals have reduced the length of patients' stays, beds have been closed, hospitals have been closed.

Procedures and treatments have been moved from the in-patient arena to the out-patient and day-care departments of hospitals. There has been increased cooperation in delivery of services between hospitals and communities. Improvements of technology in surgery, anaesthesia, pharmaco-therapy and in diagnostics have supported these changes.

In spite of these recent achievements there is evidence of room for further improvement. Examination of the international literature on the appropriateness of hospital care has demonstrated significant inappropriateness of acute care bed utilization. There is also much evidence of inappropriateness of treatments and procedures conducted in hospitals. This research has raised the concern that there may exist similar degrees of inappropriateness within the Canadian hospital system.

While hospitals and health ministries have been considering the problems and issues surrounding appropriateness of care there has been criticism that the system is failing to meet the public's needs. This perception is reinforced by reported instances of long waiting lists for services, crowding of emergency departments, and long waits for access to specialized hospital-based diagnostic and treatment facilities.

This paper will suggest methods for achieving a more effective and affordable hospital system. Opportunities exist to improve the quality of care delivered by hospitals while at the same time allowing for the re-allocation of increasingly scarce resources to other health care services.

As stated by Robert Brook: "Two important conclusions may be drawn from the literature. Firstly, inappropriate care is there if you look for it, and, more importantly, restricting the volume of care by global budgeting or planning does not eliminate it. Secondly, the rates of inappropriate care are too large to be ignored."²

2. Beds: Who Needs Them?

2.1 *Appropriate, Effective and Efficient*

Throughout this paper the words appropriate, effective and efficient will appear and are used in the following context:

An **appropriate service** is one which, on the best scientific evidence, will improve the health status of the recipient the most from a set of choices at the time it is delivered, and where the benefits exceed the risks by a wide enough margin to make the service worth providing.

An **effective service** is one which improves the health status of the recipient.

An **efficient service** is one which is delivered in the most cost-effective place at a time when the effectiveness of the intervention will be optimal.

2.2 *Appropriate, Efficient Hospital Bed Use*

A hospital bed is appropriately used when the person occupying the bed has severity of illness, impairment of function, requirement of intense service, or a combination of these which necessitates a hospital setting for appropriate, efficient, safe and effective care and treatment.

Inappropriate hospital utilization occurs when a patient is admitted and occupies a bed when his/her clinical condition is such that the procedure is not necessary, or the care required could be better provided in a different setting or environment. This environment could be the patient's home, a community health care centre, an ambulatory care centre in a hospital, or a long term care institution.

Efficient use of hospital resources is use which is cost-effective. Appropriate use of hospitals will result in health care resources being used more efficiently.

2.3 *Utilization Review and Utilization Management*

Utilization review can be defined as "the assessment of the appropriateness and efficiency of hospital care through review of the medical record."³ Utilization management is "the deliberate action by payers or hospital administrators to influence providers of hospital services to increase the efficiency and effectiveness with which services are provided."³

Utilization review and management systems are primarily concerned with the consumption of resources and with the costs associated with the delivery of health care. Where services are overused and patients receive unnecessary care, there exists a threat to the quality of care. Conversely, if resources are unavailable and a patient is denied required care, quality also suffers.

Utilization review and the application of utilization management techniques should be flexible and take into account unique or unusual clinical circumstances and the subtleties of clinical judgement. A vast majority of cases are amenable to clinical criteria-based appropriateness screens. Excellent tools are available to screen hospital admissions and days of stay for appropriateness. These tools enhance quality by ensuring that clinical indicators and discharge screens are observed. The tools articulate what a good clinician implicitly applies and factors into decision making. Over time these systems lend themselves to the compilation of a data base which allows further validation and examination of utilization management and a feedback mechanism for institutions.

2.4 Cost-Effectiveness of Utilization Review and Utilization Management

The process of assessing and improving the use of hospital resources requires commitment and investment. It requires a hospital to invest in training reviewers and collecting data, and in staff education in order to change the hospital culture sufficiently to gain support and acceptance of this concept. Many administrators will be concerned, justifiably, at the potential cost, but they also need to be aware of the benefits.

The literature on cost-effectiveness of utilization review and utilization management is not broad but indicates that savings can be made. A major review in the United States⁴ concluded that utilization review reduced admissions by approximately 12%, hospital expenditures by 14% and total medical expenditures by 6%. Other studies support the fact that patient admissions can be reduced, length of stay shortened and overall expenditures decreased.⁵ Therefore it appears that the question which must be raised is not so much if these findings are close to being true for Canada, the question is not so much "Can we afford to undertake utilization review?" as "Can we afford not to?"

3. Risks of Hospital Care

Many of the major advances in diagnosis and treatment of illness have taken place in acute care hospitals. Hospitals have become the centre for the management of major illness in every community. There has developed in the mind of the public a perception that hospitals are the most desirable source of acute care. However, there is little evidence to support hospitalization for the management of many common illnesses to the current degree, and the risks associated with admission to hospital are rarely discussed.^{6,7,8,9,10}

The risk of nosocomial infections and adverse effects of hospitalization are well documented. Complications, such as respiratory infections, falls and adverse drug reactions have been reported to occur in up to 70% of elderly admissions.¹¹ The elderly are especially vulnerable to functional decline due to aspects of hospital care such as forced bed rest, immobilizing procedures and devices (eg. intravenous lines, catheters, oxygen), restraint use and lack of encouragement of independence in self care.¹² The environmental change may result in mental confusion and exacerbate the loss of autonomy that comes with admission.^{12,13} There is also a very real concern about the growing number of interventions involving the frail elderly for whom the expectation of benefit may be too small to justify the intervention.

The adverse effects of hospitalization on pediatric and psychiatric patients are also well documented.^{14,15,16,17,18,19} Concern is often expressed that reducing length of stay in hospitals could have an adverse impact on the quality of care delivered. There are important clinical implications for patients and physicians if the length of hospital stay is reduced. The patient returns to a more familiar environment, which usually has psychosocial benefits,²⁰ there is a decreased risk of acquired hospital infection,²¹ and prompt hospital discharge engenders a positive feeling among clinicians and patients.²²

Significant reductions in lengths of stay which were achieved in the United States following the introduction of prospective payment for hospital care for the Medicare population did not reduce the quality of care.²³ There is, equally, some evidence that patients discharged too early are discharged in medically unstable states.²⁴

4. Beds: How Many Do We Need?

4.1 What is the "Right" Capacity?

Acute care hospital 'capacity' refers to the maximum capability available to provide acute inpatient services. In the case of hospitals this relates primarily to the number of hospital beds, care providers, and services that are available.

The problem is to determine the required level of acute care hospital capacity for Canada. It would be helpful to know Canada's current situation on the spectrum of possible levels of capacity: is there over-capacity, suitable capacity or under-capacity in the hospital systems? The answer would not necessarily be expected to be the same everywhere.

Flawless methods to evaluate the size of the hospital system are not available. Two ways of looking at hospitals give some indication of where they lie on the capacity spectrum. One is to measure the *appropriateness* of admissions to the hospital, of the days spent in the hospital and of the use of services. The other is to compare rates of admission, length of stay and resource use in relation to other hospitals serving similar populations, i.e. to examine *variation* in rates of service provision, and its causes.

4.2 Appropriateness

An assumption made in the Canadian health care system is that people are not denied access to care. Our objective should be that Canadians are provided 100% appropriate care. If a hospital has a significant percentage of admissions or bed days which are inappropriate, there is an implication that these beds represent excess capacity in the hospital. The correct level of capacity could be presumed to be that necessary to provide appropriate care to the population.

Canadian studies reveal that there are significant levels of inappropriate use of acute care hospitals as shown in Tables 1 to 4 (pages 47-51). Using accepted clinical criteria-based tools to review medical records, 18 to 48% of hospital admissions for adults were found to be inappropriate, while between 19 and 60% of all hospital days were also considered to be inappropriate.^{25,26,27,28} These figures are comparable to international studies which found 7 to 46% inappropriate admissions, and 20 to 48% inappropriate hospital days for adults.^{29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44}

Two Canadian studies have assessed the appropriateness of acute care in the paediatric population. These studies describe 29 to 56% inappropriate admissions, and 13 to 48% inappropriate days of care.^{26,45,46,47,48} Studies in the United States on pediatric hospitalizations support these findings.^{49,50,51}

With the exception of the Saskatchewan studies,^{26,27} which include all to the 20 largest hospitals in the province and 31 of the other 62, these studies represent assessments of a limited number of hospitals in the country, and more data gathering is required. It does however cause concern regarding the delivery of inappropriate care, and raises the question regarding excess acute care capacity.

4.3 Variation

Highly variable admission rates have been demonstrated for medical conditions such as pneumonia, gastroenteritis and chronic obstructive lung disease. These conditions represent a significant proportion of medical admissions to hospital.⁵² The high rate of variation follows through to the length of the hospital stay. It is recognized that there are many factors that determine need for service and affect delivery of care and hence, resource use. Demographics, socioeconomic, and environmental and occupational conditions affect health status and the need for services. Population density, geographic isolation, administrative effectiveness and availability of health care alternatives affect the way resources are used. However, wide variation in resource consumption still exists when similar regions are compared.

For example a study compared average length of stay for patients in eight Manitoba hospitals after adjusting for reason for patient admission, severity of illness, age, sex, socioeconomic status and other factors. The adjusted mean length of stay for acute myocardial infarction varied across hospitals from 8.9 to 13.4 days. When inguinal and femoral hernia procedures were examined it was found that the adjusted mean length of stay varied from 3 to 5 days.⁵³

At present inter-provincial comparisons are difficult due to inconsistencies in data collection and definitions of acute care hospital beds and days. However, variation in the number of days spent in acute care hospitals per 1000 population is as great among the regions within a province as it is among provinces, as reflected in Table 5 (page 52). There is also wide variation in the rate of hospital-based surgical and diagnostic procedures.^{54,55} In British Columbia the standardized rate of tonsillectomy varies from 9 to 74 cases per 10,000 population (among the 79 local health areas). Inappropriateness is believed to account for some of the variation in rates.^{56,57}

It is incumbent on the health care system to explain variation and to ensure that quality care is delivered in all regions. If wide variations in utilization and resource consumption exist, the care being delivered should be examined, as should the hospital capacity.

4.4 *Indications of Under-capacity*

Common indicators of under-capacity and under-funding include long waiting-lists for procedures, treatments and diagnostic tests, over-crowded emergency departments, beds in hallways and cancellations of elective surgery. Wherever these situations exist, and are examined, they prove to be the result of adequate resources being used in an inappropriate manner. If all care delivered was appropriate care, and occurred in the right place at the right time, it is predicted that bottlenecks would be rare. Where they did occur they would be a true indicator of under-capacity.

4.5 *Can Hospital Capacity be Reduced Safely?*

Can we have fewer hospital beds without exposing people to unnecessary risk? In terms of hospital care, safety equates with being seen in the emergency department and admitted to hospital when required; receiving care and treatment without being hospitalized where appropriate; receiving the highest quality of care and treatment possible; and receiving care and treatment that is appropriate to the individual, not just to the disease.

Having a large number of hospital beds will not ensure that the required care is available or received. However, measures can be taken to ensure that care is appropriate to the individual. Hospital capacity and supply of other services should be based on peoples' needs.

In the absence of convincing evidence of poor access to acute inpatient care, or of denial of service due to lack of capacity, and in view of indications of widespread inappropriateness, it would be reasonable to conclude that less capacity would be required if only appropriate care was delivered.

4.6 Further study

Questions that need answering are:

Where is inappropriate resource utilization occurring? and,
Is there over-capacity, and if so, where?

A national investigation of appropriateness in acute hospital care could be conducted using a random sample of hospitals in each province and territory. A validated clinical criteria-based review tool (see section 5.1) could be applied to a sample of the in-patient population in each of these hospitals. Such a study is in progress in the Province of Saskatchewan. It is estimated that the cost of a Canada-wide study of this type would be in the region of \$1,000,000. Completion of such a study would demonstrate the degree of appropriateness in acute care hospitals.

Whether such national data would be useful on a local level is questionable. Physicians always make admission and continued stay decisions based on their perceptions of their patients' best interests. Findings of a national or provincial study might not be meaningful to them. More benefit, in terms of influencing the utilization of hospital resources, would accrue if each hospital were to conduct its own review and accumulate data on its own degree of appropriateness. From the practice and managerial point of view it would be informative for the hospitals to identify where inappropriate use was occurring in their own institution, and why. Once physicians and managers had collected this data they could embark on the process of rectifying situations where care is provided in less than ideal environments, or provided unnecessarily. Activities such as these, and others described below, would improve health care delivery, at reduced cost.

4.7 Data; the Un-met Need

Canada is relatively rich in health utilization data sources. There are numerous data sets, most of which are administrative rather than quality or outcome-oriented. They are very useful for certain kinds of analyses and comparisons, but less so for the kinds of questions that must be answered to sustain productive changes to the system. The main limitations of the data are:

1. They incorporate quantitative variables (length of stay, patient demographics) but few qualitative measures of performance.
2. The coding of morbidity, essential to epidemiological studies, is not always consistent.
3. The data sets cannot connect variations in length of stay to outcomes.

4. While Diagnosis Related Groups (DRG), Case Mix Groups (CMG), and other grouping procedures facilitate like-with-like comparisons, there are differences such as co-morbidities and varying interpretations of severity that may confound more refined analysis and render "true" explanations of events elusive.⁵⁸

Because of these limitations, current widely available data sets are not sufficient to establish whether Canada's hospital system has excess capacity in general, or in certain geographic areas. The data may only suggest variations in capacity and performance unrelated to morbidity and other real conditions.

However, there are sufficient data to make significant changes in resource allocation using a "best practices" set of assumptions. Ultimately, Canadians will want to know whether a reduced hospital sector will affect the quality of care or otherwise place them at risk. Hence different kinds of data will be necessary.

Fortunately, there are tools which allow hospitals and/or jurisdictions to explore issues such as appropriateness in greater depth. There is growing literature on the subject. These more substantive types of studies can often be relatively inexpensive and highly useful to policy and resource allocation decision-makers.

"If you can't measure it, you can't manage it."⁵⁹

Recommendation

- That hospitals identify provision of inappropriate care, and work to reduce inappropriateness by implementing tools of utilization review and utilization management.
- That the Canadian Institute for Health Information (CIHI) advise on the collection and provision of provincially standardized data on the utilization of resources which allows for assessment of appropriateness, acuity, quality and outcomes.

4.8 Small and Rural Hospitals

Small and rural hospitals present problems in utilization management. These hospitals are usually situated in small communities, often separated by large distances from neighbouring communities and larger hospitals. The hospitals often provide a large proportion of the economic support of the communities in which they are situated, and represent a source of civic pride in their communities.

Utilization management is as important for smaller, rural hospitals as it is for their larger, urban counterparts. Where acute care beds are required and funded, every effort should be made to use the beds for that purpose. The need for patient travel over long distances may require longer lengths of stays. Same day admission for surgery, and day care surgery may not always be appropriate. Non-acute days required as a consequence of transportation, socioeconomic and cultural factors need to be identified, and the appropriate non-acute services be provided. Surplus acute care capacity can be converted to minimal-care or self-care units to accommodate patients during their stay in the hospital when they no longer require acute care. Recognition of the true need for acute care capacity will allow for regional planning of hospital services. Opportunities for concentration of acute care beds in fewer communities will need to be considered. Such consolidation would allow for the development of more sophisticated hospital services in the regional centres.

The socioeconomic impact of small hospital closure or rationalisation must be considered and addressed. From the point of view of the delivery of cost-effective, high quality health care there is little point in funding beds in small communities at the acute care level if criteria-based review indicates the resources are used for other purposes.

5. Strategies for Improving Hospital Utilization

Take the Cochrane Challenge!^{60,61} Are the following being done in your hospital?

1. Consider anything that works.
 2. Make effective treatments available to all.
 3. Minimize ill-timed interventions.
 4. Treat patients in the most cost-effective place.
 5. Prevent only what is preventable.
 6. Diagnose only if treatable.
-

In considering the utilization of hospital resources, there is an inclination to concentrate on the utilization of hospital beds. An effective utilization management program will not confine its attention to bed utilization but will address all hospital services. The areas in a hospital which merit special attention in terms of utilization management are the Emergency Departments, pharmacies, diagnostic services as well as patient care units.

The following techniques have been adopted by hospitals as a component of effective bed management practice:

5.1 *Concurrent Review*

Concurrent review is the assessments of the patient's clinical condition at the time that health care is delivered, or during pre-admission assessment. Each patient's condition is evaluated using explicit clinical criteria for severity of illness and requirements for care. To be effective, review should occur at, or before, the time of admission, and on each subsequent day of hospital stay. If the patient meets the clinical criteria for admission, then the admission is considered appropriate. If criteria are not met, then the admission is deemed to be inappropriate. Where criteria are no longer met following clinical improvement, then continued stay becomes inappropriate.

The clinical criteria used for review should be validated by the medical staff, and where necessary, modified. Review of the active medical record can be performed by physicians, nurses or other trained health care professionals, however to maximize the participation of the medical staff it is important for physicians to be involved in the review process.

Concurrent review is an important aid in providing patients with appropriate care at the most efficacious time. It identifies those patients who no longer require hospitalization and serves as a check to minimize oversight and errors. In addition to being a tool to optimize high quality care the information from concurrent review can be used to ensure that resources will be available for persons who need them, when they need them.^{62,63} It is up to hospital administration to act on the information, to develop policies and procedures to prevent inappropriate admission and to facilitate timely discharges.

"None the less, it is time to assure our patients that, before they are subjected to a procedure or denied its use, its appropriateness has been explicitly verified. Methods to assess appropriateness are available. It is time they were used by doctors to eliminate both under use and overuse of clinical interventions."²

The numbers of inappropriate patient days by hospital, by service and by physician can be collected and used as a basis for examining utilization patterns and an assessment of hospital capacity. The data can also be used in negotiation with other agencies outside the hospital in the building of a wider range of service delivery systems in the community. Collection of this data elevates the debate on service requirements, capacity, access and funding to a more rational level than can be achieved without concrete data.

Tools available for concurrent review

- ***Intensity of Service, Severity of Illness and Discharge Screens (ISD-A)***⁶⁴
The explicit criteria of this system are diagnosis-independent and are divided into severity of illness and intensity of service components. The criteria were developed by Interqual in the United States, where the tool is widely used in utilization review. The system has recently undergone an extensive modification on the basis of physician input. ISD-A aids in assessing the appropriateness of admission, appropriateness of discharge, and when intensity of service is low enough that alternate levels of care should be investigated. There is also a related set of criteria for judging the appropriateness of surgical intervention, the Surgery Indications Monitoring system (SIM), which are procedure specific. ISD-A has received validation in the literature as an effective utilization review tool.^{65,66}
- ***Appropriateness Evaluation Protocol (AEP)***⁶⁷
AEP, based on ISD-A, was also developed in the United States. The tool has also received validation in peer reviewed literature.⁶⁵ These explicit criteria are diagnosis independent and evaluate appropriateness of hospital admission and of subsequent days of stay for medical and gynaecologic patients. If any one of the 27 criteria

Tools available for concurrent review (continued)

describing medical services, nursing services and patient conditions are met a day of care is justified.

- ***Surgical Appropriateness Evaluation Protocol***
Consists of 25 explicit criteria relating to the need for performing a given surgical procedure on an inpatient basis, and 28 criteria which relate to the timing of the procedure.⁶⁸
- ***Pediatric Appropriateness Evaluation Protocol (PAEP)***
Modification of AEP for pediatric patients
- ***Psychiatric Appropriateness Evaluation Protocol***
AEP has also been modified for use with psychiatric patients
- ***Managed Care Appropriateness Protocol (MCAP)***
Explicit criteria which are diagnosis independent and evaluate appropriateness of hospital admission and of subsequent days of stay for medical, surgical, obstetric and pediatric patients. Also includes criteria for assessing the appropriateness of providing care for inpatient and outpatient procedures.⁶⁹
- ***Managed Psychiatric Appropriateness Protocol (MPAP)***
As for MCAP, modified for patients with psychiatric, acute alcohol/substance abuse or eating disorders⁶⁸
- ***Standardized Medreview Instrument (SMI)***
Explicit criteria which are diagnosis independent and evaluate appropriateness of hospital admission and of subsequent days of stay for medical, surgical and gynaecologic patients.⁶⁵
- ***SWITCH Index System***
The SWITCH Index System is a system developed in Canada. It is a relatively simple system to use in that it has six categories of criteria which would indicate a patient's need for acute care. The criteria apply to both admission and continued stay. In addition the system provides reasons for inappropriate stay due to delays in care delivery.

- *Uniqueness of Stay*
Camp Hill Medical Centre in Halifax is developing an easily used computer assisted system for concurrent review. The software provides, on a daily basis, information about patient function and the hospital services which are being provided.

The concurrent review instruments vary in their acceptability to different hospitals and paying agencies in the United States. ISD-A and AEP are the most widely used in the United States and appear to be the most valid among the systems reviewed by researchers in the field. It is not known to what extent explicit criteria-based concurrent review, using the described instruments, has entered Canadian hospital practice. Some hospitals have been using the systems for several years, while many more confine their review activities to the use of the implicit criteria embodied in traditional utilization review. See Appendix 1 for additional instrument information, and Appendix 3 for evaluations and examples of concurrent review.

Recommendation

- **That every hospital implement concurrent review of admission, continued stay and discharge processes using well validated protocols and criteria, and that this be implemented with a sense of immediacy.**

5.2 *Clinical Practice Guidelines*

Variations in medical practice are based to a large degree on uncertainty as to how best to approach common clinical problems.⁷⁰ Clinical practice guidelines are seen by many as an aid to decision making by having groups of expert physicians reach a consensus on management approaches to clinical problems. Clinical practice guidelines combine diagnosis and key clinical patient indicators to validate the diagnosis, suggest appropriate treatment options, and present the proper setting for care and length of stay (LOS). Such an approach is an attempt to establish a basis of best practice, which should improve the quality of care delivered. Clinical practice guidelines can also lead to conservation of resources by reducing the degree of inappropriateness.^{71,72}

Computer software of clinical algorithms based on guidelines has been developed for use as a pre-surgical screening tool. Prior to the booking of elective surgery the booking official is directed by the software to ask the patient a series of questions. Based on the answers to the questions, the projected procedure is validated or otherwise. Examples of

such software are those developed by Value Health Sciences and Health Resource Management. (See Appendix 1).

The use of clinical protocols to assess prospectively the need for selected tests and surgical procedures is just getting started. Rates of denial of procedure (assessed inappropriate) appear to be substantial for some services, e.g. hysterectomies 21.5 percent, tonsillectomies 27.1 percent, and minimal for others, e.g. cardiac bypass surgery. The denial rate across all inpatient and outpatient services averaged 11 percent.⁷³

"Although there is currently much enthusiasm for practice guidelines, far more energy and resources have been expended on their development than on their implementation".^{71,74,75,76} Developing practice guidelines and assuring their use with concurrent review is more likely to improve results and reduce length of stay when compared with a process which merely develops a guideline and recommends its use.* Much work needs to be done in acute care institutions to introduce and use clinical guidelines effectively.

Grimshaw and Russell reviewed 59 published evaluations of clinical guidelines which met criteria for scientific rigour.⁷⁷ The majority of studies detected some significant improvement in the process of care following the introduction of guidelines. When patient outcomes were examined significant improvement was noted. When looking for improvement in appropriateness and efficiency it is not the production of the guidelines that is the issue (although how they are produced may be related to their acceptance), it is their implementation and their evaluation.⁷⁸ If guidelines are implemented then they can be beneficial. (See Appendix 4)

Recommendation

- **That hospitals encourage and assist physicians in the implementations of evidence-based clinical practice guidelines.**

* Internal qualitative research at Camp Hill Medical Centre in Halifax showed an apparent reduction in length of stay and reduced mortality for pneumonia patients treated on a ward where weekly reviews assured that guidelines were used for all pneumonia patients, compared with a ward where guidelines were developed but concurrent review did not assure regular use.

5.3 Pre-Admission and Pre-Operative Assessment Programs

Pre-admission testing⁷⁹ is the requirement for pre-operative testing, blood matches, and consultations (internist or anaesthetist) to be completed prior to admission to hospital. Requirements for pre-operative testing and consultation are a combination of generically mandated items (by legislation or hospital policy) and specific, surgeon-ordered items.

Pre-admission assessment serves the following purposes: 1) to reduce pre-operative length of stay in hospital; 2) to avoid last minute surgical cancellations due to unexpected clinical findings; 3) to alleviate anxiety; and 4) provision of patient education. The patient education function may become the most important component of these programs from a utilization management perspective. There is evidence that the incorporation of pre-admission patient education results in patients who are better prepared for surgery, and for early discharge.⁸⁰ Hospitals also take advantage of the pre-admission testing clinic to obtain the administrative information required from each patient, which streamlines the admission process on the day of admission, e.g. the validation of private insurance coverage.

Pre-admission assessment is an essential step towards achieving a high percentage shift to day surgery, and morning admission of surgical patients (discussed below), which have a significant impact on length of stay. For this reason, pre-admission testing should be considered an essential component of a utilization management program for any hospital with a significant surgical volume. (See Appendix 5)

5.4 Day Procedures

Day procedures^{81,82} occur when admission, treatment and discharge of a patient all occur within the same day. Advances in surgical technologies, anaesthetics and pain control have allowed many former inpatient procedures to move to day surgery. Changes in clinical practice are also enabling procedures to be done on an outpatient basis, for example paediatric tonsillectomies.

Although there has been a dramatic shift to out-patient or day procedure over the last five years there still remains substantial variation in the degree to which individual hospitals have moved in this direction.⁸¹ Hospital administrators need to be encouraged to pursue this direction in cooperation with their medical staffs. Movement of procedures and treatments to day care reduces the need for acute care beds.⁸³ (See Appendix 6)

5.5 *Admit Day of Procedure*

'Admit day of procedure' is a modified admission process for elective surgical patients which allows the majority of patients to be admitted on the day of surgery, rather than during the days prior to surgery. The primary objective is to reduce pre-operative length of stay as it is rarely appropriate for an elective patient to utilize an acute care bed prior to the procedure. Admitting on the day of the procedure has resulted in enhanced patient satisfaction as most patients seem to prefer to spend the night before surgery in the comfort of their own home. Shortened stay in hospital also reduces psychological trauma for paediatric and geriatric patients.

There is a requirement for a finely tuned admission process to ensure that all documentation, test results, special supplies and beds are available as needed on the day of surgery. A fully implemented admit day of procedure program should be able to accommodate over 85% of elective surgical inpatients. (See Appendix 7)

Recommendation

- **That hospitals work closely with their medical staff committees to extend the range of treatments and procedures considered suitable for day care, out-patient management and admit day of procedure programs.**

5.6 *Expected Length of Stay*

'Expected length of stay' involves setting targets for the length of stay for individual case mix groups. Physicians are asked to state at the time of admission how long they expect the patient to stay in hospital. The self-developed timeframe provides a guide for expedient provision of care. Using average length of stay as a benchmark thwarts the management exercise because averages do not provide targets which are sufficiently exacting.

5.7 *Discharge Planning*

Discharge planning begins in the pre-admission clinic or at the time of admission. Discharge planning involves the recognition of patients who are at high risk of having a prolonged stay in hospital as a result of obstacles to discharge, and the implementation of strategies to facilitate discharge. Risk factors for delayed discharge are lack of support

services, elderly people living alone, and inability to conduct the activities of daily living without assistance. The process is designed to ensure a shorter LOS. Evidence exists that these programmes do, in fact, reduce LOS,^{84,85,83} improve patient satisfaction and reduce subsequent readmissions to hospital.^{7,8} Effective discharge planning is an essential element of efforts to reduce the cost of hospital care.^{86,87,88} (See Appendix 8)

5.8 Case Management

Case management is a process whereby multidisciplinary teams of health care providers plan and supervise the diagnosis, treatment and rehabilitation of individual patients during their stay in hospital. The teams develop care paths which include elements required for appropriate discharge from hospital.⁸⁹ The objective is to provide appropriate care in as timely a fashion as possible and to ensure that tests and treatments are provided in a logical sequence. The concept was designed to achieve cost savings through improved management while at the same time improving the quality of care delivered. An ideal would be to consider the hospital component of care as part of a care spectrum rather than the most important component of care. (See Appendix 9)

5.9 Maternity-Related Strategies

Provision of maternity services has changed dramatically over the past 10 years. Across Canada length of stay has been reduced and strategies to reduce stay further are being implemented. Four techniques which support the move are described in the Appendix 10.

5.10 Short Stay units

Short stay units take the "expected day of discharge" one step further. The units operate on a Monday to Saturday morning schedule, and are closed on weekends and statutory holidays resulting in savings in resource use. Patients are admitted for a 24, 48 or 72 hour length of stay. Discharge time for all patients is consistent. Patients are expected to arrange for a family member or a friend to pick them up on the morning of discharge after breakfast. It is not necessary for the clinician to write a discharge order as the patient will be discharged unless there is a medical reason not to do so.

Wherever short stay units are established it is essential to maintain a close review of the patient population on the basis of admission and discharge criteria. Every attempt should be made to manage the type of patient using these facilities on a 'day of procedure' basis.

5.11 *Medical Day Care*

Medical day care provides medical care without admission to hospital. Patients with serious medical conditions who require education, care and support often have their needs met on an outpatient basis or at a clinic. Examples of medical day care centres for asthma and diabetes are described in Appendix 11.

5.12 *Outpatient Care and Alternative Care Services*

Home enteral therapy and intravenous therapy are alternative care services which can be provided out of hospital. The successful development of such programs can represent an administrative challenge. For example, many antibiotic treatments can be provided at home, but are provided in hospital because the community services are not available, or the drugs are without cost when delivered to the patient in the hospital, but are paid for by the patient if received at home.^{90,91} The hospital may need to develop a funding transfer program to address this issue.

Other examples of alternative care, such as cooperative care units, self care units and enhanced care units have a potential to shorten length of stay or prevent admission and are described in Appendix 12.

5.13 *Second Opinion*

Second surgical opinion has been used in the United States as a method of pre-admission screening. Good clinical practice guidelines should preclude the need for second surgical opinion. Physicians should offer patients the range of treatment options and identify both benefits and risks of treatment. Second opinion may be appropriate for some procedures such as hysterectomy and gall bladder surgery where wide variations in clinical practice occur.

5.14 *Co-ed. Rooms*

A co-ed. room is any patient room which has the capacity for more than one patient and allows for male and female occupancy, as an interim measure until accommodation by gender can be offered. Major advantages include prevention of overcrowding of Emergency/Observation Units and improved patient comfort and privacy.

5.15 *Admission / Discharge Holding Areas*

This is a controversial strategy which has been implemented in some Canadian hospitals. It is argued that these areas are redundant and unnecessary if good bed management and discharge procedures are in place. The holding areas are required when there is an apparent bed shortage in the hospital, and a discharged patient is awaiting further service, such as transport home, filling of a prescription etc.⁹²

5.16 *Do Not Admit to Hospital Orders*

A 'do not admit to hospital' order is initiated by a family physician for a patient, usually in a long term care home. The patient or the family requests that the patient not be admitted to an acute care hospital should they become ill.^{93,94} Such requests are usually made in circumstances of a terminal illness, poor quality of life, or dementia.^{93,94} Recognizing such requests reduces patient and family anxiety and prevents resources from being used ineffectively.

Recommendation

- **That the number of hospital beds be reduced on the basis of data obtained from implementation of utilization review and utilization management techniques.**

6. Utilization in Other Areas of the Hospital

6.1 Emergency Departments

Emergency Departments are frequently used inappropriately and often demonstrate over-capacity for the management of the emergency patient. A task force in Quebec⁹⁶ found that inappropriate utilization of the emergency department by health care professionals was a major determinant of overcrowding in 41 of 61 hospitals (67%). The most common forms of inappropriate use of emergency department stretchers were: a) to accelerate access to specialized consultation or technological services; b) as, and instead of, short stay units for diagnostic or therapeutic interventions; c) as a convenient "meeting place" between a patient and her/his personal physician, with full clerical, professional and technological back-up.⁹⁶ These areas require examination and measures to reduce inappropriate use.

6.2 Diagnostic Laboratory Services

Reviews of diagnostic laboratory services in Canada have revealed a great deal of over-capacity.^{97,98} Modern diagnostic laboratory equipment is primarily designed to process large numbers of specimens cheaply and quickly in a continuous 24 hour process. The economy of scale savings of this equipment can only be realized by using it to process large numbers of specimens. There has been little incentive for hospitals to coordinate acquisition of such equipment across regions, and to centralize and rationalize their laboratory services. Each hospital has maintained its own capacity to provide a wide range of laboratory services for the clinicians and patients it serves. Small hospitals, rather than contracting out laboratory services to larger hospitals, have purchased equipment capable of performing many more tests than the population served by the hospital requires. The resulting over-capacity is costly in terms of capital assets and in terms of human resources. Centralization of service into fewer laboratories which are capable of continuous operation would release resources even after the costs of transportation of specimens were taken into account.

Another issue is laboratory response time for diagnostic tests and reporting results. A slow response time can result in a delayed diagnosis and subsequent increase in length of stay.⁹⁹ Urgently needed services must be assured and an appropriate response time guaranteed.

6.3 Diagnostic Imaging

Diagnostic imaging services are capital intense. Costly, high technology equipment, such as MRI scanners, angiography suites and CT scanners, need to be as centralized in a geographically reasonable manner. Imaging technology in any location should match the ability of the physicians to obtain the maximum benefit from the technology. Some hospitals have obtained expensive imaging technology in the hope of attracting specialists to the community, even though the needs of the community for the specialists have never been assessed. Other hospitals have acquired technology which lies beyond the interpretive skills of the medical staff. In the purchase of any high technology equipment, need and skill mix of the population and physicians must be matched.

In the future the expansion of digital imaging techniques and of improved transmission of images by fibre-optic cable may increase the opportunities for the centralization of medical imaging services. Such centralization will undoubtedly improve quality of service, and will certainly improve the effective utilization of resources.

6.4 Appropriateness of Testing

Over the past twenty years many estimates of the degree of redundancy of diagnostic tests have appeared in the medical literature. For diagnostic laboratories and imaging the estimates of redundancy appear to be in the region of 20% and largely due to medical uncertainty.^{100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112} Many medical organizations are developing clinical practice guidelines with the intent of removing as much uncertainty as possible. Other solutions have been recommended.⁹⁸

An example of the potential impact of clinical practice guidelines on the utilization of diagnostic testing occurred in the United Kingdom. The Royal College of Radiologists worked for ten years to develop guidelines on the use of imaging procedures. In 1991 a booklet "How to Obtain the Best From the X-Ray Department", was circulated throughout the hospital community. During the time the guidelines were in use there was a 20% reduction in imaging procedures.¹¹²

6.5 Appropriate Use of Prescription Drugs

Drug costs represent an estimated 3-5% of hospital costs. Wide variation in prescribing patterns among physicians accounts for some of this cost.¹¹³ Where a variety of drugs are available to treat the same condition doctors should choose the treatment which is

most effective. Panels composed of medical experts and clinical pharmacists should recommend the most appropriate treatments for particular conditions. If several treatments are equally effective then physicians should choose the least expensive. The best treatments produce a quicker return to health and shorter hospital stays.

6.6 *Purchasing and Material Management*

Materials management and purchasing offer many opportunities for hospitals to work together with group purchasing contracts with suppliers to reduce costs. Centralized materials management facilities allow for lower inventories and more efficient distribution of supplies to hospitals. Centralized purchasing and contracting for groups of hospitals result in a lower cost per unit, and combined with standardization of products can result in substantive cost reductions. Centralized warehousing and distribution can also result in major inventory cost savings to hospitals. Other shared services that present similar saving opportunities include the establishment of centralized laundry and commissarial functions, serving several hospitals in a proximal geographic location. Québec hospitals, where savings of 20 - 40% have been realized, are particularly advanced in this area.

Recommendation

- **That hospitals apply utilization review and utilization management principles and protocols to all service departments, not just patient care areas, and that laboratory and diagnostic imaging services be specifically identified as high priority areas.**

7. Strategies Which Require Cooperation Between Hospitals, Government and the Community

7.1 Targets

Successful management requires the setting of targets and goals. Targets can provide time-limited (revisable) goals to motivate improvement. Two kinds of targets are potentially applicable to hospital bed use: *Conceptual targets*: e.g. to continually endeavour to increase the appropriateness and efficiency of acute care hospital bed use in a way that ensures access to high quality care; and *Numeric targets*: e.g. number of hospital beds per 1000 population, number of acute care hospital days per 1000 population, or number of admissions per 1000 population.

Numeric targets have been set, and have proven, over time, to be too generous. The correct target number is unknown, will be constantly changing, and would likely vary depending on the needs of individual regions based on socioeconomic status, demographics, geography, other resources available etc. A numeric target may foster complacency and prevent further innovations for efficient, appropriate care beyond the target level. Targets of this kind rely heavily on accurate, up-to-date, comparable data which is lacking at least on a national level.

Rather than setting national and provincial targets for acute beds or bed days per 1000 population, governments and hospitals should set targets of appropriateness of care.

Recommendation

- That a target of 100% appropriate care and utilization of hospital beds be set for all acute care hospitals.

7.2 The Quick Response Team

Quick Response Teams (QRT) can assist a hospital to avoid unnecessary admissions, facilitate early discharge and match services to need. Upon referral by a health care professional, either from the patient's home, the physician's office, or the emergency department of the hospital, the client is offered urgent assessment, treatment and consultation. The team includes social services, therapy services, nursing, home care aids

or homemakers and is available on a 24 hour basis. Following consultation within the team and with other care providers, care appropriate to the needs of the patient is arranged. This may be in the patient's own home, with support, with friends or relatives or in a non-acute care facility.

The major objective is to divert unnecessary admissions and still provide a high quality of patient care. QRTs have improved communication and collaboration between members of the health care team in addressing difficult psychosocial problems that arise with patients in physicians' offices and in emergency departments. QRTs have a major impact on public relations, set a tone for discharge planning, and allow for an improved level of direct patient/family communication, and consequently, consumer satisfaction.
(See Appendix 13)

7.3 *Alternate Forms of Physician Remuneration*

There is evidence that physicians in fee for service practice models provide services and order more procedures than do physicians in pre-paid situations. Many studies, from the 1950s to the 1980s, have consistently shown that in both Canada and the United States, physicians remunerated in ways other than by fee-for service order fewer patient days in acute care hospitals. Some studies show a reduction in inpatient use by as much as 20 to 40 percent. Studies confirm the view that current payment mechanisms contribute to over utilization of hospitals.^{114,115,116}

8. Environment for Change

8.1 Guarantee of Accessibility, Adequate Capacity and Quality Care

The health care system is a highly regarded public service in Canada. In spite of this the public knowledge of the intricacies of the system is limited. Attempts by government or health care managers to change established delivery systems are often seen as attempts to reduce service. Governments and hospital managers have a responsibility to communicate with the public and give credible guarantees of adequate access and the provision of high quality services. Myths such as those surrounding waiting lists need to be exploded. The public needs to be made aware that wait lists are generated by physicians, are physician specific, and bear little or no relationship to access to services. How long an individual actually has to wait for a service is much more relevant than the numbers on a list.

Where significant changes in health care delivery are proposed, it is essential to involve all the stakeholders, including consumers in planning and decision making in any community.

Recommendations

- That Hospital Associations and Regional Health Boards educate their public about health issues and about the appropriate use of hospitals.
- That timely access to services either in the hospital or the community must be guaranteed, and information about waiting times made public.
- That waiting lists, where they exist, be prioritized by clinical guidelines based on clinical need.
- That for those who feel access is limited there be a mechanism whereby patient concerns are registered and addressed, and the existing mechanisms for complaint management be made more explicit.
- That quality of care will be ensured by ongoing monitoring and publication of patient outcomes as changes are implemented.

8.2 Cooperation and Participation of the Health Care Workers

Where hospitals undertake a comprehensive utilization management program there must be staff and Hospital Board understanding of the concepts and goals of the program, and their roles and responsibilities in relationship to the program. Commitment of all staff to team participation, continual evaluation and improvement of service is a prerequisite for successful implementation. Effective planning and coordination between service areas is essential.⁹⁹

Health care cannot continue to support the same number of jobs when volumes diminish to accommodate only appropriate care. Improving the utilization of Canadian hospitals will have a major impact on most health care workers, and in particular those employed by hospitals. Hospital capacity will be further reduced as alternative ambulatory or community-based services are provided. Health care providers will be displaced into these alternative care delivery systems. Health care unions must be enlisted into the planning of the shift of service from the hospital into the community. To accommodate change health care workers will have a need to be less specialized and to be more generic in their approach to their jobs. Such change in employment and in employment opportunities will require careful and sensitive management.

A successful utilization management program also involves the medical staff. The current system of medical staff organization does not generate a great deal of corporate loyalty, in that physicians, by and large, do not see themselves as part of the hospital, but as practitioners who use hospital facilities. They do not have any financial investment in the success of a hospital, nor do they carry any financial risk consequent upon their patient management decisions. The incentives for physicians to work with hospital management teams to reduce utilization are few. A reduction in utilization of hospital facilities is often linked with a reduction in personal income. Such potential loss is compounded with further necessity to invest non-remunerated time in committees or in utilization review activities. Utilization review activities frequently bring physicians into conflict with their colleagues whose utilization patterns are being assessed. Conflict so generated is always distasteful and may even threaten the well-being of a referral practice. In order to overcome some of these negative incentives it is essential for hospital managers to include physicians in the management team. This can be done by encouraging physicians to take a leadership role in utilization management programs and by creating full- or part-time compensated positions in the Quality/Utilization management processes of the hospital. An educational program based on the economics of health care, their impact on the local hospital, and the principles and techniques of utilization management, will be of value in including the physicians.

Recommendation

- **That physicians, nurses and other hospital workers be provided with easily understood feedback on their own, and their teams' quality and efficiency performance based on utilization review and utilization management, and that continuous improvements be sought through discussing and negotiating higher levels of performance.**
- **That appropriate workforce planning for health care be undertaken, with cross training and less reliance on specialization of workers; and that management structures be reduced and decentralized.**

8.3 Creation of Partnerships with Other Levels of Care

In order to provide cost-effective health care services to any community it is essential that extensive networks between care delivering agencies be established. This is particularly the case where a shift from inpatient acute care to community and ambulatory services is occurring. Other areas of health care will be impacted as hospitals identify and reduce services that could be provided in alternate settings.

New relationships will have to be developed between physicians and those providing care outside the hospital as their workload increases. Careful planning and resource adjustment and allocation are required for the provision of a continuum of care (from no care, through prophylactic care, supportive care in the home, multi-level institutional care to acute care). The private sector, governments, hospitals, community services, mental health services, etc. all need to be involved. Incentives for coordinated planning between hospital and community based agencies and a forum for joint planning and information sharing is a prerequisite of change.¹¹⁷

8.4 Accountability for Resource Use

Hospital administrators have a responsibility to educate their Boards in the principles of Utilization Management, and to educate the public on the appropriate utilization of the community hospital. Likewise the Boards of hospitals have a responsibility to hold the hospital's Chief Executive Officer (CEO) accountable for the appropriate utilization of resources. In return, the CEO should be confident of support against provider-induced pressure to expend resources in a way more suited to the aspirations of the provider than to those of the community.

Recommendation

- That the hospital management be expected to implement utilization management techniques.

8.5 Evaluation and Monitoring of Outcomes

When systems of care are being implemented or altered they must be monitored to ensure that the intended goals are met and the desired outcomes achieved. In addition, the impact of changes on patients and care providers need to be assessed, and unforeseen and potentially undesirable effects noted and addressed. Some measures that have been used are rates of hospital admissions, discharges and readmissions, extended care home admissions, recovery times and rates, admissions for avoidable conditions, and mortality rates. Qualitative methods have been used effectively to monitor patient and provider assessment of care. The incorporation of systematic evaluation at various stages of implementation allows corrections to the program or service before time and resources are committed.

Recommendation

- That evaluation and monitoring of outcomes be integral parts of utilization management.

8.6 Exchange of Management Information

There is a dearth of reporting on Canadian experiences with, and especially evaluations of, utilization review and utilization management techniques. In addition to formally published studies there is a need for sharing of ideas and experiences, and practical information about management techniques, about successes and about failures. A national forum for presentation of problems and discussion of issues surrounding appropriateness of care, access to care and utilization management would foster improved management of health care delivery at the local level. There is no shortage of information, but its quality and dissemination requires some attention. Government sponsored conferences, and newsletters of the type organised and published by the Health Services Utilization and Research Commission of Saskatchewan are valuable in this respect.

Recommendation

- **That the costs of high quality appropriate acute care be minimized by a combination of restructuring and efficiency-oriented incentives, including:**
 - a) **methods of paying physicians in the hospital context**
 - b) **remunerating physicians for effective quality improvement and utilization review and management activities.**
 - c) **achieving the most efficient deployment of human resources**
 - d) **implementing outcome-oriented standards**
 - e) **ensuring that there are quality and efficiency incentives built into all levels of management and service delivery**
 - f) **allocating provincial resources on the basis of the successful application of utilization review and utilization management techniques**
 - g) **sharing the benefits of improved efficiency**

- **That responsibility for the coordination and implementation of utilization review and utilization management strategies and activities across the continuum of care be assumed by authoritative Regional and District Health Boards where they exist, or by other geographically defined bodies where they do not.**

- **That a national mechanism to broker information on innovations, implementations and outcomes in utilization review and utilization management be developed under the aegis of the Conference of the Deputy Ministers of Health.**

9. Conclusion

Canadians are the ultimate owners as well as users of the hospital system. Significant changes in how we use hospital resources will require public assent. Hospital administrators, physicians, other personnel, and in a very general sense governments can bring about improvements in efficiency. Public understanding of important issues in hospital reform will shape their expectations, which will in turn either promote or constrain the process of change.

Public recognition that inpatient hospital services should be devoted exclusively to serving those who are too ill to be cared for in other settings is a precondition for change. Hospitals have often been, but should not be, the health care facilities of first resort. They are designed to meet those needs which cannot effectively or efficiently be addressed elsewhere in the community. Hospitals should serve the severely ill who require the labour and technology-intensive services which can only be delivered in that setting. Reducing length of stay by discharging patients as soon as they are no longer acutely ill or medically unstable is not a denial of appropriate services. It is on the contrary beneficial to minimize the risks of system-induced diseases (infections, stress) and inhibited recovery associated with unnecessarily prolonged stays.

The understandable inconsistencies in the public view of hospitals is noted. As taxpayers, the citizens endorse plans to improve efficiency, eliminate needless admissions, and decant health services from the hospitals to more appropriate settings. As consumers of services, the citizens are quick to complain about waiting lists, allegedly premature discharges, the unavailability of certain kinds of procedures, inadequate geographic access, and increased responsibilities for care shifted to families and individuals. Generally the public have not been asked to think systematically about the pros and cons of efficiency-oriented change. Their absence from the careful process of weighing the evidence and making choices has perpetuated their status as targets for selective information and lobbyists for one position or another, from whom no consistency is expected.

There should be a forum for bringing these discussions to the public in a thoughtful and sustained manner. Only with public participation in the process of discussion and debate will there be genuine and unflagging support for what at the best of times will be difficult shifts in emphasis. Part of the discussion will be to inform the public about the consequences inherent in various options, particularly in an era of limited and even shrinking resources. Both hospitals in a community may get an MRI, but purchasing and operating the second may literally mean that tuition fees will rise at the university. Maintaining pediatrics in several facilities may be attractive to physicians, hospitals, and their respective publics, but it will certainly mean higher costs and lost opportunities to develop other health-enhancing programs.

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Table 1 Inappropriate acute care hospital use for adult populations (Canada)*

Study	Study site	Study population	Sampling method	Sample size	Review instrument	Inappropriate admissions (% [range])	Inappropriate days of care (% [range])
Anderson et al. (1993)	4 hospitals (B.C.)	general medicine	random sample (1986-1987)	1790 records	ISD-A	24 [18-26]	33 [25-37] (ISD-A method) 13 [7-18] (analysed only if approp. admission) 27 [19-33] (analysed independently of admission)
H.S.U.R.C. (1993)	20 largest hospitals (Sask.)	general medicine	2 stage cluster sample	2539 records 24195 days	ISD-A	39% +/- 4% (base hospitals) 38% +/- 3% (regional) 48% +/- 3% (community)	48% +/- 1% (base hospitals) 57% +/- 1% (regional) 64% +/- 1% (community)
H.S.U.R.C. (1993)	31 small community hospitals (4 northern)	general medicine	2 stage cluster sample	3902 records 31455 days	ISD-A	60% +/- 2% (ADC < 20) 55% +/- 3% (ADC > 20) 52% +/- 4% (northern)	67% +/- 1% (ADC < 20) 62% +/- 1% (ADC > 20) 53% +/- 2% (northern)
W.E. Turner (1991) (unpublished)	St. Mary's Hospital Society Sechelt (B.C.)	general medicine	3 non-consecutive months all inpatients	3585 days	AEP		32-60 %

Modified from Lavis and Anderson 1994

Table 2 Inappropriate acute care hospital use for adult populations (international)*

Study	Study site	Study population	Sampling method	Sample size	Review instrument	Inappropriate admissions (% [range])	Inappropriate days of care (% [range])
Borchardt (1981)	6 hospitals in 1 PSRO (Maryland)	Medicare/aid medical & surgical	day before discharge (1980)	2711 admissions 2523 days of care	AEP	14	37
Restuccia et al (1984)	25 hospitals in 4 PSROs (United States nat'l sample)	Medicare/aid medical & surgical	calendar day (1980)	1232 admissions & days of care	AEP	19 [12-28]	27 [21-37] 20 [14-31] (adjusted)
Studnicki & Stevens (1984)	6 hospitals in 1 PSRO (Maryland)	Medicare medical & surgical	all (1983)	467 admissions	AEP (modified)	7 [0-10]	
Siu et al (1986)	6 cities (United States)	medical & surgical	random day (1974-1982)	1132 admissions & days of care	AEP	40 [10-35]; 23 (inapprop.) 17 (avoidable) 22 (cost sharing) 24 (free)	34 (cost sharing) 35 (free)
Restuccia et al (1986)	41 hospitals in 3 PSROs (Massachusetts)	medical & surgical	calendar day (1973,1978)	8031 records	subjective for admission; AEP for days of care	9	28 32 (medical) 24 (surgical)
Restuccia et al (1987)	1 hospital (United States unspecified)	medical & surgical	random day (1981-1982)	297 records	AEP	12	27 (adjusted)
Siu et al (1988)	1 city (Seattle)	medical & surgical	all (fee-for-service); random sample (HMO) (1974-1982)	244 records	AEP	12	

* Modified from Lavis and Anderson 1994

Table 2 (continued) Inappropriate acute care hospital use for adult populations (international)*

Study	Study site	Study population	Sampling method	Sample size	Review instrument	Inappropriate admissions (% [range])	Inappropriate days of care (% [range])
Ludke et al (1990)	1 VAMC (Iowa City)	readmitted medical & surgical	all (1984)	445 readmits	ISD-A (modified)	46	
Strumwasser et al (1991)	61 hospitals (Michigan)	non-Medicare psychiatry & substance abuse	all (1987-8)	539 records 6377 days	ISD-A (modified)	38	40
Booth et al (1991)	50 VAMCs (United States nat'l sample)	medical & surgical	all (1986)	6063 admissions 56254 days	AEP (modified)	43 +/- 3% [25-72 +/- 8%]	48 +/- 2% [38-72%]
Winickoff et al (1991)	5 VAMCs (New England)	medical & surgical	random sample (1989)	253 admissions	AEP	38 +/- 6% [14-56]	
Winickoff et al (1991)	6 acute care VAMCs (New England)	short stays for elective med/surg procedures	random sample (1988-9)	728 admissions 1048 procedures	AEP (modified)	26 [9-46]	
Apolone et al (1991)	1 hospital (Milan, Italy)	medical surgical & psychiatry	calendar day (1988)	273 records	AEP (modified)		41
Davido et al (1991)	1 hospital (Paris, France)	emergency room admissions	calendar day (year not stated)	371 records	AEP (modified)	25	

*Modified from Lavis and Anderson 1994

Table 3 Inappropriate acute care hospital use for pediatric populations (Canada)*

Study	Study site	Study population	Sampling method	Sample size	Review instrument	Inappropriate admissions (% [range])	Inappropriate days of care (% [range])
Kasian et al (1992)	1 hospital (Saskatoon)	general pediatrics (no neonates)	calendar day (1988-9)	740 patients 1327 days	P-AEP		16
Gloor et al (1993)	1 hospital (London)	general pediatrics (no neonates)	random day (1988)	852 days	P-AEP		24
HSURC (1993)	18 largest hospitals (Sask.)	general pediatrics (no neonates)	2 stage cluster sample	2264 records	ISD-A (pediatric)	44% +/- 4% (base hospitals) 44% +/- 4% (regional) 56% +/- 3% (community)	27% +/- 2% (base hospitals) 36% +/- 2% (regional) 48% +/- 2% (community)
HSURC (1993)	4 northern hospitals	general pediatrics	random sample of charts; all charts from one hospital (n=90)	458 admissions	ISD-A (pediatric)	67% +/- 4%	41% +/- 2%
Smith et al (1993)	1 hospital (Vancouver)	general pediatrics (no < 6 mo.)	calendar day (1990)	477 admissions 547 days	P-AEP	29	22
Hay & Davis (unpublished)	1 hospital (Toronto)	general pediatrics	all (1992)	2819 patients 16,761 days	MCAP (P-AEP)		13

* Modified from Lavis and Anderson 1994

Table 4 Inappropriate acute care hospital use for pediatric populations (international)*

Study	Study site	Study population	Sampling method	Sample size	Review instrument	Inappropriate admissions (% [range])	Inappropriate days of care (% [range])
Kemper et al (1988)	1 hospital (Madison)	general pediatrics (no neonates)	calendar day	672 patients 1098 days	P-AEP		21
Kemper & Forsyth (1988)	1 hospital (New Haven)	HIV positive (no neonates)	random day to (1987)	34 patients 100 admissions 386 days	P-AEP		54
Kreger and Restuccia (1989)	26 hospitals (Massachusetts)	Medicaid general pediatrics (no < 2 years)	all (1983)	793 admissions 648 days	P-AEP	11	13

* Modified from Lavis and Anderson 1994

Table 5 Range of acute care days / 1000 population between highest and lowest regions in each province 1993/93

province	days acute care hospitalization per 1000 population			
	low	high	avg.	high/low
Nova Scotia	970	1515	1244	1.6
New Brunswick	1283	2075	1480	1.6
British Columbia	708	1220	935	1.7
Quebec	919	1675	1188	1.8
Prince Edward Island	1013	1886	1387	1.9
Manitoba	1145	2149	1311	1.9
Saskatchewan	882	1792	1243	2.0
Newfoundland	562	1528	1052	2.7
Ontario	539	1555	751	2.9
Alberta	not available	not available	1033	-
Yukon	not available	not available	511	-
N.W.T.	-	-	-	-

N.S. - includes acute care and in hospital psychiatric, rehabilitation

and extended care bed days but excludes long term psychiatric, detoxification units, 28-day alcohol units, Vetrans Affairs of Canada Level2.

N.B. - includes primary, secondary and elevated secondary bed days. Excludes

tertiary, Department of Vetrans Affairs and addiction services and psychiatric hospitals.

B.C. - includes acute care and in hospital psychiatric and rehabilitation days

and excludes Alternate Level of Care days and stand alone psychiatric, rehabilitation and long term care bed days.

Quebec - includes acute care and short-term psychiatric, rehabilitation bed days.

PEI, AB, Yukon - includes acute care days and in hospital psychiatric, rehabilitation and Alternate Level of Care bed days, but excludes stand alone psychiatric, rehabilitation and long term care beds.

MB - includes acute care bed days and in hospital psychiatric, rehabilitation Alternate Level of Care bed days and Federal Nursing station bed days but excludes stand alone psychiatric, rehabilitation and long term care bed days.

Sask. - includes acute care hospital bed days and type of care as determined by the hospital. Does not include rehab., psychiatry or long term care bed days.

Nfld. - acute care = primary care denotes that level of care that consists of basic curative care, restorative care, chronic care, preventative care and/or essential health counselling or education.

Ontario - includes acute care and Alternate Level of Care bed days, excludes , rehabilitation, psychiatry and chronic care bed days. Above numbers can be 'grossed up' by adding 58 days for psychiatry and 55 days for rehabilitation.

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AEP

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Appendix 2

LACK OF UTILIZATION MANAGEMENT	UTILIZATION MANAGEMENT
• Inability to plan admissions	• Patients admitted to appropriate service
• Increased length of stay	• Reduced admissions • Reduced length of stay
• Lack of discharge planning	• Identification of discharge problems prior to admission
• Lack of identification of medical problems delays/cancels surgery	• Medical problems are managed prior to surgery
• Cancelled surgical cases	• No cancelled surgical cases
• Overcrowding in Emergency/ Observation	• Bed management prevents overcrowding in emergency
• Duplication of Diagnostic testing	• No duplication. Diagnostic results available on admission
• Inadequately prepared patients	• Informed and prepared patients
• Cancelled surgeries disruptive to patients, physicians, staff	• Satisfied patients, M.D. and staff, more cost-effective use of operating suites
• Increased costs associated with increased LOS, cancellation	• Cost savings due to reduction in number of beds and efficiencies
• No education resource regarding clinical practice for physicians	• Clinical practice guidelines an educational resource for physician
• No physician managers to manage utilization	• Physician managers actively pursue improved utilization
• Inappropriate admissions	• Appropriate admissions

The following Appendices are examples only, and not the results of a definitive search for utilization review and management initiatives that have been implemented. There are additional innovative and successful programs, only some of which well known. The examples are designed to show concrete evidence of Canadian experiences, and are not presented as necessarily the best or the only examples.

Concurrent review or assessment using established clinical criteria allows the reviewer to detect inappropriate hospital usage and to quantify that inappropriateness. It affords the institution the opportunity to act upon the identification of inappropriateness to redirect use of its resources to more appropriate areas of need. Several studies have suggested that concurrent review improves resource use and the quality of care delivered.^{a,b,c,d}

Reliability and validity of concurrent review tools AEP, SMI and ISD have been evaluated.^e The tools were assessed for retrospective application to charts. AEP and ISD were shown to be moderately reliable with moderate validity. SMI had low reliability and validity. In an evaluation of ISD-A use in Victoria, B.C., the reliability and validity was reported to be considerably higher than in the previously mentioned study.^e Medical Review System of Value Health Sciences and Quality First of Health Resource Management use computer-assisted screening for appropriateness of procedures. There has been little experience of the use of these tools in Canada, whereas in the United States paying agencies claim to reduce the costs of elective surgery by the introduction of the systems by as much as

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- ^a Anderson G, Sheps SB, Cardiff K: Hospital based utilization management: a cross-Canada survey. *Can Med Assoc J* 1990; 143 (10): 1025-30.
 - ^b Walsh CM, Coldiron JS: Enhanced length of stay management through monitoring of discharge planning parameters. *Am J Med Qual* 1993; 8 (3): 128-133.
 - ^c Woodside JR, Bodne R, Tonnesen AS, Frazier J: Intensive focused utilization management in a teaching hospital: an exploratory study. *Qual Assurance Utiliz Review* 1991; 6 (2): 47-50.
 - ^d Sheffler RM, Sullivan SD, Ko TH: The impact of Blue Cross and Blue Shield plan utilization management programs 1980-1988.
 - ^e Strumwasser I, Paranjpe NV, Ronis DL, et al: Reliability and validity of utilization review criteria: appropriateness evaluation protocol, standardized medreview instrument, and intensity-severity-discharge criteria. *Med Care* 1990; 28 (2): 95-111.

15%. In other studies concurrent review has been found to improve care and utilization in relation to drug use,^f drug cost,^g blood product use,^h admission rates,^d and outcomes measured by mortality and morbidity.^{a,i} It also improves care and utilization in relation to length of stay by reminding clinicians that hospitalization is no longer necessary and facilitates discharge on a timely basis^{b,c} Concurrent review using ISD-A criteria in Victoria, B.C., did not appear to have impact on the appropriateness of patients admitted to hospital, but did have significant impact on the appropriateness of continued days of stay in hospital.^j

Concurrent review in Halifax

Camp Hill Medical Centre is a teaching hospital with 680 beds, 450 of which are designated as acute care. Physicians at Camp Hill Medical Centre are developing and using software to detect those patients who may not require hospitalization. The software provides, on a daily basis, information about patient function and the hospital services which are being provided. Concurrent measures of patient comfort, function and disease severity help to focus attention on patient needs and to required intensity of service. The system recognizes that patients are most likely to require hospitalization if they receive necessary services which are unique to a hospital. In addition the system flags patients who are most likely suitable for discharge. The software also allows for a "what if

^f Segal R, Russell WL, Oh T, Ben-Joseph R: Use of I.V. cimetidine, ranitidine and famotidine in 40 hospitals. *Am J Hosp Pharm* 1993; 50 (10): 2077-2081.

^g D'Angio RG, Stevenson JG, Lively BT, Morgan JE: Therapeutic drug monitoring: improved performance through education intervention. *Ther Drug Monit* 1990; 12 (2): 173-181.

^h Transfusion Committee at Camp Hill Medical Centre in Halifax has developed a "key" requisition which appears to have reduced the use of unnecessary blood.

ⁱ Wall CA, Long JB, Lampert NR, Clarke JC, Murray RE: Impact of changing attitudes in carotid surgery on community hospital practice. *Am J Surgery* 1991; 162 (2): 190-3.

^j Anderson G, Sheps S, Cardiff K: Evaluation of VI-CARE: a utilization management program of the Greater Victoria Hospital Society. Centre for Health Services and Policy Research, University of British Columbia. Health Policy Research Unit discussion paper series 93:1D, 1993.

analysis". For example, to learn how many patients would not have required admission if services such as intravenous therapy or oxygen therapy were available in the community.

Concurrent Review in Regina

Emergency department staff at Regina General Hospital and Pasqua Hospital are now using a modified version of the ISD-A screening tool to assess all medical and family practice admissions. Patients who meet the screening criteria are admitted to hospital. When a patient does not meet the screening criteria, emergency staff contact one of the program's medical officers. These medical officers, or screeners, assess whether a patient requires acute (hospital) care. If a patient does not, the screeners then contact the attending physician to discuss alternate arrangements.

The program has been in place at Regina General since July 1993 and was expanded to Pasqua in January 1994. Physicians at Regina General, believe screening admissions using InterQual offers two major benefits. First it helps expedite patient care. Second, Regina physicians reached a consensus on appropriate use of hospitals. "It meant that we all agreed our hospitals should be used for acute care purposes," said Dr. Gibbings, director of intensive care.^k

^k Health Services Utilization and Research Commission. Regina hospitals now screening all admissions through emergency. *A Closer Look* 1994; winter: 6-8.

Seven Oaks General Hospital Quality First (Winnipeg)

Seven Oaks General Hospital in Winnipeg implemented clinical practice guidelines for family medicine and surgery in 1991/92. They worked with the "Quality First Clinical Practice Guidelines" from Health Resource Management. The implementation involved several physicians including the Vice-President Medicine, Clinical Department Head Family Medicine, and a group of 10 doctors who were an "opinion" or "focus" group. The major emphasis regarding the introduction of the guidelines included:

1. To reduce average length of stay through use of the guidelines "best practice" length of stay by diagnosis.
2. To provide additional physician education regarding best practices with regards to assessment and treatment based upon the guidelines being developed through review of world literature and involving the input of expert panels.
3. To impact positively on quality and reduce physician variability through application of the guidelines.

The experience has proven effective in assisting the Hospital to reduce length of stay on several diagnoses and generally improve bed utilization. The guidelines have provided the physician manager with current information to more effectively screen admissions and monitor discharge planning. It is important to note however that guidelines by themselves will not answer all concerns relative to utilization management.

Foothills Hospital Patient Care and Outcome Process (Calgary)

The Patient Care and Outcome Process (P.C.O.P.) was developed by the Utilization Committee of the Foothills Hospital in Calgary in an effort to assist in effecting high quality and compassionate health care. Specifically, the P.C.O.P. attempts to confirm the effectiveness of medical interventions (selected on the basis of high volume, cost, and variation in approach by the medical profession) through the analysis of outcomes relative to indications with commensurate stratification for risk factors and/or co-morbidities. In addition, P.C.O.P. is used to assist in determining the appropriateness of medical intervention and in determining the occurrences or untoward events that might happen during the course of hospital care.

Outcomes are defined as complications/untoward events, changes in the incidence of morbidity, mortality rates, quality of life, and patient satisfaction.

P.C.O.P. has been accepted by the hospital as a comprehensive approach to cost control through the effective utilization of resources and to ensure that the quality and outcome of care is known and optimized. The process has been designed in a manner suitable for assisting all groups of health care professionals with decision-making around identified health care interventions. It is a collaborative process in which multi-disciplinary FOCUS Groups are brought together to share knowledge and understandings of medical interventions. The information collected through the P.C.O.P. is intended to assess the outcomes of, and quality of care provided to, all patients who present with a particular clinical problem. P.C.O.P. is prospective in that all of the data needs are determined before data collection begins. The design of any P.C.O.P. project should lead to generalizable and repeatable conclusions.

The data from all P.C.O.P. projects is entered into a medical information system called MEDLOG. MEDLOG is a relational database that records data in a longitudinal manner, allowing the same data fields to be recorded for multiple visits for the same patient. This feature ensures that every occurrence associated with an intervention can be recorded. Following data entry, data analysis is carried out and can be done using the MEDLOG statistical functions and reporting features. Cost outcomes can also be developed in special cases and analyzed relative to indications, risk factors, complications, and clinical outcomes.

Once a critical volume of information has been entered into the database for a particular P.C.O.P. project and the data has been analyzed, the FOCUS Group reconvenes to discuss the data, how the information should be used, and the future status of the project. It is anticipated that the effectiveness of various clinical behaviours will be demonstrated. Those behaviours which are less effective will be identified and will provide a base for informed decision making around behaviour change(s) and future directions. The information may also support the development of hypotheses for randomized control trials. For many projects, publication of outcomes for a procedure relative to specific indicators and analyzed for risk factors would be likely.

The Pre-Admission Clinic at Calgary's Foothills Hospital was initially set up in 1985, primarily for elderly and high risk patients. Due to the admit day of procedure initiative, the Pre-Admission Clinic has had to facilitate a much larger and more complex group of patients. The main goal of the clinic is to identify and manage risk factors that may adversely increase the risk of patient outcomes, both pre-operatively and post-operatively. Services provided at the clinic include lab work, medical or anesthetic consultation, nursing assessments and education classes. This is accomplished through a multi-disciplinary team effort. In addition to the basic services provided in the past; the Department of Anaesthesia has increased their role in screening and assessing all admit day of procedure patients, and specialized teaching classes have been established. It has been found through evaluation that patients who attended the Clinic were more knowledgeable and less apprehensive about their surgery. This contributes to a positive self-care concept and a shorter recovery period.

Research in the United States has verified that day surgery outcomes are comparable to those for inpatient cases.

Many hospitals that have made a strong and rapid shift to day surgery used a "procedure list" to highlight cases which should normally be performed on a day surgery basis. Surgeons wishing to book such cases as inpatients are required to justify their decision by proving medical necessity. Toronto East General Orthopaedic Hospital is one example of a hospital which has used this approach.

Some of the Ontario hospitals that appear to be leading the way in the shift to day surgery are Kingston General Hospital, Welland County General, Kitchener-Waterloo General Hospital, Greater Niagara General Hospital and Toronto East General Orthopaedic Hospital.

In January 1994, the Joint Policy and Planning Committee (JPPC) of the Ministry of Health and Ontario Hospital Association issued a report which compares each Ontario hospital's percentage outpatient surgery rate for 16 procedure groups (using HMRI's new DPG classification system). While each hospital still must assure itself that its case mix within each procedure group is typical, this report presents the first easily interpretable information on a hospital's degree of shift to outpatient surgery. Within individual hospitals, there is substantial variation among surgical specialties.

Appendix 7

Admit Day of Procedure

At least one hospital (Scarborough General Hospital) has a rate exceeding 95%, while Foothills hospital in Calgary states that they admit 85-90% of their patients on day of procedure.

To decrease the hospitalization stay at Foothills Hospital in Calgary, it was mandated in October 1993, whereby all planned (elective) surgeries were to be admitted on the day of procedure. This necessitated that all elective admit day of procedure patients have their pre-op work-up/education done before admission in the Pre-Admission Clinic. Since January 1994, 80-90% of planned (elective) surgical cases are admitted on the day of procedure rather than one or more days pre-op. There is a substantial cost saving by eliminating pre-op patient days.

Expected Day of Discharge

There has been some success in working with physicians and nursing staff to predetermine and establish finite LOS for specific procedures. These established length of stays are then used to create a known date of discharge for patients. With an agreement from clinicians that their patients will stay for a specific length of time for a given procedure, an institution can achieve efficiency in using a group of beds.

Discharge Planning

At Camp Hill Medical Centre all Family Medicine Patients who are admitted with a Barthel Index Score^{l,m} of less than 60 by nursing assessment receive an automatic consult to Social Work so that early discharge planning can occur.

Québec's Health Services and Social Services Act (1991, c.42), sections 101 to 103 legislates that hospitals must develop "intervention plans" to identify the needs of the patients and how they will be addressed and in what time frame. When resources are required in addition to those provided by the hospital, the hospital must develop, as soon as possible, and individualized service plan for the patient.

^l The Bartel Index assesses a person's ability to carry out normal daily activities such as eating, dressing, bathing and walking.

^m Mahoney FI, Barthel DW: Functional evaluation: Barthel Index. *MD State Med J* 1965; 14: 61-5.

A pioneer in the field has been the New England Medical Centre in Boston, Mass. where the concept began in 1985 as a response to hospital prospective payment.

The Toronto Hospital has introduced case management and care mapping into the organization with success. By applying the principles to the management of patients following strokes the hospital was able to reduce the cost of care for these patients by 48% and the length of stay by 28% over the course of a year. Applying the technique to the management of patients suffering from leukaemia there was a reduction in cost by 66%, a reduction in length of stay from 4 to 5 months to 4 to 5 weeks and reduction in infection rates of 50%.ⁿ

ⁿ Twyon S. Case-management imperative. Proceedings of the National Congress on Utilization Management, Edmonton, October 1990, 47-51.

1) Foothills Hospital Nurse-Midwifery Program (Calgary)

In Calgary, implementation of the Foothills Hospital Nurse-Midwifery Programme, as a two year pilot project, began in 1989 as the result of a cooperative effort between the departments of administration, obstetrics, nursing and family medicine. The first step was to develop and implement a Nurse-Midwifery Certification course to prepare a team of six labour and delivery unit nurses to practise as nurse-midwives.

Nurse-midwifery care has been available at Foothills Hospital since 1990. Women enrolled in the programme receive all their pregnancy care in the Nurse-Midwifery Clinic. At about 36 weeks gestation the women attend an Active Birth Class. In labour, women remain at home, in contact by telephone with a nurse-midwife, until delivery is imminent. In hospital, the birth is conducted by a nurse-midwife, who then discharges the mother and baby, directly from the birthing room, usually between six and ten hours after birth. Nurse-midwives then visit the woman in her home daily, for up to five days. Mother and baby return to the Nurse-Midwifery Clinic for a final visit six weeks after birth.

The Nurse-Midwifery Programme has been extended to facilitate the completion of a randomized controlled trial being carried out to evaluate nurse-midwifery care. To date 161 pregnant women have been enrolled and 124 babies born in the programme. Two hundred women have been inducted into the trial.

Although formal evaluation is not yet complete, there is considerable evidence of the success of the Programme. Clinical outcomes are good and satisfaction of nurse-midwives is well documented. Response from families has been overwhelming. Many written and verbal expressions of satisfaction and thanks have been received by government, hospital administration and members of the nurse-midwifery team. The project is scheduled for completion on June 30, 1994.

2) St. Boniface Postpartum Discharge and Community Follow-up (Winnipeg)

In 1983, an Early Postpartum Discharge Program was introduced in a tertiary hospital in Winnipeg. Initially, women were discharged at 3 days post vaginal delivery and 5 days post cesarean section. Criteria for discharge were specific and covered physical, environmental, and psychosocial parameters. Women eligible for the program were primarily women at low medical risk and who had adequate resources available to them. Public health nurse follow-up included a visit on the first and third post-discharge day for women experiencing a vaginal delivery, and visits on the first, third and fifth post discharge days for women experiencing a cesarean section. Evaluation data indicated that women could be discharged safely within the discharge time frames, and the program was acceptable to women, their families, and health care providers.

Over time, the discharge time frames were shortened to 48 hours post vaginal delivery, and 4 days post cesarean delivery. The program was extended to the second tertiary care hospital in Winnipeg. Public health nurse follow-up included a contact (telephone or home visit) within 24 hours of discharge, and usually a second home visit within a few days. Concurrently, length of postpartum stay across all facilities was decreasing.

In 1992, in an effort to facilitate shorter length of stay across facilities and to assist public health nurses in prioritizing follow-up, Guidelines for Postpartum Discharge and Community Follow-up were developed.

A similar program offered in Victoria, B.C.. was shown to have the same outcomes.

3) St. Boniface Antenatal Home Care Program (Winnipeg)

The Community-based High Risk Antenatal Home Care Program began as a pilot project in April, 1985. The program was cooperatively developed by St. Boniface General Hospital, Manitoba Health Services Commission, and Manitoba Health. In the pilot project, women with pregnancy-induced hypertension were referred to the program by their physician and were supervised on a seven-day-a-week basis by a team of specially trained public health nurses. The 15-month pilot project ended in July, 1986, with 79 women admitted to the program, averaging 11.3 days/woman of home service. Evaluation data indicated that the program reduced hospital use, was less costly than hospital-based care, alleviated stress from separation from home and family, and was acceptable to women and health care providers (Manitoba Health, 1987).

In the Fall of 1991, the Antenatal Home Care Program expanded to women experiencing multiple pregnancy, chronic hypertension, spontaneous pre-term rupture of the membranes, pre-term labour, deep vein thrombosis, and diabetes. On April 1, 1993, the Antenatal Home Care Program was extended to the second tertiary care centre in Winnipeg.

The program is available to women who reside within the City of Winnipeg geographic boundaries, and who are planning to deliver at St. Boniface General Hospital or the Health Sciences Centre.

An evaluation of the expanded program is being conducted. Antenatal home care provides opportunities for cost savings through decreased hospital days and program efficiencies.^{o,p,q,r}

(continued)

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 - ^q Dineen K, Rossi M, Lia-Hoagberg B, Keller L. Antepartum home-care services for high-risk women. *J Obstetric Gynecologic Neonatal Nurs* 1992; 21 (2): 121-125.
 - ^r Helewa M, Heaman M, Robinson M, Thompson LA. Community-based home-care program for the management of pre-eclampsia: an alternative. *Can Med Assoc J* 1993; 149 (6): 829-834.

4) A Maternity Co-operative Care Unit in Québec

The Maternity Cooperative Care Unit consists of 15 private rooms furnished to accommodate the mother, her partner and the baby. In addition, there is a common room which serves both as a lounge, kitchen and classroom. A unique feature of these units is that it has no nursery. Routine care for the baby, including medical examinations, treatments such as phototherapy and blood tests are provided in the mother's room with the mother and her partner participating. The parents are encouraged to take care of the newborn and the care partner to take care of the baby and the mother. This is accomplished with the help, supervision and support of the nurse clinician. Throughout the hospital stay, the nurse will try to get the parents as independent as possible in their care to prepare them for their discharge home which is usually after 36 hours post delivery.

The mother's and care partner's autonomy is promoted. This is accomplished in three ways: First, a self-medication program allows the mother to take responsibility for her medications just as she would at home. Second, mothers are able to evaluate for themselves what learning needs should be addressed, as well as how complete their knowledge is in each area. Finally, the responsibility for mother and baby care is placed on the mother and her care partner under the supervision of the nurse clinician. From the beginning, in October, 1990, we received comments (by questionnaires) from the mothers regarding this new type of care delivery on the Maternity Cooperative Care Unit.

From October, 1990, the Cooperative Care Service has realized some real savings in terms of money and nursing personnel. The cost savings were accomplished in several ways: a) bed closure; b) decreased the (client/nurse) ratio; c) decreased length of stay, Cooperative Care Ward the range is 12 to 36 hours; d) supplies and equipment savings such as intravenous solutions, catheters, etc.

Because of the short stay, the Royal Victoria Hospital offers to all the families the "Post-Natal Follow-up Service". This service provides to the discharged families support, encouragement and continuity of nursing care in the transitional phase from hospital to home environment.

Diabetes Centres in Québec

The goal of the diabetes centres is to teach diabetics how to control their diabetes. The centres have several advantages: a) prevention or retardation of complications; b) reduction of the frequency and duration of hospitalization; c) cost savings.

The centres can be established in a hospital, a community health centre or public health unit. The diabetic centre serves all diabetics using a multi-disciplinary team. The program updates knowledge as well as encompassing biological, psychological, and social aspects of treatment and control of diabetes. The members of the multidisciplinary team assure continuity of care between their internal services and the appropriate community resources.

The centre accommodates 6 to 8 diabetics each week. It is recommended that clients be accompanied by a partner, parent, child or friend. The teaching is done over a period of 4 days (Monday to Thursday), from 8am to 4pm. Different teaching techniques are used: group training, individual meetings, round table discussions, and practical exercises, with audiovisual support.

(continued)

The Québec Asthma Education Network

Asthma is a chronic disease that affects 5 to 10% of the population. In response to the needs and demands of different institutions, health professionals and associations of asthmatic patients, an asthma education program was developed in the Quebec City metropolitan area in 1991. This program had 2 components, one aiming at improving knowledge and self-management skills of asthmatic patients and another addressed to health professionals involved in asthma care. A first analysis of this program showed that among a group of 42 participants, the mean number of hospitalizations was reduced by 47.2%, asthma-related emergency visits reduced by 64%, and days-off-work reduced by 75.9%.

This regional project was followed by an extension of the program as an asthma education network for the Province of Quebec, with the participation of the Quebec Lung Association, health professionals from Quebec universities, the provincial Ministry of Health and the pharmaceutical industry. The aims of this network are to provide a uniform approach and improve access to asthma education across the province with a goal to achieve at least a 30% reduction in asthma-related mortality, hospitalizations, emergency room visits and absenteeism from work and school within the next 5 years.

An evaluative research program should determine the effectiveness of the network in reducing the health consequences of asthma and improve its cost-effectiveness. It seemed essential to marshal the efforts of various centres and professionals involved in asthma care as well as asthmatic patients, and to pool experience, expertise and materials in the context of a provincial asthma education program. The network's concept is based on a decentralized, multidisciplinary model of educational intervention, with a program structure that ensures a multiplication effect and brings together all health-care professionals involved in asthma care, so that, working with asthmatics, the program can be adjusted to their needs with updated and effective intervention. It constitutes a joint effort between health professionals and their associations, the provincial Ministry of Health, the pharmaceutical industry and the general public in reducing the consequences of asthma.

Cooperative Care Units

Cooperative Care is based on the self care model of Health Care Delivery^a where clients are encouraged to assume as much of their own care as they are able to (Shendell-Falik 1990). This includes assuming responsibility for all basic care, including the administration of medications. Central to the philosophy of cooperative care is the presence of a care partner.¹ The care partner is defined as a family member who stays in the hospital with the client to assist them with self care and to provide social support.

In a randomized, controlled study conducted to evaluate the effectiveness of one unit, cooperative care patients experienced an average length of stay of 4.1 days compared with the control group's 6.9 day average length of stay. Overall hospitalization cost for the cooperative care patients was 37.5 percent lower than for patients on traditional nursing units in the hospital.^u An example of a maternity co-operative care unit can be found in appendix 6.6.

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- ^a Chawlow AJ, Mamon J, Crosby E, et al. Effectiveness of a hospital-based co-operative care model on patients' functional status and utilization. *Patient Education and Counselling*, Elsevier Scientific Publishers Ireland Ltd. 1990: 17-28.
 - ¹ Grieco AAJ, Garnett SA, Glassman KS et al. *Current Perspectives: strategies to promote patient self-management*. New York University Medical Centre's Cooperative Care Unit: Patient Education and Counselling, Elsevier Scientific Publishers Ireland Ltd. 1990: 3-15.
 - ^u Blackstien-Hirsch P, Basinski ASH, Naylor CD: Management of hospital bed utilization in Canada - current activities and potential strategies. Institute for Clinical and Evaluative Sciences in Ontario, Working Paper #10, 1993.

Self-care Units

A self-care unit is one in which the patient and his/her family assist in the development of goals for hospitalization and the care plan. In some cases patients engage in verbal or written contracts which help to clarify the responsibilities of the nurse and patient during hospitalization.^v In addition, a number of direct educational strategies are utilized to teach self care to patients and their families. Units similar to self-care units are the Planetree Units currently undergoing study in the United States.^{23,w}

Enhanced Care Units

Enhanced or added care units are any beds in a long term, continuing care or extended care facility where services are provided to residents that is beyond the "normal" boundaries of care. There is an enhancement of direct service to the client in order to prevent admission to or provide early discharge from hospital. The care is usually provided by the staff in the facility by either "care aids" or by professional staff.

Clients may be provided extra assistance and monitoring in their activities of daily living, but may also receive services that would not normally be available in a long term care facility. The program was piloted in the Greater Victoria area in 1991 and a report describing the program in full was submitted to the Ministry of Health in 1992. In 1993 the "added care program" was expanded to include the entire Province.^x

^v Shendell-Falik N. Creating self-care units in the acute care setting: a case study. *Patient Education and Counselling*. Elsevier Scientific Publishers Ireland Ltd. 1990: 39.

^w Belkin L. Hospital study testing the benefits of comfort. *New York Times*, New York. September 26, 1992.

^x Evaluation of the Added Care Pilot - Executive Summary

Quick Response Teams (QRT) in British Columbia

In British Columbia the QRT is available to people who are 60 years of age or older or clients who are greater than 19 years of age with terminal or chronic illness or are physically handicapped. Upon referral by a health care professional the client is offered urgent assessment, treatment and consultation. A multidisciplinary team which includes Physiotherapy, Occupational Therapy, Social Work, Nursing and Home Support Services provides crisis intervention to those in need.^y Because of the success of the pilot project in the early 1980's the QRT has not only been continued in Victoria but has also been the model for other communities in the lower mainland, including Vancouver and the rest of the Province.

QRT in Calgary

The Quick Response Team pilot project in Calgary was implemented at the Foothills Hospital for the period September 1 - November 30, 1988. The project was a joint venture by professionals comprised of physicians, nurses, and social workers from the Foothills Hospital Emergency and Social Work Departments, and Calgary Health Services (Home Care), a government funded community organization. The project was so successful that the Quick Response Team was implemented on a permanent basis.

^y Care Programs in the Capital Regional District.

Glossary

<i>Appropriate</i>	On the best scientific evidence will improve the health of a recipient the most from a set of choices at the time.
<i>Appropriateness Screens</i>	The use of established standards to eliminate practice or behaviour which does not meet the standards.
<i>Capacity</i>	The ability to contain, or provide, services.
<i>Criteria-based</i>	Based on established standards.
<i>Clinical Indicators</i>	Clinical factors, the existence of which would signal a need for a particular activity.
<i>CMG</i>	Case Mix Groups Similar groupings of diagnoses to DRGs, but developed in Canada. They are used as a basis for statistical analysis of hospital activity.
<i>DRG</i>	Diagnosis Related Groups 425 Groups of related diagnoses were formed by the Health Care Financing Administration (HCFA) in the United States as a basis for hospital reimbursement under the Medicare Prospective Payment mechanism. DRGs are also used as a basis for collection of statistics on hospital activity and as a measure of severity of case load.
<i>Discharge Screens</i>	A set of explicit criteria which, when met, would indicate the appropriate time of discharge of a patient from a hospital.
<i>Effective</i>	A service which produces a useful benefit.
<i>Efficient</i>	An effect produced with the least expenditure of resources.
<i>Length of Stay</i>	The amount of time, usually measured in days, spent by a patient in hospital.
<i>Medical Record</i>	The written document describing the clinical events occurring during a medical intervention.

Medicare Population

The portion of the population in the United States receiving medical insurance benefits under the Federal Medicare Program. The beneficiaries are all those 65 years of age and over and also people suffering from a small range of chronic debilitating illnesses.

Prospective Payment

Payment for a bundle of services on the basis of price agreed to before delivery of the service. In this context a hospital would be reimbursed at a certain rate for each admission, with the amount of reimbursement based only on the diagnosis, and unrelated to the numbers of services, (days stay, tests, treatments, etc.).

Utilization

The use of services or resources.

Utilization Management

Changing practice behaviour based on information gained from utilization review.

Utilization Review

Comparison of standards of resource use against actual practice.

Variation

Deviation from the mean.