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HEALTH PLANNING: SPECIAL STUDIES IN GUIDELINE DEVELOPMENT

Configuration of Hospital Services

A Selected Review of International Experiences with Health Planning Guidelines

Staff Papers Prepared for the Study

Health Planning in the United States: Issues in Guideline Development

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PREFACE

This publication contains papers prepared by staff members of the Institute of Medicine as background for the deliberations of the Committee on Health Planning Goals and Standards, chaired by Rashi Fein, Ph.D.. The findings of the committee are reported in Health Planning in the United States: Issues in Guideline Development. (Institute of Medicine, 1980)

The Institute of Medicine (IOM) was asked by the Health Resources Administration to study selected policy issues related to the development of national health planning guidelines. A multidisciplinary committee, established by the Institute, began its work on March 1 1979, with an open meeting and testimony from health planners and other interested parties.

According to the National Health Planning and Resources Development Act (P.L. 93-641), the guidelines are to articulate national policy, serve as benchmarks for local and state planning, and foster a more coherent and consistent federal planning process. The guidelines defined in the Act as goals and standards could affect the nation's future supply, distribution, and organization of health services, yet little is known about the process of their development or how they might be of greatest use.

To examine as closely as possible the difficulties that might arise in the development of guidelines, the IOM committee formed subcommittees on three specific topics that seemed likely to pose problems. One of the topics was configuration of hospital services, the subject of the first paper in this volume.* The subcommittee, in effect, conducted an exercise in guideline development around the topic, discussing what issues were important, what problems should be resolved or at least recognized, how planners might be able to work on hospital configuration, what form goals and standards might take, and what would make the guidelines useful to meet national as well as local needs.

As an aid in this simulation of anticipated real problems, the subcommittees requested that staff write background papers examining the topics from a perspective of guideline development. The papers were not intended to be exhaustive reviews of the topic, but were to help the subcommittee discover the value of different approaches to guidelines.

*The other two topics were access to health care and long term care for the elderly.

IMPROVING THE CONFIGURATION OF HOSPITAL SERVICES

Sunny G. Yoder

In conducting a study of the development of national health planning guidelines, the Institute of Medicine Committee on Health Planning Goals and Standards undertook several case studies to learn more about the issues of developing national health planning guidelines in specific subject areas. Issues addressed included selection of areas for guidelines development, the empirical basis for guidelines in specific subject areas, and political questions of who should be engaged in guidelines development and what form guidelines should take to be regarded as legitimate and useful to local and state planning agencies.

The configuration of hospital services was selected primarily because of the federal government's interest in hospital conversion and closure. The committee was concerned that such an approach could result in inadequate attention to other opportunities for improving the system, such as consolidation or regionalization of services. The committee chose to consider issues of hospital system shrinkage in a broader context of planning for a more rational hospital configuration. This choice reflected the committee's judgment that containing or reducing expenditures for hospital services, although overriding government concern now, is only one of a number of legitimate aims in planning for hospital services, and that improving hospital configuration could serve other goals as well.

This paper first considers whether shrinking the hospital system is an appropriate planning goal by itself or should be expressed in terms of overall goals for improving hospital configuration, or as of a broader array of national goals. Next, the paper addresses two sets of questions:

(1) How can capacity be reduced? What do we know about the costs and benefits associated with the various ways of achieving this reduction? What are the major barriers to reduction? What knowledge is needed for future decisions on planning guidelines for hospitals?

(2) What can the planning program do to encourage the elimination of excess hospital capacity? Can national guidelines help? If so, what form might those guidelines take and how should they be developed? What can local planning agencies do to foster hospital mergers, closures, conversions, or other actions to improve the overall system in their communities?

The paper draws on findings in the fields of planning, economics, health services research, and hospital administration, as well as interviews with persons who have been directly involved in efforts to reduce the capacity of the hospital system.

National Goals for Hospital Configuration

The National Health Planning and Resources Development Act of 1974 (Public Law 93-641) called for the development of "guidelines concerning national health planning policy," to consist of resource standards as well as national health planning goals. When the first set of guidelines was proposed in 1977, however, the preamble noted that, "As they are fully developed, the Guidelines will contain a statement of national health planning goals as well as resource standards. However, the initial issuance is limited to statements of resource standards with respect to specific categories of health services and facilities." (Federal Register, Vol. 42, No. 185, Friday, September 23, 1977, p. 18502.) The issuance of the final guidelines in March, 1978, contained the same disclaimer: "The Department will soon propose national health planning goals . . . The focus of this initial statement is on the short-term opportunities for cost containment and quality enhancement in the institutional sector." (Federal Register, Vol. 43, No. 60, Tuesday, March 28, 1978, P. 13040.) Such statements notwithstanding, the text accompanying the guidelines and the language in current legislation clearly expresses an intention to shrink the hospital system as a means of reducing the growth of expenditures for hospital services.

Although the original planning legislation referred to the increasing cost of health care and made specific reference to increases in the cost of "hospital stays," the list of congressional priorities contained in Section 1502 did not include either cost containment or hospital shrinkage. Stated priorities for hospitals included the coordination of services among institutions ("The development of multi-institutional systems for coordination or consolidation of institutional health services . . ."), regionalization ("The development by health service institutions of the capacity to provide various levels of care, on a geographically integrated basis"), improved data and management ("The adoption of uniform accounting, simplified reimbursement, and utilization reporting systems and improved management procedures for health service institutions") (Public Law 93-641).

DHEW concern regarding costs was reflected in the initial guidelines, which mentioned "the role and increased responsibilities of planning agencies in addressing the reduction of the rapid rate of inflation in health care costs . . . ." (Federal Register, Vol. 42, No. 185, September 23, 1977, p. 48502) and also stated that, ". . . it is clear that conversion of excess acute care hospital beds to more appropriate uses, or the closure of excess capacity, can conserve resources and thus provide an opportunity for opening access to the underserved and for improvements in the quality of care." (Ibid.) These guidelines established a resource standard of "four non-federal, short-term beds per 1,000 persons in a health service area," and blamed excess bed capacity for contributing to the high cost of hospital care and to unnecessary inpatient utilization. (Ibid., p. 48503-4).

In the current planning legislation, Congress has added to its list of national health priorities the elimination of unneeded services and facilities, the containment of rapid cost inflation of health care, more appropriate use of health services, and the promotion of greater efficiency in the health care delivery system (S.544). Thus, since the enactment of Public Law 93-641, the notion of system shrinkage has gained weight, not only at the federal level but also in some states. In Michigan, for instance, the Certificate of Need legislation enacted in 1978 (P.A. 368) requires the development of bed reduction plans by HSAs in areas designated as having excess beds. New York's state legislature has given the governor statutory authority to close hospitals, although to date that authority has not been exercised.

A number of arguments are made in support of reducing the size of the hospital system. The total size of the system (973,920 non-federal, short-stay beds, or 4.6 beds per 1,000 population, in 1976) is considered to be greater than needed according to a number of observers (Institute of Medicine, 1976; McClure, 1976; Klarman, 1978). Certain communities, particularly large cities, have large hospital systems and very high ratios of beds to population. To the extent that excess bed capacity exists, it is viewed as a major contributor to health care costs because (1) there are substantial fixed costs associated with the existence of empty hospital beds, and (2) the existence of unused hospital beds can attract hospital utilization (Shain and Roemer, 1971; Roemer, 1959; McClure, 1976; Feldstein, 1971; Klarman, 1978). Excessive hospital utilization may not contribute to better health, but it does contribute to increasing costs, which led an Institute of Medicine committee to recommend in 1976 that the reduction of hospital bed supply be established as a national health planning goal (Institute of Medicine). Wide variation in hospital bed capacity in different geographic areas has not been shown to affect health status. Also, organized health plans such as HMOs are able to serve their enrollees with smaller bed complements per capita than is done generally.

Most discussions of reducing hospital capacity are in relation to cost containment (Raskin, McClure, 1976; Zubkoff, Raskin and Hanft, 1979). In terms of developing planning goals, this might suggest a

hierarchical set of goals, with hospital cost containment the primary goal and reduction of hospital capacity as a sub-goal. The Laves discussed the problem of confusing goals and sub-goals in their evaluation of the Hill-Burton program, suggesting that, had the legislative goals of Hill-Burton been stated in terms such as improved health and the ability to deal with medical emergencies, the program's success would not have been measured solely in terms of an increase in hospital beds (Lave and Lave, 1974). If a basic objective is to keep total expenditures for hospital services, or their rate of growth, within reasonable bounds, that should be made explicit. Capacity reduction would then be one possible strategy, but not the only one, to achieve that end. The intent would be to achieve greater efficiency in the hospital sector by any number of means, including regionalized services, more effective management, and generally encouraging the hospital system toward a better "fit" with the need for hospital services -- improved hospital configuration.

One author has suggested that planning goals be expressions of "desired end results largely independent of the means or strategies selected to achieve those results" (McClure,1979). He recommends that these goals be measurable, allowing the development of criteria that indicate progress toward the goals, and that they emphasize area-wide goals and performance. His recommended list includes:

(1) cost containment: attaining restraint in the growth of health care expenditures;

(2) financial protection: keeping individuals from excessive financial harm due to health care expenses;

(3) equitable access: assuring that individuals are not denied adequate, timely health care; and

(4) effectiveness and efficiency: obtaining the highest level of health benefit and patient satisfaction achievable with the resources devoted to health care.

If goals are formulated in this way, as end results, then hospital capacity reduction, regionalization, conversion, and other changes in hospital configuration become means to those ends (particularly the ends of cost containment and efficiency/effectiveness). National planning guidelines could take the form of (1) a set of overall goals, of which the above list is one example; (2) measurement criteria by which local planning agencies can assess their progress toward the goals (and progress can be measured nationally); and (3) "guidance" documents that provide planning agencies with the best available information on ways of achieving the goals. The development of goals and measurement criteria might be a quasi-federal process, while the development of "guidance" papers might be carried out by the Bureau of Health Planning, in consultation with technical experts and with local planning agencies. Included in such papers, or issued separately, might be previously existing or newly

developed data showing the national average, range, and distribution of statistics such as hospital beds per 1,000 population, hospital utilization rates, health care expenditures per capita, etc., in order for local planners to compare their area with other areas and the entire U.S. and to set their own priorities. Not all the national goals would be equally applicable to all planning areas, but HSAs could assess the most important problems of their communities in light of the goals.

Were national goals such as those above to emerge, there are a variety of ways that could be taken to work toward achieving the goals. Planning is one way, combining weak regulation (certificate of need) and moral suasion, but other ways include reimbursement practices, cost or rate regulation, licensure, alternative delivery systems, utilization review, and so forth. An argument in favor of planning goals dealing explicitly with hospital configuration, including capacity reduction, is that planners have some influence over configuration but the other means lie outside their control. Also, it can be argued that making the hospital system more rational is sufficient by itself. Rationality might be defined generally as having services and resources more closely match the health care needs of the population. Guidelines aimed at a more rational configuration could address appropriate capacity, regional organization, non-duplication of facilities, the appropriate mix of ambulatory, acute, and long-term care. But two problems arise with this approach. First, the definition of "need" for health care remains elusive (Klarman, 1978; Melum, 1975). Second, any rational configuration defined on a national basis would be difficult to reconcile with large variations in local health needs, however defined, and in local approaches to meeting these needs.

To summarize, health planning goals could take the form of ends: ultimate health system goals such as reasonable cost, access, and efficiency. Such goals would leave a great deal of leeway for defining the hospital configuration that achieves those ends. Alternatively, goals might be expressed as means: e.g., a desired configuration of hospitals (and other services and facilities). The priorities expressed in Public Law 93-641 more closely resemble the former; the bed and occupancy standards of the guidelines more closely resemble the latter. Reducing hospital capacity and otherwise improving hospital configuration would be a strategy under the first approach and a final goal under the second. The choice of approach is largely a policy choice between federal as opposed to local decision-making, and is fundamental to the development of guidelines for health planning.

Reducing Hospital Capacity

Planners and others face some difficult questions if they attempt to reduce hospital capacity. These questions include

(1) What are the means available to achieve capacity reduction?

(2) What are the costs and benefits of capacity reduction?

(3) What are the obstacles to capacity reduction?

(4) What do we need to know in order to assess the effects of reducing hospital facilities?

The question of how a community determines that it should pursue reducing hospital capacity is not addressed here, because there is much literature and little consensus on how to identify "excess" capacity. The notion of "excess" is a value judgment, as is the notion of "shortage". For the purposes of this report, we simply assume that "excess" capacity exists in some communities. HSAs in communities with more than four beds per 1,000 population are required by the current guidelines to develop plans to reduce their bed capacity or justify the need for more than the standard (Federal Register, March 28, 1978). In the future, the standard may be lower. Eventually, a majority of HSAs probably will face the problem of reducing their hospital systems or otherwise altering their proportion of ambulatory, acute, and long-term care services and facilities. Consequently it would appear worthwhile to address ways and means, even without a solid justification for reduction.

Methods of Achieving Reduction

A reduction in the size of an area's short term general hospital system may be accomplished in a number of ways, described briefly immediately below and discussed later in greater detail.

First, hospitals can reduce their bed complement unilaterally (although not necessarily willingly). In New York City, for example, hospitals have retired (decertified) 1,150 beds since 1976 under financial pressure from the state to improve occupancy rates (Greater New York Hospital Association). This probably is the most straightforward way of reducing bed capacity, because it does not require the lengthy negotiations that mergers or other multi-institutional arrangements do. Second, hospitals can shut down an entire service or nursing unit, although this may be difficult if it raises issues of access. Third, capacity reduction can be achieved by the consolidation of clinical services among two or more hospitals, although such consolidations bring into play the conflicting interests of the individual institutions and their governing bodies. Fourth, two or more hospitals can merge and produce an overall reduction of facilities. The final method, which has received the most attention and which creates the most controversy, is closure. Although a number of hospital closures have taken place, the process is generally difficult and painful, the social and political obstacles large. Closure is widely considered to offer the greatest opportunity for cost savings (Koch, 1979; Gottlieb, 1977; McClure, 1976), although the discussion below calls this belief into question. The remainder of this paper deals mainly with closure,

but many of the same issues are faced in attempting to reduce hospital capacity through other means as well.

Although reducing capacity usually is pursued as a strategy for cost containment, other health system goals can be served at the same time. For example, quality of care may be enhanced when several hospitals consolidate services. Reduction of facilities could also serve to achieve regionalization, a rational geographic and organizational configuration of primary, secondary, and tertiary care services. Duplicative, inefficient, or low quality services might be eliminated to shape a more streamlined system with higher quality care. But the persons most directly affected -- the trustees, administration, physicians, and patients of a hospital that closes -- generally do not view such change as improvement.

Costs and Benefits of Reducing Facilities

Reducing the size of the hospital system carries with it costs and benefits that are difficult to measure. Some are economic and can be expressed in dollar terms, but others are social or political, and are more difficult to evaluate. The burden of the costs and the advantage of the benefits are borne differently by different individuals and institutions. The question of who gets the benefits and who bears the costs is important, because it helps in understanding the barriers to reduction and suggests how to spread the benefits and costs equitably. As will be discussed below, efforts to lessen real or perceived inequities resulting from reduction probably are necessary if it is to be accomplished at all. For example, if the benefits occur as reductions in the federal budget while the costs fall entirely on local communities, capacity reduction is unlikely to be achieved.

Besides the issue of who pays the costs and gets the benefits, there is the issue of the short run versus the long run. Much of the incentive for capacity reduction appears to come from a belief that it is a means for achieving short-run cost savings, but, in fact, the benefits may be much more subtle and long-range. The costs, on the other hand, are more likely to be felt in the short term.

The benefits, of the greatest general interest from hospital capacity reduction are the "savings" (Gottlieb, 1977; Klarman, 1978; McClure, 1976; Koch, 1979; Institute of Medicine, 1976). These estimated savings generally are based on assumptions about the cost per bed of operating a hospital; savings equals the number of beds closed times the operating cost per bed (or the number of beds not built, e.g., Klarman, 1969; see also Koch, 1979; Gottlieb, 1977). Another approach is to look at system-wide hospital costs and then estimate the effect of reduction on total expenditures per 1,000 population (McClure, 1976). At the institutional level, savings estimates depend on the level of institutions' costs and how those costs change with output. At the system

level, savings estimates depend on individual institutions' costs and on changes in utilization patterns among institutions.

The relationship between short-run and long-run costs in relation to hospital output has received considerable attention in the economics literature. In discussing costs, economists distinguish between the short-run and the long-run. In the short-run, certain costs are fixed while other costs (variable costs) vary with output. In the long-run, all costs are variable. Another concept in cost analysis is that of average cost as contrasted with marginal cost. Average cost is the total cost per unit of output. Marginal cost is the change in total cost for a one-unit change in output; or the incremental cost of an additional unit. If fixed costs are large, short-run average costs will fall as output levels increase; marginal costs also will fall.

Short-run average costs are hypothesized to decline over some range of output, for a given scale of plant, to some minimum level representing the most efficient output level for that plant size. As output increases above that level, average costs rise. Long-run average costs reflect returns to scale, or the way all costs change as output changes over time. If long-run costs increase proportionally less than output, there are economies of scale. If they increase equally or more than proportionally with output, there are constant returns to scale or diseconomies of scale, respectively. Traditionally, economists have hypothesized that long-run average costs decline as output expands over some range (economies of scale) and then rise (diseconomies of scale) (see Figure 1a).

These cost concepts are essential to understanding the effects of reducing hospital capacity, because most savings estimates are based on rules of thumb that imply constant average costs. In fact, the relationship between costs and output varies with output, as does the relationship between average costs and marginal costs, and fixed costs and variable costs. Also, the short-term effects and long-term effects involve different costs and cost relationships. Thus, the saving from reducing hospital capacity depends on how much costs decrease for hospitals that reduce their output, on how many of the patients from those other hospitals become patients in other hospitals, and on how costs are affected in those other hospitals. For measuring savings from incremental changes, such as closing a few beds, the relevant costs are marginal costs; for closing an entire hospital, total or average costs apply (although the increases in utilization at other hospitals would be marginal). Clearly, long-run costs are most relevant to considerations of changing capacity.

Empirical estimates of hospital cost functions have yielded widely varying results.* As summarized recently (Lipscomb, Raskin, Eichenholz,

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* One reason for the variation is the use of different measures of output by different researchers, and to the lack of really satisfactory output measures pending developments in measuring case mix (see, e.g., Rafferty, 1972).

FIGURE 1: SHORT-RUN AND LONG-RUN AVERAGE COSTS

Fig. 1a. Traditional Long-run Cost Curve

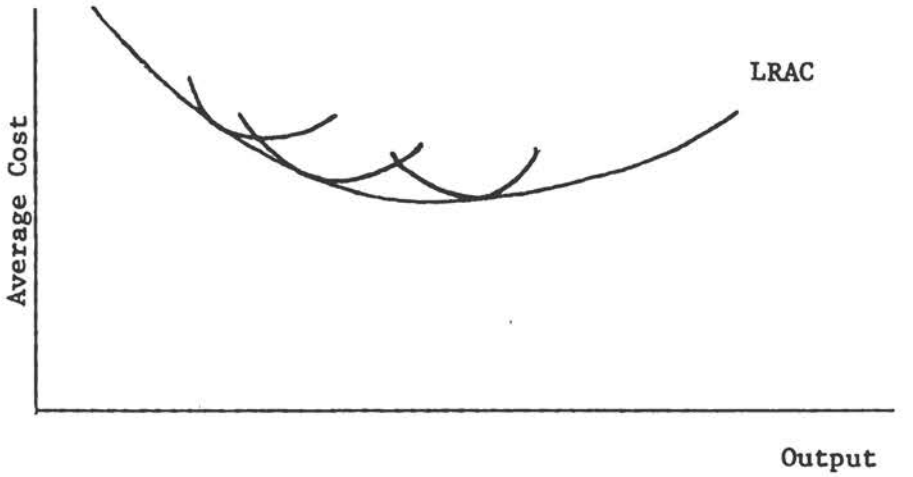
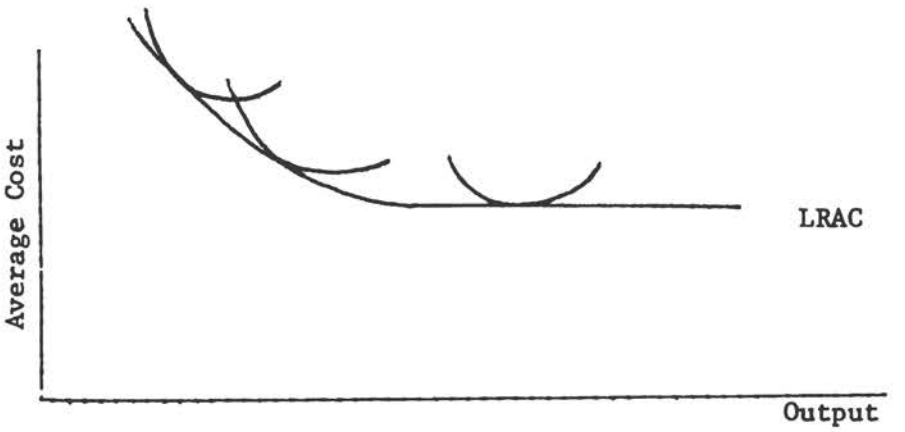


Fig. 1b. Hospital Long-run Cost Curve



1978), estimates of the ratio of marginal cost to average cost range from .21 to 1.05. Short-run estimates show marginal costs to be roughly 25 percent of average costs; long-run marginal costs are much closer to average costs. Two leading economists have concluded that for all practical purposes, hospitals above some very small size exhibit constant returns to scale. If true, this means that long-run average costs are constant and marginal costs are equal to average costs (Berry, 1978; Feldstein, 1974). These cost relationships are shown in Figure 1b.

So, what are the gross savings from reducing the hospital system? Closing a few beds could be expected to reduce costs by the reduction in output (e.g., patient days) times the marginal cost of those units, or approximately 25 percent of average cost (per day) in the short run. Closing an entire hospital would reduce costs by total patient days times the average cost for that hospital in the long run. In the short run there may be some capital costs to be retired if a hospital closes. The savings from hospital mergers and consolidation of specific services are less clear. If two hospitals merge, their combined costs may be either higher or lower than each hospital separately. Likewise, if services are consolidated, their cost/output relationships (cost functions) may be completely different from before. Savings from mergers and consolidations must be approximated on the basis of individual circumstances.

Net savings from capacity reduction will depend on the cost structure of the hospitals that receive additional patients due to the closure or consolidation. If any single hospital receives relatively few patients, its additional costs in the short run will be marginal costs. In the long run, however, the appropriate costs are average costs. If a receiving hospital's long-run average costs for a common package of services are higher than those of a closed hospital and all patients transfer from one to the other, system costs would rise. Thus, in estimating savings, it is extremely important to distinguish between the short and long run. Savings may appear large if computed on the basis of short-run costs, but could turn out to be negative in the long run.

A major determinant of overall system savings is what happens to hospital utilization, both in the short and the long run. A leading argument in favor of capacity reduction is that it would exert downward pressure on utilization, which might be considerably reduced with little or no detriment to health (Klarman, 1969; McClure, 1976; McClure, 1979). If the patients of a closed hospital or service are 100 percent absorbed into other area facilities, there may be little or no change in costs in the long run; as noted above, costs may even go up. However, if some patients leave the system altogether, or if their absorption into other facilities presses against those facilities' maximum capacity, total utilization may drop. To the extent such decreased utilization represents greater system efficiency, it can be considered one of the benefits of capacity reduction. On the other hand, lower utilization

may indicate impaired access to needed services; therefore, it is weighed on the cost side as well.

If capacity reduction efforts eliminate institutions or services providing poor quality care, then the overall standard of care in an area is improved. Likewise, if closures and consolidations are used to move toward regionalization of services or some other more rational delivery system, this can be counted as a benefit. Such benefits are very long term in nature and virtually impossible to quantify. They might be indicated indirectly, such as by an improvement in health status per dollar spent or some other measure of system effectiveness and efficiency (see, e.g., McClure, 1979). Unfortunately, data to support such measures presently are lacking at the local level.

Who gets the benefits from capacity reduction? This is difficult to assess and depends greatly on the means for achieving the reduction. "Savings" can be viewed in a number of ways. As discussed above, savings referred to reductions in total hospital system costs. This is not the same as the savings accruing to any specific individual, third party payer, or agency. If a city, for example, closes a municipal hospital, the city "saves" that part of the hospital's total operating costs that it funds. The city and the state may "save" on their Medicaid budgets, depending upon how the closed hospital's patient population is absorbed into the remaining hospitals. The hospitals that gain patients with private insurance coverage as a result of the closure will experience a short-run windfall, because their cost increases are marginal costs but they are paid average costs (charges). The third party payers that use cost reimbursement may find that their outlays increase, remain the same, or decrease, depending on the degree to which their beneficiaries are absorbed into other hospitals and the cost of the receiving hospitals. These payers include Medicare, Medicaid, and most Blue Cross plans. Persons and firms who pay health insurance premiums and the taxes that support (1) the city budget, (2) the state and federal shares of Medicaid, and (3) Medicare may experience some savings, although for any single individual or firm the amount saved would be negligible.

The costs, or negative effects of reduction are (1) the loss of jobs by hospital employees, (2) the loss of staff privileges by physicians, (3) losses to hospital creditors; and (4) the loss of access to services by the hospital's population. These negative effects are generally recognized as obstacles by those engaged in efforts to close hospitals or otherwise reduce capacity, and efforts are made to ameliorate their impact in advance (McClure, 1976; McClure and Kligman, Gottlieb, 1976; United Hospital Fund, 1980). Consequently, their full effects are rarely felt; nevertheless, they must be considered as costs either in terms of final results or in terms of obstacles to be overcome in achieving reduction.

Hospital closings put people out of work. In the short run this means a loss to the community of the total income of the hospital

employees as well as the cost of unemployment compensation. In a community where there are many hospitals, the laid-off workers may be able to find hospital jobs; in smaller communities this is less likely. In addition to the direct income loss, the community's annual product is further reduced by the multiplier effect, which increases the impact of changes in income. As discussed further below, strong unions and other organizations of employees whose jobs are threatened form an appreciable barrier to capacity reduction (Gottlieb, 1976; New York; McClure, 1976). Substantial reduction of the hospital system will cause some unemployment in the short run and in the long run.

Closing or otherwise substantially reducing a hospital means a lessening of admitting privileges for all or some of the medical staff (Klarman, 1978; McClure, 1976; United Hospital Fund, 1980). Although many doctors maintain privileges at more than one hospital, and their patients' access to inpatient services may not be adversely affected by reduction, the doctors' flexibility is lessened and possibly their income as well. The medical staff is a powerful force -- even more than hospital employees -- operating against hospital reduction, especially closure.

The patient population served by a hospital may lose access to health care if the hospital closes, or, at least, may have to bear a higher cost of travel and inconvenience (Klarman, 1978; McClure, 1976). Although travel time and cost are relatively easily measured or estimated, more substantial burdens may be felt if (1) the patient experiences racial, religious, or language barriers at alternate facilities; (2) the patient's physician loses admitting privileges and has no alternative privileges, or (3) there are no replacement ambulatory facilities for those that are closed. If there really is a reduced ability to obtain services, there may be an appreciable cost in health status. The effects of capacity reduction on access may be to decrease "unnecessary" utilization; on the other hand, it may deprive some groups of necessary services. It is very difficult to achieve the benefit without incurring the cost.

A final negative effect of hospital closure is on the hospital's creditors, which may include banks, bondholders, mortgage holders, and the Hill-Burton program. In some cases these debts can be covered by liquidating the hospital's assets; in others, the loss may fall on the creditors. If the government or a voluntary organization arranges to "buy out" the facility and finance the retirement of the outstanding debt, this amount should be counted as a cost of closure (Gottlieb, 1976; United Hospital Fund, 1980).

This discussion of costs and benefits from reducing the hospital system suggests that there are no simple formulas by which to calculate the costs and benefits, and little in the way of empirical research to draw on. Research by economists on hospital costs provide some assistance by indicating the relationship between short-run and

long-run costs and between marginal costs and average costs. This research to date indicates marginal costs to be 25 to 40 percent of average costs in the short run, while long-run marginal costs are much closer--possibly equal--to average costs. Although future research may revise these findings, these concepts at least provide a framework for evaluating the savings from closure. Long-run system savings from capacity reduction will be difficult to discern; if hospital utilization falls, it may be due to other factors. Short-run decreases in hospital use after a closure may principally reflect the lag time between closure and the absorption of patients into other hospitals; thus, "savings" from closure should be evaluated for the long run as well as the short run. The evaluation of other benefits from shrinkage is even less rigorous than evaluating the savings. Such benefits as higher quality of care, more rational distribution of resources, or regionalized services are important and may represent greater societal gains than do any cost savings; however, these benefits are not measurable in any rigorous way.

The dearth of numbers in this discussion of costs and benefits is testimony to the lack of knowledge with which to assess costs and benefits. In part this lack is a function of the fact that reducing the hospital system is a relatively recent policy goal; we are new at it. Although hospitals have closed in the past, either the closure has not been studied or the study is in anecdotal form (see, e.g., McClure and Kligman, 1978). Such case studies provide some understanding of the obstacles to reduction and of the ways certain groups have accomplished reduction in spite of the barriers. But current data and research findings provide relatively little help in assessing the impact of closure or other forms of shrinkage on facilities utilization, access, health status of the community, community economic viability, or total health expenditures for the community.

Obstacles to System Reduction

Those who bear, or would potentially bear, the costs of reducing the hospital system usually oppose it strenuously. Also, the economic and social factors that led to the current size and configuration of hospitals continue to exert a positive pressure on capacity and a negative pressure on efforts to close or merge hospitals. In some cases the obstacles may prevent closure altogether; in all cases they make system reduction a very slow, delicate process. Case examples of mergers and closures indicate that most take years to accomplish, and that success usually is the result of long-term, skillful leadership by one person or a small group.

The population served by a hospital may offer opposition to substantial change or elimination of that hospital. This is particularly true for hospitals with well-defined racial or ethnic identities (Lewin, 1979). The strength of opposition is linked to the degree of

community organization and the extent of concern about access. Organized opposition to hospital closure is greater if patients or physicians are not able to gain admission to other hospitals because of racial discrimination. The hospital as a community symbol is especially important when the hospital is identified with a racial or ethnic community, especially in inner city areas. Demographic shifts from inner cities to suburbs coupled with extreme pressures on city budgets are causing a number of cities to undertake reduction of their hospital systems. (New York Times, September 2, 1979). In New York, Chicago, New Orleans, and St. Louis, for instance, the blacks and other minorities traditionally served by threatened facilities have mounted strong opposition to reductions, including civil rights lawsuits.

The hospital role as a major employer is an obstacle to the hospital's reduction, not only because of the employees or their union representatives but also because of opposition by the community whose economy is affected. The loss of employment in poor inner city areas and in small rural communities can be a major blow to the economy. In New York City, the unions representing hospital employees have been one of the major forces acting against closing hospitals; in areas where hospital workers are not unionized or have weak union organization, their opposition usually will be less effective.

The board of trustees or other governing body of a hospital and the hospital administration are major obstacles to reconfiguration of hospitals (Lewin, 1979; United Hospital Fund, 1980; Gottlieb, 1976). A major operating principal of the board is the continued survival of the institution. In addition, the trustees represent both the broader mission of community service and the particular hospital's special mission, such as serving a racial, ethnic, or religious group, or conducting research and teaching. As the group responsible for the hospital as a business enterprise and also for its social missions, the board is a major factor against closure or consolidation. Case examples point to the lengthy process of reconciling the conflicting interests of hospital boards in accomplishing changes in hospital configuration.

Physicians constitute a major obstacle to hospital reduction or reconfiguration. Hospital privileges are a major component of their practice, and their professional status, income, and mode of practice are affected by the type and availability of hospital facilities. From their perspective, it is a more efficient use of their time and better for their patients if the hospital where they have admitting privileges has a full range of high-quality services. Besides their individual professional interests and stake in the convenience and quality of hospital facilities, a hospital's medical staff also is motivated by institutional loyalty. This is especially true of hospital-based physicians, whose entire practice (and livelihood) is located in the hospital and whose practice is less easily moved to another hospital. Hospital medical staffs and county medical societies are powerful deterrents to hospital closure (Lewin, 1979; Gottlieb, 1977).

There also are a number of legal and financial obstacles to reducing hospital capacity. The private hospital usually is a not-for-profit corporation, which gives it the "rights, duties, privileges, and responsibilities of any person" (Gottlieb, 1977, p. 22), while the corporation's governing body has all the usual judiciary responsibilities to the corporation. Federal tax laws require tax-exempt hospitals to provide in their charters for the distribution of their assets to another tax-exempt (charitable, educational, or scientific) institution in the event of the corporation's dissolution. The responsibilities of a hospital board, deemed overseers of a charitable institution, may be interpreted as extending to acting in the interests of the community at large. The trustees actions, therefore, probably are "subject to judicial review with respect to the prudence of their actions, and the propriety of the successor use of the assets in terms of basic consistency with the charitable purposes for which the hospital corporation was created" (Gottlieb, 1977, p. 25). Thus, legal considerations may restrict the range of actions by the governing body and also may limit government action because of the constitutional principle prohibiting the taking of property from an individual. According to Gottlieb, "In each instance where it is proposed to close an entire hospital or a significant portion of a hospital, protracted and very expensive debate and litigation is likely and the outcome will seldom be certain until the final appeals are exhausted" (Gottleib, 1977, p. 28). These legal obstacles to direct, regulatory reduction of capacity may also limit the use of the reimbursement system to bring it about.

Financial issues to be faced in reducing hospital capacity include restrictions on the use of certain hospital funds and the general problem of dealing with hospital debts and other financial obligations. Hill-Burton grants, for example, require that the funds be repaid if the facility for which the funds were granted cease to exist. Many hospitals have endowment funds that are restricted in their use. If entire facilities are being retired, the value of their assets may be enough to satisfy the hospital's current liabilities and long-term debt. For example, southeastern Michigan hospitals have long-term debt obligations of $600 million against a total equity balance of $741 million and a net fixed asset value of over $904 million (Gottlieb, 1977, p. 31).

The Process of Planned Reduction

Before going into the ways and means of accomplishing planned, organized reduction, we must mention that in some areas considerable reduction has taken place in the absence of a formal plan. Although in the U.S. as a whole, the number of beds per 1,000 persons increased from 3.6 to 4.5 in 1976 (Health: U. S., 1978), in New York City, the number of hospitals fell from 170 in 1950 to 91 in 1978, and the number of beds fell by almost 7,000 between 1963 and 1978 (United Hospital Fund, 1980). Between 1963 and 1977, 35 hospitals, representing 4,596 beds, closed. More than half the New York hospitals that closed were proprietary hospitals. Most of them were small hospitals with a

narrow range of services, and most had serious physical plant deficiencies as well as large operating deficits. A number of the hospitals had been affected by demographic shifts, mainly the exodus of their original constituent group and subsequent replacement by poor minorities. Unilateral bed reductions and mergers also accounted for bed reductions in New York.

Although not accomplished by means of a formal, public planning process, these closures and other bed reductions were not altogether random events. Some of the more recently closed hospitals had appeared on published lists of "unnecessary" hospitals. Also there was financial pressure applied by the state and by third-party payers.

The process of planned reduction has been the subject of several recent monographs. Gottlieb, et al, (1977) describe the approach to capacity reduction adopted by the long-established Greater Detroit Area Hospital Council, Inc. (GDAHC), a voluntary planning body of business and labor leaders (e.g., General Motors, Ford, Chrysler, and UAW), health care providers, Blue Cross-Blue Shield of Michigan, and others. The authors recommend a program that clearly articulate the nature of the hospital and health care system to be in place at the end of a capacity reduction effort, and stipulate that the effort itself give equal consideration to cost, quality, accessibility, acceptability, organization, and management of health services. Bed capacity alone, although useful to identify areas in which problems may exist, is considered a poor measure of system capacity, and Gottlieb suggests that institutions be evaluated in terms of their total performance. Once the policy framework is developed and a definition of "excess capacity" agreed to, GDAHC recommends the following priorities for achieving capacity reduction:

(1) merger of corporations, accompanied by capacity reduction;

(2) closure of entire hospitals;

(3) consolidation of major clinical services; and

(4) closure of nursing units.

These priorities are to be carried out through "voluntary action", supplemented by pressure from government and third-party payers.

Gottlieb and the GDAHC suggest activities to minimize or neutralize the obstacles to capacity reduction, including a community relations program to foster support for capacity reduction, a program of placement and re-training of displaced employees, the development of alternate opportunities for medical staff appointments with particular attention to hospital-based specialists, and the development of funds to support the considerable costs of implementing the reduction program. In Michigan such funds have been provided by Blue Cross and the United Way.

The GDAHC plan has been so well received in Michigan that it is now the basis for legislation enacted in September 1978 mandating a capacity reduction program for the state (United Hospital Fund, 1980). Under this program the state will determine the number of excess beds for each area of the state and the HSAs are to develop capacity reduction plans for their areas.

At a conference on hospital closures in New York, Gottlieb noted that some organization has to "manage" the capacity reduction process and that this organization should be private. In addition, he said that "nothing useful will happen unless the organization and individuals with the largest financial stake in the outcome really get into the action and try to make the capacity reduction program work. Most of the other forces in any community, including the general public, are primarily concerned with preserving the hospital status quo . . . and do not have sufficient information, insight, or motive to support capacity reduction when it is applied to specific institutions" (United Hospital Fund, 1980).

McClure's monograph on reducing capacity (1976) suggests a range of possible capacity reduction mechanisms, pointing out that at its heart the process is a social and political one. The mechanisms include direct regulatory reduction such as state delicensure; creating the climate for reduction through general pressure while supporting efforts to close, merge, or consolidate; and selective "horse-trading" in the certificate-of-need process (for example, hospital can have the funds to meet building code regulations if it closes its OB service). McClure suggests that coalitions of unions, businesses, and third party payers would be effective in achieving reduction. Conceding the risks of antitrust action inherent in such coalitions, he suggests that planning agencies might be the appropriate intermediary between buyers and providers. A final approach is a moratorium on all capacity expansion, which would reduce beds per population in growth areas.

The authority to reduce a hospital's capacity resides variously with the state, through its power to license and to decide on certificate-of-need applications; with physicians who can refuse to practice in a hospital; with the larger buyers and third party payers, who can refuse to pay for services; and with the hospital's board, which can decide that closure or reduction is in the public interest. McClure concludes that financial pressure on hospitals through rate regulation and controls on investment are essential to reducing capacity; planning alone is not enough.

New York State has begun a capacity reduction program. A major feature is incentive reimbursement for hospitals that hire laid-off employees from closed hospitals. A program of emergency reimbursements covers hospitals that are needed, but are in financial trouble (United Hospital Fund, 1980). Under extreme fiscal pressure, the city of New York has moved to reduce the city hospital system (Koch, 1979), principally by closing hospitals. The mayor's proposal for closure was based

on a number of criteria: (1) hospital size, service levels (patient days and discharges), and occupancy rates; (2) patient access to alternative facilities (maximum 30 minutes travel time), financial access, capacity of alternatives; (3) quality of plant and accreditation status; (4) provision of ambulatory care; and (5) fiscal soundness. On the basis of these criteria the mayor's task force recommended closing four hospitals, two of which would be replaced by a single, new city hospital. Strong opposition to the plan has come from the affected unions, AFSCME District Council 37 and AFL-CIO Local 1199, and from the communities served by the hospitals and their political representatives. The NAACP has filed a civil suit charging that the proposed closing of two Harlem hospitals is discriminatory. At present, it is unclear how this attempt to reduce one of the nation's largest municipal systems will be resolved or how much money, if any, will be saved by the city if the plan succeeds.

Conclusions

Although a number of forces have called for reducing the size of the hospital system as a means of cost control in the health sector (Klarman, 1965; McClure, 1976; Gottlieb, 1977), a review of what is known about hospital capacity reduction suggests caution. First, reducing hospital capacity, especially through closure, is a very difficult undertaking. Numerous social, political, and economic forces act as formidable obstacles to shrinkage. Second, there is very little hard evidence with which to evaluate the extent of savings resulting from reduction. Any savings may be realized only in the short-term. Third, even if general system savings and other benefits accrue from reductions, there is considerable potential for the burdens (costs) falling on the disadvantaged. Thus, careful attention to the incidence of both the benefits and the costs from shrinkage is called for, since it may be possible to take steps to redistribute them to achieve greater equity.

Improved understanding of the impact of reducing the size of the hospital system will require more experience and more basic knowledge. Ecological studies of local communities would be especially helpful in tracing the impact of a hospital closure, for example, on system costs, access, health status, the economy, employment, etc. This will require the development of local data, and a better understanding of hospitals' behavior, objectives, and costs.

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A SELECTED REVIEW OF INTERNATIONAL EXPERIENCES WITH HEALTH PLANNING GUIDELINES

Jana H. Surdi and Helen Darling

As part of an overall examination of the development and use of national health planning guidelines in the United States, a survey was conducted to learn about the experiences of some other nations with such guidelines. Persons in administrative and policymaking positions in several countries were asked about their countries' use of health planning guidelines. We hoped that information on the experiences of other nations would identify benefits or problems of guidelines that could have escaped notice from a domestic viewpoint. Responses to the queries, supplemented in some instances with information from a brief literature review, are summarized on the following pages. A list of persons responding to our questions is included.

This is not intended to be an exhaustive review of the subject, although every effort has been made to ensure accuracy of what has been reported.* Some difficulties of interpreting the information are occasioned by the fact that the terms guidelines, standards, and goals are not only defined differently by different persons, but also are used or defined in various ways from country to country. In addition, health care systems are themselves products of historical, cultural, economic, and political forces in each country, and the definition and use of standards in other countries are not necessarily applicable to the United States. Also, standards and guidelines may not be national, because in some countries the primary responsibility for the health system lies with a regional, provincial, or state body and not with the central authorities.

Most of the responses indicate that the creation and application of national guidelines -- goals, standards, planning ratios -- have taken place over a period of time. One observer's view of the British experience may be illustrative of the evolutionary aspects of this process.

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* A first draft of this report was mailed to each of our correspondents asking if we had made any technical errors or, if in synthesizing the data, we had misinterpreted any information. A number of individuals responded with helpful clarifications and corrections.

> In England, control has been exercised rather like that in Sweden by continuous influence rather than specific rationing. Exchanges between the central office and the periphery have led to continuous modification (Godber, 1979b).

There is considerable difference between the kinds of standards, goals, or norms for planning as contrasted with those tied directly to the allocation of resources and to an institutions' budget. When ratios or standards are used for allocating resources, the standards may be taken much more seriously. However, this review did not discover differences in the numbers attributable to different uses. That is, there were no standards cited that were different because they were used for budgeting as contrasted with planning. Standards represent the outer limits of the resources that will be used or the reimbursement that will be made. They are seen as ways to limit the supply of certain services (e.g., beds or expensive equipment), both to control costs and to allow other services to flourish. In the balance of this paper, a summary of information from the survey is provided by country. For Canada, we also have information from various provinces.

Australia

The Commonwealth of Australia, with a federal system of government, is "trying to come to grips with the whole concept of planning in Australian health services in the absence of anything like nationally accepted guidelines or supportive legislation such as certificate of need" (Adams, 1979).

Although the responsibility for providing health services rests mainly with state governments, the commonwealth (central) government bears a major part of their costs. Under formal agreements between the commonwealth and each state, the commonwealth pays half the agreed net operating costs of public (state) hospitals. It also subsidizes the utilization of nursing homes, private hospitals, aged persons, hostels, and community health facilities. The commonwealth also pays for a significant proportion of medical services provided by medical practitioners (Commonwealth of Australia, 1978; Hennessy, 1979).

As a result, the commonwealth has an interest in and capacity to influence the development of national standards for the supply of health resources. Its cost-sharing negotiations with the states have been aimed at seeking "effectiveness, efficiency, and cost containment" in the delivery of public hospital services. To this end, and to rationalize existing facilities and services, questions of expansion (including the introduction of high-cost technology), are carefully reviewed (Sax, 1979).

The commonwealth government recently notified the states that any new hospital services will not be approved for cost-sharing without an offsetting closure elsewhere, until a report of a Commission of Enquiry

is submitted. The central government also has published a document indicating consideration of a standard of 3.5 bed/1,000 population for acute hospital beds in each state, assuming an average occupancy rate of 85 percent (Hennessy, 1979).

The commonwealth government also has a measure of control over the provision of care in nursing homes. It subsidizes the utilization of nursing home beds and applies a standard of 50 beds per 1,000 elderly persons (aged 65 or more) when considering applications for new nursing home beds. Bed subsidies usually are not approved for new beds in areas where the standard has been reached.

Belgium*

Health planning guidelines in Belgium are developed by committees under the aegis of the National Health Facilities Council (an advisory body to the Minister of Health). The guidelines, primarily resource standards, are based on expert opinion, informed judgments, and a review of the standards of other countries. National planning legislation, enacted in 1973 with the goal of controlling inpatient resources (Blanpain, 1978), provides that new facilities or renewal of existing ones must be congruent with the regional application of the standards.

The standards cover hospital facilities and expensive technology. Bed standards are listed in Table 1. With regard to medical technology, the planning legislation called for standards to be issued covering:

-- x-ray equipment for cardiography
-- computed tomographic scanners
-- stereotaxic surgery apparatus
-- hyperbaric oxygen therapy
-- laser photocoagulators
-- scintillation cameras
-- total body radioactivity counters
-- particle accelerators
-- radiotherapy simulators
-- radiotherapy apparatus with encapsulated gamma-source
-- scintillographic equipment
-- mass spectrographs

Standards have been issued thus far only for CT scanners (1 per 500,000 population, preferably located in an academic health sciences center) and for scintillation cameras (1 per 200,000 population and must be hospital-based). A moratorium has been placed on hospital-

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* Unless otherwise noted, the information was provided by Dr. Jan Blanpain, University of Leuven, Belgium, in personal correspondence.

based, end-stage renal dialysis equipment, but waivers will be considered on the basis of a certification-of-need.

TABLE 1. BED STANDARDS ISSUED TO DATE FOR HOSPITAL FACILITIES PLANNING, BELGIUM, 1979

2.90	beds/1,000	population for surgical and medical treatment
0.03	beds/1,000	population for infectious diseases
0.50	beds/1,000	population for rehabilitation and geriatrics
1	bed /1,000	population for extended nursing care
32	beds/1,000	births for obstetrical care
37	beds/1,000	births for pediatric care
6	beds/1,000	births for neonatal care
0.3	beds/1,000	population for psycho-geriatric care
0.15	beds/1,000	population for short-term day and night psychiatric care in general hospitals
0.15	beds/1,000	population for short-term day or night care in psychiatric hospitals
0.075	beds/1,000	population for short-term day or night care in general hospitals
0.90	beds/1,000	population for extended day and night care in psychiatric hospitals
0.4	beds/1,000	population for extended day or night care in psychiatric hospitals
0.32	beds/1,000	children for day and night psychiatric care

Canada

The primary constitutional responsibility for health care services in Canada rests with the 10 provinces (which administer hospital insurance, medical insurance, and welfare), thus there are no "national" health planning guidelines per se. However, the National Department of Health and Welfare assists many of the provincial activities in the development of guidelines. This is accomplished through a variety of joint federal-provincial committees and working groups. As a result of these deliberations there have been a number of publications issued by the federal government over the years.* The provinces tend to apply the standards in these publications as guidelines, adapting them to suit their particular circumstances, and adopting ideas from other countries, such as the U.S. (McCaffrey, 1979).

* A good example of such publications is the Guidelines for Minimum Standards in the Planning, Organization and Operation of Special Care Units in Hospitals (1976), which served as the basis, if not the actual guidelines, for several of the provincial efforts in these areas.

Since 1977, the provinces have had more control over the insurance programs* (through which they control over 95 percent of the operating budgets of hospitals and 40-100 percent of capital funding) (McKinsey, 1978) and therefore more responsibility for controlling costs. Most provinces have recognized the need to control hospital budgets, bed supply, and the introduction of new services (Hatcher, 1978). These efforts apparently have been more successful than those in the U.S. (McKinsey, 1978).

Each of the provinces has developed some kind of standards, usually based on sources similar to those employed in the U.S.--epidemiological and demographic studies, professional organizations' reports, medical journal articles, and standards used by other planning bodies (Lewin, 1976). The standards typically are applied as criteria for allocating funds to the various sectors of the health care system. Thus the decisions and controls are more of a rationing of available funds through the budgeting process than part of a long range planning process.

More information from individual provinces is presented below.

Manitoba**

Manitoba is working toward an acute care bed guideline of 4/1,000 population, which has been achieved in the city of Winnipeg. Many of the rural areas have a higher ratio of beds, and Manitoba is trying to fund them on the basis of the population served, which is a lower level than the current bed availability.

For nursing homes, which Manitoba calls personal care homes, a guideline of 90 beds/1,000 population over 70 years is utilized. This is equivalent to approximately 6/1,000 population of all ages. Nursing home care is an insured service, although a per diem charge of $7.75 is levied against the user because a federal program pays a monthly allowance to every citizen beginning with the 65th birthday, regardless of the person's other assets. For the past several years, home care services also have been an insured service in an effort to provide an appropriate alternative to either hospital or nursing home care. Home care is available to all citizens but is used most by the elderly and chronically ill. The province regards home care as important to achieving the bed guidelines for nospitals and personal care homes (McCaffrey, 1979).

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* The federal government previously paid approximately 50 percent of costs, but now transfers money to the provinces through block grants.

** Manitoba is a large province, but has a population of only slightly more than a million, with nearly 60 percent in one city and the rest mostly thinly scattered.

New Brunswick (Carter, 1979)

The Department of Health accompanied its publication of guidelines with a statement that the general principles underlying New Brunswick's efforts in health service planning are equity in the availability of, and access to, basic services throughout the province, efficiency in organization and delivery, maintenance of defined quality, and promotion of maximum feasible self-sufficiency. New Brunswick has developed the following guidelines.

- Hospital beds--5.5 beds/1,000 population (for general acute care, extended/chronic care, and rehabilitation and short term acute psychiatric care).

- Occupancy rate--85-90% is considered to be the range of optimum efficiency.

- Tertiary/special services--The following services "should only be located in a limited number of regions/hospital rather than in each one due to factors such as limited volume, the requirements for specialized physicians and support staff, and the cost of special facilities, equipment, and supplies:" cardiac surgery, CT scanning, cardiac angiography, computerized nuclear medicine, neurosurgery, pediatric neurology, radiotherapy, organ transplants, neonatal intensive care, and selected rehabilitation services.

- Nursing homes--The current guideline is 5.0 beds/1,000 total population, but this is under review. Service standards are also being studied for updating and possible expansion. Standards now relate to physical design, safety features and minimum nursing care requirements.

Guidelines relating to hospital roles, service quality, efficiency and funding methods are now being developed. Manpower standards or target ratios have not yet been established, and few specific methods of dealing with personnel shortages and underserved areas have been implemented. These issues are being addressed by planning committees.

The usual method of developing guidelines in New Brunswick has been to use consultative planning committees to discuss the issues and make recommendations to the health department. These committees usually include representatives of the province's hospital association, medical society, and the health department, with other groups being represented as appropriate. To date, however, a "comprehensive set of planning standards that would form a frame of reference for decision-making in regard to service rationalization, development and cost containment has not been completed." All guidelines will be subject to regular review.

Nova Scotia (Rudy, 1979; Thomson, 1979)

Nova Scotia is in the early stages of developing guidelines. There is a Department of Health norm for regional primary care hospitals of 4.0 beds per 1,000 population. However, the overall goal for the province is 4.5 beds, including an addition for the tertiary care facilities. To that goal the Department will add some beds for rehabilitation and a fairly significant number for extended psychiatric care. The overall beds for psychiatry total one per 1,000 population, of which 0.2 are in the general hospitals norm of 4.5 and 0.8 in specialist psychiatric hospitals. For special services in hospitals, the province has adopted guidelines prepared by federal/provincial working groups, although local circumstances frequently outweigh health care planning guidelines and other such considerations (Thompson, 1979). The guidelines cover burn units, cardiac care facilities and services, day surgery, diabetic day care, dental care units in hospitals, nuclear medicine, patient hostels, respiratory technology, and narcotic addiction treatment (Rudy, 1979).

Although not under the jurisdiction of the Department of Health, nursing home beds and personal care beds obviously have an effect on the amount of extended care that the hospital system (an insured service) has to maintain. The norms in general used throughout the province are two nursing home beds and two personal care beds per 1,000 population. An alternative norm of five beds per 100 population 65 years and over for nursing care beds gives some areas a higher average than two per 1,000 (Thomson, 1979).

Saskatchewan (Reid, 1979; Loewen, 1979)

Saskatchewan uses a complex formula to determine how many beds will be approved for individual hospitals. The formula takes into account age, sex, average days of stay, and the differential service requirements of Indians. There is an overall guideline of 5.03 beds per 1,000 non-Indian population and 12.9 beds per 1,000 registered Indians.

The planning guidelines are tied to formulas for calculating a provincial estimate of a reasonable number of approved patient days of care to be provided. In turn, patient days of care are also used for preparing a hospital's operating budget. The approved budget is the basis for reimbursement, although a supplementary budget can be used for approved new services.

Ontario (Davis, 1979)

The Ministry of Health is responsible for the planning and funding of the health care system in the province of Ontario. Almost all of the population is covered by hospitalization insurance and medicare. Hospitals are independent corporate bodies with their own boards of

trustees, but the ministry's fiscal power gives it strong influence over the hospital system. The Ministry has developed a number of guidelines for rationalization of health services and fiscal restraint.

The bed guidelines now are 4.0 beds per 1,000 referral population in southern Ontario* and 4.5 beds per 1,000 referral population in northern Ontario, a sparsely populated area. These guidelines are to decrease over the next two years to 3.5/1,000 in 1981 for southern Ontario and 4.01/1,000 in northern Ontario. The bed allocation method includes current population, projections, and age-weighted factors. These beds are for active treatment and exclude beds for chronic care, nursing homes, psychiatry, and special rehabilitation.

The chronic care guideline stipulates a minimum of 11.9 beds per 1,000 residential population over 65 years of age. For special rehabilitation, the guideline is .10 beds per 1,000 resident population of a region. The guideline for general rehabilitation is 0.15 beds per 1,000 resident population. The psychiatric bed guideline is under review.

The nursing home industry is in the hands of the private sector, but the Ministry licenses these beds and thus can control growth. The guideline for nursing home beds is 3.5 beds per 1,000 resident population.

A booklet, "Guidelines for Specific Services in Hospitals," provides guidelines and recommendations for burn units, cardiac surgery, coronary care units, day surgery units, diabetic day care units, dialysis units, intensive care units, narcotic addiction treatment units, nuclear medicine, treatment hostels, rehabilitation medicine units, respiratory technology service units, and total parenteral nutrition.

Quebec (Cloutier, 1979)

The Province of Quebec has developed a large number of guidelines for health resources planning, some of which are noted below:

- Hospital bed guidelines--Short stay: 2.9 to 3.8 beds per 1,000 population, including 0.3 beds per 1,000 population for mental diseases. Long term care: 1.7 beds per 1,000 population, including 0.2 beds for mental diseases.

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* Another document, also sent by the Ministry, indicates that, effective April 1, 1978, the guideline is 3.5 beds per 1,000 in southern Ontario and 4.0 in northern Ontario. (See "The Active Treatment Bed Allocation Method," The Ministry of Health Ontario, October, 1978.

- Accessibility--Hospital should be accessible in 60 minutes travel time.

- Occupancy rates (short-stay)--In rural areas with significant numbers of small hospitals, rates of 80 percent are acceptable; in other areas, 85 percent is a target.

- Obstetrical services--Planning on a provincial and regional basis with linkages around OB and neonatal services.

- 3,500 births per year in hospitals identified for providing more complex care (Level III); 2,000 in hospitals identified for providing less complex care (Level II).

- Open heart surgery--A minimum of 100 open heart procedures per year per hospital is "essential to maintain and strengthen skills." The maximum is 200 procedures per year.

- CT scanners--no fewer than 2,800 medically necessary patient procedures per year. No additional scanners unless existing scanners operate at more than 2,800 procedures per year and unless data collection and utilization review systems have been set in place.

England

England's National Health Service, which provides universal coverage for all health and medical care, is financed almost entirely through the central government and administered by the Department of Health and Social Security (DHSS). Prior to the reorganization of the Service in 1974, no formal planning system was in operation in the NHS (Levitt, 1977), and one of the major reasons for the reorganization was to improve the planning and use of resources generally--and thereby to improve the quality of care in the less well-developed specialties and geographic areas by a redirection of limited financial resources (Taylor, 1979).

The primary basis for NHS operations has been a number of national strategy and policy documents published by the country's Labor Government (1974-1979). Two of these in particular, "Priorities for Health and Personal Social Services in England" (1976) and "The Way Forward" (1977),* set forth a broad national policy for health care in terms of service for the following goals:

--to emphasize the preventive and primary health care services;

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* Other policy documents include: Sharing Resources for Health in England: Report of the Resource Allocation Working Party (1976), and Better Services for the Mentally Handicapped (1976).

--to improve services for the mentally ill and for mentally and physically handicapped people;

--to plan health services for the rising numbers of elderly people in the community;

--to provide a comprehensive health care service for infants and children (Court Report, 1978);

--to equalize the distribution of resources across the country, and to shift the balance of care towards a community basis.

To achieve these goals, the DHSS issues annual national guidelines that provide the basic framework for the planning and allocation of resources. These guidelines provide general discussions of priorities, future developments, revenue and capital assumptions, and standards. The standards are recommended targets that health authorities should strive to reach within the limits of resource availability and local patterns of need and demand (Howells, 1979), and are delegated by, and negotiated with, each level to the one below it (Regional Health Authority to Area Health Authority to District). This delegation downward is counterbalanced by accountability upward from one level to the next by means of plans and budgets (Levitt, 1977; see also NHS Reorganization, 1972 and Nagpaul, 1979).* The planning and budgeting processes are interwoven and provide a powerful instrument for controlling both costs and the allocation of resources (NHS Reorganization, 1972).

The following are illustrative of the types of guidelines issued by DHSS:

Staffing Norms:**

Acute Hospital Services--for medical and dental staff, "supply constraints in many specialities have effectively dictated staff numbers."

Accident and Emergency Departments--as a long-term objective, two consultants per health district or major accident department, but "this target is subject to financial and

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* For a more detailed account of the process, and of the NHS, see Levitt.

** NHS Planning: The Use of Staffing Norms and Indicators for Manpower Planning. DHSS Memorandum to Regional Administrators, April 1978. These norms are given as guidance only. Health authorities are urged to review all guidance (e.g., reports of working parties, professional organizations, and DHSS departmental committees) to assess the "validity of such yardsticks in planning.") (p. 9)

supply constraints."

Dental Surgery--one consultant plus supporting staff per 250,000 population.

Nursing Staff--there were no nationally accepted norms as of 1978.

Bed Standards*

Children--0.37 beds (acute) per 1,000 total population.

Elderly--10 beds per 1,000 population aged 65 and over.

Cardiologic--50-70 beds (medical and surgical) per 2-3 million population.

Chronic Renal Failure Services--10-bed transplant unit per region.

Burn Units--("norms have 'evolved'")--0.8 beds per 100,000 population.

Specialized Services*

Chronic Renal Failure Services--minimum 100 transplants per year; one dialysis unit per 750,000 population

CT scanners are in short supply simply because of lack of funds; open heart surgery has not been easily contained, but DHSS guidance has dissuaded health authorities from setting up more units (Godber, 1979).

With regard to the development of planning guidelines/standards, the planning system provides for continuous reassessment of priorities by the various tiers of the system (NHS Reorganization, 1972). In addition, the professional organizations (Royal Colleges) have often examined particular fields, as have special DHSS departmental and advisory committees (Godber, 1979), and guidelines from other countries also may be examined or used. (Guidelines, 1978)

The long-term evolution of such guidelines is described by Godber:

Since the inception of the National Health Service in 1948 there have been many small steps

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* From undated DHSS document; standards may not be current. "Beds are used in different ways in different regions or districts and do not fall under the U.S. definition of 'general hospital beds'" (Godber, 1979).

> toward the setting of standards, most of them imprecise, but all tending toward more exact guidelines. There are still wide margins of variation and the process has been often more empirical groping than a process of calculated precision. When greater precision has been attempted it has usually been establishment of consensus figures with a range of variation. Even in this country there is wide variation in population age distribution, social circumstances, economic history and environmental conditions. The circumstance of a centrally funded, regionally planned and district administered NHS should have made it easier to set standards in some ways, but it also encourages a decent reticence about prescription of standards within the clinical field.

Ireland*

Health planning guidelines in Ireland are issued at the national level by the Department of Health. The mechanisms for developing guidelines for health services planning include (1) expert committees, established for a limited period to study and make recommendations on particular health services (e.g., general hospital services, psychiatric services, and services for care of the elderly), and (2) permanent bodies that advise the Minister for Health on certain aspects of health services. The latter include a national hospitals council, the Medico-Social Research Board, and the National Rehabilitation Board. Their advice and recommendations help to determine policy and to make the planning process "more firm."

The guidelines are not rigidly applied, because adjustments may be made to allow for local factors, such as a high proportion of elderly or the geographic distribution of the population. Some of the main guidelines that have been adopted for the provision of institutional services by specialty are listed in the following table.

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* Personal correspondence from Dr. Brendan Hensey, Secretary, Department of Health.

TABLE 2. PLANNING GUIDELINES FOR INSTITUTIONAL SERVICES: IRELAND

Specialty	Beds Per 1,000 Population
I. General Hospitals	
General Medicine (including geriatric assessment)	0.8
General Surgery	0.6
Gynecology	0.2
Orthopedics	0.4
ENT	0.08
Ophthalmology	0.06
Urology	0.08
Pediatrics - Neo-natal	6.7 to 8.0 cots per 1,000 live births, depending on size of maternity unit.
- Older Children	0.15 beds per 1,000 total population --varies with variation in child population.
Obstetrics	1 bed per 39.5 live births
Higher Specialties	The needs for each specialty are evaluated on the basis of demand and expected developments in that specialty. There is an overall guideline of 0.35 beds per 1,000 total population.

II. Special Residential Centers for the Mentally Handicapped (Moderate, Severe and Profound)

Age Group	No. of Places Per 1,000 Corresponding Population
5 - 14	2.46
15 - 19	2.80
20 - 29	3.14
30 - 54	2.03

II. Special Residential Centers for the Mentally Handicapped (Moderate, Severe and Profound) (cont'd)

Age Group	No. of Places Per 1,000 Corresponding Population
55 and Over	1.25
All ages from 5 years upwards	2.20

Netherlands*

National guidelines for the provision of health services in the Netherlands are the responsibility of the State Secretary for Public Health and Environmental Hygiene, who presently is advised by the Hospital Provisions Board** and by provincial public authorities. Hospital planning is based primarily on the number of hospital beds: "although known to be an incomplete module, it has proved to be the most manageable criterion used in hospital planning."

Bed standards are used by the State Secretary to determine approval for new facilities or expansion of existing facilities; the Secretary also recently acquired authority to close all or part of a hospital. This offers some leverage over an almost completely voluntary, and otherwise autonomous, hospital system.

The current national bed standard for general and university teaching hospitals is 3.85 beds per 1,000 population, applied flexibly according to regional situations. In addition, there is a standard of 0.15 beds per 1,000 for "revalidation." Revalidation takes place in specialized

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* Sources include: Personal correspondence with Professor Dr. L. M. J. Groot, University of Limburg, the Netherlands; L. M. J. Groot, "Hospital Planning and Regionalization in the Netherlands." In Changing National-Subnational Relations in Health: Opportunities and Constraints. Edited by Christa Altenstetter. DHEW Pub. No. (NIH) 78-182, 1978. Dr. Groot kindly furnished a revised version of this article.

** Composed of representatives from hospitals and staff, sickness cost insurers, municipalities, employees, and independent members. The board has 25 members and is a governmental body.

institutions, which are left out of the general hospital guidelines. This broad standard is further differentiated by age composition of the population, as shown in Table 3.

TABLE 3. STANDARD BED REQUIREMENT BY AGE CATEGORY (1976)

Age Category	Required Beds/1,000 Population
0 - 14	2.04
15 - 44	2.64
45 - 64	5.04
65 +	10.76
Total	3.85

Other bed standards include those for psychiatric care (general hospitals, 0.25 beds/1,000; psychiatric hospitals, 1.5 beds/1,000) and for nursing homes. The number of beds needed for nursing homes is derived from a specific percentage of the population over 65. For example, nursing home beds for somatic illnesses are set at 1.2 percent of aged population and 0.35 of the total population; beds for mentally handicapped are 1.25 percent of aged population.

Additional guidelines include:

Access

Access to hospital care should be no more than 30 minutes' driving time by car.

Intensive Care

Coronary Care Beds	1.5/100 hospital beds
General Intensive Care	1.0/100 hospital beds

Open Heart Surgery

300-400 open heart operations per million population per year. Operations can be performed only in those hospital centers so designated by the government.

Renal Dialysis

Kidney Transplants	32 transplants per milion population
Dialysis	100 places. The total for the Netherlands is 1,407.

Megavolt Therapy

The standard is based on 149 new patients per 100,000 population. The number of centers and subcenters for these facilities is fixed.

Computed Tomography

1 scanner per 500,000 population

Sweden*

All inpatient and about 80 percent of outpatient care in Sweden is the responsibility of the 23 county councils and three major municipalities, which levy taxes and provide the major source of financing for health services. About 75 percent of all county council activities are financed by their own taxation and the rest by central government allocation and health insurance contributions. Although the central government issues general health planning principles and guidelines to coordinate planning** and reviews county health plans, the councils do not have to abide by the government's recommendations.

Nevertheless, the government--through the National Board of Health and Welfare (NBHW)--does have the means to exercise some direct influence on the health care system. The NBHW has the responsibility for supervising public health and medical care, as well as for planning at the national level, where county needs are measured against available resources.

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* Unless otherwise noted, the information on Sweden was provided by Dr. Christer Lindmark, National Board of Health and Welfare.

** See, for example, Swedish Health Services in the 1980s. The National Swedish Board of Health and Welfare, 1976. Such documents are widely distributed to county councils and professionals for comments and integration into national policy and goals. Connected to the Ministry of Health and Social Affairs is a permanent committee for National Health Planning, with representatives of the Ministry, the NBHW, the county councils and trade unions. The committee studies the expansion of public health resources and makes recommendations to coordinate local planning.

(Hammerqvist, 1978) The Board directly controls the distribution of physician posts in the counties and also must approve all large investments connected with physical expansion or renovation of health care facilities. Its decisions are based on the priorities established by the central government. Furthermore, the general guidelines published by the NBHW (few of which are quantitative) usually serve as the frame of reference for the counties in planning their health services. It is important to note that the government can stop projects and plans from being implemented, but "can take no initiative on their own, nor can they substitute their plans for those of the county council" (Ortendahl, 1978; also see Navarro, 1974).

Four national priorities for health services have been announced for the 1970s and 1980s in Sweden:

- expansion of long-term care services, with emphasis on small local nursing homes
- expansion of non-institutional outpatient care services, with increased emphasis on preventive measures, early diagnosis, and cooperation with the social services
- reduction of resources for large mental hospitals
- reduction of the number of beds for acute somatic care.

To help achieve these goals, the following standards have been recommended to the counties:

TABLE 4. STANDARDS RECOMMENDED TO THE COUNTIES TO ACHIEVE GOALS

	Actual 1977	Desirable Figures According to the National Board on Health and Welfare
Long-term care (beds/1,000 population aged 70 and older)	48.4	60 - 70
Outpatient care (visits/ individual/year)	2.6	3.5
Psychiatric care (beds/1,000 population)	3.8	2.0 - 2.7
Acute somatic care (beds/1,000 population)	5.0	4.0 - 4.5

The standards recognize the need for adjustments according to local conditions within each county.

West Germany

In the Federal Republic of Germany, there are almost no national standards for the supply, distribution, and organization of health services. There are only standards for the number and composition of sickness fund doctors (office-based specialists and general practitioners). The provision, planning, and financing of outpatient care is almost completely separate from inpatient care (office-based physicians, for example, generally have no hospital staff privileges, hospitals no outpatient departments) (Geissler, 1978; Reinhardt, 1978). As far as outpatient care (medical and dental) is concerned, the major planning objective is the regional distribution of general practitioners and specialists, and is the responsibility of the professional organizations and the many health insurance funds in Germany* (Geissler, 1979). The federal and Land (state) governments play only an advisory and consultative role (Altenstetter, 1977).

In accordance with a federal law of 1976, a federal committee of physicians/dentists and health insurance funds issued "national" guidelines** for defining planning areas, developing plans, and stipulating the number of outpatient providers that should be available per capita on a regional basis. These were developed from the respective averages for the country as of 1977 and slightly corrected according to expert opinion (Geissler, 1979). These guidelines are binding on the professional and health insurance associations, on land governmental agencies, and local and area-wide governments (Altenstetter, 1977).** In 1977, the manpower/population standards for determining need were: (Altenstetter, 1977)

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* Senftleben offered the following additional clarification. It is the prescribed task (and responsibility) of the associations of health insurance physicians (who in spite of the name work in independent, fee-for-service practices) to secure, that is, plan medical outpatient services. Only if the doctors' effort fail, do the health insurance funds themselves play a part (see next page for further discusssion).

** Although the guidelines are aimed at determining manpower needs in urban, suburban, and rural areas, they do not further classify needs for socioeconomic, ethnic, or age groups.

TABLE 5. MANPOWER/POPULATION STANDARDS IN WEST GERMANY IN 1977 FOR DETERMINING NEED

Manpower Category	Population
General Practitioner	2,400
Ophthalmologist	24,500
Surgeon	47,500
Gynecologist	16,000
Dermatologist	41,000
ENT	30,000
Internist	10,000
Pediatrician	25,000
Psychiatrist	50,000
Orthopedist	37,000
X-Ray Specialist	60,000
Urologist	66,000
Dentist	2,400
Orthodontal Surgeon	36,000

The guidelines can be modified according to local situations and are implemented by the state associations of health insurance physicians (almost 95 percent of office-based physicians, covering 90 percent of the population) in cooperation with state associations of health insurance funds (Geissler, 1979).

The medical and dental professional organizations are responsible for developing incentives and solutions for dealing with an over- or undersupply of manpower, but the law provides only two extreme measures should the professional approaches fail: the sealing off of overserved planning areas adjacent to an underserved area, and the imposing of certain licensing restrictions on particular groups (Altenstetter, 1977; Liebert, 1979).

To date, there is no national planning of the total number of physicians needed, but the federal government will soon authorize research on this topic. With regard to dentists, federal and state governments tried to expand the dental schools to a capacity sufficient to reach and sustain a desired level of 1 dentist/1,700 population, but have not succeeded because of a lack of teaching personnel (Geissler, 1979).

There are no uniform national standards for inpatient services, because hospital services include private, non-profit, and profit-making hospitals regulated by the state government (Eichhorn, 1979; Senftleben, 1979). Hospital planning is required by both federal (1972) and state laws, however, and construction and equipment expenses are funded by both levels of government "according to criteria that are supposed to reflect areawide master plans" (Reinhardt, 1978; see also Eichhorn, 1978).

DISCUSSION

This review of the results of correspondence with individuals in seven countries about the development and use of health planning guidelines reveals some generalizable features. First, although countries are trying to develop and use standards or guidelines for planning purposes, in most instances they are being applied as benchmarks or "rules of thumb" to assist planners at both national and subnational levels. The standards tend to be developed by professionals, public officials, and representatives of other key participants in the health system. Presumably, this reflects widespread recognition that the scientific or professional basis for such standards is not firm, that decisions about standards will represent public policy choices, and that effective application of the standards and goals requires the involvement of affected parties and interest groups. As was found in the United States (Institute of Medicine, 1980), public and professional consensus in the development of planning guidelines are important. As a result, the process of development of guidelines, its defensibility, and its credibility are all considered significant.

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APPENDIX A

Responses Received*

Australia

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Sydney

Senator Peter Baume
Parliament of Australia
(Chairman, Standing Senate Committee
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Dr. Sidney Sax
Special Adviser
Social Welfare Policy Secretariat
Canberra

Dr. Basil Hetzel
Commonwealth Scientific and Industrial
Research Organization
Adelaide

Dr. Brian Hennessy
Australian Department of Health
Canberra

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* Some respondents provided additional individuals to contact; not all provided information on the guidelines/standards of their country.

Belgium

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Alan D. Thompson, Administrator
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G. H. Loewen Executive Director (November, 1979)
J. C. Reid, Executive Director (July, 1979)
Hospital Services Plan
Saskatchewan Health
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Minister of State for Health)
Department of Health and Social Security
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