The usefulness of epidemiology for the decision-making process in the organization and management of health services is easy to demonstrate. In that the ultimate objective of health services is to address the real needs of a population, epidemiology and management are partners, logical allies. Decisions on resource allocation and on the definition of priorities and objectives, cannot be made without a data basis in order to identify problems and their pattern of distribution in the target population.

The problem of the relation between epidemiology and management does not arise in justifying the utility of epidemiology, but in understanding why administrators fail to use it and how one may foster more appropriate use of its potential. For example, in Quebec, where a public, universal, and free system of health services has been in place since the beginning of the 1970s, the first general health study, which was meant to obtain a profile of the state of health of the entire population, was not carried out until 1987-1988 and was then repeated in 1992-1993. That work, which is of excellent quality, produced very important data for the orientation of public policies. For the previous 20 years, administrators and political leaders took strategic and operational decisions based only on health data provided by the census, mortality records, the use of services (which gives only part of the picture), and the few studies available on specific populations and problems. This means that decisions were made without a clear and valid idea of the real picture of the health of the population.

1. The Necessary Contribution of Epidemiology to Health Services Management

Epidemiology is universally recognized for its fundamental contribution to the identification of health problems, to the understanding of their etiology, and to the knowledge of the dynamics of the distribution of health problems in a population. Its limited contribution to the management of services is also recognized. Pressures to change this situation have been growing in several areas:

a) Increasingly, countries of the Americas try to define health policies and not just service policies. In other words, policies are being defined according to goals that are formulated in terms of health indicators (including quality of life indicators) that must be achieved; policies are no longer simply defined in terms of services to be offered and resources mobilized. The objective of such policies is to have a measurable impact on the health of a given population. This is a very different objective than trying to meet people's spontaneous demands.

Such policies require reliable and pertinent data to be available on the initial situation and acceptable criteria to be set for priorities, among which one of the most fundamental is to have valid intervention...
strategies. Epidemiology can help to validly describe and explain the state of health and monitor the evolution of problems. It can also contribute to an evaluation of the responsiveness of different intervention options through evaluation studies.

The epidemiology that I am describing is one which extends beyond the traditional study of biological variables in order to consider the role, now recognized as determinant, of sociocultural variables. One cannot understand the clinical and demographic effectiveness of interventions, which are rarely measured under the most realistic experimental conditions, without taking into account the psychological, social, and cultural dimensions involved. Anthropologists and sociologists have demonstrated, without resorting to quantitative methods, the central role of cultural representations of health and in the face of disease, in the shaping of the relation between therapists, services, and the patient and its outcomes.

Management oriented toward improving health indicators tends to generate an organization of services that no longer are provided on the basis of types of establishments and professional divisions of labor. That traditional pattern is being replaced by an organization structured around programs; that is, one with specific goals, such as to address a given problem (e.g., mental problems, traffic accidents, work accidents, or sexually transmitted diseases). This type of management requires continuous access to valid epidemiological data in order to monitor the effect of the health measures that the program promotes and to adjust it as required.

b) Processes of regional and municipal decentralization and local health systems development favor the population (as opposed to individual) approach to health problems. The institutional and professional approaches which focus on the individual may function without the contribution of epidemiological data (it is enough to anticipate the demand or, eventually, to foster it), but the population approach requires such data. Its aims are expressed in terms of indicators that need to be changed. Without the contribution of epidemiological data on the evolution of the state of health, there would be no population approach, unless we wish to consider the impressions of managers, professionals, or representatives of the population as sufficiently reliable and valid sources of data on health conditions.

c) The search for a more equitable distribution of the resources available for health services also requires an epidemiological contribution at two levels at least:
- identification of differences in epidemiological profiles of different regions and population groups, which is required because equity implies a needs-based resource allocation; and
- evaluation of the impact of different intervention options in order to avoid wasting limited resources.

If each disbursement represents an opportunity cost (its equivalent in other disbursements forgone), valid data on the relative effectiveness of decision options is essential for the decision-making process, even at the level of micro decisions (e.g., to prescribe a drug, to order a test, to admit a patient). Data on variations in medical practice which are growing in number and quality—cannot be ruled out simply on the argument that no two patients are the same or because the circumstances of practice have divergent characteristics. Such a position would be tantamount to accepting that all physicians are always right. Physicians and other health professionals need to the rigorous analysis those data in order to determine which variations are acceptable and which should be eliminated. Every time a cesarean section, bypass, prostatectomy, or tonsillectomy is needlessly performed, resources are diverted from needs for which effective interventions often exist; in the context of publicly financed health services, this is not ethically acceptable.

This position is idealistic; to promote the search for maximum compatibility between interventions and resource allocations in terms of needs, effectiveness, and efficiency. It is not, however, utopian, because we already have the technical capability to bring us closer to the ideal. Our problem is that we do not utilize this capability. Why?

2. The Gap Between the Potential and the Actual Practice in the Relationship Between Epidemiology and Management

There are two main reasons for the gap between epidemiology and management: First, the political will to implement a health policy to reduce needs may not always exist. Second, epidemiologists and managers are responsible for the lack of dialogue: epidemiologists, because they are enveloped in a world insulated from the demands placed on
services; and managers, because they cannot define their information needs, whether due to ignorance of epidemiology or to a lack of concern for the impact of their decisions on populations.

a) There are few instances in which governments have adopted a true health policy and have the authentic will to apply it. It is still rare for planning to be based on goals formulated in terms of health indicators, and rarer still to find coherence between organizational strategies and those goals. For example, in the United States, one observes the greatest effort to define "health objectives" based on the results of sophisticated research; however, health sector policies are scarcely coordinated with these objectives. Service organization and management have little to do with general goals. In Quebec, a health policy was defined in 1992, after the government passed a law reforming the organization of services.

This neatly illustrates that decisions related to resource allocation may be influenced by factors unrelated to needs. There are economic factors tied to the interests of equipment manufacturers and producers of other inputs, pharmaceutical, insurance, and construction companies, consulting firms, and obviously, politicians. Technical decision criteria--among which epidemiological criteria would be the most important -- play a more significant role when there is a true commitment from decision-makers to the objective of changing health conditions. Without this prerequisite, the notion that epidemiology will have an important impact on decisions is mere wishful thinking. In addition to producing pertinent data, epidemiologists should participate in the movement that sets as a major social priority the promotion of improvement in health conditions.

Even when the political will exists to implement a health policy, clear goals cannot always be defined because of a lack of information. For example, in Quebec, health policy is articulated in terms of biophysical problems such as cancer (to reduce mortality from breast cancer by 15% within 10 years) or respiratory problems (to reduce mortality by 10% within 10 years). In the area of mental or social problems, it is much more difficult to define goals: for example, one of the 19 objectives is "to reduce mental problems within 10 years" and another is "within 10 years, to reduce the number of cases of sexual abuse, violence, and neglect that children suffer and diminish the consequences of these problems." For both cases this will be difficult to assess since our knowledge of the amplitude of these problems is based on the cases known to the health services rather than on their distribution in the general population.

b) Despite the fact that circumstances do not always favor the best use of epidemiology in service management, one must admit that the behavior of epidemiologists themselves does not always promote demand for their contribution. Managers are also responsible for the under-utilization of epidemiology in management. Both have different, but not necessarily divergent visions, of what is "good information." Epidemiologists are concerned with problems related to the validity of numerators and denominators, the credibility of data collection tools, and the scientific quality of analyses. This is normal and desirable. Many in the profession are more comfortable with variables that lend themselves well to quantitative measurements, and so they tend to reduce health problems to their biophysical dimensions. That current of epidemiology, which is more prevalent in countries of the North, tends to give short shrift to the health perspective and the qualitative methods of the social sciences. "Hard" epidemiologists, who only see disease as the manifestation of a difference between an observed situation and professionally defined norms, easily dismiss the opinion of sociologists and anthropologists that health and disease are cultural products (products of representations) rather than having only a biophysical basis. Epidemiological development has been occurring more in relation to academic criteria than to the needs of service systems.

In Latin America, it would seem that historically, epidemiology was more concerned with the sociocultural aspects of health problems. But my impression is that the field has had little contact with health services management. The result is that if epidemiologists were to assume responsibility for management they might be astonished to discover the differences between
the type of information that they need to make management decisions and the information that they actually produce.

On the other hand, one finds scant familiarity among managers with the contributions that epidemiology can make to management. In North America, the great majority of managers are not physicians and know little about the potential contributions of epidemiology. (This does not mean that physicians in management are very much different.) For example, The Journal of Health Administration Education, one of the most respected in the field of health administration training, published an edition at the end of 1993 devoted to the subject of “Epidemiology and Management” which includes articles that introduce this topic with classical definitions of epidemiology and even of such elementary concepts as incidence and prevalence. It is a little frightening to see that the editors of that journal, even today, would consider these definitions to be needed in order to understand the contents.

For managers, useful information is that which covers the population served and is quickly accessible, easy to interpret, and inexpensive. Managers have little awareness of the difficulties that hamper or often prevent the production of such data. They have a more institutional than populational perspective, which explains their limited interest in epidemiological data. Consequently, epidemiologists have an educational task to fulfill. They need to explain the limits of what is possible, the problems of incompatibility among data sources, validity requirements, and methodological difficulties in measuring certain variables.

Municipal and regional decentralization favors the horizontal and vertical integration of institutions that provide services (an integration that requires a very strong political commitment). As resource allocation are linked to the distribution of needs among the population, managers will begin to become concerned about health information and to voice demands for epidemiological expertise. Consequently, they will not be satisfied with traditional indicators; they will also want information on problems that epidemiologists disregard: mental and social problems, family and urban violence, drug abuse, and the effectiveness of intervention options. Managers have the responsibility to better define their needs and explain to epidemiologists the role that socio-health information plays in the decision-making process. For their part, epidemiologists should be prepared to respond to these requirements if they want to maintain their professional standing.

3. How Can Epidemiology and Management Be Brought Closer Together?

Decisions in the health sector are being based on numerous factors, such as the requirements and preferences of users, professionals, and managers (not necessarily in this order). Furthermore, other factors come into play such as political and economic interests, power relationships among participants in the decision-making process, the costs and availability of resources, perceived needs, and measures. Our concern is to conceive strategies to broaden the relative contribution of health and social data to decision-making.

The greatest incentive would be for resource allocations to be guided by the achievement of results in health indicators; in other words, to formulate service and health resource policies subordinated to health goals. Such a proposal could be considered idealistic: in reality, it requires a political commitment, which exists in few countries, in favor of improving the state of health of the population. It requires political will and ability to cope with the economic and professional interests that benefit from current resources generally earmarked for hospital services and drugs.

Quebec’s attempts to guide resource allocations in this way are recent, but they demonstrate that actors in the health service system have quickly appreciated the need for epidemiological data in order to justify their resource requirements. Professionals and managers are seeking relevant data, now that they understand that the rules of the game require documentation of the need for, and utility (relevance) of, proposed health services.

It would be most helpful to strengthen the education of management in the field of epidemiology and that of epidemiologists in the field of management. Administrators should know the language of epidemiology, how it works, and what its limitations are. The mistake that must be avoided is to teach epidemiology to managers as if they were to be trained to become epidemiologists. Epidemiology should be taught, instead, as a management tool, as a decision-making aid. It should foster managers’ adoption of a population approach.
to health needs, and it should provide strategies for identifying those needs. On the other hand, epidemiologists should be sensitive to management needs and produce pertinent and useful data, presented in a form that increases the likelihood of it being used. Therefore, they should learn to communicate information.

Epidemiologists and managers could review together the following questions: 1) Which data are most likely to produce variations or induce changes in decisions? The response would make it possible to identify priorities in data collection; 2) What would be the “minimum package” of essential data for each decision-making level (institutional, local, regional, national)? The examination of these questions could help in the process of raising the mutual awareness needed to guarantee greater and better use of epidemiology in management, as well as promote a more effective use of available resources for the collection, analysis, and dissemination of data.

To my mind, the current problem is not one of scarcity of resources, but the poor utilization of resources. Managers complain that they do not have access to data they would like to use and that the data they do receive are not relevant. This characterization may be a bit overstated, but it does reflect the differences in perception between administrators and epidemiologists over what is relevant. Inclusion of epidemiologists on management teams can contribute a great deal to the process of defining the needs, priorities, and strategies of intervention and evaluation. Such a proposal does not mean that epidemiologists should be subordinated to management requirements and act only as data-supply technicians. Epidemiology should conserve its role of critical analysis of policies and decisions in the health sector; managers would also benefit from recognizing the role that should be fulfilled in evaluation activities.

Conclusion

Epidemiology is not, nor will it become, a substitute for decision-making. Its role is to introduce more rationality into the process. It has numerous potential areas of influence: 1) in public health policies, helping to define priorities, objectives, and strategies; 2) in the reconfiguration of services, examining the consequences of decentralization, out-patient surgery, reducing admissions, and integrating services into programs; 3) in the professional practices, studying variations in effectiveness and efficiency; 4) in management practices; and 5) in research priorities. These contributions are necessary both in the context of declining available resources, characteristic of rich countries, as well as in the context of increasing investments in the health sector, which is occurring in the Latin American countries that have been controlling inflation and have undergone growth. Consequently, the challenge for both epidemiologists and administrators is to achieve the type of alliance that produces policies and strategies that have a greater impact on the well-being of populations.

1 In an opinion poll, requested by the Ministry of Health and Social Services of Quebec, carried out in late 1994, 51 percent of Quebec’s interviewees (managers of hospitals and health centers) did not know of the majority of existing databases. Perhaps epidemiologists should make it their priority to disseminate information on available databases.

Bibliography


