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## Planning a Public Health Surveillance System

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Public health surveillance is the ongoing systematic collection, analysis, and interpretation of outcome-specific data for use in the planning, implementation, and evaluation of public health practice (1). A surveillance system includes the functional capacity for data collection and analysis, as well as the timely dissemination of these data to persons who can undertake effective prevention and control activities. While the core of any surveillance system is the collection, analysis, and dissemination of data, the process can be only understood in the context of its usefulness for addressing specific health outcomes.

### Development of the Concept of Surveillance

Langmuir defined the term "disease surveillance" as the collection, analysis, and dissemination of data on specific diseases (2). This construct did not encompass direct responsibility for control activities. In 1965, the Director General of the World Health Organization (WHO) established the epidemiological surveillance unit in WHO's Division of Communicable Diseases (3), and included "the epidemiological study of disease as a dynamic process." In 1968, the 21st World Health Assembly, through the leadership of Langmuir and Raska, focused on national and global surveillance of communicable diseases and affirmed the three main features of surveillance: a) the systematic collection of pertinent data, b) the orderly consolidation and evaluation of these data, and c) the prompt dissemination of results to those who need to know--particularly those in position to take action (4). The Assembly's discussions also addressed the application of the concept to public health problems other than communicable disease (5). In addition, "epidemiologic surveillance" was said to imply "...the responsibility of following up to see that effective action has been taken."

Since that time, a wide variety of health events, such as childhood lead poisoning, leukemia, congenital malformations, abortions, injuries, and behavioral risk factors have been placed under surveillance (6).

### Surveillance in Public Health Practice

Public health practice can be divided into surveillance; epidemiologic, behavioral, and laboratory research; service (including program evaluation); and training. Surveillance data should be used to identify research and service needs, which, in turn, help to define training needs. Unless data are provided to those who set policy and implement programs, their use is limited to archives and academic pursuits, and the material is therefore appropriately considered to be health information rather than surveillance data. However, surveillance does not encompass epidemiologic research or service, which are related but independent public health activities that may or may not be based on surveillance. Thus, the boundary of surveillance practice excludes actual research and implementation of delivery programs.

Because of this separation of surveillance from research, "epidemiologic" should not be used to modify surveillance (1). The term "public health surveillance" describes the scope (surveillance) and indicates the context in which it occurs (public health). It also obviates the need to accompany any use of the term "epidemiologic surveillance" with a list of all the examples this term does not cover. Surveillance is correctly--and necessarily--a component of public health practice, and should continue to be recognized as such. Because of its close link to public health action and the focus on providing information for action, surveillance is directly tied to officials responsible for health of the population.

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## Uses in Public Health Surveillance Data

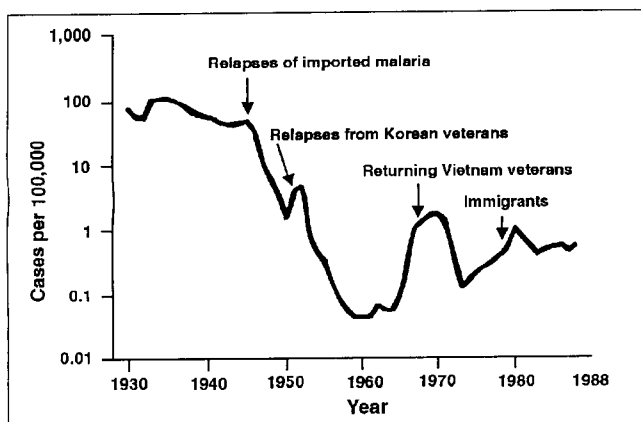
Surveillance has many uses (Table 1). The natural history of disease can be demonstrated by the surveillance of malaria rates in the United States since 1930.

Table 1  
The uses of surveillance

- ◆ Quantitative estimates of the magnitude of a health problem
- ◆ Portrayal of the natural history of disease
- ◆ Detection of epidemics
- ◆ Documentation of the distribution and spread of a health event
- ◆ Facilitating epidemiologic and laboratory research
- ◆ Testing of hypotheses
- ◆ Evaluation of control and prevention measures
- ◆ Monitoring of changes in infectious agents
- ◆ Monitoring of isolation activities
- ◆ Detection of changes in health practice
- ◆ Planning

In the 1940s, malaria was still an endemic health problem in the southeastern United States. Rates of malaria decreased until the early 1950s, when military personnel involved in the conflict in Korea returned to the United States with malaria. The general downward trend in reported cases of malaria continued into the 1960s until, once again, numbers of cases of malaria rose, this time among veterans returning from the war in Vietnam. Since that time, we have continued to see increases in numbers of reported cases of malaria involving immigrant populations, as well as among U.S. citizens traveling abroad (Figure 1).

Figure 1  
Malaria rates, by year - United States, 1930-1988



Surveillance data can also be used to detect epidemics. For example, during the swine influenza immunization program in 1976, a surveillance system was established to detect adverse sequelae related to the program (7). Working with state and local health departments, CDC was able to detect an epidemic of Guillain-Barré syndrome, which

rapidly led to the termination of a program in which 40,000,000 U.S. citizens had been vaccinated. However, most epidemics are not detected by such analysis of routinely collected data but are identified through the astuteness and alertness of clinicians and public health officials within the community. When someone notes an unusual occurrence in the health of a community, the existence of organized surveillance efforts in the health department provides the infrastructure for conveying information to facilitate a timely and appropriate response.

The distribution and spread of disease can be documented from surveillance data, such as intra- and inter-country specific data on cholera, though one must be cognizant of differences in data collection systems in different jurisdictions. U.S. cancer mortality statistics have also been mapped at the county level to identify a variety of geographic patterns that suggest hypotheses on etiology and risk (8). Recognition of such clusters can lead to further epidemiologic or laboratory research, sometimes using individuals identified in surveillance as subjects in epidemiologic studies.

Surveillance data can also be used to test hypotheses. For example, in 1978 the U.S. Public Health Service announced a measles elimination program that included an active effort to vaccinate school-age children. Because of this program and the state laws that excluded students from school if they had not been vaccinated, CDC anticipated a change in the age pattern of persons reported to have measles. Before the initiation of the program, the highest reported rates of measles were for children 10-14 years of age. As predicted, almost immediately after the school exclusion policy was implemented, the number of cases not only decreased, but the peak occurrence also shifted from school-age to preschool-age children.

With routinely collected data, one can examine--without special studies--the effect of a health policy. For example, the introduction of inactivated poliovirus vaccine in the United States in the 1950s was followed by a dramatic decrease in the number of reported cases of paralytic poliomyelitis, and the subsequent introduction in the 1960s of oral poliovirus vaccine was followed by an even greater decline.

Efforts to monitor changes in infectious agents have been facilitated by the use of surveillance data. The National Nosocomial Infections Surveillance System, has been used to monitor changes in antibiotic-resistance patterns of infectious agents associated with hospitalized patients.

The increasing use of various technologies and practices in health care has come to be an issue of growing concern over the past decade; surveillance data are useful both in planning research to learn the causes of these changes and in monitoring the impact of such changes in practice and procedure on outcomes and costs associated with health care (9).

Finally, surveillance data are useful for planning. With knowledge about changes in the population structure or in the nature of conditions that might affect a population, officials can plan more effectively the appropriate health services and preventive activities.

## Objectives of a Surveillance System

Planning a surveillance system begins with a clear understanding of the purpose of surveillance (Table 2). In the context of public health, surveillance may be established to meet a variety of objectives, including assessment of public health status, establishment of public health priorities, evaluation of programs, and conduct of research.

Table 2  
Steps in planning a surveillance system

1. Establish objectives
2. Develop case definitions
3. Determine data sources data-collection mechanism (type of system)
4. Develop data-collection instruments
5. Field-test methods
6. Develop and test analytic approach
7. Develop dissemination mechanism
8. Assure use of analysis and interpretation

Surveillance is inherently outcome oriented and focused on various outcomes associated with health-related events or their immediate antecedents. These include the frequency of an illness or injury, usually measured in terms of numbers of cases, incidence, or prevalence; the severity of the condition, measured as a case-fatality ratio, hospitalization rate, mortality rate, or disability; and the impact of the condition, measured in terms of cost. Where health outcomes are incontrovertibly linked to risk factors or specific procedures, it is often useful to measure the latter because they are more frequent (and hence more precisely ascertainable for small populations) and may be more closely linked to public health interventions. For example, mammography with suitable follow-up is the major prevention strategy for reducing mortality associated with breast cancer.

The level of utilization of mammography by women can be monitored regularly and should be a more timely indicator of the impact of public health prevention programs than measurement of mortality from breast cancer. Surveillance data should also improve targeting of prevention efforts toward populations with low utilization. In addition, over-utilization by some parts of the population (e.g., women <35 years of age who do not have other risk factors) might stimulate efforts to reduce unnecessary procedures.

High-priority health events should be under surveillance. Both quantitative and qualitative approaches can be used in a selection process. Some quantitative factors are shown in Table 3. In addition, criteria based on a consensus process to identify high-priority problems may identify emerging issues or problems that might otherwise not be considered. The consensus process leading to the Year 2000 Health Promotion and Disease Prevention Objectives in the United States is an example of a mechanism for identifying high-priority conditions, types of behavior, and interventions that require ongoing monitoring (10).

Table 3  
Criteria for identifying high-priority health events for surveillance

- ◆ **Frequency**  
Incidence  
Prevalence  
Mortality  
Years of potential life lost
- ◆ **Severity**  
Case-fatality ratio  
Hospitalization rate  
Disability rate
- ◆ **Cost**  
Direct and indirect costs
- ◆ **Preventability**
- ◆ **Communicability**
- ◆ **Public interest**

Because public health surveillance is driven by the need to be cognizant of diseases and injuries in the community and to respond appropriately, surveillance is inherently an applied science. Therefore, as surveillance has evolved, it is generally undertaken only when there is reasonable expectation that control measures will be taken as appropriate. For many conditions, the link between surveillance and action is obvious (e.g., meningococcal meningitis prophylaxis for contacts of patients diagnosed as having meningitis). For emerging conditions, such as eosinophilia-myalgia syndrome, there is a compelling public health need to identify cases to delineate the magnitude of the problem, identify the mode of spread, and take appropriate action.

Surveillance data are usually augmented by additional studies to determine more precisely the causes, natural history, predisposing factors, and modes of transmission associated with the health problem. Yet, undertaking surveillance exclusively for research purposes is not warranted. Research needs are often better served by other, more precise (and often more costly) methods of case identification (e.g., registries), which facilitate more detailed data collection and tracking of cases. For example, registries of type I diabetes may have surveillance value, but are justified primarily because they fill research needs. The ongoing public health application of these data is more limited. Scarce public health resources and the efforts of health-care providers to report cases need to be focused on problems for which the public health importance and the need for public health action can be readily recognized.

A primary role of surveillance is the assessment of the overall health status of a community. One approach to this issue is the development and identification of a set of indicators that measure major components of health status. Such a set has been developed in the United States for use at national, state, and local levels (11).

### Methods

Once the purpose of and need for a surveillance system has been identified, methods for obtaining, analyzing, disseminating, and using the information should be determined and implemented.

Surveillance systems are ongoing and require the cooperation of many individuals. The system must be acceptable to those who will contribute to its success and it should be flexible enough to meet the continually evolving needs of the community and to accommodate changes in patterns of disease and injury (12). It must provide information that is timely enough to be acted upon. All of these considerations must be carefully balanced in order to design a system that can successfully meet identified needs without becoming excessively costly or burdensome.

### **Case Definitions**

Practical epidemiology is heavily dependent on clear case definitions that include criteria for person, place, and time as well as clinical, laboratory, and epidemiologic features (13,14).

While high sensitivity and specificity are both desirable, generally one comes at the expense of the other. A balance must be struck between the desire for high sensitivity and the level of effort required to track down false-positive cases. In addition, case definitions evolve over time. During periods of outbreaks, cases that are epidemiologically linked to the outbreak may be accepted as cases, whereas in non-epidemic periods, serologic or other more specific information may be required.

### **Data Collection**

Information on diseases, injuries, and risk factors can be obtained in many ways. Each mechanism has characteristics that must be balanced against the purpose of the system. Timeliness is of the essence for frequently fatal conditions such as plague, rabies, or meningococcal meningitis. Notifiable-disease systems are most appropriate for such potentially catastrophic conditions that require urgent action. Conversely, detailed information on influenza strains or Salmonella serotypes must come from laboratory-based systems.

Often, existing data sets can provide surveillance data. Such sets include vital records, administrative systems, and risk-factor or health-interview surveys. Among administrative systems, hospital-discharge data, medical-management-information and billing systems, police records for violence, and school records for disabilities or injuries among children can all provide needed data. In addition, with some modification, an existing system might provide needed data more economically or efficiently than a newly initiated system. While existing data systems can be used for surveillance, they are not surveillance systems in and of themselves. Surveillance is a larger process that requires analysis, interpretation, and use of the data. These steps are not components of most data systems.

Existing registries or ongoing surveys may collect information on defined populations. To the extent that the condition of interest is uniformly distributed, the population under study is reasonably representative, and the information collected is available on a timely basis, such systems can be valuable data sources. Although many registries are established for research purposes, they often provide valuable data for surveillance purposes. In particular, cancer registries have been widely used(15).

A network of sentinel providers can also collect data on common conditions, such as influenza; more specialized providers can provide data on less common conditions, e.g., ophthalmologists who provide information on treatment of patients for diabetic retinopathy.

### **Standardization**

Data-collection instruments should use generally recognized and, where suitable, computerized formats for each data element to facilitate analysis and comparison with data collected in other systems, e.g., census and other surveillance data. Careful consideration should be given to using identifiers. Although additional assurances of confidentiality and privacy considerations will be required, the ability to link data to other systems enhances the value of the system.

### **Field Testing**

The careful development and field testing of surveillance systems and procedures is important to facilitate the implementation of feasible systems and to avoid making changes as systems are implemented on a broad scale. The data to be collected by a surveillance system, the data sources and collection methods, and the procedures for handling the information should be developed and tested. The frustration engendered by a new and poorly executed system may undermine efforts to improve or use existing systems for the same or other conditions. These field-test projects can demonstrate how readily the information can be obtained and can detect difficulties in data-collection procedures or in the content of specific questions. Analyses of this test information may also identify problems with the information collected. Model surveillance systems may facilitate the examination and comparison of a variety of approaches that would not be feasible on too large a scale and may identify methods suitable for other conditions or other settings.

### **Data Analysis**

A determination of the appropriate analytic approach to data should be an integral part of the planning of any surveillance system. The data needed to address the salient questions must be assessed to assure that the data source or collection process is adequate. Analyses may prove to be as simple as an ongoing review of all cases of rare but potentially devastating illnesses, such as plague. For most conditions, however, an assessment of the crude number of cases and rates is followed by a description of the population in which the condition occurs (person), where the condition occurs (place), and the period over which the condition occurs (time). These basic analyses require decisions as to the kind of information that needs to be collected. The level of detail required varies substantially from condition to condition. For instance, one may need more detailed information regarding the population that is not receiving prenatal care than on the one that is exposed to meningococcal disease, because the nature of the intervention for the former is likely to be more complex and require an understanding of socioeconomic factors. Similarly, how one will collect data on geographic areas may depend on whether the data will be examined at the county, state, or census-tract level.

Most contemporary surveillance systems are maintained electronically. The type of hardware and software needed depends on the types of analyses to be performed and the size of the data bases. As personal computers become more powerful, the capacity of data-storage devices continues to grow, and data-sharing systems such as local- and wide-area networks become more widely available, more surveillance systems can be operated on personal computers. Software to meet most basic analytic needs for surveillance, including mapping and graphing, is now widely available. The analytic approach often suggests a basic set of analyses that are performed on a regular basis. These analyses should be designed early in the development of the system and incorporated into an automated system, which can then be run by support personnel.

### **Interpretation and Dissemination**

Data must be analyzed and presented effectively so that decision makers at all levels can readily see and understand the implications of the information. Knowledge of the characteristics of the audiences for the information and how they might use it may dictate any of a variety of communications systems. Routine, public access to the data--consistent with privacy constraints--should be planned for and provided. This access can be facilitated with various electronic media, ranging from systems with structured-analysis features suitable for general users to files of raw data for persons who can do special or more detailed analyses themselves.

The primary users of surveillance information, however, are public health professionals and health-care providers. Information directed primarily to those individuals should include the analyses and interpretation of surveillance results, along with recommendations that stem from the surveillance data. Graphs and maps should be used liberally to facilitate rapid review and comprehension of the data. Communications media represent a valuable secondary audience that can be used to amplify the messages from surveillance information. The media play an important role in presenting and reinforcing health messages. Innovative methods for presenting information capitalizing on current audiovisual technology should be explored.

### **Evaluation**

Planning, like surveillance itself, is an iterative process requiring the regular reassessment of objectives and methods (12). The fundamental question to be answered in evaluation is whether the purposes of the surveillance system have been met. Did the system generate needed answers to problems? Was the information timely? Was it useful for planners, researchers, health-care providers, and public health professionals? How was the information used? Was it indeed worth the effort? Would those who participated in the system be willing to continue to do it? What could be done to enhance the attributes of the system (timeliness, simplicity, flexibility, acceptability, sensitivity, predictive-value positive, and representativeness)?

Answers to these questions will direct subsequent efforts to revise the system. Changes might be minor (e.g., the addition of data elements to existing forms) or major (e.g., the need to obtain information from entirely different data sources). For example, a system to determine

utilization of mammography might be based on administrative billing systems. Yet, problems with reports of multiple mammography examinations for the same individual might require the addition of unique patient identifiers or the addition of questions on mammography use from self reports on health-interview surveys.

Periodic rigorous evaluation assures that surveillance systems remain vibrant. Systems that assess problems of only historical interest should be discontinued or simplified to reduce the reporting burden. Contemporary systems should take advantage of the emergence of new technology for information collection, analysis, and dissemination. They should capitalize on new information systems. For example, sentinel surveillance systems have become more flexible to allow the inclusion of an array of topics. Electronic medical records and standardized clinical data bases all provide opportunities to obtain data that have been burdensome or difficult to secure (16). These information sources may also provide more timely data and may allow individuals to be tracked, an option that would be virtually impossible without such electronic systems.

### **Involvement of Interested Parties in Surveillance**

Virtually all surveillance systems involve networks of organizations and individuals. Surveillance of notifiable disease relies on health-care providers including clinicians, hospitals, and laboratories to report to local health departments, who have the initial responsibility for responding to reports and amassing data.

Programs for injuries and chronic and environmental diseases also may have complex organizational structures and may involve a wide array of external professional and voluntary interest groups whose needs must be addressed. Some basic surveillance information can be gleaned from such ongoing information systems as vital records, hospitalization programs, and registries. Many, however, require surveillance systems to be established in unique places (e.g., rehabilitation units and emergency medical services for spinal-cord injuries or radiology centers for mammography). The support and interest of these groups of constituents are valuable in establishing the systems; these groups can provide key input regarding purposes of systems and users of systems, as well as assistance in developing the systems themselves.

The complex relationships among these organizational units and their constituents requires open communication to establish priorities and methods consistent with the needs and resources of each group. The conflicting desire for more detailed information must be balanced against the associated burden and cost, as well as against the utility of collecting extensive amounts of data. For example, electronic systems that may facilitate higher quality, more complete, and more timely data also involve the commitment of equipment, training, and changes in day-to-day activities that may permeate all levels of the system. One must understand the needs of each recipient group for the information and assess and assure their commitment to the system. It is also critical to be attentive to how components of the system can best be integrated into the overall system in terms of day-to-day operations.

The success of surveillance depends heavily on the quality of the information entered into the system and on the value of the information to its intended users. A clear understanding of how policy makers, voluntary and professional groups, researchers, and others might use surveillance data is valuable in garnering the support of these audiences for the surveillance system.

### The future of Public Health Surveillance

As we approach the year 2000, several activities are expected to contribute to the evolution of public health surveillance. First, use of the computer--particularly the microcomputer--has revolutionized the practice of public health surveillance. We can anticipate computer networks that will link local and provincial health departments with national and international officials. These networks will facilitate not only the sharing of data, but graphical analyses. The Minitel system currently in use in France has already demonstrated the utility of office-based surveillance of various conditions of public health importance (17).

The second area of renewed activity associated with surveillance is that of epidemiologic and statistical analysis. A by-product of the use of computers is the ability to make more effective use of sophisticated tools to detect changes in patterns of occurrence of health problems. In the 1980s, applications and methods of time series analysis and other techniques have enabled us to provide more meaningful interpretation of data collected in surveillance efforts (18). More sophisticated techniques will doubtless continue to be applied in the area of public health as they are developed.

Until recently, surveillance data were usually disseminated as written documents published periodically by government agencies. While paper reports will continue to be produced, and public health officials will continue to refine the use of print media, they are also beginning to use electronic media for the dissemination of surveillance data. More effective use of the electronic media and all the other tools of communications should facilitate the use of surveillance data for public health practice. However, ready access to detailed information on individuals will continue to cause ethical and legal concerns that may constrain access to data of potential public health importance.

Also the development of methods for chronic disease, environmental and occupational health, and injury control will continue to be a major challenge in public health.

A more fundamental principle that will underlie the ongoing development of surveillance is the increasing ability of people to look at public health surveillance as a scientific endeavor (19). A growing appreciation of the need for rigor in surveillance practice will improve the quality of surveillance programs and will therefore facilitate the analysis and use of surveillance data. This more vigorous approach to surveillance practice will result in the increased frequency and quality of the evaluation of the practice of surveillance (12).

Finally, and probably most important, surveillance must be used more consistently and thoughtfully by policy makers. Epidemiologists not only need to improve the quality of their analysis, interpretation, and display of data for public health use, they also need to listen to persons

empowered to set policy in order to understand what stimulates the policy makers' interest and action. This assessment allows surveillance information to be crafted so that it is presented in its most useful form to the appropriate audience and in the necessary time frame. In turn, as we maximize the utility of data for decision making and better understand what is essential to that process, we will elevate public health surveillance to a new and higher level of importance.

The critical challenge in public health surveillance today, however, continues to be the assurance of its usefulness. To do this properly, the principles of surveillance and its role in guiding epidemiologic research and influencing other aspects of the overall mission of public health must be fully understood. Analytic methods for public health surveillance must be developed; computer technology for efficient data collection, analysis, and graphic display must be applied; ethical and legal concerns must be addressed effectively; the use of surveillance systems must be reassessed on a routine basis; and surveillance principles must be applied to emerging areas of public health practice.

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# I Pan American Conference of Public Health Education and XVI Conference of the Latin American and Caribbean Association of Public Health Education (ALAESP)

The I Pan American Conference of Public Health Education and the XVI Conference of the Latin American and Caribbean Association of Public Health Education (ALAESP) were held 14-27 August 1994 in Rio de Janeiro, Brazil. The Conference was organized by ALAESP and the American Association of Schools of Public Health (ASPH) on the occasion of the 40th anniversary of the founding of the National Public Health School/FIOCRUZ. The event, sponsored by the Pan American Health Organization (PAHO/WHO), was held to discuss the role of the schools of public health in the Hemisphere in light of current health conditions and the recent transformations in the health systems in almost all the countries of the Region.

The intensive program planned for the event and the contributions of the nearly 120 participants made it possible to achieve the proposed objectives. The panels and group discussions were organized around the main topics of the conference: Contemporary Experiences and Proposed Reforms in the Field of Health and Current Approaches to the Theory and Practice of Public Health. At the conclusion of the conference, a declaration was issued and cooperation was proposed between the organizing institutions and the entities associated with them to strengthen one another and carry out joint activities in response to the enormous technical, social, and political challenges that must be faced as the millennium draws to a close.

The principal debates and most significant outcomes are summarized in the Final Report, which includes the Declaration of Rio de Janeiro on Public Health Education and the Consolidated Reports of the Panels and Working Groups. The Organizing Committee will publish a document containing the complete texts of the presentations made during the Conference as a contribution to the intense debate taking place among institutions, investigators, public health professionals, and students throughout the Hemisphere on the present and future of this theoretical and applied field, its educational institutions, and its past, present, and future contributions to the progress of our societies.

Presented below are summaries of only the discussions of the main items on the Conference agenda, the Declaration of Rio, and the proposal for ALAESP/ASPH collaboration.

## **Contemporary Reforms in the Field of Health: Challenges for Public Health**

Definition of the basic criteria for health reform requires a prior definition of the two terms that make up that expression. The issue of health transcends the sectoral

dimension and, hence, cannot simply be reduced to the organization of the health services, health care, or the medical profession. Proposals for reform thus admit differing forms and contents in accordance with the specific context of each country and may be either regressive or progressive, depending on the relative strength of the health sector and the correlation of political forces. The right to health may be considered an adequate parameter for distinguishing reforms that foster fragmentation, heterogeneity, and discrimination in the provision of health care, on the one hand, from those that seek a healthy public policy, on the other--one that is decentralized, democratic, and typified by community participation.

The discussion of criteria suggests the need to reflect on the values that are capable of stirring people to action through campaigns and to study the ability of society to devise strategies to reduce the gap between principles and reality. The defense of life and the quality of life, social solidarity, day-to-day democracy, and freedom are indispensable for important social actors. Principles such as universality, equity, opportunity, decentralization, participation, efficiency, effectiveness, and flexibility were widely agreed upon in the discussions, in spite of some differences about their meaning.

Concerning the role of the State and the right to health, mention must be made of the State's functions of providing and ensuring the delivery of services, formulating policies, responding to organized pressure from civil society, and, above all, regulating the relationship between the public and private sectors. The emphasis on the intersectoral approach, the search for new health practices, the need for democratically incorporating the users into health care (making them aware of their rights and responsibilities regarding lifestyles, self-care, health promotion), and, finally, the defense of ethics in health policy and health management are all guidelines that should be considered when implementing health reforms.

Although this set of proposals is tantamount to postulating the need for a new public health, it is fitting to determine to what extent the classical categories of public health, associated with the conceptual basis of social medicine, can deal with the matter. At the theoretical level, the frame of reference provided by the classical approach has perhaps been confused with the shortcomings of a practice that has not been up to the demands of the conceptual framework.

The response capability of the health sector to the demand for reform is, in many instances, limited. This is especially true when health reform is conceived outside



the sector as part of the reform of the State and its relationship to society, particularly in the context of structural adjustment policies. Preserving capital at all costs, reducing mortality without combatting poverty and misery, and providing of a "package" of basic health services while ignoring diverse needs and values of the different social groups, have been the prevailing features of health reform in the 1990s. Faced with this trend, there are some who advocate the need for the health sector to learn to act at the political level, to employ the language of economics, to emphasize extrasectoral considerations (such as schooling, information, and the environment), to encourage community organization, and to foster political culture through a democratization of the relationship between government and society. Others, in contrast, criticize the economic approach and the references to "the population" or to "homogeneous masses" that were and are employed in traditional planning methods, ignoring the diversity and sociocultural values that would help achieve "the best possible life for all." These sectors understand that the response capability of the health sector depends on tackling headlong the intrinsic complexity of this problem, and this will not be possible if the scope of the approach is persistently reduced.

Without ignoring the aspect of health recovery, both health promotion and disease prevention should be the guiding principles for action.

There is a high degree of idealism about the responsibilities of public health, where *what should be* prevails over *what is*. This may lead to an unwitting concealment of the setbacks that occur in the health of different social groups. The recognition of the meager creativity of the current public health system and the lack of constructive criticism compromise the health reforms, as does the unquestioning acceptance of policies, whether those of the international technical cooperation organizations or of the financing agencies, which are often responsible for the structural adjustment policies that are imposed.

The need to monitor and anticipate changes in the epidemiological profile should be stressed, with particular attention to the diseases responsible for the greatest mortality. Morbidity, living conditions and lifestyle, and well-being, as the shared responsibility of public health, should be permanent concerns of the health services system. In order to overcome some of the sector's current weaknesses, it will be necessary to develop adequate information systems--particularly of the type that organizes the data so as to emphasize the situation of particular social groups--in addition to intensifying the reporting of morbidity to support actions geared toward the achievement of universal coverage, equity, and quality.

Other proposals are linked to the reform, advocacy, and defense of health. In this regard, one of the functions of the schools of public health would be to assist society in

making informed decisions. Three areas of activity have been identified in this respect:

- 1) Research to document the nature of the problems and needs.
- 2) Strategy development to resolve the problems.
- 3) Assessment of the effectiveness of the reforms to be implemented.

Opposing positions regarding the role of the schools of public health in political action and advocacy became evident in the discussions. Some participants felt that this was largely a role that private individuals in the schools should assume on their own, at the same time emphasizing that in certain areas, such as discouraging smoking in the United States or sanitary reform in Brazil, this role is now the norm. The lack of consensus and political organization with regard to the reform of the health system have impeded the effective defense of health. The schools of public health should endow their students with the political capacity and ability to perform policy analysis that will enable them to be effective in such activities. The goal is to create a system grounded in the concept of health to replace the current system, which is grounded in the concept of disease.

### **Practice in Public Health: Challenges for Education**

The discussion centered on reformulating the object of work of the schools of public health in its broadest possible sense as a field for the generation and dissemination of knowledge, the training of human resources, and the creation of intervention instruments to deal with the problem at hand. The point of departure is that the crisis poses problems to public health that can only be solved by redefining, expanding, refining, and reformulating its object of work.

The first issue is linked to the constraints that such institutions come up against in attempting to identify the key changes that must be made to respond to the new demands. One of these constraints has been identified by some groups as the close ties between the health sector and the ministries of health or schools of medicine. In the first case, the schools of public health are essentially devoted to training workers for the health institutions; in the second, they are dominated by the power of the physicians. In both situations, the operative and ideological authority is in the hands of the medical establishment. Other participants considered it more logical for the schools of medicine to form part of the schools of public health.

With respect to teaching, it was generally recommended that the subject of public health be dealt with from a dialogical and problem-based perspective that extends beyond the narrow limits of specific disciplines, fostering a transdisciplinary approach more suitable to the multiple dimensions of the topic.

It is necessary to move beyond the false dichotomies so that theory goes hand-in-hand with practice and practice becomes capable of generating theory. With regard to the



conflict of the generalist versus the specialist, a strategy was recommended that starts with the specialist, reaching the generalist through a variety of activities. Likewise, broader utilization of health services personnel in teaching activities was proposed, in addition to a practice guided by the notion of thinking globally and acting locally.

The problem of the relationship between the schools of public health and social needs is linked to different stages in the evolution of public health issues, at one time concerned about the demands deriving from the expectations placed on development and, currently obliged to take charge of administrative and managerial problems. Throughout history, health has been a crossroads where disciplines and approaches come together.

The multiple viewpoints expressed during the debates may be summed up in three main lines of change proposed by various participants as possible strategies for responding to the emerging challenges of the crisis.

The first strategy proposed is based on differentiating the role of the health professionals. In the broadest sense, as citizens, they participate in the public debate on the social and political issues linked with health conditions. In their particular areas of intervention, related to their role as specialists, they must concentrate on the struggle against disease. As faculty or administrators in the schools of public health, their best contribution would be to explain the factors that produce disease and help foster the conditions for its prevention and treatment.

The second strategy seeks to reinforce the work of public health through the incorporation of other disciplines that can enhance its capacity to address the issue of health and disease. The linkage between health and development remains very important in this strategy. A complex matter, it should employ multiple approaches in analyzing the problems at hand and in laying out new paths for health reform that demand the shared contributions of various fields of knowledge. The construction of a new field to approach the health-disease in development issue requires interdisciplinary efforts and the creation of health teams that will step back from the prevailing curative/biological paradigm and expand the sphere of action of public health.

The third strategy consists of defining a new object of work. This new object of work will be formulated on the basis of a radical departure from the traditional concern of public health, abandoning even the word *public* in order to attend to something that is recognized as part of health and is basically defined as capacity for its comprehensive development. This is a new way of generating and using knowledge, based on the collective construction of genuine health reform.

It is not an alternative strategy but the opening of a new field that does not conflict with other, no doubt essential fields, such as those related to the organization of the social response to disease. A perspective of complementarity or mutual reinforcement may be envisaged if both areas are constructed with sufficient autonomy.

This new transdisciplinary field should preferably be developed in an academic setting to enable it to take advantage of the opportunities that the University provides for generating and disseminating knowledge. Health promotion, continuing education, and cost/benefit analyses should figure among its chief concerns, but its main responsibility should be to function as a mediator between:

- a) The production of scientific knowledge and the definition of abilities, instruments, and techniques for operating in a new reality.
- b) Social groups and actors who will articulate the academic environment with the forums in which the needs of the population are expressed and the political agenda for important social issues is created.
- c) The field of health and the new demands deriving from environmental problems and all the needs linked to life.

### **Theory in Public Health: Challenges for Education**

One problem universally recognized by the participants was the meager research being carried out in the schools of public health, a situation that is related both to the lack of resources and the total lack of field experience among the majority of educators. There is no tradition of research. The faculty lacks the training required for investigation and, consequently, is also unable to direct research. The need for strengthening both the provision of resources and training in research methodologies and techniques was a major concern of the representatives of the schools. It was concluded that the foundations for the production of knowledge are not adequate, either from an epistemological, theoretical, or methodological standpoint or from the standpoint of infrastructure, financing, or the science and technology policies of many countries of the Region. It must be pointed out, however, that this situation varies from country to country. In some countries, public health research has shown substantive development, even in operations research.

As to how research should be channeled, it was agreed that it should be adapted to the changes that are taking place. Hence, the schools should introduce research plans, in both the services and the other areas of practice related to health, and on the basis of these plans, continue to reformulate their output of knowledge, considering the objective of health/disease/care and the mobilization of the personnel committed to the realization of that object.

Another of the problems highlighted is the gap that has arisen between the theoretical approach, related in particular to epistemology, philosophy, sociology, history, and policy, on the one hand, and the daily needs that must be satisfied by health workers, on the other. This leads to a demand for practical knowledge, that is not always satisfied, and to a tendency to establish the contents of the teaching programs from analyzing health problems and their determinants. This detracts from the teaching of social and economic disciplines related to the emergence of

problems related to health and disease and their solution, as well as the articulation of these disciplines with the specific organizational and managerial needs of the different agents working in the sector.

The crisis began outside the health sector and was then transferred to its interior. Two major areas in which the demands of the sector should be resolved can therefore be defined: the macrospace, which, particularly in Latin America, is linked to democratization, the reform of the State and the health sector, and the problems associated with equity and governance; and the microspace, no less important and characterized by urgent demands related to the delivery of individual or collective health services. Articulating both spaces while assigning each the importance it demands is one of the imperatives in constructing a new theory of public health.

One of the important knowledge-related problems whose solution would make a positive contribution to public health is the study of poverty. The advances in political economy and other social sciences in this regard could be very useful, since their natural correlate is the area of human development.

Articulation of this kind presupposes a short-term strategy, in addition to a medium-term one that would encompass larger scenarios than the sectoral sphere. It also assumes that both time-framed levels are strategic in nature and enjoy reciprocal legitimacy, and as a result, have been mutually strengthened. Another consideration to be emphasized is that the articulation between academia, the services, and the population must include the participation of all actors as protagonists in building public opinion.

### **Declaration of the I Pan American Conference on Education in Public Health Equity, Sustainability, Democracy: Health and Public Health Education for the XXI Century**

The participants in the First Pan American Conference on Education in Public Health, held in Rio de Janeiro, Brazil, from 14-18 August 1994:

#### **Consider:**

- Health is a fundamental resource for human development, but inequities in accessing its basic prerequisites --in social, economic, political, environmental and health care terms-- result in an enormous waste of human capabilities.
- Changes taking place in the majority of countries generally favor the achievement of health objectives and expectations, but may also deepen the deficiencies of society's system of responses to health needs.
- Health reform, comprises both the reform for health-involving the basic health prerequisites-- and the reform of the public health and medical care systems, as a means to ensure full coverage of the population.
- The achievement of higher levels of equity, the assurance of an economic activity that is ecologically

sustainable for the present and future generations, and the promotion of participatory democracy in which those making decisions about health are accountable to those whose health is affected, are essential elements for all-inclusive health promotion.

#### **Declare:**

- The role of public health is to strengthen the capability of society to build its own health and realize its full human potential.
- To this end, a real coalition for health must be developed to lead and sustain the public health dialogue involving communities in a comprehensive effort to create healthier conditions, with society's resources directed at supporting local development and propitiating the decentralization of power to local governments.
- With respect to the reform of public health and medical care systems, the efficiency of the organization of services aiming to offer universal access must be critically examine as well as the efficacy and quality of practice for improving of the health of the people.

#### **Propose:**

- Public health education must support the public health field in its tasks of pursuing reform for health, and must focus first on the determinants of health and on the combination of policies, programs and activities at all levels that will best promote health and lead to the highest possible level of human development, guided by the values of equity, sustainability and democracy.
- A network of education and knowledge-producing centers, trans-disciplinary and international, with offerings ranging from popular education to the doctoral level must be developed. Schools and programs of public health are important nodes in this network.
- In order to effectively contribute to reform for health and reform of the public health and medical care services, and to participate effectively in public health education, institutions and programs involved will have to address a number of challenges:
  - a. Development of a new science based on a new understanding of health.
  - b. Establishment of a clear value base for public health built on equity, sustainability and democracy.
  - c. Strengthening of links between practitioners and local communities on the one hand, and faculty and students on the other.
  - d. Strengthening of interdisciplinary teaching opportunities, so that public health students can learn integrally from those disciplines and vice-versa.
  - e. Valuing of qualitative research methods on an equal basis with quantitative research methods, recognizing social relevance as a key aspect of quality in research.

f. Re-establishment of a balance between teaching and research, which requires challenging the primacy of incentives that reward research and its dissemination over teaching and practice.

**Recommend that:**

- Recognizing the profound philosophical, social and practical challenges posed by the need for a renewed public health education and research that can address the crisis in public health and the need for reform for health and reform of the public health and medical care systems, we commit ourselves to further the debate about these issues, as well as the necessary developments, at the national, sub-regional and regional levels.
- We encourage all constituencies involved to continue to support the exchange of ideas and experience in the field of public health education and research throughout the Americas.

**Joint Proposal for Collaboration between ASPH and ALAESP**

I. ASPH and ALAESP are in agreement with the common goal of organizing and developing the field of public health and promoting mutual collaboration.

II. In order to strengthen this collaboration, ASPH and ALAESP shall work together to develop a database that characterizes the member institutions of the two organizations.

III. ASPH and ALAESP agree on increasing the exchange of ideas by:

- Facilitating the exchange of students and professors between the member institutions.
- Jointly organizing workshops for the training of professors.
- Promoting individual and institutional collaborative research.

IV. In order to develop and implement these objectives, ASPH and ALAESP shall name a joint committee comprised of three members from each organization.

V. Both organizations shall work toward holding the II Pan American Conference of Public Health Education in 1997.

VI. ASPH and ALAESP shall jointly seek funds in order to realize these goals.

**Source:** Division of Health Systems and Services Development, Human Resources Development Program, HSP/HSR, PAHO.

## **IV Cuban Congress of Hygiene and Epidemiology II National Workshop on Cuban Epidemic Neuropathy**

The Cuban Society of Hygiene and Epidemiology sent the following note to the Editors of the Epidemiological Bulletin:

“The IV National Congress of Hygiene and Epidemiology scheduled to be held in La Habana, Cuba from 25 to 28 of october, 1995 has been postponed to **18 to 22 of november 1996** and will be held with the same purposes previously announced. We regret any inconveniences this change might bring.

For additional information please contact the Permanent Secretariat of the IV Congress of Hygiene and Epidemiology: National Council of Scientific Societies of the Ministry of Health. Calle L, No.406 e/23 and 25, Vedado, Plaza la Revolucion. CP 10400, La Habana 4  
FAX: (537) 331422 or 336444;  
TELEX: 511893 ORTOP CU”.

## Human rabies in the Americas

In 1983 a regional initiative was launched to eradicate rabies in the principal cities of Latin America. Since then, the number of human cases in the Region has dropped. The first targets were 414 cities in 20 countries (including the capitals) with a total human population of 155 million (56% of the Region's total urban population) and an estimated canine population of 16 million. Strategies have focused on mass vaccination campaigns for dogs in endemic areas (aiming at over 80% coverage), improved medical attention for persons exposed to the rabies virus, and epidemiologic surveillance. Community participation campaigns have been successful, as have efforts to ensure cooperation between countries and intersectoral coordination, chiefly between the health and agriculture sectors. In this connection, the Inter-American Meeting, at the Ministerial Level, on Animal Health (RIMSAs) has been the principal forum for sustaining the policy decision to eradicate rabies. Countries can be grouped into the following three categories with regard to their rabies situation:

- Countries in which rabies either has never been recorded or has been entirely eradicated (most of the countries and territories of the English-speaking Caribbean, Belize, and Uruguay).
- Countries that have been able to control or eradicate rabies in household pets (mainly cats and dogs) but still report enzootic rabies in wild animals (Canada, Chile, Costa Rica, Cuba, French Guiana, Grenada, Guyana, Panama, Suriname, Trinidad and Tobago, and the United States).
- Countries in which dogs continue to be the main vector of human rabies (Argentina, Bolivia, Brazil, Colombia, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Paraguay, Peru, and Venezuela).

The average annual number of reported cases went from 258 in the period 1970-1979 to 293 in the period 1980-1989. (Table 1).

Table 1  
Reported cases of human rabies, by country

Country	Annual average		Year				
	1970-1979	1980-1989	1990	1991	1992	1993	1994
<b>Andean Area</b>	52	93	95	75	92	88	60
Bolivia	3	12	8	11	25	16	6
Colombia	12	18	12	5	8	5	2
Ecuador	18	23	12	20	36	31	11
Peru	12	34	62	37	22	34	41
Venezuela	7	6	1	2	1	2	0
<b>Southern Cone</b>	11	7	2	5	3	3	2
Argentina	8	1	0	0	0	0	1
Chile	1	0	0	0	0	0	0
Paraguay	2	6	2	5	3	3	1
Uruguay	0	0	0	0	0	0	0
<b>Brazil</b>	100	84	73	70	60	50	22
<b>Central America</b>	23	37	9	8	30	37	30
Belize	1	1	0	0	0	0	0
Costa Rica	1	0	0	0	0	0	0
El Salvador	10	17	3	7	19	15	13
Guatemala	4	9	3	1	6	20	13
Honduras	4	7	2	0	2	0	1
Nicaragua	2	3	1	0	3	2	1
Panama	1	0	0	0	0	0	2
<b>Mexico</b>	62	65	69	48	35	29	24
<b>Latin Caribbean</b>	7	7	3	6	4	6	5
Cuba	2	0	1	1	0	1	0
Dominican Republic	3	4	1	2	1	1	2
Haiti	2	3	1	3	3	4	3
<b>North America</b>	3	-	1	3	1	2	-
Canada	1	-	-	-	-	-	-
United States of America	2	-	1	3	1	2	6
<b>Total</b>	258	293	252	215	225	215	149

Between 1990 and 1994, three countries (Brazil, Mexico, and Peru) accounted for 65% of the total number of human rabies cases reported in the Americas. Belize, Costa Rica, Chile y Uruguay, have not recorded any human or canine cases since at least 1990.

Urban rabies is down significantly. Between 1989 and 1992, only four major cities reported cases of human rabies, most of the cases are reported in towns with population less than 50,000 inhabitants. In 1992, however, two cities (Lima and Guayaquil) reported cases of both human and canine rabies after having had no cases for 10 and 2 years, respectively.

Specific mortality from rabies has dropped from 1.3 cases per 1,000,000 population in 1980 to 0.3 cases per 1,000,000 in 1993.

Data obtained from 692 cases reported in Latin America between 1990 and 1992 indicate that human rabies occurs most frequently in the 6-to-20-year age group, and more commonly among males than females. In United States, 33 cases of human rabies death have been reported during 1977-1994.

The incidence of canine rabies in Latin America has fallen from an average of 20,518 cases reported per year between 1980 and 1982 to an average of 8,069 per year in the period of 1991-1993. However, between 1987 and 1990 case numbers rose in the Andean subregion and in Mexico, which together accounted for 89% of Latin America's canine rabies cases. The annual average for the period was 17,655 cases. Since 1990, Mexico has witnessed a steady decline in case numbers, and the 1993 figures were 83.9% lower than those for 1980.

In 1993 53.9% of the territory of Latin America was affected by rabies transmitted by dogs. This area had a population of 303 million inhabitants and 35.5 million dogs (64.2 and 71.5% of the total populations respectively).

In the period 1990-1993, dogs were the source of infection in 84.1% of the human cases, bats were responsible for 7.2% of the cases, cats 4.0%, and other animals (monkeys, wolves, coyotes) 4.7%.

In Canada and the United States, 71.4% of the cases reported in animals in 1991 and 1992 involved wildlife, mainly foxes (*Vulpes fulva* and *Urocyon cinereoargenteus*) in Canada, and raccoons (*Procyon lotor*) and skunks (*Mephitis mephitis*) in the United

States. Mongooses continue to be reservoirs of rabies in Cuba, the Dominican Republic, Grenada, and Puerto Rico.

Rabies transmission by vampire bats is an important public health and economic concern in Latin America, French Guiana, Guyana, Suriname, and Trinidad and Tobago. Of the three known species, the principal vector of rabies in the Americas is *Desmodus rotundus*, which is found from Mexico to northeastern Argentina. Areas in which vampire bats are endemic have an estimated human population of 19,960,000 and a cattle population of 49,767,000. In the last 5 years, special attention has been given to cases of human rabies transmitted by vampire bats, owing to outbreaks that have occurred in human groups that were exposed to rabies as a result of moving into natural ecosystems. Since 1989, 73 human deaths have been attributed to rabies transmitted by vampire bats.

According to estimates, Latin American industry loses more than US\$ 40 million per year from vampire bat-transmitted rabies in terms of cattle mortality, losses of milk and meat, and devaluation of hides caused by bites.

From 13 to 15 February 1995, an evaluation of the national programs and an assessment of the rabies situation in each country and the region was made during the Fifth Meeting of Rabies Elimination National Program Directors, held in Santo Domingo, Dominican Republic. Some of the most important recommendations of this meeting are related to: improvement of training of public health workers; strengthening of epidemiological surveillance systems even in countries free of rabies transmitted by dogs; development of educational programs and strategies for the community and for health workers; and creation of a Regional Committee for the Elimination of Rabies in the Americas.

The complete report of the Santo Domingo meeting can be requested from PAHO's Veterinary Public Health Program, 525 23rd St. NW Washington DC, 20037 or by Fax st (202) 861-8188.

**Source:** Division of Communicable Disease Prevention and Control, Veterinary Public Health Program, HPC/HCV, PAHO.

# International Classification of Diseases, Tenth Revision

The Tenth Revision of the International Statistical Classification of Diseases and Related Health Problems (ICD-10) is the most recent revision of the work begun in 1893 with the Bertillon Classification, or International List of Causes of Death. Over the past 100 years, ten revisions have been made, augmenting the 161 causes of death in Bertillon's original list to the current 2,036 categories, presented in 21 chapters.

Until the Fifth, the international revision conferences were convened by the Government of France; beginning with the Sixth Revision, in 1948, the World Health Organization has been responsible for the revision, publication, and dissemination of this work.

## Characteristics

The need to expand the number of categories in the Classification, owing to the discovery of new diseases (such as AIDS) and a better understanding of many others, as well as to include new factors that impact health status, led to the adoption of an alphanumeric coding system in the Tenth Revision. Utilizing a letter as the first character, followed by two (or three) digits, a total of 2,600 three-character categories and 26,000 four-character subcategories are available (versus 1,000 and 10,000, respectively, in ICD-9). Twenty-five of the 26 available letters were used; the letter "U" was left vacant for future additions and changes and for special studies between revisions. Consequently, 2,500 categories are actually available, 2,036 of which have been used.

The sequence of chapters in ICD-10 is almost the same as in ICD-9. However, disorders of the immune mechanism, which in the ICD-9 had been included with endocrine, nutritional and metabolic diseases, in the ICD-10 are included with diseases of the blood and blood-forming organs. The new chapter, *III. Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism* follows the "Neoplasms" chapter and shares the letter D with it. It was not possible to accommodate all the required detail for the chapter on diseases of the nervous system and sense organs under one letter in 100 three-character categories; hence, three separate chapters were created: *VI Diseases of the nervous system*, having the letter G, and the two chapters *VII Diseases of the eye and adnexa* and *VIII Diseases of the ear and mastoid process* sharing the letter H. Also, chapters *Diseases of the genitourinary system*, *Pregnancy, childbirth and the puerperium*, *Certain conditions originating in the perinatal period*, and *Congenital malformations, deformations and chromosomal abnormalities* were brought together as contiguous chapters XIV to XVII.

Substantial changes were introduced in chapters *V Mental and behavioral disorders*, *XIX Injury, poisoning and certain other consequences of external causes*, and *XX External causes of morbidity and mortality*. In ICD-9 the latter was a supplementary classification of external causes of injury and poisoning. The ICD-9 supplementary classification of factors influencing health status and contact with health services became chapter XXI ICD-10.

The dual classification scheme introduced in the Ninth

Revision for etiology and manifestation, known as the "dagger and asterisk," has been retained and expanded in the ICD-10. The basic cause or underlying disease process is assigned a code marked with a dagger (+), and its clinical manifestation another, marked with an asterisk (\*), with the two used jointly. An example of this is the coding of tuberculosis of the spinal column, which is coded as A18.0+ (Chapter I - *Certain infectious and parasitic diseases*) as the basic cause and as M49.0\* (Chapter XIII - *Diseases of the musculoskeletal system and connective tissue*) as its clinical manifestation.

The Revision Conference agreed to retain the definitions of live birth and fetal death, as well as of maternal death, as they appeared in the Ninth Revision. However, two additional definitions were adopted, for "pregnancy-related death" and "late maternal death." The purpose of these is to improve the quality of maternal mortality data and provide alternative methods of collecting data on deaths during pregnancy or related to it, as well as to encourage the recording of deaths from obstetric causes occurring more than 42 days following termination of pregnancy. The Conference recommended that countries consider the inclusion on death certificates of questions regarding current pregnancy and pregnancy within one year preceding death. In addition, according to the ICD-10 the perinatal period commences at 22 completed weeks (154 days) of gestation (the time when birth weight is normally 500 g), and ends seven completed days after birth.

Another important point related to the ICD-10 is the concept of a "family of classifications", of which the list of three-character categories is the core. It has been clear for some time, especially since the 1970s when the Ninth Revision was prepared, that no single classification can meet all the needs related to the organization of knowledge in health, including detailed information on all known diseases, as well as external causes, social and environmental factors that impact health, procedures in medicine, disabilities, lay reporting, etc.

Hence, the International Conference for the Tenth Revision of the International Classification of Diseases (Geneva, Switzerland, 1989) recommended, and the 43rd World Health Assembly (1990) approved, in relation to this subject:

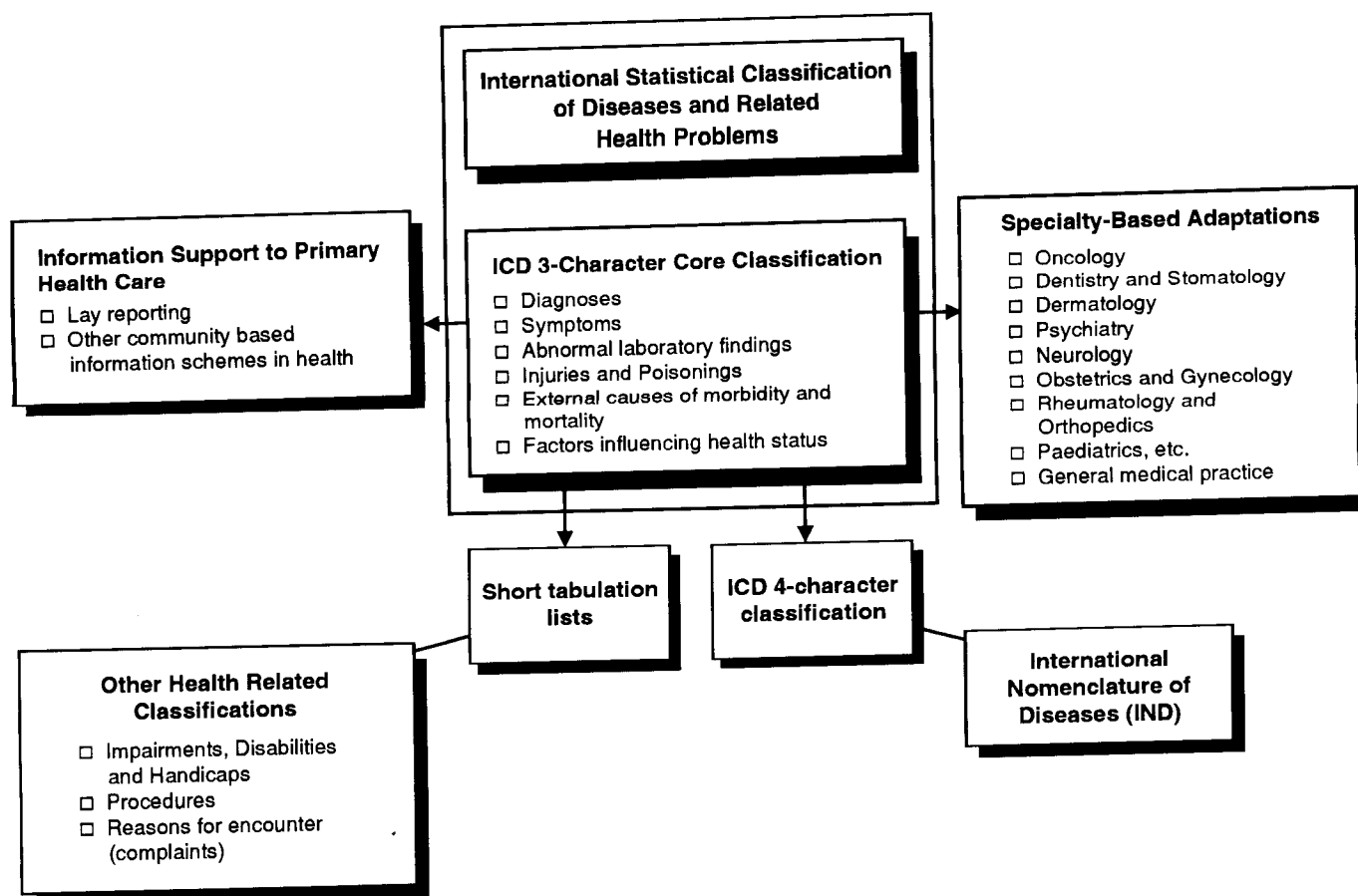
"Endorsed the recommendations of the Conference regarding

(1) the concept and implementation of a family of disease and health-related classifications, with the International Statistical Classification of Diseases and Related Health Problems as the core classification surrounded by a number of related and supplementary classifications and the International Nomenclature of Diseases;

(2) the establishment of an updating process within the ten-year revision cycle." (43rd World Health Assembly, Geneva, 1990).

The scheme with the "members" of the family of classifications is shown in Figure 1.

**Figure 1**  
**Family of disease and health-related classifications**



The ICD-10 is presented in three volumes, with the following contents:

**- Volume 1**

Introduction; WHO Collaborating Centers for Classification of Diseases; Report of the International Conference for the Tenth Revision of the International Classification of Diseases; List of three-character categories; Tabular list of inclusions and four-character subcategories; Morphology of neoplasms; Special tabulation lists for mortality and morbidity; Definitions; Regulations regarding nomenclature.

**- Volume 2**

Description of the International Statistical Classification of Diseases and Related Health Problems; How to use the ICD; Rules and guidelines for mortality and morbidity coding; Statistical presentation; History of the development of the ICD.

**- Volume 3**

Alphabetical index to diseases and nature of injury; External causes of injury; Table of drugs and chemicals; Corrigenda to Volume 1.

**Meeting of WHO Collaborating Centers - Caracas, 1994**

From 18 to 24 October 1994, in Caracas, Venezuela, the Venezuelan Center for the Classification of Diseases (CEVECE), WHO Collaborating Center for the Classification of Diseases in Spanish, hosted the annual Meeting of Directors of Collaborating Centers. In attendance were the Directors of the Collaborating Centers for Classification of Diseases in Brazil, North America, Nordic countries, London, France, Australia, and Kuwait (the new Collaborating Center for the Arabic language), as well as representatives of several national centers, WHO, PAHO and world experts in the field.



At the meeting, each Collaborating Center presented a report on its activities related to special studies on morbidity and mortality, training of personnel, and preparations for the implementation of ICD-10. In addition, reports were presented on the activities of WHO, PAHO, and SEARO (WHO Regional Office for South-East Asia), and national activity reports were presented by representatives of Canada, The Netherlands, Mexico, and Japan.

There were also presentations on various analytical studies, such as on multiple causes of death, use of the dagger and asterisk coding system, use of mortality data as basic and complementary information for epidemiological surveillance, use of the Classification of Procedures in Medicine and the Classification of Impairments, Disabilities, and Handicaps, *inter alia*. Special mention should be made of the following presentations:

- Automated classification of the underlying cause of death, using a microcomputer, by the Brazilian Collaborating Center (CBCD). A Spanish version of the system for selection of underlying cause should be available in 1996, through technical cooperation between PAHO and CBCD. The system was considered very easy to use and extremely useful.

- Report on improving the basic data on the basis of lessons learned from the use of ICD-9, presented by the PAHO Health Situation Analysis Program (HDA/HDP). The study was extremely well received by the participants at the Meeting. It emphasized the long tradition of using the ICD in Region of the Americas and the current challenge of improving the coverage and quality of the data.

- A historical summary of the more than 40 years of activity of the CEVECE (Venezuelan Center), the first Center for the Classification of Diseases in Latin America, and its contribution to the development of health statistics in the Hemisphere.

Finally, the implementation of ICD-10 was discussed (see below).

### Implementation of the ICD-10

Although the International Conference for the Tenth Revision recommended the use of the ICD-10 beginning in January 1993, several problems have delayed implementation. Very few countries have already begun to use the ICD-10 for coding mortality and morbidity.

Denmark is one, having begun using the ICD-10 in 1994; the ICD-9 was never used in that country, which went directly from using the Eighth to the Tenth ICD Revision.

Throughout the world, preparations are under way for general use of the Tenth Revision beginning in January 1996, as is expected in virtually the entire Region of the Americas.

To implement the ICD-10 in our Region, PAHO is preparing training workshops for the second half of 1995 to instruct personnel in the use of the Tenth Revision. Three workshops will be conducted in Spanish, as a joint activity of PAHO and CEVECE, and two in English, for Caribbean countries, as a joint effort by PAHO and the Collaborating Center for North America. Following the workshops, countries will undertake national-level training and reorientation of coders.

The Brazilian Center will be in charge of activities for implementation of the ICD-10 (in Portuguese) in Brazil in 1996. In North America, use of the ICD-10 will commence in 1997, with retroactive dual coding (ICD-9 and ICD-10) of data for 1995 and 1996, and in the French-speaking countries of the Hemisphere (with the support of the Centers for North America and France) between 1996 and 1997.

For implementation of the ICD-10, all three volumes of the ICD are needed in each language. As of March 1995 the situation is as follows: English and French, all three volumes are available. Portuguese, Volumes 1 and 2 are available; Volume 3 is in preparation. Spanish, Volume 1 is in press; Volume 2 is under review; and Volume 3 (Index) is in preparation.

It is important to note that the implementation of a new revision of the International Classification of Diseases does not merely imply a change in the codes assigned to diseases and related health problems. Further, it should be taken as an opportunity for review of everything connected to health statistics and health situation analysis, indispensable ingredients in support of decision-making and the implementation of policies and programs geared toward improving the health situation of the population, understanding health as an inherent human right and the basis for personal and social development that is both comprehensive and equitable.

Source: Division of Health and Development, Health Situation Analysis Program, HDP/HDA, PAHO.

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