

Epidemiological Bulletin

PAN AMERICAN HEALTH ORGANIZATION

Vol. 14, No. 4

December 1993

Dengue in the Americas

An Update

Each year, millions of people contract dengue virus infection in countries of Asia, Africa, the Pacific Islands and the Americas. The great majority of these infections consist of the classical form of dengue, undifferentiated fever, or asymptomatic infections. Each year tens to hundreds of thousands of cases of the most serious form of dengue, dengue hemorrhagic fever and dengue shock syndrome (DHF/DSS), are reported; most occur in Southeast Asia. However, two important epidemics of DHF/DSS have occurred in the Americas: one in Cuba (1981), and another in Venezuela (1989/1990), and the disease has been spreading to other countries in the Region. The case-fatality ratio in hospitalized cases may vary from less than 1% to nearly 5% in different countries.

During the 1980s, there was a considerable increase in the magnitude of the problem of dengue in the Americas that was characterized by a marked geographical spread of dengue activity in the Region. In 1982 an epidemic occurred in northern Brazil caused by serotypes 1 and 4. In 1986 a major dengue-1 outbreak affected the city of Rio de Janeiro, and the virus subsequently spread to several other Brazilian states. Four more countries without previous history of dengue or without record of the disease for several decades experienced large-scale dengue-1 epidemics: Bolivia (1987), Paraguay

(1988), Ecuador (1988), and Peru (1990). During the outbreak in Peru, dengue-4 was also isolated. Serological studies suggested that several million people had been affected during these outbreaks, although only approximately 240,000 cases were reported by the five countries during the period 1986-1990. In addition, there was a marked increase in the appearance of dengue hemorrhagic fever/dengue shock syndrome (DHF/DSS). During 1993 the last two tropical Latin American countries free of dengue for the past decades, namely Costa Rica and Panama, reported indigenous transmission of dengue. Until December 1, 1993, Costa Rica reported 4103 suspected dengue cases. In Panama fourteen cases were reported through the end of 1993. It should be noted that all of the countries in the Region with the exception of Canada, Bermuda, Cayman Islands, Chile and Uruguay are now infested with *Aedes aegypti*.

Before 1980 only sporadic cases of suspected Dengue hemorrhagic fever were reported in the Americas. These reports came from Curacao and Venezuela in the 1960s and from Honduras, Jamaica, and Puerto Rico in the 1970s. Only some cases were confirmed by laboratory. The epidemic that affected Cuba in 1981 was the most important event in the history of dengue in the Americas. During this epidemic, associated with dengue-2 virus, a total of

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344,203 cases of dengue were notified, of which 10,312 were classified as serious (degrees II-IV according to WHO classification), and 158 deaths (of which 101 were among children). Some 116,143 people were hospitalized, most of them during a three-month period. An effective *Aedes aegypti* control program was quickly implemented by Cuban health authorities which resulted in the elimination of dengue.

The second important outbreak of DHF/DSS in the Americas took place in Venezuela. It began in October 1989, reached its maximum level in January 1990, then diminished, and apparently ended in April 1990. However, cases of hemorrhagic dengue were reported in Venezuela throughout 1990 and also during 1991 and 1992, suggesting that DHF is becoming endemic in that country. A total of 8,619 cases of DHF were notified, including 117 deaths (Table 1). Approximately two thirds of these cases and deaths were among children under 14 years of age. Serotypes 1, 2, and 4 were isolated during these outbreaks. From 1981 to 1992, with the exception of 1983, confirmed cases of DHF have been reported annually that meet the requirements of case definition prescribed by WHO.

The countries or territories that have reported cases of DHF or serious hemorrhagic disease included Suriname, Mexico, the Dominican Republic, Aruba, Nicaragua, Colombia, Puerto Rico,

Saint Lucia, the U. S. Virgin Islands, French Guiana, Brazil, El Salvador, Honduras, Cuba, and Venezuela. Most have reported fewer than 10 cases; but a few, such as Brazil, El Salvador, Colombia, French Guiana and Puerto Rico have each had over 40 cases. Puerto Rico has reported laboratory confirmed cases of DHF/DSS every year from 1985 through 1990 and the disease is now considered to be endemic in the island. Brazil reported a few sporadic cases associated with dengue-1 virus infection during 1986-1987. Following the introduction of dengue-2 virus in that country in 1990, an outbreak of DHF was reported in Rio de Janeiro in the latter part of 1990 with 274 cases and 3 deaths; an additional 188 cases were reported in 1991. In 1991 dengue virus-2 was detected in two other Brazilian states, one of which was previously infected with dengue-1, but to date no hemorrhagic disease associated with dengue infection has been reported by these states. El Salvador reported 153 cases (7 fatal) of DHF in 1987-1988 and 1 in 1991, but only a few were laboratory confirmed. Colombia reported 39 confirmed cases of DHF in 1990 and an additional 97 and 496 in 1991 and 1992, respectively; this situation may lead to endemicity of DHF in Colombia. All cases reported from French Guiana occurred during 1991-1992. Ten countries reported cases and deaths of DHF from 1988 to 1992 (Table 1).

Table 1
Reported Cases and Deaths of Dengue Hemorrhagic Fever
in the Americas, 1988 - 1992

COUNTRY	YEARS				
	1988	1989	1990	1991	1992
Brazil	-	-	274 (8)	188 (?)	-
Colombia	-	1 (0)	39 (1)	97 (0)	496 (4)
El Salvador	74 (4)****	-	-	-	-
French Guiana	-	-	-	15 (3) *	44 (1) *
Honduras	-	-	-	16 (1) **	1 (0)
Mexico	-	4 (1)***	-	2 (0)	-
Nicaragua	-	-	-	-	559 (4)
Puerto Rico	8 (0)	12 (5)	6 (1)	14 (1)	9 (2)*
Dominican Republic	4 (2)	-	2 (0)	7 (0)	2 (?)
Venezuela	-	2,665 (27)	3,325 (52)	1,980 (26)	649 (12)
TOTAL	86 (6)	2,682 (33)	3,646 (62)	2,319 (31)	1,760 (23)

- () Number of deaths.
- No cases reported.
- * Provisional data.
- ** All 16 cases were confirmed by laboratory, but only 3 met the WHO case definition.
- *** Clinically suspected, but not confirmed by laboratory.
- **** Only some cases were confirmed by laboratory.

The number of cases of dengue reported by the countries from 1988 to 1992 varied from 47,783 in 1988 to 155,543 in 1991, with Colombia, Venezuela, Brazil, Mexico, Paraguay, Guatemala, Honduras,

Nicaragua and Puerto Rico reporting the highest number of cases. (Table 2)

Source: Viral Diseases Program, Division of Communicable Diseases Prevention and Control, PAHO.

Table 2
Reported Cases of Dengue in the Americas, 1988 - 1992

COUNTRY	YEARS				
	1988	1989	1990	1991	1992
SOUTH AMERICA	4,847 (1)	-	-	-	-
Bolivia	190 (1)	5,334 (1)	40,642 (1,2)	97,209 (1,2)	3,501 (1,2)
Brazil	16,308 (1,2,4)	10,092	17,389 (1,2,4)	15,103	59,357 (1,2,4)
Colombia	25 (1)	19	302	94 (1)	137 (1)
Ecuador	405 (1)	41,800	-	-	-
Paraguay	-	-	7,858 (1,4)	714	1,971 (1,4)
Peru	12	4,025 (1,2,4)	10,962	6,559 (2)	2,707
Venezuela	-	-	-	-	-
CENT. AMERICA	-	-	-	-	-
Costa Rica	1,786	518	2,381	1,273 (4)	884 (1,4)
El Salvador	5,175 (1,2)	7,448 (1,2)	5,757 (1)	10,968 (1,2,4)	1,286 (1,2)
Guatemala	844 (1,2,4)	2,507 (1,2)	1,700 (1,2,4)	5,303 (1,2,4)	2,113*(1,2,4)
Honduras	203	659	4,137 (2)	1,885	4,936 (4)
Nicaragua	-	-	-	-	-
Panama	-	-	-	-	-
NORTH AMERICA	124 (2,4)	94 (1,2,3)	102 (1,2,3)
U. S. A.**	10,526 (1,4)	7,120 (1)	14,485 (1,4)	5,863 (2,4)	11,348 (2,4)
Mexico	-	-	-	-	-
LATIN CARIB.	-	-	-	-	-
Cuba	-	-	-	-	-
Haiti	-	-	-	-	-
Puerto Rico	6,539 (1,2,4)	9,003 (1,2,4)	9,450 (1,2,4)	10,305 (1,2,4)	13,000*(1,2,4)
Dom. Rep.	164 (1,2,4)	7	39 (2)	24 (1,2,4)	105
ENGLISH CAR.	-	-	-	-	-
Anguilla	-	-	12	-	-
Ant. & Barb.	-	-	1	1	-
Aruba	-	-	-	-	-
Bahamas	-	87 (2)	2	-	-
Barbados	10 (2)	45 (2)	236 (1)	21	4 (4)
Belize	-	-	2 (1)	-	-
Bonaire	-	-	-	-	-
Dominica	-	-	6 (2)	12	-
Grenada	-	1	3 (1)	1	1 (2)
Guadeloupe	41	37	12	51	75
Fr. Guiana	-	-	-	... (2)	... (1,2)
Guyana	-	-	3	-	2
Vir. Is. (US)	380 (1,2,4)	275 (1,2)	339 (1,2,4)	62	48
Vir. Is. (UK)	13	-	3	1	2
Jamaica	6	32	9	5	296
Martinique	97 (1)	16	4	-	38
Montserrat	-	-	-	-	-
St. Kitts/Nevis	-	-	-	8	-
St. Lucia	2	4	2	4	-
St. Martin	-	-	-	-	-
St. Vincent	1	-	9 (1)	1	7
Suriname	5 (2)	4	16	40	24 (1)
Trinidad/Tob.	80 (2)	11 (2)	526 (1,2)	36 (1,2)	116 (1,2,4)
TOTAL	47,783	89,138	116,389	155,543	101,958

No cases were reported in Bermuda, Curacao, Cayman Islands, and Turks and Caicos Islands.

- () Virus serotype
- No cases reported
- ... Data not available
- * Provisional figures
- ** Imported cases

Source: Division of Disease Prevention and Control, HPC, PAHO.

Leadership and Management of Local Health Systems:

The potential of in-service training

The expanding processes of decentralization and democratization are creating new demands and problems for the reform of the State and its relations with civil society. Similarly, the broad social, political, and economic heterogeneity of the countries of the Region means that varying approaches, more innovative and aggressive, must be taken to improving the living and health conditions of different subregions, countries, regions within a single country, and even the different sectors of a single urban area.

In the context of the economic crisis and the policies of structural adjustment, there is a growing need to expand the provision of basic services to the population, including health services, as well as an also growing concern about the cost/benefit ratio of social actions.

Although there is ample theoretical and practical evidence that a global improvement in health conditions requires a multisectoral social response, there is also no doubt about the paradoxical persistence of an approach to health that is focused on disease, on the individual, and on curative medicine.

Throughout the Region of the Americas, governments are increasingly showing a political commitment to the strengthening and development of health services at the local level, as a step toward reorientation of their national health systems.

For such efforts to succeed, several factors must come together to strengthen local health levels in the politico-social, legal-administrative, and strategic-tactical areas. With regard to the latter, there is increasing recognition of the need to strengthen the analytical and decision-making capacities of the local health systems. This can serve as a basis for the development of leadership to move the health sector in the direction of comprehensive health promotion.

In this context there is a significant opportunity for education to contribute to achieving or maintaining the desired direction of public action.

The training of health personnel is an important component of the technical cooperation offered by the Pan American Health Organization. With respect to training in public health, since 1989 greater

emphasis has been placed on continuing education, and in particular on the need to design training which responds to the actual problems and realities encountered by the health services. To this end, two advisory groups on in-service training were convened: one in epidemiology and one in administration. These groups emphasized the need to take into account the different levels within the health systems: the management level (decision-making), the specialized level (in public health and other fields), and the operational level (general and service delivery). In addition, efforts are under way to articulate developments in strategic local administration to the analysis of health services delivery. In 1992, the integration of these elements appeared to be the most promising approach to continuing this line of action, in an effort to foster the development of sectoral leadership--especially at decentralized levels of the health system--as well as the ordering of diverse educational efforts in a given context.

Nonetheless, experience has shown that training efforts in public health have considered the management level as if its functions were as highly instrumental as those of the specialized level; as a result, training has emphasized the use of the latest techniques or tools, and has not succeeded in reaching many professionals. Meanwhile, training at the operational level has reached a greater number of workers, but has been concerned primarily with the control of specific pathologies. In both cases, the approach has been basically individualistic, discipline-centered, sporadic, and lacking monitoring and evaluation.

Moreover, most of the current training modalities have not sufficiently taken into account other practical limitations. For example:

- Tasks carried out by management teams and by human resources in general are of a predominantly routine nature, with little opportunity and little demand for analytical work.
- When studies of the health situation are carried out, they are generally retrospective, descriptive, and are not disseminated

systematically; as a result, they are of very little use for decision-making.

- The allocation of resources among the various services and within them, for the transformation of practice, rarely takes into consideration such kind of inputs.

There are, nonetheless, some promising experiences in the field of continuing education that have been examined in detail in recent years. They point up the need to take into account the changing context, to focus on problems experienced by the health systems and services, and to strengthen the orientation toward health and health practices. Three broad areas of activity in the services stand out:

1. The description and explanation of health problems
2. The processes of policy-making and management
3. The selection, implementation, and evaluation of interventions.

These elements should provide the basis for the training of decision-makers at decentralized levels of the health sector, with a view to strengthening their ability to provide direction in accordance with the objectives and goals of current health policy. All planned and ongoing educational efforts in a given context can be reorganized around these processes.

This type of training has been initiated or is under consideration in some countries of the Region. It is based on a comprehensive conception of health, which is achieved through a process marked by community participation and an organized, multisectoral social response. Its point of departure is the problems of reality and of practice; the provincial and municipal health systems are considered as the basic unit of intervention, thus intervention is directed fundamentally toward their management teams. The model is based on the epidemiological approach, on strategic approaches to planning and administration, and on the theoretical-methodological foundations of the principal strategies for health action (health promotion, disease prevention, and curative medicine) along with monitoring and evaluation of their impact. The proposed training is intended to achieve a massive impact at decentralized levels of the health system, which means that the training must be of relatively short duration.

It is important for its implementation that the

proposal for training be seen as part of a broader political agenda, ideally one supported by all the leadership teams of the country, or at least of one of its regions. It should be based on the optimal utilization of available local resources and on continuous interaction with the learning process.

The **conceptual framework** of the proposed training process has the following main characteristics:

- Health and health practices should be understood in comprehensive terms, based on an integrated vision of the problems of the population (health, social, and human needs or ideals) and their solutions (interventions or responses). Consideration must be given above all to the image and objective of well-being and the quality of life.
- Training by itself does not change reality. Its impact comes through its articulation with political processes and other processes oriented toward the same goals. Accordingly, when one thinks about training one should be thinking strategically, with a vision of the future--a transformed situation--and not only in terms of immediate goals.
- The training should be part of a process of continuing education that ensures continuity and mutual strengthening; at the same time, it should be sufficiently independent to allow it to play a role in the modification of a given health situation.
- Capacities for management and leadership can be developed by continuing education.
- The active participation of the workers and of the population, the valuing of their knowledge, and the democratization of knowledge are key to the process of defining problems and seeking solutions.

Decisions on the educational process should be based on **methodological** considerations such as the following:

- The planning of the teaching-learning process should begin with the identification and understanding of the functional problems experienced by the health systems and services. The next step is to identify those problems which are susceptible to

improvement or solution through training, and finally, to select those that can be positively influenced by training in aspects of public health.

- This approach is based on the identification of problems. It is necessary, therefore, to arrive at a consensus as to what constitutes a problem as well as to define the categories or areas in order to identify problems in accordance with the emphasis or desired direction of the analysis.

- The identification of functional problems of the health systems and services should use three broad frames of reference: their context (the social and health situation in its current and "modified" forms); their contribution to the social model of health practice (model of health services delivery); and the standards, procedures, and processes that underlie their actions (administrative model).

- Together, the latter two shape the formal health practice or organized social response. In this area the need is to identify the existing functional problems of both a qualitative and quantitative nature, in relation to desired patterns of performance defined by current policy, by the health needs of the population, and by the social determination of health and health practices.

- In any given context, the design of the proposed training has as its point of departure the identification of an actual situation--one that is associated with a prevailing practice. The end point is the expected or transformed situation, which can be achieved through a sequence of coherent and articulated work and learning activities.

- An essential prerequisite to the **identification of needs for educational intervention** (or needs for learning), whether collective or individual, is the definition of goals or desired changes in aspects of a given reality that practice can help to modify.

- The monitoring of the educational process is of vital importance in order to ensure the maintenance of its technical and political

orientation, as well as to reinforce and consolidate learning through prompt and continuous feedback.

- With regard to the evaluation of the training process, at the individual level it will suffice to carry out a performance evaluation based on the objectives of the learning process ("inward-looking" evaluation). At the collective level, on the other hand, the local system constitutes the unit and its performance is not simply equivalent to the sum of individual behaviors. Here, attention should focus on the institutional impact--on expected or "hoped-for" changes--and on the impact of these changes on the medium- and long-term reality ("outward-looking" evaluation).

The approach described above should make it possible to carry out efforts adapted to each specific context aimed at strengthening sectoral leadership at decentralized levels of the health system. There are, however, certain considerations regarding content that are relevant to the in-service training of management personnel.

With respect to **the social and health situation**, the process of defining and assigning priority to the health needs of the population must take into account their history, social impact, and current trends. Epidemiological surveillance should be expanded in scope in order to incorporate different expressions of health, as well as their monitoring. These include injuries, exposure to risk, use of technologies or consumption of technological products, and positive health indicators at the levels of the individual and the population. Causal research should encompass the social determination of health and health practices, but should also include an analysis of the environment internal and external to the health sector with a view to identifying factors that explain variations in their trends. Another objective of research should be to illuminate risk situations generated by the policies of other sectors in order to promote the articulation needed to carry out appropriate interventions.

Concerning the **model of health services delivery**, training should promote an understanding of the theory, objectives, and potential of the principal action strategies (health promotion, disease

prevention, and curative medicine). It should include, as well, an analysis of the type of programs or actions that are provided to the population, including their expected outcomes in different places and times. With regard to interventions directed toward the population and the environment, it is necessary to distinguish those actions oriented to individuals from those essentially aimed at populations. This is of utmost practical importance since different approaches are required for the identification of problems and the organization of responses. It is also necessary to recognize, that for many reasons, established knowledge has not been applied for the benefit of the entire population, which has ethical implications. On the other hand, the trends toward decentralization of the services, toward democratization, and toward community participation are opening up space for local political actions that increase the potential for more effective responses to health problems. These responses are based on interventions aimed at populations as well as individuals and are adapted to local realities, making them of greater potential impact.

With regard to both areas (the social and health situation and the model of service delivery), it is essential to take into account the extent of real coverage and the satisfaction and characteristics of the people who request or receive services.

Finally, in terms of the **administrative model**, the training should incorporate strategic considerations linked to planning, to the programming of the local health systems, and to the administration and management of institutions and programs.

Steps should therefore be taken to foster the ability and willingness of personnel to utilize, generate, disseminate, and discuss relevant and timely inputs to decision-making regarding actions and the allocation of resources. Programming must not be seen as a mere instrument or administrative process, but as the mechanism which reconciles the three categories outlined above. The evaluation of policies--as well as of definitions, standards, procedures, and results--is a powerful tool for the rationalizing and validating of operational decisions. There exist methodological vacuums in certain areas, notably in the planning of investments, in the formulation and execution of development projects, in the development of human resources, in the administration of finances and personnel, and in the

evaluation of interventions, especially of technologies.

The relative emphasis given to the different content areas should be adjusted according to the functions of the health personnel (specialized or not), the level of complexity of the system where they work, and the institutional position they occupy or are expected to occupy.

In this regard the following points are worth noting:

- There should be continuing concern to strike a balance between the desire to strengthen the decision-making capacities of managers and how much it is feasible to teach them to do.
- It important to utilize the epidemiological approach and strategic thinking as components of human resources education. These approaches should be articulated with the needs of the health services so that the individual approach gives way to the collective approach.
- Intervention, usually given inadequate consideration or none at all in training or educational efforts, becomes a means of validating the various approaches to health and health practices, according to the results it achieves in the public systems.
- Accordingly, the principal thematic axes of the proposed training model are those of description and explanation, decision-making and management, and provision of health services.

Comments

Generally speaking, past reforms in the national health systems basically affected their organization. In recent years, however, important changes have begun to appear in other essential facets of the systems: financing (privatization), organization (decentralization, including budgetary), delivery of services (new model of care), and community participation (democratization of knowledge and social control).

The rapid and complex contextual changes under way at present make it necessary to introduce equally profound changes into national health policies and planning, as well as into the formation and training

of personnel. Thus, in addition to the emphasis on policies of disease prevention and health promotion in the context of development, the urban health scene will be affected by transformations in the municipal systems and the need for sectoral action to achieve broader outreach. This undoubtedly will influence the execution of the operational tactic of strengthening and developing the local health systems. In essence, this implies local or community development.

The proposal outlined above aims to develop, within a process of continuing education, a line of teaching-learning that is national or regional in scope, with a principal methodological basis that is empirical, flexible, and participatory. In terms of its goals, the proposed training is designed to respond to the imperatives of current national strategy and to promote comprehensive health development, while seeking to remedy anticipated deficiencies or problems of decision-making teams with regard to management and leadership. In terms of method, it can help to promote a shared understanding of the problems of the services; transmit values, conceptions, and other content that is necessarily "desirable" or future; give visibility to the presence or the response of policy-makers in the health sector; organize all the various training efforts in a given context; and provide feedback for regular training

programs and institutions as well as those that specialize in public health.

It is hoped that this effort will make possible a timely response to the need for reorganization of the health services, a need brought about by the political and socioeconomic changes currently affecting the countries of the Region.

Bibliography

1. Pan American Health Organization. *Capacitación para el desarrollo de liderazgo y conducción en los Sistemas Locales de Salud*. Washington, D.C., 1993.
2. Pan American Health Organization. *La administración estratégica*. Washington, D.C., 1992. Paganini, J.M. and Chorny, A. (Eds.)
3. Pan American Health Organization. *La prestación de servicios de salud*. Educ. Med. Salud. 26(3): 295-425, 1992.
4. Pan American Health Organization. *The practice of epidemiology in the health services*. Epidemiological Bulletin, Vol.11, No. 3, 1990.

Source: Special Program of Human Resources Development, HRD; Division of Health Services, HSS; Health Situation Analysis Program\ Division of Health and Development, HDA\HDP, PAHO.

Summer Courses in Epidemiology in North America 1994

The Johns Hopkins University School of Hygiene and Public Health is sponsoring the Twelfth Annual Graduate Summer Program in Epidemiology, to be conducted from 20 June to 8 July 1994. The program includes: principles of epidemiology; introduction to biostatistics; methods in epidemiology; intermediate biostatistics; applications of the case-control method; design and conduct of clinical trials; epidemiologic methods for planning and evaluating health services; methods of health risk assessment; cancer risk and prevention; epidemiologic basis for tuberculosis control; epidemiology of AIDS; epidemiologic issues in vaccine use and development; infectious disease epidemiology; nutritional epidemiology; use of microcomputers in epidemiology; writing and reviewing epidemiologic papers. Proficiency in the English language is required.

Further information is available from Helen Walters, Program Coordinator, Graduate Summer Program in Epidemiology. The Johns Hopkins University, School of Hygiene and Public Health, 615 North Wolfe Street, Baltimore, Maryland 21205. Tel (410) 955-7158; Fax (410) 955-8086.

Tufts University at Medford, Massachusetts, The New England Epidemiology Institute, and the Post-graduate Medical Institute are sponsoring the Fourteenth Annual New England Epidemiology Summer Program, to be conducted from 11 to 29 July, 1994. This year The New England Epidemiology Institute will be offering one and two week sessions, allowing participants to attend for one, two or three weeks. The two week session will run from July 11 to 22 and will include courses on the theory and practice of epidemiology

(introductory and advanced levels); basic biostatistics; regression methods in epidemiology; survival analysis; genetical analysis; nutritional epidemiology; epidemiologic research in developing countries; and clinical research. The one week session will run from July 25 to 29, and will include courses on the introduction to epidemiology; conducting epidemiological research; pharmacoepidemiology; epidemiologic research in women's health; the biology and epidemiology of cancer; epidemiology in public health practice; perinatal epidemiology; and occupational epidemiology. Proficiency in English is essential.

For more information contact Nancy A. Dreyer, Program Director, The New England Epidemiology Institute, Dept. PA-PAN, One Newton Executive Park, Newton Lower Falls, Massachusetts 02162-1450. Tel. (617) 244-1200; Fax (617) 244-9669.

The University of Michigan School of Public Health announces the Twenty-ninth International Graduate Summer Session in Epidemiology to be conducted from 10 to 29 July 1994. Three-and-one-week courses will be offered. Three-week courses include: fundamentals of biostatistics; microcomputer applications in epidemiology; new concepts in cancer epidemiology; fundamentals of epidemiology; epidemiology of injuries; applied epidemiology for health practitioners; analysis of sample survey data. One-week courses include: basic concepts of clinical epidemiology; clinical trials, design and conduct; clinical trials, analytic methods; environmental exposure assessment; occupational epidemiology; risk assessment; pharmacoepidemiology; substance abuse; sexually transmitted diseases and HIV; update in infectious diseases; infection control; methods in medical quality assessment; analysis of epidemiologic measures; introduction to the logistic model; analysis of survival/follow-up data; nutritional epidemiology; epidemiology of aging; genetic epidemiology; epidemiology and health policy; behavioral modification; epidemiologic issues in women's health: controversies and challenges; scientific writing; advanced microcomputer applications; race, ethnicity, and public health research: issues and methods. Proficiency in the English Language is needed.

For further information write to Jody Gray, Administrative Coordinator, Epidemiology Summer Session, Department of Epidemiology, The

University of Michigan, School of Public Health, 109 Observatory Street, Ann Arbor, Michigan 48109-2029. Tel. (313) 764-5454; Fax (313) 764-3192.

The Department of Epidemiology and Biostatistics, McGill University will hold its Annual Summer Program in Epidemiology and Biostatistics from 2 May to 27 May and from 30 May to 23 June, 1994. **General topics** will include: epidemiology: principles and methods; principles of inferential statistics in medicine; principles of epidemiologic research I: infectious and parasitic disease epidemiology; risk assessment and management; practical aspects of protocol development; health in developing countries; topics in clinical epidemiology; pharmacoepidemiology: introduction, methods and substantive aspects. **Selected topics** in epidemiology and biostatistics will include: introduction to survival analysis; introduction to analysis of multi-variable data; the epidemiology of airway disease; epidemiology of cancer; cardiovascular disease epidemiology; ethics of scientific inference; and neuroepidemiology.

For more information contact Elinor J. Masson, Coordinator, Annual Summer Program, Department of Epidemiology and Biostatistics, McGill University, Purvis Hall, 1020 Pine Avenue West, Montreal, Quebec, Canada, H3A 1A2. Tel. (514) 398-3973; Fax (514) 398-4503.

The Summer Session in Intermediate Epidemiology sponsored by the *Pan American Health Organization*, will be conducted from 1-19 August 1994, at the School of Public Health, University of Southern Florida, Tampa, Florida. The courses being offered are: intermediate methods in epidemiology; statistics applied to epidemiology and the use of software packages, and the use of epidemiology in the programming and evaluation of health services. Students are required to have approved basic training in epidemiology. Courses will be conducted in Spanish.

For more information and application: Carlos Castillo-Salgado or David Brandling-Bennett, HPC/HCT, Pan American Health Organization, 525 Twenty-third Street, NW, Washington, DC 20037. Tel. (202) 861-3227; Fax (202) 223-5971 or (202) 861-8483.

Report of the XXIX Meeting of the Pan American Health Organization Advisory Committee on Health Research (ACHR)

Today more than ever, science and technology development in the health field in Latin America is being pressured by opposing forces. On the one hand, there is the urgent need to respond to the complex problems produced by changes in our morbidity and mortality profile, while at the same time trying to keep up with scientific and technological advances, particularly in the biomedical field. But just as these challenges are becoming more acute, health research is also faced with a general shortage of resources due to cutbacks in support from the public sector, the field's principal source of funds.

This context was brought up in relation to various topics discussed at the XXIX meeting of the Advisory Committee on Health Research (ACHR), which took place from 2 to 5 August 1993. A summary of the discussions and recommendations will be presented to the Directing Council of PAHO/WHO. The paragraphs that follow summarize some of the topics that were discussed, along with the Committee's recommendations.

1. The first topic dealt with the general scenario outlined above. The discussion touched on the bases that should guide the definition of science and technology policies in the health field in the context of current challenges and changes, including the consideration that the field of health science and technology is no longer limited to research basically carried out by physicians within the health institutions. This has meant that the universe of topics, problems, disciplines, approaches, etc. has expanded, making it necessary to revise the bases utilized to define policies in this field. Certain principles are common to all fields of knowledge, notably:

■ **The pursuit of Regional integration for the development of knowledge and technologies.** The need for cooperation between countries in the science and technology field arises from a reality whose problems and challenges are difficult for countries to cope with alone. Inter-country cooperation, therefore, should be a focus not only for countries, but also for agencies of coordination and cooperation such as PAHO, who will find a

broader playing field for their activities in this context;

■ **Integration between the production and utilization of knowledge and technology.** In any field there is a gap between the producers of knowledge and those who should be seeking and utilizing that knowledge. This situation has its roots in the orientation of the science and technology policies that have prevailed up to now, whose limited objective has been to strengthen supply, and not to develop any kind of institutional organization that would allow the advances of research and development to flow freely to units that could put them to work for the benefit of society.

■ **Elimination of false dichotomies.** Certain dichotomies have come to dominate the debate over science and technology policies; for example, unproductive questions such as, "Should scientific research be prioritized or not?"; "Should the focus be on basic research or on applied and development research?"; "Should we capitalize on local knowledge or should we import knowledge?"; etc. Such dichotomies have proved to be false in light of recent advances in science and technology and the experiences of developed countries.

In order to define science and technology policies in the health field, it is necessary to set priorities, a task that has a strong social component since it involves a variety of players with a wide range of interests and perceptions. Beyond this participatory process, however, there is an important technical dimension to policy-definition which, in the case of health, must be based on the characteristics of the health/disease process in a given society, as well as on actual trends in scientific development. A health science and technology policy is not to be confused with a list of priorities; it should evaluate components related to the dynamics of scientific activity so that they can be put into practice. Such aspects as expansion and diversification of financial sources and mechanisms, strengthening of science and technology management, human resource development for the research field, and strengthening of scientific and technical information systems are

some of the elements to be taken into account in a science and technology policy in the health field that seeks to respond to the new challenges. It is important to promote the incorporation of new players into the process of policy-definition, as well as to try to change the behavior of traditional players, such as the State, researchers, health professionals, and others used to power relationships that are becoming outmoded. The State should assume responsibility for promoting opportunities for various interests to express themselves and to collectively define the directions they will take, making it possible for science and technology policies in the health field to be effectively consolidated as public policies.

The ACHR emphasized the importance of the financial resources used to implement science and technology policies, and highlighted the need to cultivate new financial sources and mechanisms. PAHO's role in this regard should involve more than increasing its own internal resources for research. The Organization should play an active role in promoting such resources, in conjunction with international and national agencies, taking advantage of favorable opportunities such as the existence of investment proposals that are expected to include a research component.

2. A second topic was quality of scientific production and mechanisms for evaluating it. Although some countries of Latin America have shown interest in increasing the effectiveness of research systems, there is still the paradoxical situation that evaluation activities are so much further behind in the countries that have the most serious shortage of material and human resources.

The discussion on this subject began with an assessment of the mechanisms that both research funding agencies as well as journals published by Latin American countries utilize to evaluate scientific projects and articles. With regard to evaluation criteria, conventional performance indicators such as number of published articles and citations, associated with comparisons at the international level, are not always suitable for evaluating research activity and establishing the corresponding policies in countries like those in Latin America and the Caribbean. It is important to look for a combination of "national" indicators, related to specific economic and social development

objectives, and "global" indicators, that make it possible to develop parameters for comparing the level of quality achieved.

The most widely utilized mechanism is peer evaluation, although this approach is increasingly being criticized, particularly on the basis that it is difficult to use in areas of greater cognitive diversity. It is important to take into account that the quality of scientific production depends on the existence of a group of factors, namely well-trained individual scientists, an institutional base favorable to the research process, and science and technology policies that orient and promote scientific development. The Committee's recommendation to PAHO in this area was to continue to explore evaluation mechanisms further, with the most important goal being that of helping to create a culture of evaluation in the Region.

3. The ACHR also looked more specifically at the research activities carried out by PAHO in cooperation with the member countries. The areas and programs of the Organization that were discussed included the following:

- **Communicable disease program.** The promotional strategies and research projects under this program were reviewed. Communicable diseases continue to be a serious health threat that must be addressed in a variety of ways, especially through research to help find new approaches. In view of present financial constraints, there is not expected to be any significant increase in resources for these activities, since in the context of limited funds, PAHO must continue to give special importance to applied research.

- **Program on AIDS.** The discussion covered the characteristics of AIDS research in Latin America and the AIDS research projects that PAHO is involved in. The Organization's Program on AIDS succeeded in identifying and analyzing 561 research projects carried out by researchers in Latin America and the Caribbean through a survey carried out in 1991. These projects added up to a total expenditure of US\$ 27 million, a relatively small amount given that around the world, US\$ 5.6 billion was spent on AIDS research between 1982 and 1991. The 27 million in Latin America and the Caribbean represents only 0.5% of this total, for a geographical area that contains 12% of the world's infected population. The fact that 73% of the projects had

started 2 to 2.5 years before the survey indicates that AIDS research in Latin America and the Caribbean is still in the initial stages, and accordingly is still trying to respond to the most pressing needs of prevention and treatment programs.

The Committee reiterated its concern over the lack of resources and the fact that they are shrinking.

■ **Research activities of the Pan American Centers of PAHO.** There was a discussion of the results of a survey carried out at seven of the nine Pan American Centers of PAHO/WHO. The objective was to describe and analyze certain aspects of the research activities the centers carry out, particularly with regard to science and technology management, the potential for producing science and technology, and actual scientific and technological production. The Committee made the following observations and recommendations:

- Despite the heterogeneity of their focal areas and objectives, the Centers share certain common areas of concern that they should take more advantage of in order to coordinate with each other and thus strengthen their impact and optimize their resources;
- There should be broader application of the research findings from the Centers at both the government and population level. One important outcome of these research activities is human resources education, and it was recommended that expanded opportunities for internships at the Centers be offered to young students;
- A specific report should be prepared on research activities carried out over a 4- to 5-year period in order to evaluate quality and impact;
- The scientific advisory committees at the Centers need to be consolidated, which means that enough financial resources must be available for these committees to be established and convened.

■ **The PAHO/WHO Research Grants Program (RGP).** This program has been in existence for nearly eight years, and has spent nearly US\$ 4 million to fund 243 research projects, of which 103 have been completed. An analysis was made of the results of an impact assessment survey

on the program which was administered to the research teams who had received grants and who had, to date, already finished their respective projects. Of the investigators for the 103 completed projects who were sent questionnaires, 47 (46%) have replied so far. The following findings are noteworthy:

- The 47 completed research projects whose authors responded to the questionnaire have given rise to a total of 87 scientific articles published in national and foreign journals and 7 books. They have also facilitated the preparation of 8 master's theses and 22 doctoral theses in different health fields;
- In more than 70% of the cases, the investigators reported that their research had been utilized as a reference in undergraduate or graduate courses.
- Projects spontaneously developed through the individual initiative of research groups have more of an impact in terms of publications and theses generated than do projects commissioned by PAHO, even though the latter are more carefully monitored and their results better known and utilized by the Organization.

There was a discussion of the new directive proposed by the secretary whose goal is to reorient the Research Grants Program with a view to eliminating the problems encountered and strengthening the program's positive aspects. The directive basically suggests that resources be concentrated in six main areas: health and development; organization of health services; health promotion and protection; disease control; environment and health; and biotechnology and current scientific progress in the health field. For each area, more specific terms of reference will be prepared describing the topics and approaches that will receive more support. The new directive will also seek to combine the positive aspects of both commissioned and spontaneous projects. This new orientation will encompass support for project preparation and publication of findings through workshops organized for this purpose.

The Committee recognized how important the Research Grants Program is to research promotion,

and decided to support, along general lines, the proposed directive for reorienting the program, as well as the decision to continue supporting spontaneous projects since they provide scope for the initiative and creativity that the scientific community display toward the subjects and problems they think are important.

It was recommended that quality standards be maintained for the proposals, even at the cost of not spending all the available funds. The Committee regretted that there continue to be occasional surplus resources in the program, and recommended that every possible effort be made to expand the search for good projects. If any surplus resources remain despite this effort, they should be channeled into research promotion activities.

■ **PAHO/WHO Program on Biotechnology.**

In 1987 PAHO established an ACHR Subcommittee on Biotechnology. During that same year the subcommittee drafted the Regional Program for the Development of Biotechnology Applied to Health, whose main activities included support for research, human resources training, and institutional development. The activities related to these components were reviewed, particularly those from the last two years.

With regard to research activities, support has been provided through the Research Grants Program for 19 projects in the biotechnology field. Twelve are already completed and 7 are still in progress. The achievements of the completed projects include development of procedures for malaria diagnosis using monoclonal antibodies; preparation of serum reference panels for AIDS; isolation of HIV-1 from more than 30 patients in Argentina, Brazil, Mexico, and Venezuela; completion of a HIV diagnostic test kit using recombinant antigens that is currently being marketed by Cuba; and development of monoclonal antibodies for hepatitis B resulting in a reagent that is being utilized by the Malbrán Institute.

Of special interest is the project to develop an HIV diagnostic test kit that is being carried out as a collaborative effort by four institutions in Argentina, Brazil, and Mexico, with financial support from PAHO/WHO. The prototype kit is ready and the preliminary evaluation shows that

it has good possibilities for being utilized. As an additional result of this project, peptide synthesis laboratories have been set up at two laboratories in Argentina and Mexico, and several researchers have been trained.

In the area of human resources training, PAHO and the Regional Program on Biotechnology (RPB) of UNDP/UNIDO/UNESCO jointly defined a program of courses on advanced techniques in biotechnology. This program was submitted to the Regional Directing Council of the Regional Program on Biotechnology in December 1992, which approved three courses for 1993. Regarding cooperation activities to define policies on biotechnology development, there was a discussion of the initiative--already underway--involving a joint project with IICA for the preservation and exploration of biodiversity through biotechnology, with an emphasis on medicinal plants.

In relation to biotechnology, the following observations and recommendations were made:

- It is important to provide an updated impact evaluation of the projects supported by the PAHO Research Grants Program in the biotechnology field. It was recommended that there be monitoring and evaluation of the courses jointly sponsored by PAHO and the Regional Program on Biotechnology. The Advisory Subcommittee should prepare the terms of reference for the notices going out to projects requesting support from the PAHO Research Grants Program in the biotechnology field, in accordance with what is established in the new directive regulating this program.
- Those of the Pan American Centers that have experience in the biotechnology field should play a more active role in the program activities, including participation in the meetings of the Subcommittee.
- The work carried out by the Advisory Subcommittee on Biotechnology has been satisfactory, which shows that, in addition to playing an advisory role, it provides an important mechanism for the scientific community to participate in the programming, execution, and evaluation of cooperation activities in this field.

■ **PAHO/WHO Fellowship Program.** A study of this program carried out by the secretary showed

that, of 5,219 fellowships awarded during the 1983-87 period in 22 countries, none had the goal of providing training for research. Only 2% of the fellows held the post of researcher, 11% worked in teaching and research, and 8.7% were linked with a university. In 1992, 476 fellowships were awarded for a total of US\$ 2.6 million.

The program administration is decentralized, its resources being handled outside PAHO Headquarters. The distribution of fellowships and fellows indicates that this mechanism is basically an instrument to provide continuing education to public sector administrative personnel in health services delivery. The criteria are very flexible since structures and procedures have not been clearly defined. Except in a very few cases, national fellowship committees are not in operation.

Concern was expressed over the situation of the Fellowship Program, since training and fellowships have traditionally been one of the Organization's principal technical cooperation mechanisms. The Organization was recommended to correct the various distortions observed, and especially to focus on the recommendation from a previous meeting to create a central fund that would be able to award approximately ten long-term fellowships for advanced training each year, particularly in the area of public health research.

■ **Regional System of Vaccines for Latin America and the Caribbean (SIREVA).** SIREVA is a project for technical cooperation between the countries of the Region which combines the objective of developing new vaccines with that of strengthening scientific and technical infrastructure in this field. At the meeting there was a discussion of the principal activities carried out as part of the system's implementation during the last two years. An important line of action has been the effort to expand the base of support for the initiative, which has resulted in technical and scientific and/or financial support being obtained from national and international cooperation agencies and universities worldwide.

In the technical sphere, master plans have been prepared to develop vaccines against *N. meningitidis* (serotype B), *S. pneumoniae*, *S. typhi*, and dengue virus, and the respective steering committees have been set up. The Canadian International Development Agency (CIDA) has transferred nearly

Can\$ 1.5 million to PAHO/WHO for a study, already in progress, on prevalence and epidemiological surveillance of *S. pneumoniae*, with a view to developing a pneumococcal vaccine. Work is also underway on the field tests of a new cholera vaccine, with the support of Sweden, which has provided close to US\$ 1.2 million. Other activities in progress are the preparation of a Regional plan for the production of improved DPT vaccines; the creation of a reference laboratory network for quality control of vaccines utilized in the Region, particularly under the Expanded Program on Immunization (EPI); and the organization of courses on good manufacturing practices for vaccine production. It was recommended that, in light of their achievements and strategic importance, both SIREVA and the EPI be given the Organization's fullest support and highest priority.

At the end, the agenda for the next meeting was discussed and it was recommended that the topic of funding for science and technology activities in the health field be given special attention. It was suggested that a study be done ahead of time on the movement of economic forces in this field and the research funding mechanisms available in the Region: sources, how they work, how they might be expanded, etc. Other topics will include an analysis of experiences in the Region with science and technology career plans; a situation analysis of training for health researchers with a special emphasis on graduate training and fellowships; bioethics and ethics in health research; the preservation and exploitation of biodiversity and its importance to health; evaluation of the quality of projects supported by the PAHO/WHO Research Grants Program; and evaluation of the quality of science and technology activities at some Pan American Centers.

Source: Research and Technological Development in Health Program, HDR/HDIP, PAHO.

New PAHO publication
On the Theory and Practice of Public Health
One Debate, Multiple Perspectives

In 1990, the Pan American Health Organization (PAHO/WHO), through its technical units of Human Resource Development, Analysis of the Health Situation and Trends, Research and Technological Development, and Environmental Health, began to carry out an initiative entitled "Development of the Theory and Practice of Public Health in the Region of the Americas." This initiative's component objectives or lines of action include increasing scientific and political awareness on the subject, promoting research, and disseminating information. These efforts are directed toward formulating regional guidelines around 1995.

The initiative called for an initial reflection on the basis of individual invited papers, followed in a few months by sessions of analysis. Accordingly, at the end of 1990, PAHO requested a series of papers from experts selected for their expertise and prestige in various areas of public health. A broad spectrum of perspectives emerged, which represented, as a whole, the main approaches to the health field. On the basis of these and previous activities, PAHO, the American Association of Schools of Public Health (ASPH), and the Latin American and Caribbean Association of Public Health Education (ALAESPE) gathered those experts together for the first consultation group on the theory and practice of public health in the Americas (New Orleans, Louisiana, USA, 21-24 October, 1991).

This consultation group was geared primarily toward establishing a relevant conceptual and referential framework, and toward reaching a level of consolidation that would help to highlight and define the strengths, weaknesses, and gaps of the

state of the art in the health field in the Region, in the hopes of facilitating the subsequent broadening of the debate or its further application and of addressing those areas critically in need of development. In general terms, the consultation was designed as a means of making progress in defining the situation and trends of the theory and practice of public health in the Region of the Americas, in order to facilitate the utilization and further analysis or development of the most relevant elements in this field. It was hoped that the visibility attained by this critical event would contribute to generating a favorable momentum for the entire process.

One of the four specific objectives of the meetings was to work out a collective approach regarding the situation and trends of the theory and practice of public health in the Region. The second objective was to identify the existing questions, needs, and voids in this field, in order to orient the subsequent processes of theoretical and methodological reflection and of operational application and development. The third objective was to gather suggestions regarding alternative strategies at the national, subregional, and regional levels for the overall execution of this PAHO/WHO initiative. The fourth objective was to gather additional contributions from the participants to help shape the current rearticulation of PAHO/WHO's institutional position on public health.

In terms of the desired products, the meeting was expected to produce a collective synthesis of the Region's current public health situation, of public health's theoretical evolution and trends, and also of public health's methodological and operational

evolution and trends, as well as a summary of the desirable or necessary elements of change. It was hoped that there would emerge as well a set of strategic options for the regional, subregional, and national levels and that a set of guidelines for continuing with the regional project would be outlined.

Accordingly, the program of the meetings was designed around achieving these desired results. It was assumed that all participants had received and read in advance all the papers submitted by the invited experts. Additional public health specialists and representatives of the sponsoring organizations also attended the consultation meetings.

All relevant commentaries and contributions by participants were recorded in their entirety, and that material, duly edited, has resulted in the present publication. The first section presents the objectives, dynamics, and referential framework of the meeting. The following sections contain the discussions that took place regarding the current situation, the trends in the theory, the trends in the practice, the desirable changes, and the likely strategies for each country and for the regional project, as well as conclusions

and recommendations. The last part includes the opinions by participants regarding the event itself and the process leading to it, as well as the future commitments by the sponsoring institutions with regard to the initiative.

Together with its companion volume, *The Crisis of Public Health: Reflections for the Debate*, this publication crystallizes the first stage of PAHO/WHO's initiative. Neither volume has a prescriptive character; they should be seen rather as the beginning of the road and not its end. Nevertheless, both publications attempt to serve as a spur, stimulus or catalyst for subregional, national, and institutional debates, which should be more specific and individualized according to the particular context, in an effort to generate--by increasing the political and scientific awareness of health as a field of action--a movement to develop public health in the American continents within the framework of a new ethic of comprehensive development to which the peoples of the Region aspire.

Human Resources Development Series (HRD), #98, PAHO.

PAHO's Epidemiological Bulletin is published quarterly in English and Spanish.
Catalogued and indexed by the United States National Library of Medicine
Printed on acid-free paper.



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Pan American Sanitary Office, Regional Office of the
WORLD HEALTH ORGANIZATION
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