World health situation and trend assessment from 1948 to 1988*

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Although the Health Situation and Trend Assessment Programme of WHO was established only in 1982, its two main components (epidemiological surveillance and health statistics) were in fact carried out as a constitutional mandate of the Organization since its creation 40 years ago. The evolving world health situation and the changing requirements of Member States have always been taken into account in carrying out these functions. In the early days of WHO, standardization of statistical definitions, methods and procedures was given top priority, while during the second and third decades active participation in epidemiological and statistical research was also emphasized. In the meantime, technical cooperation with Member States gained in importance. During the most recent decade, the programme was re-formulated with a new orientation, stressing the importance of generating and using the most essential information to support health system management towards the goal of health for all. A number of issues still remain as challenges to the programme for the coming decade and beyond. These developments over the 40 years are reviewed in the present article, with a certain amount of focus on the research and development aspect.

INTRODUCTION

WHO's Health Situation and Trend Assessment Programme was started in 1982 by merging two programmes—on health statistics and on epidemiological surveillance of communicable diseases—which had been functioning as an essential part of the mandate of WHO since its creation in 1948. Indeed, the activities in health statistics and epidemiological surveillance, which were inherited from WHO's precursors (the Office International d'Hygiène Publique, the Health Organisation of the League of Nations, and the Health Division of the United Nations Relief and Rehabilitation Administration), are mentioned in Article 2 of the Constitution of WHO, as follows:

''(f) to establish and maintain such administrative and technical services as may be required, including epidemiological and statistical services;''

''(q) to provide information, counsel and assistance in the field of health;'' and

''(s) to establish and revise as necessary international nomenclatures of diseases, of causes of death and of public health practices.''

Related obligations of the Member States are de-
scribed in Articles 63 and 64 of the Constitution which state, respectively, that "each Member shall communicate promptly to the Organization important laws, regulations, official reports and statistics pertaining to health which have been published in the State concerned," and that "each Member shall provide statistical and epidemiological reports in a manner to be determined by the Health Assembly." These statutory functions have continued to be the basis of programme activities in the area of epidemiological surveillance and health statistics. The evolving world health situation and the changing requirements of Member States have always been taken into account when carrying out these functions. This review of the developments in this area, over the 40 years of WHO's existence, focuses on the scientific aspects but does not cover many of the epidemiological studies undertaken by the various programmes responsible for disease prevention and control, such as morbidity surveys, field trials of vaccines, etc.

THE FIRST DECADE: 1948–58

During this period, priority was given to the mandates inherited from WHO's precursors mentioned above. In particular, the first World Health Assembly in 1948:

(1) adopted WHO Regulations No. 1 regarding nomenclature (including the compilation and publication of statistics) with respect to diseases and causes of death; and
(2) decided to synthesize the then existing international sanitary conventions, dealing, on the one hand, with maritime and land traffic and, on the other, with air traffic.

The latter resulted in 1951 in the adoption, by the Health Assembly, of the International Sanitary Regulations as WHO Regulations No. 2, covering six quarantinable diseases—cholera, plague, epidemic (louse-borne) typhus, relapsing fever, smallpox and yellow fever.

Thus the activities to develop and administer the International Sanitary Regulations, to collect and disseminate epidemiological and health statistical information, and to revise the International Nomenclature Regulations and the International Classification of Diseases and Causes of Death were given high priority. To promote international comparability of epidemiological and statistical data collected by countries and reported to WHO was the main concern expressed by the Member States. Standardization of the concepts, definitions, procedures and tools such as the classification of diseases and causes of death was considered as the most important task which WHO should undertake to achieve that purpose. To facilitate this task the Health Assembly requested the WHO Expert Committee on Health Statistics to formulate recommendations on these issues. At this time many of the now independent countries in the African continent were still under colonial rule; for example, there were only 3 Member States in WHO's African Region in 1958, compared with 44 Member States and 1 Associate Member in 1988. As a consequence, the concerns of the more advanced countries were much more strongly reflected in the Organization's policy than in the later decades. The great (perhaps slightly excessive) emphasis made by Member States on the need for developing and applying standard terminology, definitions, methods and procedures so as to make the information produced by countries internationally comparable can be understood in the light of the political environment prevalent at that time. The WHO Expert Committee on Health Statistics devoted itself to the standardization of such topics as the death certificate, the underlying cause of death, perinatal statistics and definitions, cancer registration, and hospital statistics.

It is interesting to note that during the first decade of WHO's existence a number of articles analysing and interpreting the morbidity and mortality data officially reported by countries, including their trends, were published in the monthly *Epidemiological and Vital Statistics Report*. Almost forgotten today, some of these studies still provide potentially useful references in health trend analyses, especially when the coverage of the last several decades is needed. The topics frequently chosen in these reports were the incidence of various communicable diseases, mortality from selected communicable diseases, infant mortality, etc. As mortality statistics were not yet reported by many countries to WHO, detailed mortality analysis was often confined to data from European countries.

Timely dissemination of epidemiological information, e.g., on the occurrence of certain communicable diseases which are of international interest, has been given high priority throughout the 40 years of WHO's work. Information received from countries has been processed and feedback provided to all countries without delay through the Weekly *Epidemiological Record*, and more recently through an automatic telex reply service as well.

Developments also took place, however, to advise and assist Member States in improving their epidemiological and statistical data collection and reporting to WHO. In emphasizing the need for...
technical assistance to strengthen national capacity in health statistics, a review of the first 10 years of WHO's work went so far as to state that "the countries giving satisfactory information, both on the actual occurrence of death and on its causes, could be numbered on the fingers of one hand" (1).

The WHO Regional Offices have been in the forefront to support Member States in strengthening the national epidemiological and statistical services. By the early 1950s the World Health Assembly approved annual budgets providing for the posts of regional advisers in health statistics, whose main duties were to give advice and assistance to countries in the organization of health statistical services. Development of vital statistics and civil registration was given priority. Similar duties regarding epidemiological surveillance were assumed by regional advisers in communicable diseases, which were also provided for in the annual budgets. A series of seminars and training courses were held to improve national vital and health statistics and surveillance of communicable diseases.

A number of projects were started during this decade to determine the prevalence and incidence of specific diseases in countries, such as tuberculosis, diarrhoeal diseases, trachoma, yaws and malaria. These were based on household surveys using probability sampling methods, and produced scientifically valid estimates on these diseases for the first time. Unfortunately, it was not always possible to make the best use of these results for the development and improvement of disease control measures, owing to lack of national resources to undertake appropriate action.

An interesting attempt was made to devise a method for making use of data collected by non-medical personnel for studying crude cause of death, e.g., in countries in the African continent. The issue was, however, not pursued beyond a few years and forgotten until 20 years later when the idea of "lay reporting" aroused again the interest of health workers in the developing countries (see below).

The first decade was the period when there were great hopes for constructing a peaceful world and enhancing the level of living through the United Nations system. One of the topics which was entrusted to the statistical services of the international organizations was the development of methods to measure the level of living. The Economic and Social Council (ECOSOC) of the United Nations recommended that, even if it would be impossible to develop a single index to measure the level of living and its changes, efforts should be made to find an indicator of each of its components. The ECOSOC produced a list of 12 components for this purpose, the first of which was "health, including demographic conditions". WHO's response to this recommendation was the proposal of a promising indicator called the proportional mortality ratio, i.e., the number of deaths of persons aged 50 years and over as the percentage of total deaths, which could be calculated with reasonable precision using routinely collected vital statistics in many countries (2).

THE SECOND DECADE: 1958–68

The second decade saw a continuation and further development of the priority activities of the first decade. Two noteworthy areas were the expansion of "technical assistance" to Member States and the emphasis given to international collaborative studies, including statistical support to epidemiological research on diseases of public health importance. Collaborative studies of these diseases, undertaken during this and the subsequent decades, were considered important in order to obtain clues on their complex etiology.

A project of major statistical importance was carried out in the American Region on the patterns of urban mortality. This coordinated international research, funded by the U.S. National Institutes of Health, was prompted by the fact that official statistics had shown striking variations among countries in the death rates from arteriosclerotic and degenerative heart disease. Twelve cities in eleven countries (including one in England and eleven in the American Region) were included in this study with the primary objective of providing a comprehensive account of the causes of mortality of adults in highly diverse and widely separated populations. Standard procedures established by the investigators were followed in collecting field data and in reviewing, coding and analysing the data collected. The study led to a series of recommendations relevant to preventive actions, epidemiological research, and standardization of statistical procedures (3).

The WHO Regional Office for Europe sponsored a series of studies in 1962–65 in six countries on the accuracy and comparability of death statistics. These studies found that many discrepancies occurred both in the certification of death by the attending physician and in the interpretation of death certificates by coders. The need for greater uniformity between countries was thus highlighted so as to make death statistics truly comparable (4).

These two projects provided useful contributions to the development of later revisions of the International Classification of Diseases.

The epidemiological and pathological study on atherosclerosis which was coordinated by the Cardiovascular Diseases Unit of WHO was among the first population-based, collaborative epidemiological studies. Five towns or cities (Prague, Malmö, Moscow, Kishinev and Yalta), in which most deaths were brought to autopsy, participated in the study. Specimens of the aorta and coronary arteries were collected from about 17,500 subjects during the period 1963–65, treated by a uniform procedure, and examined by a group of pathologists for grading the extent of the atherosclerotic lesion in a standard manner. Both intra- and inter-observer errors were studied and controlled. The development of lesions with age, and their variation between the sexes, among different causes of death, and in relation to associated diseases such as hypertension and diabetes, were analysed. Among the many interesting findings obtained, the study revealed clearly the progression of atherosclerotic lesions from childhood onwards, even among those who died in accidents and had no serious disease (5).

Another collaborative study to which a considerable amount of statistical support was provided was the international pilot study on schizophrenia which was organized by the Division of Mental Health and was started in 1965. Some 2200 patients from the participating centres in nine countries were included in the study using a detailed protocol. In view of the complex nature of psychiatric examination, special efforts were made to assess the reliability of the methods used and to control observer variations. The large amount of data collected on each patient required elaborate statistical analysis (6).

The emphasis given to these epidemiological studies was to support communicable and non-communicable diseases control on which numerous resolutions had been adopted by the governing bodies containing, inter alia, recommendations for obtaining relevant epidemiological and statistical information. The priority given by the World Health Assembly to the active engagement of WHO in the conduct of epidemiological research led to the establishment, in 1967, of the short-lived Division of Research in Epidemiology and Communications Science (RECS) which ceased in 1972.

In response to the growing interest in sample surveys for collecting data which were not available through routine administrative channels, a series of papers were published on morbidity and mortality data obtained from surveys and other sources (7).

THE THIRD DECADE: 1968–78

The 1960s saw the advent of computer technology in the health field. A computer was installed at WHO headquarters in 1966 and a considerable part of the statistical work was computerized during the third decade. Statistical data processing was expedited and the computer made it practicable to store time series in an easily retrievable form, including the data received by WHO from Member States since 1950. Statistical analysis of the dose–response relationship required in the work on biological standardization and in the study of susceptibility of insect vectors to insecticide was also computerized.

Much interest arose during this decade among epidemiologists and disease control managers in dynamic models of diseases. Typhoid fever, cholera, tetanus, diphtheria and whooping cough were among the diseases taken up for the development of epidemiological models (8). A malaria model was also constructed by the RECS Division on the basis of a considerable amount of field investigations undertaken in Africa; this was perhaps the most significant scientific achievement made by that Division (9). The Tuberculosis Unit developed a model for tuberculosis and used it to estimate the effectiveness of tuberculosis control measures (10). The heavy load of mathematical computation required in such modelling was made possible by the computer.

The work of the RECS Division merits more detailed review than the sketchy description attempted in this article. However, broadly speaking, the Division's overall failure to produce the coherent and integrated research programme foreseen at its establishment, in spite of staff with high technical competence, should be ascribed primarily to its isolation from the other programmes of WHO. This clearly showed that epidemiology should be part and parcel of health research and would not be viable as a separate and independent entity. In any case, the RECS Division was abolished in 1972 and towards the end of the decade the priority in research shifted from direct engagement of staff to a coordinating role of WHO. At the same time, certain statistical capability was gradually developed by several programmes of WHO, and the central support service to those programmes was reduced.

In the American Region an investigation was carried out on childhood mortality in 15 project areas in eight countries. This study, developed on the basis of the experience gained in the study of the patterns of urban mortality referred to earlier, aimed at establishing death rates for infancy and childhood, taking into account biological as well as nutritional, sociological, and environmental factors. The results of the study have been quoted on numerous occasions in later work on infant and childhood mortality. The study revealed, inter alia, for the first time, three important determinants of infant mortality — birth

*The computer installation was transferred to the newly created International Computing Centre in 1971*
weight, maternal age, and birth order (11, 12).

A health demographic study was undertaken, with financial support from UNFPA (United Nations Population Fund, previously called the United Nations Fund for Population Activities). Reliable data were lacking in many of the developing countries on fetal, infant and early childhood mortality and fertility. As the development of a complete registration scheme was a difficult and extremely slow process, a study was launched during this decade to substitute ad hoc sample surveys in order to obtain the information needed by health decision-makers (13). The project was carried out in five developing countries, with assistance from competent statisticians and demographers provided by WHO. Useful and scientifically valid information was obtained for the first time in many of these countries. It is difficult, however, to judge whether the countries retained much technical expertise after the outside consultants had left.

Another collaborative epidemiological study, of the kind referred to above in the section on the second decade, was carried out on acute myocardial infarction by the WHO Regional Office for Europe with support from headquarters. Myocardial infarction had already been the cause of death in many of the industrialized countries, but there was little information on its incidence. This study, in which 19 centres in 16 countries participated, was the first attempt to register all cases of acute myocardial infarction occurring in communities. A standard protocol was developed, and the record forms filled in by the investigators during the period 1971–72 were analysed centrally at WHO headquarters. Besides geographical variations in the incidence rate and case fatality, the study showed a rapid evolution of the disease in most of the fatal cases that defied attempts to get medical help in time (14). A similar study was initiated, also in 1971, on the registration of cerebrovascular disease (15), from which the data collected were centrally handled and analysed at WHO headquarters. Later, these studies led to the more comprehensive MONICA project (monitoring trends and determinants in cardiovascular disease) which is currently under way in 41 collaborating centres (16).

Along with the rapid development of automation in the industrialized countries, a new approach to health information was also advocated, so as to develop comprehensive computer-based management information systems. Based on this concept, efforts were made to develop national health information systems. Unfortunately, the attempts over the decade did not turn out to be successful. The main reasons for the failure were the overemphasis on computerization and a lack of clear recognition of the importance of the prerequisites to such computerization, e.g., the securing of adequate quality in source data, the ability to collect and prepare input to an automated system, and the capacity of health managers and decision-makers to utilize the output information to improve health care.

The movement towards national health information systems, however, was not entirely in vain. By the end of the decade health planners and managers had begun to realize that the usual epidemiological and statistical reports they received did not suffice; information on budget and finance, availability and distribution of personnel, stocks of supplies, transport facilities, etc. had also to be taken into account together with the data on disease occurrence and utilization of services given in the routine reports. Some information has to be obtained from other sectors concerning matters closely related to health, e.g., economic development, unemployment, educational status and literacy, food supply, etc. All the relevant data must be assembled from these various sources and then analysed and digested by the health decision-maker. This kind of information support to management has to be organized using computer facilities if available, and realistic health plans must be made within the resource constraints. Thus the managerial purpose of the generation of information was recognized more clearly, and this was reflected in the reorientation of the programme during the fourth decade.

THE FOURTH DECADE: 1978–88

By far the most significant events occurring during the new decade were the adoption of the Alma-Ata Declaration on primary health care and the launching of the Global Strategy for Health for All, as well as the accelerated decentralization of WHO’s activities. At the same time, the planning of the WHO Secretariat’s work was systematized through the introduction of medium-term programmes corresponding to each General Programme of Work of WHO, covering a six-year period. The programme-budgeting and the monitoring and evaluation of the programme implementation were facilitated and more sharply focused by this process, especially since the introduction of the Seventh General Programme of Work for the period 1984–1989 which provided, for the first time, objectives and targets for the Health Situation and Trend Assessment Programme. This new programme was started in 1982, with particular emphasis on the target-oriented approach to information and identified the following five target areas:

- strengthening of countries’ capacities for information support to health system management;
- training in epidemiology and health statistics;
- development of methodologies and standard tools;
- global and regional monitoring of the health
situation; and
— epidemiological and statistical support to other WHO programmes.

The basic aim of the programme is that top priority should be given to the use of relevant information, and only the most essential information, for the improvement of the health system. Broad guiding principles for information support to health system management were elaborated and made available for testing in several countries. Development and use of a limited number of indicators on the socioeconomic situation, on health policy development, on health service delivery and on health status, for monitoring and evaluating health-for-all strategies at national, regional and global levels, were considered the key elements in the implementation of the new programme. The development and use of the regional targets and indicators in the European Region was the most conspicuous example of the new approach. The need for generating and using relevant information at subnational level as a means of assessing the degree of equity in health has been stressed since the outset of the formulation of the health-for-all strategy, and further highlighted in response to the priority accorded by the World Health Assembly to the strengthening of the district health system in 1987.

The series of resolutions adopted by WHO’s governing bodies on these subjects have been the basis of the Seventh General Programme of Work and the corresponding medium-term programme for health situation and trend assessment, as mentioned before. The Eighth General Programme of Work for the period 1990–1995, which was approved by the Fortieth World Health Assembly in 1987, and the corresponding new medium-term programme represent further development and refinement of the policy direction established in the Seventh Programme. The problems and deficiencies identified in the national reports on the periodic monitoring and evaluation of the health-for-all strategy have provided a basis for these adjustments (17).

The ninth revision of the International Classification of Diseases (ICD-9), which was approved by the World Health Assembly in 1976, was introduced by Member States as from 1979 (18). By that time there was also strong demand for a statistical tool which could cope with the constraints existing in many of the developing countries, especially for recording and analysing health information by non-medical personnel. The ideas developed by Biraud for use in the African continent during the first decade of WHO were thus revived and adjusted to the problems encountered in other developing countries as well. A booklet on lay reporting (19) was published as the outcome of this new attempt, and the method has since been tested in several countries. As lay reporting must use locally prevalent terminology, it is impossible to establish a method or a procedure that is universally applicable. None the less, this publication has stimulated the attention of public health personnel to the need for devising ways of recording and using health information best suited to the local conditions.

As exemplified in lay reporting, much of the developmental work undertaken during this decade related to practical adaptation and application of the existing methodology in specific national and local conditions. Nevertheless, the programme, acting as a clearing house on statistical and epidemiological methodology, also initiated activities. The World Health Statistics Quarterly, which in the preceding decade used to disseminate statistical data in the raw form on morbidity and mortality, developed into a periodical carrying articles reporting on the results of statistical analysis, as well as on epidemiological and statistical methodology, related to a theme selected for each issue. The themes already covered are family health, health and women, mental health, accidents, environmental health, health economics, health information systems, health surveys and projections, health indicators, etc. One issue every year is devoted to disease prevention and control. With financial support from UNFPA, several publications on mortality analysis have been issued; topics dealt with were socioeconomic determinants and consequences of mortality (20), sex differentials in mortality (21), interaction between mortality and the family life-cycle (22), perinatal mortality (23), and new developments in mortality analysis (24). Problems faced by countries in the generation and use of health care information were recently the subject of a round table (25).

The European Regional Office was particularly active in assembling and disseminating methods for dealing with current public health problems. Publications on measurements in health (26, 27) and health projections (28) are examples of this effort. Greater emphasis was given to health promotion and protection than disease control, in line with the health-for-all strategy, and particularly the regional targets and indicators adopted by the WHO Regional Committee for Europe.

Work on the tenth revision of the ICD, which was to be adopted by the Health Assembly around 1985, had to be postponed. This was partly due to the constraints imposed by the decentralization of WHO’s resources and partly due to the considerable costs Member States would incur in changing the classification, which is a statistical tool now widely used in hospitals. In social security and epidemiological
studies, as well as in coding medical certificates of death. The postponement by about 5 years was therefore proposed by the Director-General of WHO and agreed upon by a majority of Member States. This has allowed time to test proposals for the revision of the ICD and for new definitions and coding rules. A network of collaborating centres for the classification of diseases has been assisting this developmental task.

The International Classification of Impairments, Disabilities and Handicaps, which was introduced "for trial purposes" (29), has been used increasingly in rehabilitation, in community surveys, and even in health insurance for assessment purposes. It has served as the basis for a major community survey in Spain and is officially used in France; it is also the classification used in the United Nations data base on disablement. The recent and current efforts of assessment of progress towards health for all have highlighted, particularly in the European Region of WHO, the need for a classification tool which allows for comparison of data and trends.

CHALLENGES AHEAD

Tremendous developments have taken place in all facets of human life during the last 40 years. Health services have penetrated into rural areas and remote places. The health status of the population as measured by infant mortality rate, life expectancy and other key indicators has improved considerably. A wide range of new technologies is now in use in all countries—some highly complicated, some sophisticated but inexpensive, and some very ordinary but based on new concepts. The progress in health is being monitored, the deficiencies are being corrected, and the results are being evaluated and utilized in the subsequent planning and programming.

Despite the impressive progress made, many health problems remain to be solved and some new ones have appeared. Epidemiology and statistics will have to contribute to the solution of these problems. The following are some of the challenges to WHO during the next decade.

(1) Health information systems. WHO's role in technical cooperation with countries in this area should be to devise practical ways so that the most essential information is identified. Less essential and unused data are weeded out. Data processing and data flow are organized efficiently, and the information obtained is interpreted and used by relevant health personnel. Rapid progress in computer technology, especially microcomputers and hand-held computers, should facilitate this task. The guiding principles developed during the fourth decade should be refined on the basis of national experiences. Effective health information systems cannot be developed in a vacuum; they must parallel and closely link with improved managerial processes in which health decision-makers at all levels should be trained. As one of the fundamental data sources for health planning, vital statistics and civil registration should be promoted as a long-term target for countries where these are still deficient.

(2) Cost-effectiveness of health action. Methods are now available to assess direct cause-effect relationships such as immunizations resulting in a reduction of incidence of a target disease. Methodological development is still needed in situations involving a multitude of associated factors, such as finding out what beneficial health effects have resulted from improved water supply and sanitation. Evaluation of the cost-effectiveness of health measures is all the more important as limited resources must be used to obtain maximum return. Applications of the risk approach focusing action on high-risk groups must be extended to deal with a wider range of health problems. More generally, resource allocations should be streamlined in order to improve the cost-effectiveness. Among the questions not yet answered is whether and to what extent the improvement in epidemiological and statistical information support has ultimately led to better health and well-being of people.

(3) Health systems research. The above problems are examples of required health systems research in the wider sense of the term. Despite many years of attempts to develop research of this type, progress has been slow in the development of, for example, relevant epidemiological and statistical methods to support it. One of the difficulties in finding the optimum organization of the health system in a country lies in the fact that the acceptability of a system is culture-bound and hence a universal model does not exist.

(4) Health indicators. The target-oriented approach to the development of indicators should be continued further. Even though health status indicators will proclaim the ultimate success or failure of health development, "process" indicators and indicators of associated factors are essential in health monitoring. As new factors affecting health are identified, appropriate indicators showing the level of such factors should be devised. These will include a group of "positive" health indicators, such as adequate nutrition, physical and mental performance, social adjustments, community participation and environmental protection.

(5) Measurement and analysis of morbidity, disability and mortality. Much of the morbidity, disability and mortality occurring among children, young adults and middle-aged people throughout the world can be prevented by applying currently available
health technologies, by taking appropriate socioeconomic measures, or by adopting a healthier life-style. More effective practical methods and procedures should be devised on the measurement and analysis of these negative aspects of health. Those on morbidity and disability require particular attention as they are not yet well developed.

(6) International collaborative epidemiological studies. The results of this research based on uniform methodology are needed to find solutions to the common problems confronting a number of countries. Available national resources can be used in most of these studies, with WHO as both the coordinator and a neutrally located data analysis centre.

(7) ICD and related issues. The tenth revision of ICD will involve a considerable expansion of the current version (ICD-9), which should improve the recording, storage, analysis and use of detailed information on morbidity and mortality. At the same time, the classification ought to have a built-in capacity for easy aggregation, summarization and simplification so as to be applicable also to less complicated situations. The latter aspect should continue to be studied, and this will require concerted developmental efforts by countries. Classifications suitable for use in primary health care have to be developed, in collaboration with countries and relevant nongovernmental bodies. Further work is also needed to improve the international classification of procedures in medicine and that of impairments, disabilities and handicaps. In addition, the development of appropriate classifications of public health action, health personnel, and health expenditures is desirable for managerial purposes.

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A unique report on the availability and consumption of pharmaceuticals throughout the world

The World Drug Situation

1988, vi + 123 pages (E, F)
ISBN 92 4 156114 9
Sw.fr. 20.—/US $16.00

Reviews the many complex factors that influence the current availability and consumption of pharmaceuticals throughout the world. The report, which draws upon data and statistics available for well over 100 industrialized and developing countries, emphasizes factors that can help gauge the extent to which drugs are performing an effective role in society and in health care. Conditions and trends in both the public and private sectors, at national and global levels, governing undermedication or overmedication, are identified and discussed in this uniquely thorough survey of the world drug situation.

The book has two main parts. Chapters in the first part analyze global trends in the consumption, production, trade, and sales of pharmaceuticals. Information ranges from data on the leading manufacturers and products, through statistics on changing per capita drug consumption by country and by region, to a discussion of the structure and dynamics of the pharmaceutical industry. Apart from documenting current trends, these chapters also identify a number of factors, such as the growth of generic producers and the increasing complexity of research and development, that are likely to influence future trends.

The second part of the book profiles the drug situation in individual countries. Using a set of 10 indicators, chapters provide a systematic assessment of national drug policies, essential drugs programmes, conditions of availability and consumption, and the extent of local production for 104 developing countries, grouped according to three different levels of coverage. Where appropriate, detailed discussions of the situation in individual countries are used to illustrate significant trends and identify problems faced by countries in specific situations. The book concludes with an overview of the drug situation in industrialized countries, including examples of different measures introduced to control costs, improve the prescribing practices of medical personnel, and promote more rational drug use by the public.

Published by the World Health Organization