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The World Health Organization (WHO) is widely recognized as an agency which fills absolutely fundamental human needs in the modern world. Whenever I am exasperated by it, I need but a moment’s reflection to recognize that if, by some stroke of a malignant fate, it were to be abolished today, it would have to be reinvented tomorrow. WHO is a specialized agency of the United Nations, with global headquarters in Switzerland and six regional offices. In accord with its constitutional mandate, WHO is the directing and coordinating authority on international health work and engages in technical cooperation with member states. It is not a supranational health service. Rather, it encourages and assists governments in fulfilling their responsibilities. In the absence of national commitment, there is little WHO can do. The structure of WHO hinges on the World Health Assembly, the executive board, and the secretariat, as well as on the regional organizations, most of which consist of a regional committee and a regional office.

WHO regions include Europe, Africa, the eastern Mediterranean, South-east Asia, the western Pacific, and the Americas. Regional work of WHO in the Americas (Canada, the U.S., Mexico, Central America, the Caribbean, and South America), is carried out by its affiliate the Pan American Health Organization (PAHO), with headquarters in Washington, D.C. In general, PAHO, like the other WHO regions, adapts WHO global programs to the needs and circumstances of the region, and adds other programs to deal with problems unique to the Americas. In practice, regional directors, who must respond to the needs and wishes of their own member states, have considerable freedom of action in selecting and carrying out regional programs.

WHO deals with fundamental human concerns: disease, privation, ignorance, poverty. It has great credibility and immense good will in developing countries. Perhaps WHO’s greatest triumph to date has been the global

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eradication of smallpox, although the agency has performed valuable services in many other fields. Victory over smallpox had implications that go far beyond the disease. It showed that great things can be done if the nations of the world cooperate together. Secondly, it reasserts “our ability to change the world around us for the better,” as Dr. Halfdan Mahler, the Director-General of WHO, has stated.

Several of the WHO programs have impressed me with their potential—admittedly so far not yet fully realized—for major success. These include the Special Program for Research and Training in Tropical Diseases; the Diarrhoeal Diseases Control Program; the Expanded Program on Immunization; the Drug Action Program; and the Onchocerciasis Control Program in the Volta River Basin. A brief description of them will illustrate the breadth of WHO’s work.

**WHO Programs**

**Tropical diseases.** The Tropical Diseases Program is a major international effort aimed at attacking diseases which afflict nearly half the world’s population, kill millions (especially young children), and reduce the economic productivity of scores of millions more. They include five parasitic diseases: malaria, schistosomiasis, trypanosomiasis (including both African trypanosomiasis and Chagas’ Disease), filariasis, and leishmaniasis. An ancient bacterial disease, leprosy, is the sixth disease under attack in the Special Program.

It hardly needs reemphasizing that the diseases chosen for the Special Program have not been successfully controlled with the tools available. Pesticide spraying for vector control purposes often must be carried out under extremely difficult logistical circumstances, and vector resistance to pesticides is of great and growing practical significance. Parasitic and bacterial resistance to available chemotherapeutic agents has resulted in currently available tools becoming ineffective. A dramatic example is provided by the emergence of drug-resistant malarial parasites in many areas of Southeast Asia and South America. There also now is evidence of scattered resistance to chloroquine from parts of East Africa, as well. Similarly, there is growing evidence of resistance by strains of *M. leprae* to dapsone, the major chemotherapeutic agent for leprosy.

Curative treatment of the diseases of the Special Program with available drugs is, in general, prolonged, difficult, and often dangerous for the patient. Because most of the people afflicted live in poverty, there has been relatively little commercial incentive to invest the large sums necessary to develop new and improved drugs. For example, there is only one drug currently available for treatment of late-stage sleeping sickness (melarsoprol), and it was introduced in 1946. The drug produces serious side effects in 5-10 percent of patients and 2-5 percent die as a result of
drug treatment. The basic scientific knowledge needed for the development of improved procedures to control the diseases of the Special Program is lacking, a reflection of the neglect of tropical diseases in general. As yet there is no vaccine available for use against any of the six diseases. Diagnostic procedures often lack precision and specificity, are costly and not readily applicable to practical use in the field.

The Special Program has been effective in stimulating research. Several thousand different scientific publications have been registered which resulted from projects supported by the Special Program, more than 1000 during the period July 1, 1981 to December 31, 1982 alone. It has been estimated that the Special Program accounts for approximately 25-30 percent of funding for worldwide research in the six diseases involved.

**Diarrhoeal diseases control.** In 1978, member states of WHO, recognizing the immense impact of diarrhoeal diseases on child health, adopted a control program combining health services delivery and research. The Diarrhoeal Diseases Control Program has four strategies, promoted within the context of primary health care. They are management of acute diarrhoea; mother and child care, including promotion of breast feeding; water supply and sanitation; and epidemic control. The program supports health services and biomedical research to ensure rapid application of new findings by national control programs. Training courses are provided for managers of national diarrhoeal disease control programs along with information and training materials. Financial and advisory support is given for planning, implementation, and evaluation of national control programs. A key element in successful management of acute diarrhoea is the availability of oral rehydration therapy, which represents an enormous breakthrough in public health, with great potential for saving lives. Oral rehydration therapy, in addition to being inexpensive and effective, serves also as an effective focus for introducing other health education measures into the home. Oral rehydration salts (glucose, sodium chloride, sodium bicarbonate, and potassium chloride) are available in waterproof laminated aluminum foil packets through the United Nations Children’s Fund (UNICEF). Both WHO and UNICEF are assisting countries to produce the WHO-recommended formulation.

In addition to providing financial support for biomedical research on diagnosis, epidemiology, and drug and vaccine development, the program also supports operational field-oriented research to develop more effective ways to implement prevention and control strategies.

**Immunization.** History teaches us that immunization with safe, effective, low-cost vaccines is the most cost-effective way to improve public health. Not surprisingly, therefore, another major new program of WHO is the Expanded Program of Immunization, which aims to protect the young children of the world from common communicable diseases of childhood, including polio, measles, diphtheria, pertussis, tetanus, and
rubella. These have largely been eliminated as major public health problems in the developed countries of the West, but in the developing world they remain as major causes of morbidity and mortality in young children.

No one at WHO has any illusions about the ease with which these childhood diseases will be brought under control. Such cannot proceed faster than the provision of primary health care services and the improvement of nutrition, environmental conditions including sanitation, and socioeconomic levels. Still, much has already been done to lay the groundwork for significant progress.

**Drug action program.** Improved health for the people of the world cannot be achieved without the provision of essential drugs. In 1978, the world market for pharmaceuticals (excluding China) was estimated to amount to roughly 70 billion U.S. dollars. Of that amount, 85 percent was spent in the industrialized world; only 15 percent was spent in the developing countries where most of the world’s population is found. Of that 15 percent, 40 percent was spent in Latin America, 45 percent in Asia, and only 15 percent in Africa. The amounts of money spent on drugs depend much more on purchasing power than on health needs. In developed countries, pharmaceutical products are generally accessible to everyone. In most of the developing countries, however, the provision of essential medicines poses serious problems and indeed is a major obstacle to the attainment of health for all. In many of these countries, much as 85 percent of the population has, at best, extremely limited and intermittent access to the most basic of medicines.

The greatest need in the Drug Action Program is to assist countries develop integrated comprehensive national drug policies, which are linked with the health needs of the majority of the population and national health programs. Most developing countries now lack such policies. They also lack appropriate infrastructures for effective drug procurement, quality control, distribution, and appropriate use, as well as the trained manpower needed to operate the infrastructures properly.

The Code of Pharmaceutical Marketing Practices recently approved by the International Federation of Pharmaceutical Manufacturers Associations (IFPMA), is an important prerequisite for further action to demonstrate the industry’s firm commitment to high ethical standards of practice in marketing its products. Industry should be lauded for developing the code and encouraged in efforts to improve it as experience in its use indicates the need to do so. The bottom line on the marketing code will be the extent to which industry is prepared to live by it. This will determine the views of national governments on the value of the code and on voluntary compliance in general.

**Onchocerciasis control.** Onchocerciasis ("river blindness") occurs widely in tropical Africa, affecting an estimated one million people in the Volta River Basin. In some villages, nearly half of the adult males have
been blinded by the disease. Onchocerciasis is caused by a filarial worm, *Onchocerca volvulus*, and is transmitted from person to person by repeated bites of blackflies (Simulium). Perhaps the most seriously affected country in West Africa is Burkina Faso where 84 percent of its land area is involved. A major consequence of onchocerciasis in Burkina Faso and elsewhere in the region has been the almost complete abandonment of the most fertile river valleys. To escape the blackfly vector of the disease, large numbers of people have fled to the plateaus, where the agricultural productivity, already reduced, decreases from year to year.

Seven countries of West Africa (Ivory Coast, Benin, Burkina Faso, Ghana, Mali, Niger, and Togo) are participants in a large-scale onchocerciasis control program worked out under the auspices of WHO, FAO, UNDP, and the World Bank. WHO serves as the executing agency for this program, called the Onchocerciasis Control Program (OCP) in the Volta River Basin Area. The program receives funding from a number of national and international donors.

OCP is primarily, although by no means exclusively, an operational program which involves large scale vector control operations aimed at attacking the blackfly vector at its breeding sites on the rivers of the regions. The application of larviciding agents to the rivers is conducted from the air in a carefully coordinated and precise manner based on a schedule reviewed and modified weekly as hydrological and entomological parameters change. Spraying operations are backed up by an extensive entomological evaluation network on the ground, coupled with epidemiological evaluation of human populations.

The program has been spectacularly successful in achieving entomological control. Epidemiological results are now beginning to reflect the results of the vector control operations. Transmission of the disease has been interrupted, the prevalence of ocular lesions is decreasing, and major decreases in prevalence can be expected in the next two to three years. The adult female worms are beginning to die off, as shown by examination of worms obtained by nodulectomy of onchocerciasis patients.

The OCP faces two major threats—reinvasion during the rainy season by flies from areas external to the program operations, and vector resistance to the pesticides used. The search for new pesticides has been accentuated, and work is underway to attempt to develop a drug which will be effective against the adult female worm of *Onchocerca volvulus*, the causative agent of the disease. Multidisciplinary teams have been established at the Wellcome Research Laboratories in the U.K. and at the Upjohn Company in the U.S.
The Changing Role Of WHO

The role of WHO is changing. The International Conference on Primary Health Care held in Alma Ata in 1978 issued a declaration which stated that primary health care is the key to attaining health for all by the year 2000. It also identified eight essential elements of primary health care: education concerning prevailing health problems and the methods of preventing and combating them; promotion of food supply and proper nutrition; an adequate supply of safe water and basic sanitation; maternal and child health care, including family planning; immunization against the major infectious diseases; prevention and control of locally endemic diseases; appropriate treatment of common diseases and injuries; and the provision of essential drugs.

WHO is deeply committed to the development and implementation of primary health care through the world and particularly in developing countries. The concept requires that health be considered in relation to its contribution to and promotion of social and economic development so that people can live socially and economically satisfying lives. It is important to point out three critical aspects of the primary health care concept. It is not intended only for people of developing countries, however, social justice demands that major efforts be placed on developing primary health care for the underprivileged peoples of the world. Secondly, each country must develop its own health policies in light of its unique health problems, social and economic realities, and political and administrative mechanisms. What is appropriate for Canada is highly unlikely to be appropriate for Sri Lanka or Burundi. Finally, development and implementation of primary health care does not require tearing down existing health care systems, but rather building and expanding upon them. It must be the community-based part of an integrated and comprehensive health system. In implementing primary health care, while at the same time attempting to maintain its current specialized expertise, WHO faces major challenges over the next decade.

The size and scope of global health problems. As has already been pointed out, hundreds of millions of people living in developing tropical countries are victims of a deadly triad of interconnected problems: disease, poverty, and ignorance. Those afflicted are cut off from the mainstream of social and economic progress, caught in a vicious cycle of poverty and sickness. People are poor because they are sick, and sick because they are poor. In addition to the diseases of temperate climates, inhabitants of tropical countries bear the added burdens of afflictions which have been termed the root evils of tropical pathology. Most of these diseases are chronic infections which may lead to early death, but invariably result in debilitation and intense chronic suffering. Their most frequent victims are children, but they affect every aspect and age of life. They can
disable an entire population, cause the abandonment of fertile and productive land and prevent the planting or harvesting of crops. It must be stressed that, in addition to their effects on health, tropical diseases have a marked inhibiting effect on social and economic development. Health and development are inextricably intertwined; each influences and is influenced by the other. Healthy people are required for development, and development is needed to provide the financial and other resources on which improved health is based.

Many tropical diseases play important roles in the cycle linking infection with malnutrition. They contribute to malnutrition which in turn decreases resistance to the diseases themselves. For example, it has been estimated that potential lands within the so-called fly belt of Africa could, if cleared of the tsetse fly vector, provide for a population of over 100 million cattle. The land involved amounts to approximately 10 million square kilometers. Malnutrition saps energy and motivation and reduces performance in school and at work. In the developing countries, as many as 25 percent of the people have food intakes below the critical minimal levels. The burden of malnutrition of course falls most heavily on the poor.

The burdens of tropical disease are dramatically illustrated by Dr. David Rowe of WHO:

"It is difficult for those living in temperate climates with good standards of public health and medical care to realize the impact of disease on rural communities in the tropics. For example, if you happen to be born and grow up in rural Africa you are liable to harbour four or more different disease-producing organisms simultaneously. And yet, as a parent, you must be fit enough to work, or your family will starve. In your village every child at times suffers the paroxysms of malaria fever, and you and your wife will mourn the death of one or two children from this disease. The snails in the village pond carry schistosomiasis, and you do not consider it unusual when your children pass blood in their urine. You take for granted the disfigured faces and fingerless hands of the beggars in the village street suffering from leprosy. If you live near a river where blackflies breed, one in ten of your friends and neighbours will be blind in the prime of life. You know that waves of killing diseases such as measles and meningitis and perhaps sleeping sickness are liable to strike your village. But, lacking effective remedies, you tend to philosophize in the face of sickness. You make the effort to walk the ten miles to the nearest dispensary when you or your child is ill, but there may be no remedies, and it may be too late. . . ."

A few statistics illustrate the effects of all of this misery. The average life expectancy at birth is about seventy-two years in the developed countries of the North, it is about fifty-five years in developing countries of the South, and in Africa and southern Asia only about fifty years. Of every 1,000 children born into poverty in the least developed countries,
200 die within a year, another 100 die before the age of five years, and only 500 survive to age forty. Infant mortality rates are ten to twenty times higher in developing countries than in those which may be termed “developed.” WHO has estimated that about a tenth of the life of an average person in a developing country is seriously disrupted by disease, with the heaviest burdens falling on children. The common infectious diseases of childhood, which have, in the main, been reduced to relatively minor problems in developed countries, continue to exact heavy tolls in the developing world. Mortality from measles, for example, may reach 20-30 percent in a malnourished population of children. Of the estimated 80 million children born each year in the developing countries, fewer than 10 percent are immunized against the common infectious diseases of childhood.

Diarrhoeal diseases, transmitted by fecal contamination of water, food, and soil, are estimated to kill over 4 million children in developing countries each year. The total number of diarrhoeal episodes is estimated at 1,000 million per year. Perhaps the single action leading to greatest improvement in public health would be to provide a safe, regular water supply to inhabitants of the least developed countries. At present, only about 75 percent of city dwellers have dependable access to reasonably safe clean water and adequate sanitary facilities. In rural areas, fully 75 percent of the people lack ready access to clean water. The cost of providing such facilities is estimated to be at least $30-50 billion each year until 1990, an amount which will be very hard to find, particularly since planning under the International Drinking Water Supply and Sanitation Decade envisages two-thirds coming from governments, and one-third from donor countries and agencies. Investments on water and sanitation are, in fact, running at only about $10 billion yearly.

National health statistics such as those cited do not take into account the great regional disparities which exist within many developing countries. The burdens of microbial and parastic disease fall most heavily on the rural and periurban poor.

**Ineffective management by national governments.** Health problems often are exacerbated by national governments who concentrate scarce health services, including essential pharmaceuticals and health care workers, in urban areas, thus widening the gap between rich and poor. In many developing countries, national governments have inadequate political commitments to health, and health is relatively low on the list of national priorities. Many health ministries are relatively weak and ineffective, with an inadequate health information system to assist them in setting priorities and assessing progress, and inadequate numbers and kinds of personnel, including a lack of appropriate nonmedical expertise. Development of national health policies, including linkage with other sectors contributing to health, is often deficient. Scarce health resources
are overconcentrated in hospitals in large urban centers, to the neglect of rural and periurban areas. At the community level, chronic shortages of essential drugs, supplies, and equipment are common. Inadequate community participation in health programs, and incomplete understanding of the social aspects of health care, coupled with inadequate numbers and types of staff at the community level, characterize health service systems in many developing countries. The primary health care system, and resources at first and second referral levels should be proportionately smaller, while remaining supportive of and integrated with the primary care system.

**Literacy.** In the absence of literacy, it is extremely difficult to raise the standard of health. An ability to read and write enables people to understand their health problems and ways to solve them. Furthermore, it facilitates their involvement in the solution of problems at the household and community level. The adult literacy rate is, for practical purposes, nearly 100 percent in developed countries, but is only 28 percent in the least developed countries. Given the important role which women play in health education within the home, it is particularly tragic to note that only approximately 13 percent of women in the least developed countries are literate. Only four of every ten children in developing countries complete more than three years of primary school.

**Poverty.** Perhaps the root cause of most of the problems just described is poverty. Although the gross national product (GNP) is by no means an ideal economic indicator, in general, citizens of countries with a high GNP have high life expectancy and low infant mortality rate. The reverse is true for countries with a low GNP. In most developed countries, the GNP varies from US $5,000-10,000 per year. In most developing countries it is only US $200-1,000. The United Nations estimates that the per capita income of people living in the least developed countries of the world will grow by only US $2-3 per person per year during the remaining years of this decade. In many countries, such as those in sub-Saharan Africa (140 million people), per capita income is expected to actually reduce over the next few years. The expenditure on health in many developing countries amounts to only a few dollars per capita per year, as compared to several hundred dollars in most developed countries. In the least developed countries, for example, data for 1980 show an average of US $1.7 annual public expenditure for health.

**Population growth.** Trends in population growth make the situation even more precarious. In 1980, the developing countries accounted for approximately 75 percent of the total world population. By the year 2000, this figure is expected to increase to approximately 80 percent. Furthermore, in the developing countries, nearly half of the people are under fifteen years of age, and thus largely economically unproductive, as compared to approximately 23 percent in the same age group in developed
countries. In 1980, more than half of the world’s elderly lived in developed countries, but by the year 2000 almost 60 percent will live in developing countries. Finally, the continuing trend towards urbanization indicates that by the year 2000, out of the fifteen largest metropolitan areas, twelve will be in the developing countries. The projected demographic shifts and continuing urbanization will, of course, have important socioeconomic and health effects. Disease patterns will change, and additional burdens will be placed on physical and social infrastructures, on food production and distribution systems, on housing, sanitation, water supplies, and health care.

Converting slogan into action. It is one thing to talk about “health for all by the year 2000,” and another to translate it into concrete action. There are many impediments to change. The medical profession, for example, has a long tradition of curative medicine, but little experience and little skill in developing community action. Good progress is being made in training new health professionals to accept new perspectives, but it takes time to make the conceptual change from medical care to health care. Entrenched attitudes of health professionals don’t change overnight. Small incremental changes must be accepted.

Resources for primary health care are often eaten away because of immediate pressures to spend the available money on hospitals and medical care. In the face of enormous debt loads, many developing countries are cutting public spending, including that on health care. In many developing countries the absolute amounts of money available are simply inadequate.

In development work in general, a monosectoral approach has been followed, when an intersectoral approach is what is needed. Information on health and disease must be available to and be used by those who manage intersectoral programs. Most of these are not health professionals—they are in finance departments, planning departments, and Prime Ministers’ offices. Countries are weakest in the intersectoral areas of primary health care—those aspects of socioeconomic development not directly related to the health sector, such as education, housing, and availability of clean water and fuel close to home. The skills needed are managerial in nature and are in very short supply in the Third World. Although there are obvious exceptions, physicians as a group are perhaps less than fully equipped to initiate and manage changes in complex interrelated systems, or even in some instances to be fully committed to them.

Lack of community commitment can frustrate the best-laid plans. For example, if a community is not committed to maintenance of proper waste disposal, it will not be long until the water supply is contaminated, and water- and food-borne illness abound.

If “health for all” is to move from slogan to action, it will do so in large measure because of the articulate zeal of the current Director-General in
promoting the concept. Dr. Mahler dominates the WHO by reason not only of his institutional position, but also because of strength of personality and unusual political skills, coupled with a clear vision of the role and objectives of the agency.

In comparison with some other U.N. organizations, WHO has, in the main, been able to withstand successfully endeavors to politicize the organization. These are most obvious at the time of the World Health Assembly, when recurring attempts are made to drag WHO into one or another of the issues which separate North and South or East and West, but one suspects that the pressure never totally subsides. A favorite method used by national governments in attempts to influence the policies of international agencies is to promote placement of their nationals in key staff positions. Quotas are placed on the numbers of individuals of various nationalities who can be hired in attempts to at least blunt these efforts, but it is obvious that some governments never tire in their attempts to get more of their nationals on the staff. Although all senior technical staff of WHO are not of the same quality, the best are fully comparable to those found in national governments anywhere in the world.

Recognizing the unique capacities of the pharmaceutical industry, WHO has made significant progress in the last few years in establishing cooperative working arrangements with various companies, in development of new drugs, vaccines, and diagnostic tests. Contractual arrangements are designed to protect the public interest and ensure that products developed with WHO support will be available to those in need on the best possible basis. Although a few of its staff members are perhaps disproportionately critical of the multinational pharmaceutical companies, a much more important problem faced by WHO in dealing with the pharmaceutical industry is a general lack of knowledge of industrial practices, purchasing, distribution and marketing procedures, and “bottom-line” economics. Since most WHO staff members come from national bureaucracies or academic institutions, this lack of knowledge of industrial practices is, perhaps, not surprising. There is evidence the WHO is making a concerted effort to improve the skills of the staff in this difficult and often emotional area.

In summary, therefore, WHO, despite its flaws and imperfections, provides a unique service to the world community in the field of health. It does not provide direct health services as such, but by coordinating, urging, demonstrating, encouraging, and assisting it helps national governments to fulfill their own responsibilities for health care and disease prevention. Perhaps of equal importance, it acts as an international conscience, stimulating wealthy developed nations to understand their responsibilities towards others who are less fortunate, and provides a way by which the nations of the world can cooperate in an area which transcends creed, culture, race, or political system.
NOTES