



INTERREGIONAL WORKSHOP ON ECONOMICS OF HEALTH MANPOWER DEVELOPMENT
 IN SUPPORT OF PRIMARY HEALTH CARE
 Manila, 22-26 June 1987

REPORT

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I. INTRODUCTION

Rationale

The recent economic crisis has resulted in a decline in the rate of real economic growth in many countries and led to policies of financial austerity. In a number of countries the health sector has been particularly affected. The targets set for the growth of the health sector, linked mainly to the worldwide development of primary health care (PHC) and the principle of "the more the better" in health manpower development (HMD), have had to be revised in view of the severe budgetary constraints. On the other hand, the national health information and education campaigns, which were mounted in conjunction with the national priority for PHC, are now having their effects in terms of increased public demand for better health services, easier access, wider coverage, greater range, and higher quality. Thus, there is currently an increasing pressure on the health sector to expand and improve health services within fixed, and in many cases, even reduced resources.

Many different types of inputs are used in the delivery of health services - people, drugs, customized buildings, equipment, transport, etc. All these are paid out of one source: the Government's budget for the total public sector. While the primary source may be the health budget, inputs are also made from other sources such as Social Security, Ministry of Education, the Armed Forces, etc. The private sector is financed, of course, by individuals from private sources. Thus it is necessary to ensure that planned services can be afforded within the total budget limit set for government health expenditure. It is also necessary to plan for the delivery of the most cost-effective services within this limit. The same reasons make it desirable to plan, or at least estimate the level of resources needed by the private sector. Since manpower costs typically constitute 60 to 70 per cent of the recurrent budget, it is clear that the largest initial gain in health sector efficiency can be made in manpower development. There is, therefore, a critical need to apply economic and financial analyses to health manpower development policies and strategies. In addition, health policy analysts and planners must acquire relevant skills in order to improve the efficiency and effectiveness of manpower development.

Traditionally, the allocation in health budgets has been based almost entirely on the judgement of health professionals. Innovative activities such as the economic analysis of health manpower development programmes have been ignored. And yet, if countries were to generate and promote activities in this area, they would benefit greatly in the long term: nationals could develop skills in the economic analysis of health manpower and health services development, and such analyses would provide a more solid basis for policy decisions on the mobilization, allocation and utilization of internal and external resources.

Objectives of the workshop

To stimulate studies related to the economic analysis of health manpower policies, strategies and plans with a view to improving the mobilization, allocation and utilization of internal and external resources for health.

Specific objectives:

- (1) to review the current situation of economic analysis of health manpower policies, strategies and plans in the participating countries;
- (2) to review priority problems in health manpower development and to identify those that are amenable to economic analysis which can influence manpower policies, strategies and plans;
- (3) to design approaches for economic analysis of important problems in health manpower development, and for measurements of efficiency and effectiveness of health manpower; and,
- (4) to prepare preliminary national proposals for future studies in the economics of health manpower development that can lead to future strengthening of commitment to, and mobilization of internal and external resources for, health manpower development.

Workshop design

The workshop brought together 17 participants from 10 countries in three regions: South East Asia (Indonesia, Sri Lanka, Thailand), Western Pacific (China, Japan, Republic of Korea, Malaysia, New Zealand, Philippines) and Eastern Mediterranean (People's Democratic Republic of Yemen). In addition, there were two facilitators, observers from multilateral agencies, and members of the WHO Secretariat. (The list of participants appears in Annex A.)

The workshop was designed to maximize discussion on the role of economic analysis in assessing manpower problems and policies, and to identify activities that would promote the use of economic analyses in health manpower development. Participants had prepared papers outlining major national issues and problems which were presented during plenary sessions followed by discussion. Approximately half the workshop was devoted to group work during which specific issues were selected and analyzed according to relevant economic criteria, followed by identification of a discussion on potential approaches. (The agenda appears in Annex B.)

Opening statement

Dr H. Nakajima, Regional Director, WHO Regional Office for the Western Pacific, made a brief opening statement. He noted that the economics of health manpower planning have been almost totally neglected up to the present, and that if countries are to succeed in meeting the expressed health needs of their populations within prescribed and often limited health budgets, far greater efficiency is needed in the training, employment and utilization of health manpower. Traditionally, health manpower policies and strategies have been evaluated in terms of their success or failure in achieving explicit health objectives. However, these policies and strategies have financial implications for other health care markets, or impact on other sectors. Though unintended, their implications can be quite substantial and should explicitly be taken into account, and health manpower policies formulated on sound economic and financial bases. In concluding, Dr Nakajima stressed that while the vital role that the discipline of economics has to play in the entire health sector, and especially in the area of health manpower development, is now increasingly being recognized, such recognition is not sufficient. There is an urgent need to generate action that will be supported at the national level.

Dr T. Fülöp, Director, Division of Health Manpower Development, WHO, Geneva, followed this introductory statement by enumerating some of the major problems in health manpower development. These include, among others: (a) the lack of coordination between manpower planners, educators, and the health services, leading to the irrelevance of training programmes to actual health needs and other related problems; (b) the failure to base health manpower plans on realistic availability of resources, resulting in only partial or total lack of implementation of the plans; (c) the tremendous imbalances both within and between countries in physician-population ratios, indicating shortages or surpluses of health manpower; and (d) lack of effective manpower management leading to poor motivation, low productivity and little or no job satisfaction among health workers.

Economic analysis can provide and promote substantive solutions to these problems, both in clarifying the root causes and in assessing the impact of health manpower policies designed to address them. It is clear that an unlimited growth of the health sector is no longer financially viable. Critical decisions, based on sound economic data and analyses, have to be taken in order to ensure rational policies and the most efficient and effective use of available resources.

II. PRIORITY ISSUES

A number of major health manpower development issues amenable to economic and financial analysis were identified and discussed at the workshop. These issues emerged from both the country reports and working group discussions, and revolved around the public/private health sector, equity, employment, productivity and training of health manpower, and the adequacy of health manpower planning. (See Table 1.)

TABLE 1. ILLUSTRATIVE HEALTH MANPOWER ISSUES/PROBLEMS
(Based on country reports)

Country	Shortages & surpluses of specific categories of Health Manpower in different locations and Health Institutions	Inefficient productivity and utilization of different categories of health manpower in various health care institutions and locations leading to rising cost of health care	Health professional educational system not producing optimal numbers for the appropriate level of training	Inadequacies in manpower planning <u>ALL COUNTRIES</u>
	<u>How Manifested</u>	<u>How Manifested</u>	<u>How Manifested</u>	<u>How Manifested</u>
China	shortage of manpower in rural areas		need for in-service training and continuing education to raise standards of personnel at various levels especially at the grass-roots	underprovision of recurrent cost not resource-based
Indonesia	rural-urban discrepancies gap between health manpower production and absorption	imbalance in the mix of health manpower in relation to existing health problems, i.e., Manpower are concentrated in cities & hospitals even if major problems affect the poor in rural areas	graduates are too many for government to absorb	not tied up to health and national development plans does not take into account the private sector lack of economic and financial analysis
Japan	large supply of doctors and expected decline in their relative income problem of filling vacancies in smaller hospitals in town-ships even if salaries are higher		increase of government costs incurred in the running of university hospitals & post-graduate training	(problems cited by all represented countries, partly rooted in lack of or inadequacies in health manpower planning)
Republic of Korea	expected urban-rural disparity as rural demand expands as a result of expanding insurance coverage	wide variations in physician's productivity; low in rural & government health centres problem of manpower mix in terms of (a) adequacy of the relative numbers of various categories of health personnel and the functional differentiation among them; and (b) mix of a given category of personnel in terms of different specialties and levels of training	lack of balance between training & job requirements	<u>Public/Private Sector Mix: ALL COUNTRIES</u>
Malaysia	established posts have not been filled because of loss to private sector and underproduction shortage of specialists imbalance between rural and urban areas	public expectation for high technology, high cost of medicine - unprecedented growth of private sector	underproduction of specialists in a number of disciplines	loss of health personnel from public to private sector lower quality of care in public sector, especially in countries where public personnel are allowed private practice private sector tends to generate more services leading to rise in costs
New Zealand	uneven geographic and service distribution in some professions shortage of specialists high attrition rates		training of health professionals has been largely uncoordinated and not needs-based tendency for overtraining leading to education inflation regardless of what the tasks to be performed require in terms of reasonable education	
Philippines	emigration of professionals, especially nurses under-employment of physicians unfilled posts in government health service regional imbalance in numbers and specialties		need to provide training and development programmes for health administrators and non-technical staff need for linkage between the health & education departments to improve professional education & continuing training of all personnel	<u>Equity ALL COUNTRIES</u> imbalance in private/public sector mixes resulting in inequity of access, coverage and quality of care
Sri Lanka	shortages and maldistribution (geographic and specialty) emigration	increasing tendency for health professionals to demand modern and highly advanced technology low productivity due to lack of facilities and mismatch between jobs and skill requirements	training institutions lack necessary facilities training not coordinated with health manpower, health and development planning	
Thailand	mismatch between demand for and supply of all types of health manpower	under-utilization and improper use of health manpower by the government consistent with the country's health development policy inefficient and/or low productive contribution of some types of personnel to public service because of their engagement in private practice over-application of medical technology more than is justified		
People's Democratic Republic of Yemen	no problems in this specific area		need to revise curricula	

Public/Private Sector

Participants discussed, at some length, the public and private sectors and their mix in relation to the economic issues and their implications for the development of health services. Economic pressures have forced governments to examine more closely the management practices in both the public and private sectors; and the private health care system is clearly unable to deliver health care other than on a selective basis.

Within the whole debate revolving around the public/private sector, it was thought that the challenge and search for effectiveness is likely to take precedence over other goals. Efficient allocation of resources is extolled in the private sector, especially in comparison to the bureaucratic machinery of the public system; but the wastage observed in the latter is counteracted by the predilection to generate a larger volume of services in the former, with no apparent or few differences in outcome. Participants cited lack of evidence to show that the private sector is more cost-effective and raised the issue of the underlying difference in the objectives of the two sectors: the public sector attempts to improve health whereas the for-profit private sector, while having the same objective, tends to increase the volume of health services. It must be stated, however, that all private sector health services are not for-profit enterprises. There are a number of non-profit nongovernmental and religious organizations that operate within the private sector. It was believed that the future development of health care systems, both in developing and developed countries, will be influenced more by changes in the economic environment than by ideological preferences. These changes will, most likely, blur the traditional conceptual differences between the public and private sectors.

Simple answers to the optimal private/public mix in health care are not available: there exists a state of transition within an increasingly difficult economic climate. Participants emphasized the urgent need, and considerable scope, not only to instil more incentives in the health system in order to encourage responsibility in both users and providers, but also to alter the mediation and regulatory roles of public agencies.

Equity

It was widely discussed both in the country reports and during the discussions that actions to make health manpower and health systems, generally, more efficient should not be at the cost of the overriding issues of equity. This discussion seemed especially relevant in anticipating a larger role for the private sector in the Health For All framework. Great Britain can be cited as an interesting example: the public sector (National Health Service), delivers a basic utility service, with an adequate minimum standard, for the great majority of the population. The growth of the private sector can thus be viewed as a complement and not alternative to the publicly-financed service. However, participants stressed the need to be diligent: while the private sector may gain some technical efficiency for a country's health sector, it may also contribute to increasing inequity. The role of the government is to balance the maximum efficiency obtainable consistent with well-understood goals and objectives for equity in health care.

Employment

A major problem common to all countries represented in the workshop, is the imbalance between the supply and demand of health manpower by sector, location, occupation and specialty. This problem is manifested in many different ways: the government's inability to absorb graduates, and/or to fill established posts, especially in rural areas, resulting in a concentration of health manpower in urban areas. This situation is exacerbated by low salaries and, in certain cases, salaries not being paid on a regular basis. The almost total lack of incentives has a negative effect not only on the motivation of health workers, but also on the balance of supply: health personnel will usually refuse to serve in rural areas unless adequate compensation and/or incentives are provided. Additionally, there exists a shortage of specialists in certain disciplines, the unemployment/underemployment of physicians, and the emigration of certain types of health manpower.

Productivity

The productivity of employed manpower in various health care settings and locations is another major problem. This is generally related to the existing manpower mix, organizational arrangement, mismatch between job and skill requirements, and manpower-capital mix. The problem presents in different ways: for example, an imbalance in the mix of manpower in relation to existing health problems and economic realities. Manpower is concentrated in cities and hospitals even though the major health problems affect people in rural areas. In order to expand the coverage of health care in the rural areas, less highly trained and specialized manpower than is currently employed is needed. However, there is a marked tendency by both consumers and health professionals to desire more highly advanced technology than is necessary to maintain effective and efficient health sources. Such technology is not only relatively expensive but also requires high-level manpower complements that are high consumers in terms of both human and financial resources. The use of such technology will lead to further manpower imbalances relative to needs, and raise the costs of health care. Another example relates to manpower productivity, especially that of physicians. It is a general observation that this is low and varies greatly between areas and health care institutions. It tends, in general, to be relatively lower in rural areas and government health centres when compared to the private sector. The motivation of staff is invariably influenced by the availability of a well-developed career structure within which they can advance. This lack, including a total divorce of career opportunity from performance assessment, leads to low motivation and hence low productivity of health personnel.

Training

Another category of problem relates to the production of health manpower. The professional education system does not produce the optimal number and quality of graduates, and at the lowest cost commensurate with acceptable quality. The costs of education and training are often overlooked in the planning and management of human resources, and yet, they can be substantiated. This particular problem underscores the almost total lack of coordination between the different sectors responsible for the production and training and utilization of health personnel.

Related to both the issue of training and productivity is the one of continuing education. The opportunity for health personnel to maintain and improve their skills and acquire new ones in response to changing patterns of disease and technological changes is an essential feature of an efficient and cost-effective health care system. Further, if linked to a well-developed career development system, continuing education can promote upward mobility. It should also be noted that reinforcing skills and/or learning new skills has a positive correlation to motivation.

Manpower planning

All the participants identified the main cause of the problems described above as either the absence of adequate planning, or poor planning and implementation. Unrealistic planning was the recurrent theme. Most countries do formulate manpower plans but these are often based on the ideal rather than on the actual availability of resources. Recurrent costs are not taken fully into account, and the role of the private sector is almost totally ignored. There is little coordination between production, employment and productivity-enhancing aspects of manpower development, and the incentive structure that affects production, employment and productivity is not carefully worked out or does not exist at all. It was made abundantly clear, and country reports supported the fact, that realistic manpower plans that could be implemented, were an essential prerequisite to negating some of the major problems in health manpower development that a great many countries face today.

III. WHY ECONOMICS IN HEALTH MANPOWER DEVELOPMENT?

There was general acceptance that resources are scarce and yet governments both need and wish to expand and upgrade health services to achieve the goal of Health For All by the Year 2000. The solution lies in providing more efficient and effective services. The analysis of each major category of health manpower problem revealed consensus and understanding regarding the role of economics in health manpower development. Further, emphasis was placed on the need to apply economic and financial analysis towards identifying solutions and providing a sound rationale for policy decisions.

Resources allocated to health manpower constitute a very large proportion - up to 60 or 70% - of total resources available to the health care system. Therefore, if the area of health manpower is guided by and based on sound economic principles, it can be safely assumed that both coverage and quality of services will be upgraded within the existing resources. Achieving efficiency in health manpower development can go a long way towards improving efficiency in the overall health care system.

Economics provide a set of criteria that can be used to evaluate and monitor the impact of various policies on achieving greater efficiency and equity. While other sets of criteria exist, as, for example, criteria based either on professional value judgement or politics, these sets of criteria do not provide explicitly specified and/or objective rules for evaluating decisions on the basis of efficiency in resource allocation.

The method of looking for economic efficiency, would be to assume an economic model of perfectly competitive markets. In this model, the decisions rendered by buyers and sellers of goods and services and resource inputs are made effective through a system of markets and prices. Although the model is derived from the workings of a market economy, the rules are applicable to any system interested in economic efficiency. It describes the conditions under which the operation of perfectly competitive markets can lead to efficiency as well as the conditions under which it would not, and therefore, the conditions under which some form of government intervention may be justified.

The health care sector may be described in terms of the operation of three interrelated markets. These are:

- (1) the market for health manpower: which determines the number of specific categories of health manpower employed and the corresponding wage rates;
- (2) the market for health professional education: which determines the number of graduates in specific health professions and the corresponding price of education; and,
- (3) the market for health care services: which determines the quantity of various types of health care services consumed by the population and the corresponding prices.

In each of these markets, the outcomes (quantity and price) are determined by the interaction of demand and supply. An equilibrium situation exists when the quantity demanded and quantity supplied are equal at a given market price. Market price is the mechanism that equilibrates demand and supply. Thus, in a perfectly competitive situation, health resources will be allocated through supply and demand in each of these three markets, with price serving as the equilibrating mechanism. Of course, one must bear in mind that in the health sector, perfectly competitive markets do not exist.

Nevertheless a simple demand-supply analysis can go a long way towards understanding many of the health manpower problems identified during the workshop. For example, unfilled positions may be a direct result of inflexible wage/income policies of the government. In actual terms this means that the wage rates and other conditions of work that affect the real income of personnel are too low to attract applicants. Thus, while there may be a great "need" for personnel as determined by health professionals, the effective demand (need + purchasing power) may actually be too low to attract the additional manpower. In some cases, other factors that affect real income, such as housing, transportation, access to education etc., are so inadequate, that even an increase in wage rates will not generate a large supply response.

Sometimes the phenomenon of unfilled public health posts is directly related to the loss of manpower from the public to the private sector, due to higher wages paid by the latter. This underscores the fact that market forces do have a direct impact on allocating manpower resources, and public hiring policies should take due account of such forces.

Most governments recognize the need to augment public personnel salaries in order to attract and retain personnel, especially in government hospitals. The actual policies adopted should be carefully considered, since, while solving the specific problem of low salaries, they can result in unforeseen and undesirable consequences. An illustration of this case in point, over which there were extensive discussions, is that of allowing private practice by doctors in government hospitals. While the direct result of this policy has achieved the intended outcome, that is, a substantial raise in incomes, an unintended consequence has been the observed decline in the quality of hospital services. This quantitative decline has been measured by indicators such as irregular attendance by doctors, use of public hospital resources for private practice, and expressed dissatisfaction at the contrast in services by patients in the public sector. And yet, the private practices of these government doctors appear to be thriving, thus indicating a great demand for such services. What does a thriving private practice by government physicians indicate about the system?

An economic analysis of the situation described above may trace the root cause to the effects of health policies providing either free or very low cost health services to the public. A direct result is an increase in demand at public institutions, which in turn leads to long waiting times or shorter periods of time devoted to a patient. In order to avoid the waste of time which, for many people translates into money, and/or rushed and therefore perhaps inferior services, people who are able and willing to pay will demand services from the private sector or from the private practice of government personnel. Since the income derived from private practice by government personnel is likely to be greater than their salaries, there is a natural tendency to allocate more time to private practice at the expense of their regular employment.

Central to the above problem is the issue regarding alternative financing of public health services, that is, free services versus user charges, and how such alternatives influence the demand for services and the capacity of the health care delivery system to respond to such demand. The policy of charging user fees, for example, will not only influence demand, but also mobilize resources to finance higher wages for health personnel in the public sector.

Another major category of health manpower problems relates to productivity and efficient utilization. Productivity of manpower and costs of health services are related to such factors as manpower mix and the mix of manpower/technology/materials. The cost of producing health care services will naturally rise if highly trained personnel are used instead of somewhat less highly trained, but adequately qualified, health workers. This leads to inefficiency in that less output is obtained for a given level of resources, or more resources are used to produce a given level of output. Moreover, if the mix of technology and materials is sophisticated, higher level manpower complements are needed, resulting in increased costs; and both sources of inefficiencies will be magnified in terms of funds by expansion of insurance coverage. Less advanced technology and lower level personnel, consistent with minimum requirements to adequately meet the normal demand on health services, will help contain costs and increase efficiency.

Participants also addressed problems in the area of professional education, especially in relation to the policy of providing subsidies to medical schools and students. This often leads to an over-production of graduates. Moreover, schools tend to provide, at great cost, highly standardized and "high quality" training that is modelled after foreign and often totally irrelevant standards. Flexible training that imparts the minimum skills needed for health workers to function adequately in their roles would not only greatly reduce government expenditure, but also, to some extent, the problems of over-production and/or over-specialization. The performance of the health professional education market is also influenced by conditions in the health manpower market: low demand and low wage rates inhibit graduates from entering certain specialties if the expected rate of return from such education is low.

All the countries represented at the Workshop cited a lack of or unrealistic manpower planning as one of the major causes of problems in health manpower development. Economic analysis can play a major role in manpower planning. An economic model of the health care sector provides a systematic framework for identifying an important part of the critical information needed, and on the basis of such information, for clarifying the nature of existing problems, identifying policy options and strategies and assessing the consequences, both direct and indirect, of alternative policies.

Health manpower planning requires a set of information which, inter alia, typically includes:

- (a) Prices and utilization of various types of health care services and how these are related to changes in income, population size and structure, increased insurance coverage, on the one hand, and the cost of production, health manpower mix, etc., on the other;
- (b) Wage rates and other non-wage determinants of employment, levels of employment, unemployment and underemployment of the various categories of health personnel, and the changes of all these over time in relation to other non-health professions;
- (c) The number and growth of health professional graduates of different levels of training, occupation, and specialty, and how these are related to the number of students seeking admission, the cost of producing each graduate, the curriculum content and duration of education for the different categories of health workers.

Such information can and should be subjected to economic analysis in order to provide a better basis for manpower planning. Moreover, the implications of current criteria used in policy-making, i.e., "needs" as opposed to demand, can be assessed for their impact on efficiency and equity.

IV. STRATEGIES FOR ACTION

Participants at the workshop discussed health manpower problems within the context of the role that economic analysis could play in clarifying such problems, in assessing the consequences of alternative policies, and in the preparation of manpower plans. Then participants proceeded to formulate country-specific activities for implementation. Such initial activities are expected to lead to further activities that, cumulatively, will have a significantly positive impact on health manpower policies.

The activities proposed include workshops, research, and the strengthening of information bases for manpower planning. (Table 2 summarizes the country proposals.)

TABLE 2 (contd.)

COUNTRY	TYPE OF ACTIVITY	OBJECTIVES	PARTICIPATION	TIMEFRAME
Malaysia	1. Study on the role of specialists in health care delivery 2. Workshop to evaluate the findings and recommendations of study	(1) To assess the role of paramedicals - mainly medical assistants and staff nurses and the basis for their recruitment; (2) To assess the current coordinating mechanisms in the recruitment of specialists.	Intersectoral participation with participants from: - Ministry of Health - Public Services Dept. - Malaysian Medical Association - Consumer Associations - University groups	Identification of funds) Planning the study) 8 mths. Identification of investigators) Implementation of the study - 6 mths. Organization and conduct of workshop - 2 weeks Finalization of report - 3 months
New Zealand	Consolidation and development of information base	(1) To strengthen information base for policy analysis; (2) To develop an awareness and understanding of the value of economic analysis in planning and policy decision making	All relevant sectors, as for example, Ministry of Health, Treasury, Ministry of Planning	Ongoing
Philippines	Study on the problem of maldistribution of health manpower and the related problem of resource allocation.	(1) To identify the determinants, and assess the consequences between rural and urban and between public health and hospital setting; (2) To identify policy options for retaining and attracting qualified health personnel.	- Department of Health - HMO staff - Ad Hoc Committee of both governmental and non-governmental organizations - University Departments	18 to 24 months
Sri Lanka	1. Study to examine problems previously unidentified 2. Workshop 3. Action programme	(1) To examine problems caused by inadequate economic analysis; (2) To prioritize manpower problems and identify strategies (1) To sensitize decision-makers (1) To prepare an action programme for approval by the Cabinet (2) To implement, monitor & evaluate programme		
Thailand	Basic data analysis of manpower requirements, utilization and production	(1) To provide a clear picture of health manpower problems related to employment, utilization and production (2) To demonstrate the use of basic economic models, i.e., production theory, cost functions, resource allocation models, etc. to the analysis of health manpower problems.	The project will be managed & coordinated by a Steering Committee set up by the Coordinating Committee for Medical & Health Affairs. Research projects will be divided into 3 sub-projects. Researchers will include: - Health development planner - Health manpower planner - Personnel analyst - Financial analyst - Health manpower development specialist - Health economist - Economist - Sociologist	Establishing Steering Committee) Defining terms of reference) 3 mths. Approval of reserve proposals) 1st workshop) Review and revision of research proposals) 1 mth. Final approval of research proposals) Start with research work) to submission of final report) 18 mths.

TABLE 2 (contd.)

COUNTRY	TYPE OF ACTIVITY	OBJECTIVES	PARTICIPATION	TIMEFRAME
People's Democratic Republic of Yemen	Workshop	<p>(1) To discuss the economic aspects of HMD in support of PHC relevant to the country situation</p> <p>(2) To present the report/recommendations of workshop to the Minister of Public Health for follow-up action.</p>	<ul style="list-style-type: none"> - Senior health officials - Planners of health services - Deans of medical schools - Senior health administrators - Representatives from Ministry of Planning - Economist, preferably health economics 	5 days (late 1987 early 1988)
<u>REGIONAL</u> (EMRO)	National Workshops	<p>Promote and plan for economic analyses of health manpower development through:</p> <p>(1) Identifying the need for economic analysis in planning, training and utilization of health manpower</p> <p>(2) Reviewing priority problems in HMD susceptible to economic analyses</p> <p>(3) Developing an action plan for the economic analysis of priority problems.</p>	Economists, Health Service Directors	2½ days each workshop

The country workshops are aimed at reporting on and evaluating the findings and recommendations of this Interregional Workshop, identifying priority problems in health manpower development, illustrating how economic analyses can be applied to such problems, providing a forum to discuss the implications of research findings for policy decisions, and how best to reach policy makers to present the findings. The different research studies, on the other hand, are aimed at providing a more in-depth investigation of such common problems as geographic imbalances; production of health manpower, specifically physicians; productivity of personnel; and general resource allocation in the health sector.

Each of the above proposed activities requires resources for their implementation. In this regard, participants discussed the roles of internal and external funding, and how this may be generated. External financing was thought to be an appropriate source of support for short-term catalytic efforts such as workshops and research. However, for more long-term and sustained activities, governments will have to mobilize human and financial resources at the national level.

V. SUPPORTING ACTIVITIES

Participants emphasised the need for relevant organizational support for country activities, including: (a) monitoring and evaluation; (b) exchange of experience; (c) networking; and (d) the role of WHO.

Monitoring and evaluation are important tools in assessing the consequences of health manpower policies and programmes. In addition, prospective problems and alternative solutions can be identified. Economics provide explicit criteria by which to monitor and evaluate policies and programmes in terms of their impact on efficiency and equity. The extent to which health objectives are achieved can also be assessed and the cost measured.

The exchange of experiences and information can be viewed from many different perspectives. As an activity to promote the economics of health manpower development, it needs open channels of communication and collaboration between health and economic professionals. Such exchanges can lead to a better understanding of both the potential and the limitations of economic analysis for improved policies and decision-making in the field of health manpower development. There is a sound basis for not only this interaction, but also the need to incorporate economics as a fundamental component of health sector analysis. Participants emphasised that this should be a continuous process, and not merely activated when the health status of a population is jeopardized by scarcity of resources or inadequate coverage.

Exchanges of experiences can also be seen as: (a) a forum for sharing ideas, research methodologies, data and information; (b) a strategic mechanism to gain the support/approval/commitment of relevant agencies at all levels with respect to alternative health manpower strategies and policies; and (c) a training/educational mechanism to inform or to educate various target audiences on the need for analytically-based health manpower development plans.

Networking is an established mechanism allowing individuals and/or institutions sharing common goals to work individually and collectively in a specific area. This can be done through a regular exchange of information and research findings, collaborative activities such as training seminars and providing expertise, when required, to members of the network.

This is one approach that has been very successful in ensuring exchange of experiences and mutual cooperation. Networking works well when the objectives of its activities are clear and tangible. It needs continued nurturing in order to be functional. Successful networking of individuals or institutions presupposes a willingness on the part of members to share their experiences and resources. It also needs the support of some kind of permanent infrastructure in order to keep communication channels alive. In the area of economics of health manpower development, networking between institutions and experts can help support country activities if the objectives are seen as "problem-solving" rather than mere exchanges of information. Sufficient attention will have to be paid to create viable modalities of mutual cooperation and exchange of expertise.

Regarding the role of WHO, participants stated that the Organization must continue with initiatives to stimulate studies and other relevant activities in the economic aspects of health manpower development. Existing mechanisms for support of country activities already

exist, as, for example, fellowships, consultancies, grants for meetings, support for new and/or existing programmes, etc., and these can be further strengthened. The demand by member countries for activities in the area of economic analysis in the field of health manpower development is expected to grow. While WHO has, to a certain extent, responded to some of these demands, the response could have been far greater. Other agencies, i.e., World Bank, Asian Development Bank, USAID, have attempted to fill some of the gaps, but WHO can and must play a central leadership role, since it is the primary agency concerned with health.

VI. CONCLUSIONS

It became evident that in almost all the countries represented at the workshop, manpower policy analyses, based on economic arguments, could have positively affected the course of health manpower development. Their present problems might perhaps have been avoided, or at least reduced. The participants concluded that countries, as a matter of urgency, should organize systematic health manpower policy analyses based on economic principles, and with the goal of social development and health for all. The major conclusions agreed upon were:

1. As a first step, countries could consider organizing national or intercountry workshops/seminars involving decision-makers from health and related sectors, and economic and educational institutions, to prepare lists of priority manpower problems and methodological frameworks for analyses.
2. Countries should organize networks of institutions, or utilize existing ones, to promote health development. Economic, as well as social development skills from appropriate training or research institutions should be drawn upon in order to bring collaborative analysis to bear upon major manpower problems. The findings and conclusions of such analyses should be presented to the highest level of decision-makers in a readily understandable form.
3. Countries should incorporate principles of health economics in the training of their health manpower, especially those who are likely to assume leadership positions in the health sector. Economists must be involved in health work in order to develop a cadre of skilled health economists.
4. Activities in health manpower policy analysis, based on economic principles, should include both rapid, decision-linked analysis and medium term research activities in order to create or update an information base useful for future policy analyses.

In determining the role of WHO, participants agreed that:

1. WHO should cooperate with countries, bringing in external skills when necessary, to launch or strengthen economic analysis of health manpower policies and strategies. It should develop a roster of skilled health economists to draw upon, as required.
2. WHO should promote the development of a solid theoretical base in the area of economics of health manpower development. In developing this theory, WHO must emphasize and promote that the issue of equity be given due consideration in all economic analyses applied to health manpower development.
3. WHO should develop promotional materials to convince high level decision makers, especially in the health sector, of the value of, and the need for, economics in health manpower policy analysis. It should also develop methodological guidelines and other relevant learning materials to be adapted and used by policy analysts of member countries.
4. WHO, in collaboration with other agencies or organizations, should promote the development of intercountry networks of institutions for mutual collaborative activities in health economics and economics of health manpower policies and strategies. It should also promote the exchange of information and experiences at both intercountry and interregional levels.
5. WHO should try to raise extrabudgetary resources to support both country and intercountry activities, including exchanges of experiences through meetings, workshops and publications.

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AGENDA

Monday, 22 June 1987Morning:

Opening Remarks - Dr V. Ermakov, HMD/WPRO
(Operational Officer)

Introductory Statement - Dr H. Nakajima, Regional
Director (WPRO)

Election of Officers

Administrative Arrangements

COFFEE BREAK

Impact of HMD Programmes at national level and the
role of economics - Dr T. Fülöp, Director, HMD/HQ

Objectives of Workshop, Structure and Working
Methods, Adoption of Agenda - Dr D. Ray

Outline of Key Issues and Major Concerns -
Professor R. Andreano

Presentation of Country Reports (followed by
discussion/questions after each presentation)

LUNCH

Afternoon:

Presentation of Country Reports (continued)

Tuesday, 23 June 1987Morning:

Identification of common issues and problems -
Professor R. Andreano

Application of economic concepts to Health Manpower
Development - Professor A. Herrin

Working Groups (3) - Each Working Group will
select one set of issues as identified from country
presentations. The groups will clarify the role of
economic analysis in resolving the issues.

LUNCH

Afternoon:

Working Groups (continued)

Plenary Session: Working Groups to present
highlights followed by discussion.

Wednesday, 24 June 1987

Morning:

Plenary Session: Dr D. Ray

- (i) Cost of health manpower plans
- (ii) Overview of surveys in health manpower: costs and benefits

followed by discussion.

Working Groups (same as on previous day) - This group work will identify methods and approaches to be used for the economic analyses of priority issues, the expected outcome of studies and how best the results might be utilized.

LUNCH

Afternoon:

Continuation of three working groups

Plenary Session:

- (i) Working Groups to present highlights
- (ii) Presentation by Dr L. Howard on:
 - International transfer of resources
 - Principles of proposal writing

Thursday, 25 June 1987

Morning:

Intercountry Team Work - Teams will formulate outlines of proposals for the economic analyses of specific issues in health manpower at national level.

LUNCH

Afternoon:

Intercountry Team Work (continued)

Plenary Session: Intercountry teams present outlines of proposals - followed by discussion.

Friday, 26 June 1987

Morning:

Plenary: To discuss organizational support for country activities in terms of:

- (i) Monitoring and Evaluation
- (ii) Exchange of Experiences
- (iii) Networking
- (iv) Role of WHO

Each item will be introduced by a speaker.

Closing Plenary

Afternoon:

- (i) Conclusions
- (ii) Closing Remarks Dr S. T. Han,
Director, Programme Management (WPRO)

ECONOMIC ASPECTS OF HEALTH MANPOWER DEVELOPMENT*

INTRODUCTION

Health manpower issues generally revolve around the following major concerns:

- (1) Are the currently employed health manpower of various types being utilized efficiently in various health care settings and locations?
- (2) Are there enough health manpower of specific types to provide the various kinds of health care services demanded by the population, i.e. is there a shortage or a surplus of specific types of health manpower? and
- (3) Is the health professional education system producing the "optimal" number of graduates and level of training, and are the graduates being produced at minimum costs?

Conceptual framework: The health care sector

The rules for economic efficiency are derived from the economic model of perfectly competitive markets. In this model, the decisions rendered by buyers and sellers of goods and services and resource inputs are made effective through a system of markets and prices. Although the model describes the workings of a market economy, the rules derived from such a model are applicable to any economic system interested in economic efficiency. This model describes the conditions under which the operation of perfectly competitive markets can lead to efficient outcomes, and the conditions under which it does not, and therefore, the conditions under which some form of government intervention may be justified.

The health care sector may thus be described in terms of the operation of three interrelated markets. These are:

- (1) the market for health care services, which determines the quantity of various types of health care services consumed by the population and the corresponding prices;
- (2) the market for health manpower, which determines the number of specific categories of health manpower employed and the corresponding wage rates; and
- (3) the market for health professional education, which determines the number of graduates in specific health professions and the corresponding price of education.

In each of these markets, the outcomes (quantity and price) are determined by the interaction of demand and supply. An equilibrium situation exists when the quantity demanded and quantity supplied are equal at a given market price. The mechanism that equilibrates demand and supply is the market price. Thus in a perfectly competitive market situation, health resources will be allocated through supply and demand in each of these three markets with price serving as the equilibrating mechanism.

Figure 1 shows the three interrelated markets in the health care sector and the operation of demand and supply in each market. Note that the demand for a particular commodity (i.e. health care services, health manpower, or professional education) reflects the benefits that a consumer or buyer derives from that commodity (i.e. the utility derived from health care services, the output derived from employing a health professional, and the financial returns derived from professional education). The quantity demanded of a commodity is the amount of that commodity that consumers are willing to purchase at a given market price. All things being equal, at higher prices, less quantities will be demanded while at lower prices, more quantities will be demanded.

*This highlights some of the major points discussed in the background paper prepared by Alejandro N. Herrin for the Interregional Workshop on Economic Aspects of Health Manpower Management, Manila, 22-26 June 1987. The original version may be requested from the Division of Health Manpower Development, World Health Organization, Geneva, Switzerland.

Figure 1: Three interrelated markets in the health care sector

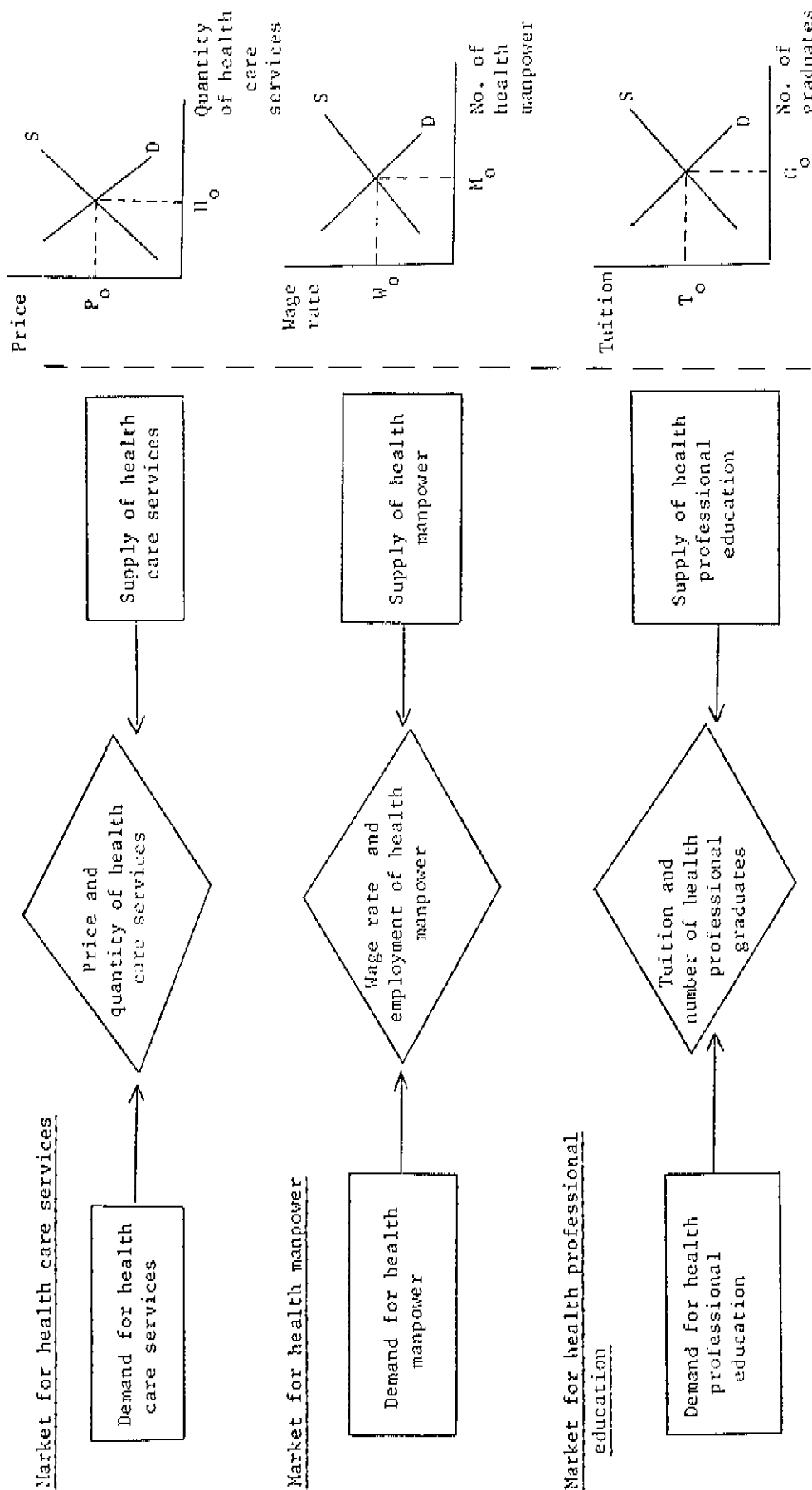


Figure 1: Three interrelated markets in the health care sector

The supply of a particular commodity, on the other hand, reflects the cost of production of such commodity (i.e. the cost of providing health care services, the cost of supplying man-hours of professional service, and the cost of producing a health professional graduate). The Quantity supplied of a commodity is the amount of the commodity that suppliers are willing to supply at a given market price. At higher prices, more quantities will be supplied, while at lower prices, less quantities will be supplied.

Changes in demand and supply in each market result in corresponding changes in equilibrium prices and quantities. Changes in demand and supply in each market are due to a host of economic, social and demographic factors, as well as due to the effects of health policies. Moreover, changes in demand and supply in one market affect demand and supply conditions in the other markets. Thus a particular policy that addresses a problem in a particular market can also affect other markets in the health sector, and even corresponding markets outside the health sector. A comprehensive policy analysis, therefore, requires consideration of all these direct and indirect consequences.

An economic perspective of selected health manpower problems
in developing countries

Productive utilization of health manpower. One factor that affects the efficient use of health manpower resources is the degree of substitutability between different categories of manpower in the production of health care services. In the actual situation, the degree of substitutability may somehow be restricted by policy in the form of legal restrictions on the tasks that various health professionals can perform. This policy might have been justified on the basis of professionally determined need to maintain the highest quality of health care. What are the effects of these legal restrictions on market performance? When more highly trained and more expensive health professionals are required to perform certain tasks beyond that which is necessary to ensure a minimum quality of health care that consumers are willing to pay for, while less highly trained and less expensive professionals who can perform such tasks are legally prevented from doing so, then the cost of producing the same level of health care services will be higher than it would be under no legal restriction. This means that the way the inputs (manpower) are combined are no longer the least-cost combination. Moreover, given the demand for health care services, the effect of such restrictions in the health care services market is to increase the price of, and lower the level of utilization of, health care services. Thus when health administrators take the level of utilization as the indicator to assess the performance of manpower, they might find that the level of utilization is lower than they had expected. They would then conclude low productivity of manpower. They would then likely think up a number of incentives to raise the performance of the deployed manpower. But our analysis suggests that the problem can be traced back to the prior policy of restricting certain personnel from performing certain tasks, which in effect means predetermining on the basis of non-market criteria the manpower mix rather than letting the manpower mix be influenced by the relative cost of different categories of manpower to produce a given level of output.

This analysis is illustrated in Figure 2. Using the concepts of production functions and cost function, Figure 2a shows the least-cost combination of manpower inputs HM (high level manpower) and LM (lower level manpower) to produce the quantity of health services Q. The curve Q represents the level of output that can be produced by using different combinations of manpower inputs. The line AA' represents the budget line whose slope represents the relative price of HM and LM. The least-cost combination of inputs when no restrictions on substitutability is imposed is at point A, with combination HM_1 and LM_1 . However if health administrators instead choose combination B (i.e. relatively more of HM_1 and less of LM_1) on the basis of non-market criteria, then Q can no longer be produced given the original budget (line AA'). A larger budget, the dotted BB' line, is needed to produce the same output Q, using inputs HM_2 and LM_2 . The effect of this decision is reflected in the market for health care services shown in Figure 2b. The supply curve S_1 represents the supply curve under the least-cost input combination. Q_1 is equal to the output Q in Figure 2a. The marginal cost of producing Q_1 is equal to the distance from the horizontal axis to point A. With a more costly input combination, however, the supply curve is S_2 such that the same Q_1 is produced at a higher cost, the distance between the horizontal axis to point B. Given a demand curve D_1 the equilibrium when S_2 is the relevant supply curve is at point C, where output is Q_2 and price is P_2 . Clearly, the effect of restricting input substitutability is to raise cost of production (no longer least-cost), raise the price of health care services and reduce the level of utilization.

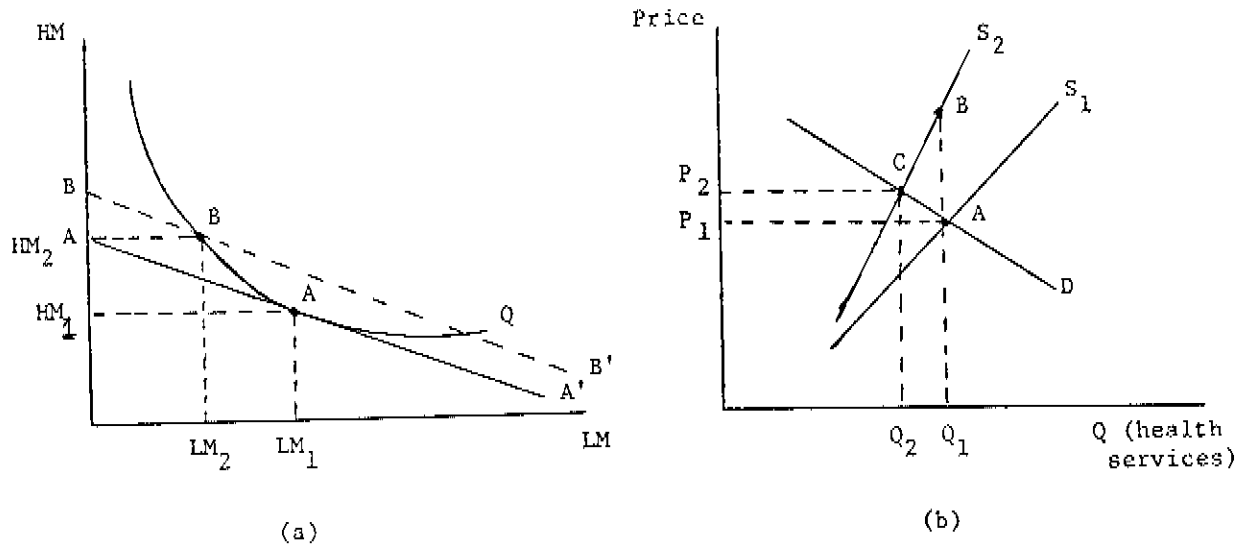


Figure 2: Least cost combination of manpower inputs and demand and supply of health care services

The preceding analysis can be extended by considering the effect of insurance. Many governments want to expand health insurance coverage of the population in order to provide wider access and increased health care service utilization. The effect of health insurance is to increase the demand for health care services (shift the demand curve to the right). With a given supply, utilization increases. But if the production of health services is inefficient to start with because of inappropriate manpower input mixes, the beneficial effects of expanding health insurance coverage on health care services utilization will tend to be negated. This proposition can be illustrated by Figure 3 below.

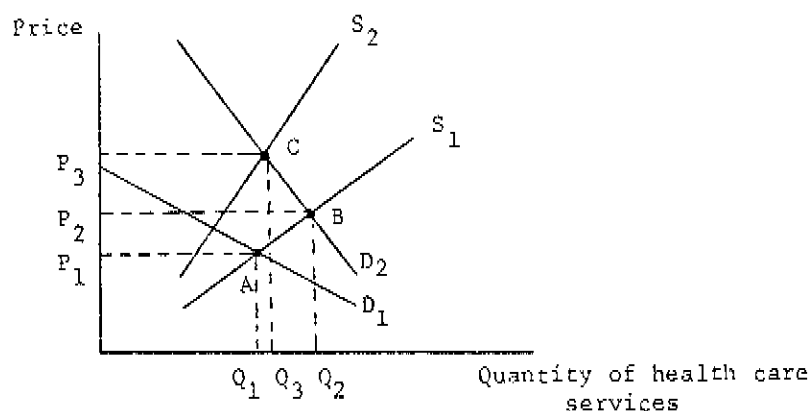


Figure 3: The effect of insurance of health care utilization

Consider an initial equilibrium situation A, where initial demand before insurance D_1 intersects the supply curve representing efficient manpower input mixes, S_1 . The resulting level of utilization is Q_1 and the price is P_1 . Now consider expanding health insurance coverage. The effect of this is to shift the demand curve to D_2 . With the same supply curve S_1 , the new equilibrium is at point B, with Q_2 output and price P_2 , a percentage of which is paid for by the insurance. Suppose, however, that the manpower input mix is not efficient (least-cost), then the relevant supply curve is S_2 . The equilibrium situation is at point C, with output, Q_3 and price, P_3 . Comparing outcomes B and C will clearly indicate that the level of health care utilization after insurance will be lower and the price of health care services higher if the production of health care services due to inappropriate manpower mix is inefficient, than when it is efficient. The potential impact of health insurance is partly negated by inefficiencies in the system. Note also that at C, the price P_3 is much higher than P_2 indicating that the resources needed to implement an insurance scheme would be much higher when the production system is inefficient. This alone could reduce the viability of such schemes.

Employment of health manpower. Much has been said about shortages and surpluses of health manpower, but what does it really mean from an economic standpoint? In economic terms, a shortage occurs when the wage rate is below the market wage rate that equates supply and demand for manpower. Similarly, a surplus occurs when the wage rate is above equilibrium market wage rate. These are illustrated in Figures 4a and 4b below.

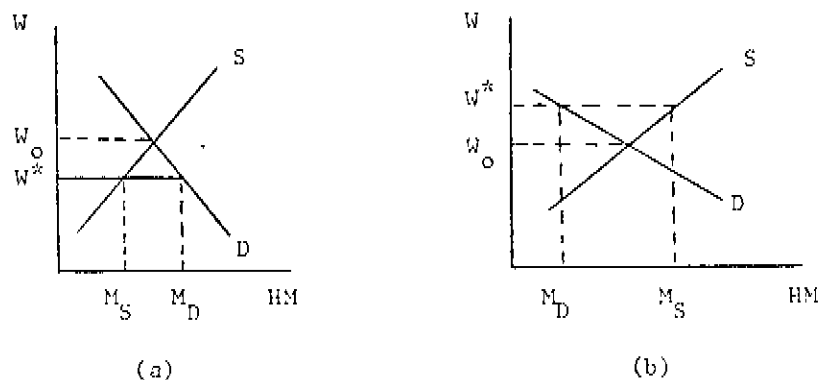


Figure 4: Shortage and surplus of health manpower (HM)

In Figure 4a, the equilibrium wage rate is W_0 . If, however, through the wage policy of the health sector, the wage rate is pegged at W^* , at this rate, health manpower demand, M_D , exceeds supply M_S , thus there is excess demand or a shortage. In Figure 4b, the equilibrium wage rate is W_0 . If, however, the wage rate is set at W^* above the equilibrium wage rate, then supply, M_S , will exceed demand, M_D at that wage rate. There will then be a surplus of health manpower. Both conditions will persist unless wage rates are flexible upwards or downwards, respectively. Do these types of imbalances occur in the health manpower market? In what sense do health professions say that either a shortage or a surplus occurs? This has to be clarified.

The common observation in many countries regarding the many unfilled government posts especially in rural areas can be explained by the economic definition of shortage. The wage rate that the government offers, together with other non-wage incentives, are likely to be much lower than the market equilibrium wage, if market forces are allowed to determine the wage rates. Thus we would expect some government posts will remain unfilled. The shortage of health manpower in government health institutions may also be traced to the conditions in the public and private labour markets. Consider the case where market demand and supply situation are such that the equilibrium wage rate in the private sector is higher than in the public sector. The adjustment process that is likely to take place is for manpower in the public sector to move to the higher wage private sector. This is illustrated in Figures 5a and 5b below.

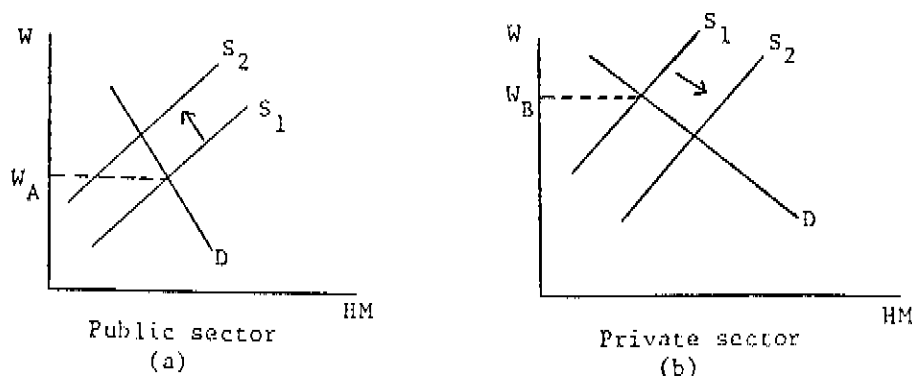


Figure 5: Supply and demand for health manpower in the public and private sectors.

Consider an initial situation where the equilibrium wage rate in the public and private sector is W_A and W_B , respectively, where W_B is obviously higher than W_A . Under this situation, health manpower will naturally tend to move to the higher wage sector. This movement is represented by a leftward shift in the supply curve in the public sector and a rightward shift in the private sector. If the public sector, with an inflexible wage policy, maintains the wage rate, W_A , then a shortage occurs since at that wage rate, demand exceeds supply. In the private sector, the increase in supply, if wage rates are allowed to adjust, will imply a tendency for the wage rate to decline. The same analysis can be made to explain the emigration of health manpower.

Production of health manpower. A competitive health professional education market will produce the "optimal" number of graduates with different levels of training and skills, and at minimum costs. It does this by producing graduates up to the point where the marginal benefit of such professional education to the student as reflected in the demand curve equals the marginal cost of providing that education, as reflected by the supply curve. The equilibrating mechanism is the price of education, i.e. tuition. If demand exceeds supply at a given tuition level, market forces will tend to push tuition upward until demand and supply are equal at a higher tuition. If supply exceeds demand at a given tuition level, market forces will tend to push tuition downward until demand and supply are equal at a lower tuition.

How can the health professional market not produce the "optimal" number and types of graduates? It is likely that in the actual operation of the health professional education market, the tuition does not reflect the actual marginal cost of production. Professional schools, particularly public schools, may be highly subsidized. Such subsidies allows the schools to charge a tuition level below actual marginal cost. The supply curve with subsidy is farther to the right. Given the demand for education, the reduced tuition will mean an increase in the number of students demanding such an education. At the lower tuition that equates the demand and the supply curve with subsidy, the number of graduates produced will be greater than under full-cost tuition. This is illustrated in Figure 6 below.

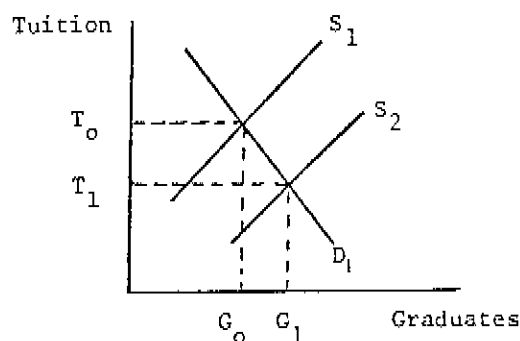


Figure 6: Effect of subsidies on determination of the number of graduates

Let S_1 be the supply curve without subsidy. Given the demand for education, D_1 , the equilibrium number of graduates produced is G_0 . The effect of subsidies to schools is to shift the supply curve to the right, to S_2 . This means that the cost by the schools of producing a given number of graduates is lower because part of the cost is paid for by the subsidies. With the new supply curve S_2 , the equilibrium number of graduates is G_1 which is greater than G_0 . If G_0 is the number of graduates that health professionals feel is the appropriate number on the basis of professional judgement when the market actually produces G_1 , these health professionals may conclude that there is excess production.

Very often health policy, in its desire to reduce the production of graduates, attempt to limit admissions to professional schools by establishing quotas or very high admission requirements. These only serve to create excess demand for education and a lot of frustrated entrants to schools. A possible policy option is to reduce or eliminate the subsidy and let the schools charge full-cost tuition. Considering that private schools are thriving even when they charge tuition levels several times the tuition in public schools indicate that the policy of charging full-cost tuition is a viable alternative. This has the advantage of freeing resources allocated to subsidy for other investments in the health sector.

What about the commonly perceived mismatch between the level of training and skills that graduates obtain and the level of training and skills that are demanded? A competitive market for health professional education can be expected to result in a system of schools producing a variety of training and skill levels depending upon the demand by students for such types of training and skills, which in turn depends upon the demand for such in the health manpower market, which further depends upon the demand for health care services and the degree of substitutability between different manpower categories in the production of health care services. If, however, the practice is to standardize the training and skills of graduates to correspond to professionally determined level of qualification (i.e. "highest quality") rather than to market demand for such qualifications, then we can expect to observe certain imbalances between the training and skills produced and the training and skills demanded. Moreover, the standardized educational process in the quest for the "highest quality" of graduates independent of economic considerations will lead to higher costs of producing graduates relative to a situation where greater flexibility in training is pursued.

Health manpower planning

In view of the close interaction between the different health care markets, it is clear that policies designed to influence the operation of one market will have direct and indirect consequences on the operation of other markets. Some of these consequences might be beneficial while others may not be so from the standpoint of efficiency in resource allocation. It is, therefore, necessary to have an integrated approach to health manpower planning. Integration of health manpower planning simply means the explicit consideration of the interrelationships between the operation of the different health care markets in the formulation of policies and strategies aimed at achieving a more efficient allocation of health manpower resources.

Beyond this integration of health manpower planning is the broader integration of health and development planning in which health manpower planning forms an important part. The integration of health and development planning simply means the explicit consideration of the various health and development interrelationships in the formulation of health and other development policies and strategies aimed at achieving the nation's overall development goals. Although a discussion of these various interrelationships is beyond the scope of this paper, it should be worth briefly noting that specific health policies designed to directly influence the health care sector to achieve desired health objectives could have significant indirect impacts on resource allocation in the social and economic sectors, and, therefore, on socioeconomic outcomes, which can be expected to further affect health outcomes. Similarly, non-health care sector policies designed to achieve specific socioeconomic objectives by influencing the various markets in the non-health care sectors may indirectly affect resource allocation in the health care sector, and therefore, on health outcomes, which in turn can further affect socioeconomic outcomes.

Various kinds of information are needed to facilitate the integration of health manpower planning, or more specifically, to provide empirical content to the various types of analyses briefly illustrated in the preceding sections of this paper. First, since the demand for specific types of health manpower is a derived demand, i.e. derived from the demand for health care services, there is a need for systematic information on the demand and utilization patterns of health care services and the relative importance of specific factors affecting changes in such patterns.

Secondly, since there is a need to increase the productivity of specific types of health manpower, there is a need for information regarding the range of technically feasible manpower input mixes and their relative productivities and costs that can be used in response to the prospective demand for various types and quality of health care services.

Thirdly, in order to base the assessment of the health manpower employment situation beyond reliance on casual impressions and observations, there is a need for better information on the supply, employment, and wage rates of specific categories of health manpower and the factors affecting changes in these over time.

Fourthly, in order to improve the efficiency of the professional education market, there is a need for information regarding the range of technically feasible methods or educational input mixes (i.e. training time, faculty and capital inputs, curricula, teaching methods, work orientations), and their relative productivities and costs that can be used to produce graduates with various types of training and skills consistent with the prospective demand for such training and skills.

Finally, in order to determine the appropriate policies and strategies needed to improve efficiency in the allocation of health manpower resources, there is a need for better information regarding (a) the process of policy formulation in the health care sector and (b) the nature of the strategies adopted and their manner of implementation (i.e. the resources used and their sources, the administrative structures for their implementation, and the management capabilities of the implementors).

AN ANNOTATED BIBLIOGRAPHY OF PUBLICATIONS RELATING
ECONOMIC ASPECTS OF HEALTH MANPOWER IN DEVELOPING COUNTRIES*

This annotated bibliography represents a selected sampling of publications which deal with various economic aspects of health manpower in developing countries. The bibliography advances a classification framework which distinguishes the alternative research orientations utilized by existing health manpower studies and which locates the proposed orientation within this framework. Secondly, though the present sampling of publications is modest, some indication may be provided of (a) the amount of attention devoted to various strategy issues; and (b) the state of knowledge about these issues, to assist in learning which issues have the greatest research need. Thirdly, lessons may be found in the methodological approaches and in the analytical tools used in other studies.

*This is a brief introduction to the content of the annotated bibliography prepared by Ralph Andreano and Thomas Helminiak. The complete bibliography is available upon request from the Division of Health Manpower Development, World Health Organization, Geneva, Switzerland.

SELECTED ECONOMIC ISSUES OF
HEALTH MANPOWER DEVELOPMENT*

INTRODUCTION

This paper describes the economic aspects of major health manpower problems identified in developing countries. Subject to the level of development, many countries have to provide health services with an inadequate number of health staff in some or all categories of personnel. The problems may arise nationally or in specific geographical areas of the country. Recently, a new phenomenon emerged in a number of countries: a surplus of trained persons who cannot find employment either in the public or in the private health sector. This often causes human frustration and a loss of the capital invested in training.

There are many reasons for planning a country's health manpower:

- (1) Health investments, such as hospitals, health centres, networks of peripheral health institutions, cannot function without trained personnel. Therefore, the availability of personnel must be planned together with the investment.
- (2) Training institutions may provide too many or an insufficient number of personnel in certain categories of manpower, e.g. too many physicians and not enough nurses or dentists.
- (3) The imbalance between manpower training and employment opportunities both in the public and private health sector may cause disturbances in the health services, i.e. shortages or wastage of valuable manpower that cannot find employment.
- (4) Proper health manpower planning can identify the cost of training of different categories and match manpower production with the budgetary possibilities of the public sector and the absorption capacity of the private sector.
- (5) Health manpower training is usually of longer duration and more costly than in many other professions, and is often financed from public funds. Therefore, both overproduction and underproduction should be avoided.

*Highlights of the materials prepared by Dr Edward Mach for the Interregional Workshop on Economic Aspects of Health Manpower Development, Manila, 22-26 June 1987. The original version may be requested from the Division of Health Manpower Development, World Health Organization, Geneva, Switzerland.

Economic Analyses

Before and during the planning process, several economic analyses may need to be undertaken. The most common areas for analyses are the following:

- (1) Proportion of the amount spent on salaries to the total recurrent expenditure of the public sector.
- (2) Salary and wage levels and working conditions in comparable categories of health personnel in the public and private sector; monetary incentives; fringe benefits.
- (3) Expenditure on other recurrent costs, in particular on drugs, supplies, maintenance of buildings and equipment, transportation and training.
- (4) Relationship between workload and staffing at the level of different health institutions; micro studies to establish comparisons between "output" of different services, taking into account staff numbers and recurrent costs on the one hand, and the number of in- and out-patients, on the other.
- (5) Revenues generated by medical care institutions in the public and private sector and the difference between the cost of producing services and the revenues received in payment for those services.
- (6) Cost of training in the public and private sector and "who pays?"; such studies should also cover the career expectations and the numerical demand in each category of staff.
- (7) Cost/effectiveness studies to assess alternatives regarding manpower need and costs, taking into account the cost of "producing" and the cost of employing the main categories of manpower (e.g. the alternative of training and employing one physician to training and paying three nurses).

Issues related to the management of health manpower

Several issues are illustrated in three case studies. In Case Study No.1, the Government refuses to further increase the recurrent cost of the public health sector, including salaries. In the private sector, the Government would like "privatisation", i.e. growth of the private health sector and "cost sharing", e.g. of users paying for health services. The Government does not allow higher salaries for doctors than for other civil servants in the same salary categories (e.g. lawyers, economists, engineers). Therefore, the Ministry of Health has to cope with: (a) an exodus of doctors from government service; (b) the provision of health services to rural areas because private practice tends to concentrate in cities or towns; (c) functioning within the budget allotted; and (d) competing with the private sector in order to increase the revenues of hospitals from fees charged to patients.

Case Study No.2 shows that the recurrent budget of the Ministry of Health and the part earmarked for salaries is insufficient. The number of national physicians is below the need, therefore, expatriate doctors are employed. As a consequence, a high proportion of foreign aid for health is spent on expatriate salaries; inequities between salaries of nationals and expatriates create tensions; training of physicians at the national university is too expensive, but will be continued; traditional medicine absorbs the equivalent of about 75 percent of the Ministry of Health's recurrent budget, from the population's resources available for health. It is obvious that the country needs a revised health information system that would include up-to-date information on personnel, its deployment and cost.

In Case Study No.3, there is a shortage of national physicians, there are few candidates for medical training, therefore, the country will need to have many more expatriate physicians, dentists and pharmacists, as well as health administrators, nurse-teachers, sanitary engineers. The level of the recurrent budget of the Ministry of Health is almost stagnant; salaries of physicians in public service cannot exceed salaries of other professional civil servants; and a substantial part of foreign aid for health is spent on salaries of expatriate staff.

To find solutions to the problems illustrated above require studies such as those enumerated earlier, particularly studies on costs and cost containment, cost of training manpower, and cost/effectiveness of health services.

COMMON ISSUES IN THE MOBILIZATION OF INTERNAL AND EXTERNAL
FINANCING FOR HEALTH MANPOWER DEVELOPMENT*

This paper addresses the comparatively limited professional attention paid to financial feasibility. Basic scientific and social orientation make the public health professions more comfortable with the preparation of technical alternatives, but they are less disciplined in financial and economic feasibility, often for lack of training or professional interest. For developing countries with the intent to greatly accelerate or extend national programmes by the year 2000, inattention to financial analysis and financial mobilization become liabilities to the outlook for success.

With respect to financing, available data show that national finances of each country are usually its major current and prospective resource. In this context, external sources would not be expected to significantly displace national resources within any foreseeable time period, with the possible exception of a few heavily subsidized small countries. It is evident that external financing is not an appropriate source for recurrent expenditures. But it can be useful for short term catalytic efforts such as research, testing, demonstration, training, and start-up costs for priority programmes.

Effective justification of national or external financing should be preceded by financial analysis which provides, at minimum, an accounting of all health funding sources (national and external) and the distribution of these funds to current and capital functions.

External concessional financing for health care often derived from bilateral cooperation sources, multilateral funding institutions, nongovernmental organizations and UN health-oriented agencies, including the World Health Organization.

To assess the prospect of improving health financing from external sources, it is necessary to keep up with the policies and total value available from external financial sources for all development sectors. All major donors affirm that health is an eligible sector, providing that proposals are approved by the national development planning commissions of each country. The acceptability of proposals is dependent far more on the official requests of countries than on pre-determined allocations by the external source. The range of eligible technical cooperation is broad: on the whole donors negotiate on the basis of government requests.

If developing countries do not have a clear idea of their own health priorities or do not formulate proposals which have the approval of their national planning commission, it is unlikely that donors are going to be aware of national priorities. From the point of view of the requesting Ministry of Health or private sector institution, what are some of the basic constraints to expressing demand?:

1. Limited capacity to undertake national health planning or financial analysis as a basis for determining external requirements. This same problem affects the ability of a Ministry of Health to efficiently use national resources.

*Highlights of the paper prepared by Lee M. Howard, Resource Mobilization Office, Office of External Coordination, Pan American Health Organization, Washington, D.C., USA. The original version may be requested from the Division of Health Manpower Development, World Health Organization, Geneva, Switzerland.

2. Unfamiliarity with potential sources of external finance.
3. Unfamiliarity with variations in the patterns of cooperation with the main categories of external sources.
4. Weakness in justifying proposals in terms of national development or other national priorities, thereby weakening the competitive position of health proposals in relation to other competing sectors. Health professionals often over-emphasize services and personnel which create long-term recurrent costs which may not be justified in national development terms.
5. Unfamiliarity with the basic steps in project preparation.
6. Reluctance of national development planning authorities to approve projects which do not have overriding economic or political priority.
7. Absence of a functioning or regional system to provide guidance and training in the mobilization of external funding.

In the light of the above, what are the functional components of a strategy to attract international funding for health?

- 1) Each requesting country should review its health planning process, however elementary, to assess whether there has been sufficient analysis of financial, technical, institutional, economic, and social requirements to accomplish near-term goals.
- 2) Preliminary project identification should be made in relation to the national health plan with an early attempt to obtain tentative approval at the highest national development planning level. With respect to manpower development, the important issues are to state the length of time that manpower will be used, the programme to which manpower is attached, the costs of manpower (including recurrent costs) and the costs of duration of training.
- 3) An office within the Ministry should undertake to identify financial sources, both national and international, along with the characteristics for application to these sources.
- 4) The potential demand and potential supply should be analyzed for appropriate fit.
- 5) Preliminary negotiation should be undertaken between the Ministry of Health (with the approval of the Planning Commission) and representatives of external sources which may be resident in the country of nearby areas. Direct promotional efforts with a donor headquarter authority may be useful as long as it is realized that serious negotiation for funds cannot begin without well articulated and well justified proposals.
- 6) Complete project proposals cooperatively through dialogue with external representatives.
- 7) Complete negotiation for mobilization of financing.
- 8) Encourage, where possible, multi-source financing on larger projects.
- 9) Provide periodic training to cope with continuous variations in techniques of mobilization.
- 10) Evaluate the process of mobilization to identify resources and constraints at national and international levels.

SUMMARY OF COUNTRY REPORTS

CHINA

Health & Socioeconomic Indicators

Since 1949, China has made significant progress in both the economic and health sectors. Infant mortality was as high as 200 per 1,000 births before 1949; by 1985, it was reduced to approximately 14 in cities and 25 in countries. Life expectancy rose from 37 years in 1957 to 68.9 in 1985. While respiratory and gastro-intestinal diseases were the major causes of death in 1957, this was replaced by heart diseases, cancer and cerebrovascular diseases in 1986.

Health Care Sector

In China's health service, state-run health institutions play the leading role, while the collectively-run health institutions supplemented by those run by the private sector, play a supportive role. Health institutions at the country level and above are under state ownership, while those at the township and village levels are mostly under collective ownership with a few owned by private individuals.

The health service systems have been developed in accordance with national economic capacity while taking into account the specific characteristics and requirements of different groups of people:

- free medical service: Government workers and staff in institutions of research, culture and education, health and economy, and handicapped soldiers are entitled to free medical service funded by specific allocations earmarked for this purpose;
- labour insurance medical service: In accordance with the provisions of "Regulations for Labour Insurance of the People's Republic of China", staff of industrial, mining and other enterprises under state and collective ownership are entitled to a 100% reimbursement. Their dependants receive 50% from the labour insurance fund with the capital equivalent to 5.5% of the total amount of salaries of the workers;
- cooperative medical service: Participants in the cooperative medical service enjoy certain proportional deduction of their medical care charges from a fund jointly financed by local peasants and economic units under the collective ownership. There are altogether 38,183 villages practising the cooperative medical service system;
- with the exception of those old pensioners who live all by themselves, medical services have to be paid for by the urban population not covered by the free medical services and the labour insurance services, and the rural population not participating in the cooperative medical services.
- specific arrangement has been made by the Government to provide free medical services to all people in certain remote areas inhabited by national minorities; and
- medical insurance: A system has been carried out in certain areas on an experimental basis, of which there is the social medical insurance scheme as initiated by the National Insurance Company, as well as health insurance schemes in specific fields, such as on the prenatal health of woman and on oral hygiene of children, both have been initiated by the local community and health institutions.

China's health system is financed by state budgetary allocation, health insurance for workers of industrial and other enterprises under state and collective ownership, funds from cooperative medical services in villages, and from user charges. The total allocation amounts to approximately 5% of the annual state revenue.

Health Manpower

Several approaches have been taken in the training of health personnel. These include the following:

- (1) In order to develop the local contingent of medical and health workers in rural areas, remote areas and national minority areas, a number of institutions of higher and secondary medical education, including those affiliated with the Ministry of Public Health, have allocated a certain percentage of their annual enrolment on the basis of the principle of "directional enrolment and assignment: that is, graduates from these institutions will be assigned to work at the place where they come from.
- (2) Both full-time and part-time in-service training and continuing education have been developed to raise the professional standard of health personnel at various levels, especially those at the grassroots. Participants are entitled to full salaries and receive a promotion after having met specific academic criteria and assessment.
- (3) Medical and health workers from the city are sent to medical units in the rural, remote and national minority areas to work for a certain period of time as consultants to facilitate the health development areas.
- (4) The training of "village doctors" in the performance of primary health care is undertaken locally, and they apply their knowledge to practical situations during their training.

INDONESIA

Health and Socioeconomic Indicators

The Indonesian population stood at 165 million in 1985, growing at an average annual rate (1980-85) of 2.1%. Nearly two-thirds of the population is concentrated in Java and Bali, which has only 70% of the country's land area. About 25% of the population live in urban areas. The infant mortality rate was estimated at 70 per 1,000 births in 1985 while the life expectancy at birth for both sexes for the same year was 56.5 years. Among the leading causes of morbidity in 1984 were respiratory diseases, gastro-intestinal diseases, skin diseases and malaria.

Table 1. Health and Socioeconomic Indicators

No.	Indicators	Year	Data	Source of Data
1	Area (1000 sq.km)	-	1,919,443.00	CBS
2	Estimated Population (1000)	1985	165,153.60	Inter census/CBS
3	Annual Population Growth rate (%)	1980-1985	2.13	Inter census/CBS
4	Percentage of Population			
	- Less than 15 years	1985	39.20	CBS
	- 65 + years	1985	3.20	CBS
5	Urban Population (%)	1985	26.00	Inter census/CBS
6	Rate of natural increase of population (per annum)	1985	21.52	CBS
7	Crude Birth Rate (per 1000 population)	1985	32.70	CBS
8	Crude Death Rate (per 1000 population)	1985	11.18	CBS
9	Life expectancy at birth			
	- Total (years)	1985	56.45	CBS
	- Male (years)	1985	54.80	CBS
	- Female (years)	1985	58.20	CBS
10	Infant Mortality rate (per 1000 population)	1985	70.00	CBS
11	Total Fertility Rate (Women 15 - 45 years)	1985	3,890.00	CBS
12	Socio-economic indicators for the year 2000			
	- Estimate Population (1000)	2000	222,752.60	CBS
	- Life expectancy at birth	1995-2000	64.05	CBS
	- Annual Population growth rate	1995-2000	1.90	CBS
	- Crude Birth Rate (per 1000 population)	1995-2000	26.61	CBS
	- Crude Death Rate (per 1000 population)	1995-2000	7.80	CBS

Health Care Sector

Rural health services are provided through a network of health centres, sub-health centres and district hospitals. Basic health services are provided in the community through an integrated health post operated by volunteers and supported by the staff of the health centres. Patients requiring more specialized care are referred to provincial and specialized hospitals which are usually located in larger cities.

Health expenditures constitute about 2.2% of Gross Domestic Product. About 60% of total health sector expenditures are accounted for by the private sector while 40% are accounted for by the public sector. Of the Ministry of Health's budget, 51% came from the central government, 26% from provincial governments, and 23% from districts. The public health expenditures constituted 3.7% of the total public expenditures in 1985/86. A large part of public health expenditures, around 34% in 1985/86, went to hospital services. Private health expenditures, on the other hand, generally were for drugs (60%).

The health insurance system is not yet well developed, although there are several plans for its extension. The major existing scheme covers only civil servants and their families. In 1986/87, only 3.1% of all health expenditures were covered by the system.

Health Manpower

The complexity of health sector employment in Indonesia makes it almost impossible to describe the employment situation, unless a national survey is carried out. In 1985, government and semi-government hospitals employed 552 physicians, 4,508 paramedic/nurses, and 4,273 other manpower. At the same time, private hospitals employed 2,510 physicians, 12,201 paramedics, and 16,423 other manpower. All medical school graduates have a mandatory service of 2 to 5 years in a public hospital. However, most of the doctors and a large number of paramedics at the private hospitals hold government positions. Estimates of health manpower earnings are also hard to come by since doctors in the public sector also earn from private practice.

Throughout the country, there are 24 medical schools: 12 are operated by the Department of Education and Culture and 12 are owned by the private sector. The education of paramedics and nurses is carried out by centrally-run public schools, locally-run public schools, and private schools. The public schools are funded largely by the government and a small amount come from student fees. Private schools, on the other hand, are funded principally through tuition fees. The tuition fees for the first year student in private medical schools are roughly 15 times those in public schools. The difference is about 7-8 times after the second year.

Table 2

No.	Indicators	Year	Data	Source of Data	
17	Health Manpower	1985	Number	Ratio per 100,000	
	- Physicians		19,875	12.13	MOH
	- Dentists		4,326	2.59	MOH
	- Pharmacists		3,950	2.41	MOH
	- Nurses + Midwives		51,375	31.35	MOH
	- Physical Therapists		230	0.14	MOH
	- Medical Lab. Technicians		46	0.03	MOH
	- Ass.Med. Lab. Technicians		1,210	0.74	MOH
	- Medical Radiology Technicians		44	0.03	MOH
	- Ass. Medical Radiology Technicians		196	0.12	MOH
	- Laboratory Engineers		1,969	1.20	MOH
	- Dental Nurses		1,912	1.17	MOH
	- Sanitarians		5,105	3.12	MOH
	- Pharmaceutical Assistants		21,880	13.35	MOH
	- Assistant Nurses		42,996	26.24	MOH

Priority Issues

The major problems identified are the following. First, there is the urban-rural discrepancies in distribution which is reflected in the distribution of manpower between the health center and hospitals. Manpower are concentrated in the cities and hospitals even if the majority of health problems are communicable diseases which still affect many rural people. Because most hospitals are located in the cities where people are better off, the subsidy given by the government to hospitals is in fact benefiting the higher socioeconomic segment of the population more than the poorer segment.

Second, there is an imbalance in the mix of health manpower in relation to existing health problems. In order to expand the coverage of health care in the rural community, more lower-level manpower than are currently employed are needed.

Third, the average manpower productivity is low and highly variable. This has been traced to the failure of the manpower allocation process to match staff with existing workload, to structural barriers to utilization, e.g. lack of specialized equipment or drugs, and to the lack of an appropriate incentive structure.

Fourth, there is a gap between health manpower production and absorption. There has been a significant decrease in government appointments, dentists, and paramedics since 1981/82 relative to the number of graduates. The capacity of the government to absorb new graduates is related to the economic situation of the country.

JAPAN

Health and Socioeconomic Indicators

In 1984, Japan had a population of 120 million with a per capita of \$10,463. The population growth rate was 0.63%. About 10% of the population is in the age group 65 years and over. Infant mortality is 6.0 per 1,000 live births and life expectancy is 74.5 years for males and 80.2 years for females. The top three causes of mortality are malignant neoplasms, cerebrovascular disease and heart diseases.

Table 1. Health & Economic Socioeconomic Indicators

Indicator(s) for: JAPAN	Year	Data	Source of Data	
1. Area (in 1000 sq.km.)	1981	372.31	01/78	
2. Estimated population ('000)	1984	120 235	12/86	
3. Annual population growth rate (%)	1984	0.628	12/86	
4. Percentage of population - less than 15 years	1984	22.0	12/86	
- 65+ years	1984	9.9	12/86	
5. Urban population (%)	1980	78.0	14/83	
6. Rate of natural increase of population (% per annum)	1984	0.63	12/86	
7. Crude birth rate (per 1000 population)	1984	12.5	12/85	
8. Crude death rate (per 1000 population)	1984	6.2	12/85	
9. Life expectancy at birth - Total (years)	1984	74.5	12/85	
- Male (years)		74.56		
- Female (years)		80.18		
10. Infant mortality rate (per 1000 live births)	1984	6.0	12/85	
11. Total fertility rate (women 15-49 years)	1984	1.81	12/86	
12. Socio-economic indicators for the year 2000				
Estimated population, ('000)	2000	128 901	03/79.1	
Life expectancy at birth - Male (years)	1995-2000	73.5	03/79.1	
Female (years)	1995-2000	78.3	03/79.1	
Annual population growth rate, (%)	1995-2000	0.68	03/79.1	
Crude birth rate (per 1000 population)	1995-2000	14.1	03/79.1	
Crude death rate (per 1000 population)	1995-2000	9.4	03/79.1	
Rate of natural increase (% per annum) (estimated growth of GNP)	1995-2000	0.47	03/79.1	
13. Per Capita Gross National Product (GNP) at market prices	(US\$) (Y)	1984	10 463 or 2 489 000	12/86
14. Rate of growth of per capita GNP (%)	1970-1979		3.9	07/81
15. Adult literacy rate - Total	1980		99.7*	12/86
- Male			99.8	
- Female			99.5	
16. Health expenditure				
- Amount (Billion Yen)	1983		14 543.8	12/86
- Per capita (Thousand Yen)	1983		121.7	12/86
- As % of GNP	1983		5.22	12/86

*Per cent of those who completed primary education
Official Exchange rate: US\$1.00 = Y 137.025 (1984)

Source 01/78: UN Demographic Yearbook 1978
03/79.1: World Population Trends and Prospects by Country 1950-2000:
Summary Report of the 1978 Assessment, UN 1979
03/79: FAO Production Yearbook 1979
07/81: 1981 World Bank Atlas
12/82: Government Responses to World Health Statistics Annual Questionnaire
on Certain Causes of Infectious and Parasitic Diseases and on Number
of Deaths by Cause; and Government Reports on the Number of Cases of CD
12/85: Country Health Information Profile (CHIP) revised by Government, 9 September 1985
12/86: Country Health Information Profile (CHIP) revised by Government, 25 March 1986
12/86.1: Country Review revised by Government, 25 March 1986
14/83: 1983 World Population Data Sheet, Population Reference Bureau, Inc., Washington, DC

Table 1. Health & Socioeconomic Indicators (cont'd)

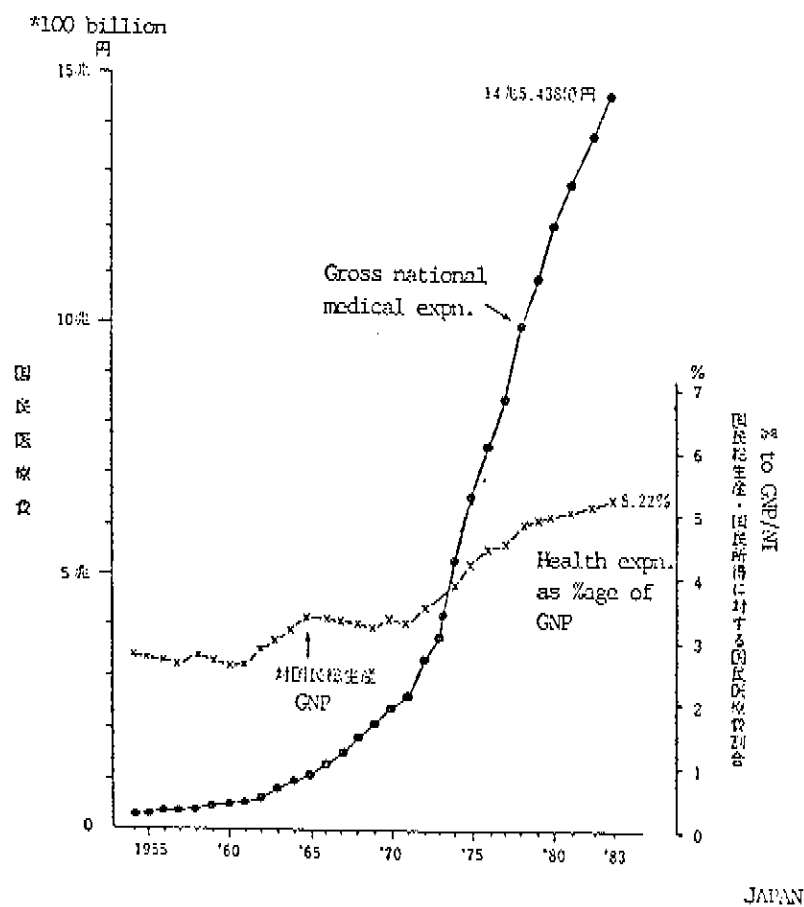
Indicator(s) for: JAPAN	Year	Data		Source of Data
17. Health Manpower		Number	Ratio per 100 000	
Physicians		181 101	150.6	12/86
Dentists		63 143	52.5	
Pharmacists		129 700	107.9	
Nurse		590 177	490.9	
Assistant Nurse				
Public Health Nurse		20 858	17.3	
Midwife		24 649	20.5	
Radiologic Technician)				
Lab. Technician)				
Physiotherapist)				
Occupational Therapist)				
Ophthalmorehabilitation Therapist)				
Dental Hygienist				
Dental Technician				
				- to be supplied
17.a. Health Facilities (1984)				
Hospitals		9 580)per 10 000)population)
Clinics		78 549		
Dental Clinics		44 278		
Number of beds		1 757 309	146.2 beds	
Psychiatric		245 054	20.4	
Tuberculosis		3 217	0.3	
General		1 213 768	100.9	
18. Ten leading causes of morbidity	ICD code	No. of Cases	Rate per 100 000	12/85
Pulmonary tuberculosis	010-012	1984 56 880	47.3	
Other food poisoning	005	1984 26 238	21.8	
Influenza	487	1984 17 882	14.9	
Gonococcal infection	098	1984 13 511	11.2	
Measles	055	1984 12 268	10.2	
Other tuberculosis	013-018	1984 5 962	5.0	
Other salmonella infection	003	1984 2 107	1.8	
Whooping cough	033	1984 1 114	0.9	
Syphilis	090-097	1984 1 642	1.4	
Shigellosis	004	1984 895	0.7	
19. Ten leading causes of mortality		No. of Deaths	Rate per 100 000	12/85
Malignant neoplasms		1984 182 280	152.5	
Cerebrovascular disease		1984 140 093	117.2	
Heart diseases		1984 136 162	113.9	
Pneumonia and bronchitis		1984 44 982	37.6	
Accidents		1984 29 344	24.6	
Senility without mention of psychosis		1984 28 805	24.1	
Suicide		1984 24 344	20.4	
Cirrhosis of the liver		1984 16 991	14.2	
Hypertensive diseases		1984 13 073	10.9	
Nephritis, nephrotic syndrome and nephrosis		1984 12 689	10.6	
20. Per cent of low birth weight infants (< 2500 grams)	1984		5.4	12/85
22. Maternal mortality rate (per 1 000 live births)	1983		0.155	12/86

Health Care Sector

Curative services are provided by both private and public sectors. The system for curative services is often called the "random access" system. Patients can choose to seek care at any of the 9,600 hospitals or 79,000 clinics without prior appointment. This system often results in long waiting times in out-patient departments, especially in highly specialized hospitals, even if many cases can be handled at smaller clinics or community hospitals. The government has made various attempts to systematize primary, secondary and tertiary levels of care, but there is still much to be done in this respect.

Health care expenditures constitute 5.22% of GNP in 1983.

Fig.1. Trends of National Medical Expenditure

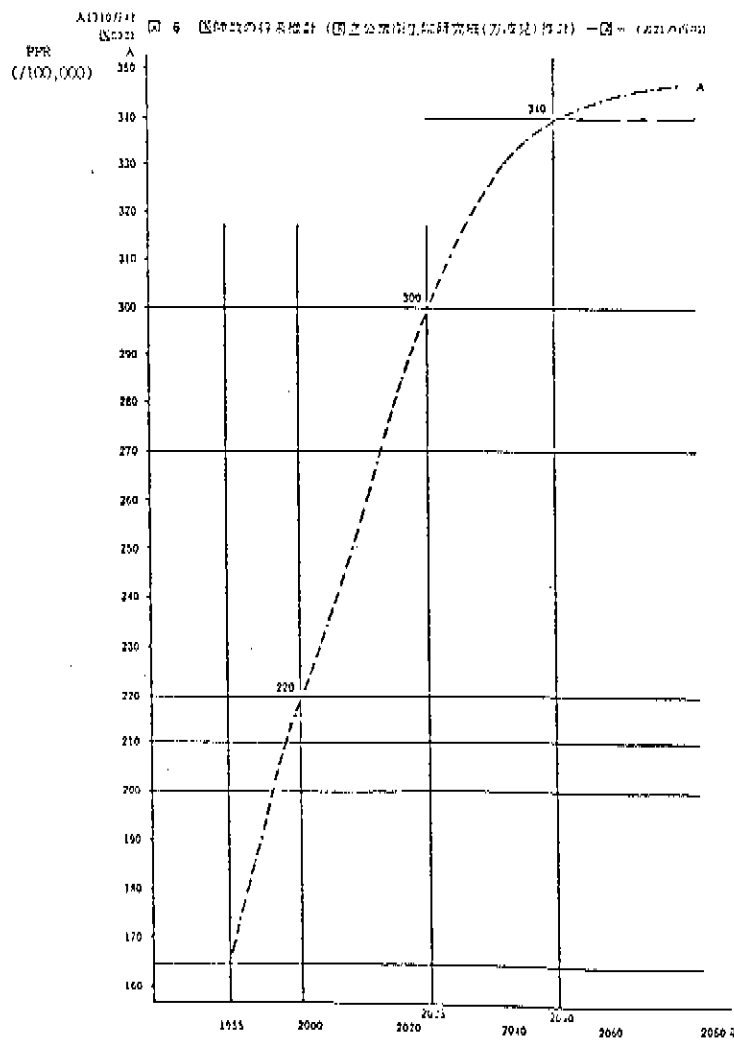


Since 1961, every citizen in Japan has been insured under some kind of health insurance scheme. The patient need only to pay approximately 10% of medical expenses. The Ministry of Health and Welfare has set a standard price list for each item of medical care and/or procedure and drugs. This list is universally applied to all hospitals or clinics in so far as services are provided in the framework of health insurance. Of the total national medical expenditure, 35% are from the national and local government, while the rest are from the private sector.

Health Manpower

Although statistics do not show unemployment of doctors, it is believed that some unemployment occurs. The actual unemployment situation may not be accurately reported because people do not tend to report unemployment. It is also believed that a plateau has been reached in absorption capacity, and that unemployment is bound to occur much more in the future. Because of the relatively large supply of doctors, it is expected that their relative income levels will decline in the future unless their supply is curtailed.

Fig.2. Future supply of Doctors



There are 14 categories of health personnel authorized by the Ministry of Health and Welfare. Doctors, dentists and pharmacists are trained in universities, with the remaining 11 categories being trained in junior colleges (3 years) or equivalent training institutes. University and junior colleges are accredited by the Ministry of Health and Welfare. In consultation with each other, the two ministries set the standards for faculties and curricula.

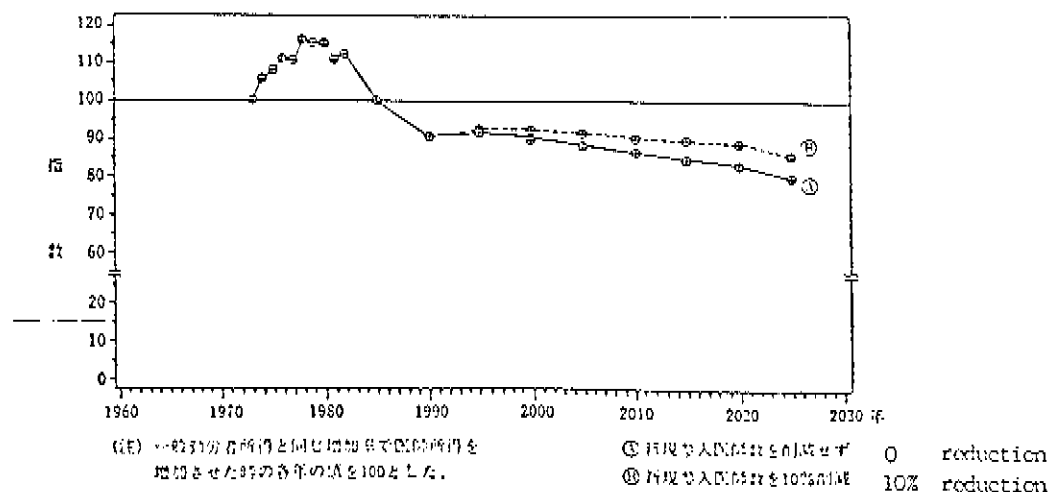
Currently, there are 80 medical schools: 43 national, 8 public and 29 private. All of them offer six-year programmes. Graduates are granted a medical license by the Ministry of Health and Welfare after passing a national examination. However, the Ministry strongly urges all graduates to undertake at least two years of postgraduate training, either at a university hospital or a designated training hospital.

It is estimated that approximately 6.5 million yen per year is required to educate a medical student. In national schools, almost all of the entire cost is covered by national funds. Even in private schools, it is estimated that approximately 2.5 million yen per year per student is subsidized by the government in the form of university grants.

Priority Issues

Current issues include the prospective growth of manpower supply and its consequences on the relative incomes of physicians. On the other hand, there are problems in filling vacancies in smaller hospitals in townships even if salaries are higher. A more comprehensive incentive structure is needed, including a structured career development. There is also the issue of government costs incurred in the running of university hospitals and post-graduate training.

Fig.3. Estimated Relative Income of Doctors



Looking into the future, Japan is confronted with changes (e.g demographic and disease patterns) that will have a strong impact on health manpower - their numbers, training and education, deployment and utilization - and the delivery of health services. For example, the percentage of elderly (65 years and over) is estimated to double in the coming decades. This will have direct consequences on the provision of health care and in the efficient use of resources, both human and financial.

REPUBLIC OF KOREA

Health and Socioeconomic Indicators

In 1985, the country had a population of 41 million with an annual growth rate of 1.25%. The infant mortality rate was 32.6 per 1,000 and the life expectancy at birth was 64.9 years for males and 71.3 years for females. The leading causes of mortality in 1984 were cerebrovascular diseases, heart diseases, accidents, senility, chronic liver diseases, malignant neoplasms, hypertensive diseases, and tuberculosis. The per capita GNP in 1985 was US\$2,047. During the past decade, 1975-85, real economic growth has averaged 7.4% annually.

Table 1. Health and Socioeconomic Indicators for Korea

Indicator	Year	Data	Source of Data
1. Area (in 1,000 sq. Km)	1984	99.12	KSY. 1985
2. Estimated population ('000)	1985	41,056	YHSS. 1986
3. Population density (per '000 sq. Km)	1985	414.2	YHSS. 1986
4. annual population growth rate (%)	1985	1.25	YHSS. 1986
5. Age structure of population			
under 15 years of age (%)	1985	30.6	"
15 - 64 years of age (%)		65.2	
over 64 years of age (%)		4.2	
6. Urban population (%)	1985	65.4	PCR. 1986
7. Rate of natural increase of population (% per annum)	1985	1.35	YHSS. 1986
8. Crude birth rate (per 1,000 population)	1985	19.7	"
9. Crude death rate (per 1,000 population)	1985	6.2	"
10. Life expectancy at birth - total (years)	1985	68.1	"
- male (years)		64.9	"
- female (years)		71.3	"
11. Infant mortality rate (per 1,000 live births)	1985	32.6	"
12. General fertility rate (per 100 women, 15-49 yrs)	1985	7.30	"
13. Socio-economic indicators for the year 2000			
Estimated population ('000)	2000	48,017	YHSS. 1986
Life expectancy at birth - Male (years)	2000	69.3	KIPH. 1986
- Female (years)		76.2	
Annual population growth rate (%)	1995-2000	0.88	YHSS: 1986
Crude birth rate (per 1,000 population)	2000	14.7	KIPH. 1986
Crude death rate (per 1,000 population)	2000	6.2	"
14. Per capita GNP at current prices (US \$)	1985	2,047	NA. 1987
('000 Won)		1,782	"
15. Annual growth rate of GNP (%) (at 1980 constant prices)	1975-1985	7.4	"
16. Annual growth rate of per capita GNP (%) (at current prices)	1975-1985	13.2	"
17. Adult literacy rate (%)	1983	90.9	KIPH. 1984

Health Care Sector

The Korean health care system is characterized by the private sector's predominance in the provision of health services. For example, 85% of beds belong to private health institutions. In fact, private and public hospitals and clinics compete for both personnel and patients. Patients are free to choose a medical care facility for the primary contact. In other words, there is no well-defined system of patient referral between medical care facilities of different levels of technological sophistication. Primary care for rural areas and the poor in urban areas is usually provided by government health centres. There is little difference in the care and services provided by government and private hospitals.

Total health expenditures constituted 4% of GNP in 1983. As of the end of 1986, 46% of the total population were covered by a health insurance plan, and an additional 11% were eligible for a medical aid programme. The health insurance covers primarily wage earners and their families, hence most of the self-employed, including farmers, are excluded from the insurance plan. The government has recently decided to expand the insurance coverage to all the self-employed in the rural areas by 1988, and in the cities by 1989.

Table 2

18. Health expenditure				
- Amount (billion Won)	1983		2,361.6	NHEK
- Per capita (thousand Won)			59.1	
- As % of GNP			4.0	
19. Health Manpower (per 100,000 pop.)				
Medical doctors	1984	21,033	(51.9)	KIPH. 1985
Dentists		4,051	(10.0)	
Pharmacists		18,497	(45.7)	
Nurses		24,624	(60.8)	
Nursing aids		35,377	(87.3)	
Technicians		8,812	(21.8)	
20. Health facilities				
Hospitals	1985	531		YHSS. 1986
Public		56		
Private		475		
Clinics		8,069		
Dental clinics		2,994		
Number of beds (per 10,000 pop.)		99,950	24.3	
Hospitals		74,365	18.1	
Public		14,757	3.6	
Private		59,608	14.5	
Clinics		25,585	6.2	
			(per 10,000 pop.)	
Health centres		225		
Health subcentres		1,303		
Community health practitioners' clinics		1,640		
MOH centres		91		

Health Manpower

Given the current numbers of various categories of health personnel, it is hard to tell whether there is a shortage or a surplus of a certain category of personnel. Since the middle of the 1970's, the government decided to increase the supply of physicians. As a result, between 1976 and 1986, the number of medical schools increased from 14 to 28, and the expected annual production increased from 1,650 to 2,860. It is uncertain, however, whether production will be further expanded or not. The optimum level of production of physicians is still one of the most controversial public policy issues.

In order to improve the accessibility to primary care of residents in remote rural areas, the government is in the process of establishing community health practitioner's clinics. Community health practitioners are registered nurses who had additional training of 24 weeks on public health and care of minor illness.

There are indications that the demand for health care services would increase rather rapidly in the near future. It is anticipated that all the people will be covered by either a health insurance plan or a medical aid programme by 1989. In the light of past experience, this coverage will surely increase medical care utilization. The expected population growth, aging of population and improvement of socioeconomic status would also increase the demand for health care services. Certainly, national health expenditures would increase along with the growth of health care demand. Thus an increasing amount of attention should be directed to the achievement of effectiveness and efficiency in the use of health resources in the future.

Manpower constitutes a critical resource in health services. Thus added emphasis is given to the improvement of efficiency and productivity in the allocation and use of manpower especially in view of the expected growth of the health care market arising from the expanded insurance coverage, population growth, aging of population and improved socioeconomic status. Data on physicians's productivity show variations by place and institution of work, suggesting that there is room for increasing physician's productivity. This is particularly true in rural areas and government health centres. Improving manpower productivity requires understanding of the factors affecting such productivity. These include manpower mix, organizational arrangement, manpower quality and manpower-capital mix.

Priority Issues

The priority issues include the following:

- (1) quantity of production - the future demand for health manpower is very uncertain and, therefore, there is a controversy about the adequacy of the current level of health manpower production;
- (2) productivity - there are indications that manpower resources are not productively utilized;
- (3) geographic distribution - the urban-rural disparity in the availability of health manpower will become an increasingly serious problem as the rural demand for health services expand with the expansion of insurance coverage;
- (4) organization of health services - the unsatisfactory performance of health personnel is partly attributable to organization problems. There are, however, many problems attendant to the reform of organizational arrangements;
- (5) manpower mix - there are two kinds of issues in relation to manpower mix. One is the adequacy of the relative numbers of various categories of health personnel and the functional differentiation among them, and the other is the mix of a given category of personnel in terms of different specialties and levels of training; and
- (6) education and training - the issue centers around how to effectively and efficiently produce health personnel with the required competence to perform the role they have to assume in the health care system of Korea.

MALAYSIA

Health and Socioeconomic Indicators

Malaysia had a population of 15.3 million in 1984. In 1985, the rate of natural increase was 2.4 percent. The infant mortality rate has declined from 24 per 1,000 in 1980 to 17 per 1,000 in 1984. The life expectancy at birth is 67.6 years for males and 72.7 years for females. The top five causes of death as reported in government hospitals in Peninsular Malaysia in 1984 were heart diseases, accidents, diseases of early infancy, cardiovascular diseases, and neoplasms.

Table 1: Vital Indicators

INDICATORS	DATA	YEAR	SOURCE
1. Area (km ²)	329746	1984	1
Peninsular	131585	"	1
Sabah	73711	"	1
Sarawak	124450	"	1
2. Population (000)	15262.5	1984	1
Peninsular	12643.4	"	1
Sabah	1177.0	"	1
Sarawak	1442.1	"	1
3. Population Density (Per km ²)	46	1984	1
Peninsular	96	"	1
Sabah	16	"	1
Sarawak	12	"	1
4. Rate of natural increase(%)	2.4 - 2.6	1980	2
5. Life expectancy at birth (years)			
Peninsular Male	67.6	1984	1
Female	72.7		
6. Percentage of population			
0 - 14 years	39	1985	3
15 - 29 years	29		
Above 60 years	6		
Average annual population Growth Rate (%) - 1970-1980		1980	3
Urban	4.7		
Rural	1.2		
Urban Population (%)		1980	1
Peninsular	34		
Sabah, Sarawak	37		
Sarawak	17		
Per capita GNP (M \$)	5019	1986	4
In the year 2000 Estimated population ('000)	22400.0	1985	3
Rate of natural increase (%)	2.4	1985	3
No. of Doctors: Max.:	15220	1985	5
Min.:	12790		

Source

1. Dept. of Statistics
2. MOH annual report 1984
3. Economic planning unit

4. Ministry of Finance 1985/86
5. WHO Assignment Report 1985

Health Care Sector

The health care delivery system includes primary health care, hospital and specialized care, and care of special population groups. Primary health care is provided by the health centres which reach about 90% of the rural population, and by the traditional healers. There are indications that people living in the vicinity of the rural health centres by-pass them for the out-patient department of a district or general hospital. In urban areas, people visit private practitioners who charge them fees for services rendered.

Government hospitals provide 90% of the total beds available in the country, and the cost of their operation accounts for 60% of the Ministry of Health's annual operating/recurrent costs. Patients are charged for services rendered, but some are subsidized or given free treatment. Private hospitals are growing rapidly both in number and admissions. Private clinics and private hospitals are supported mainly by user fees.

Special population groups have specific health care delivery service: the military has its own doctors and related personnel, large rubber estates have their own hospitals or clinics, and the aboriginal population is served by a special network of health posts and a unique hospital near Kuala Lumpur.

In 1983, Malaysia spent M\$1.8 billion on health services: 55% of this was for tertiary and secondary care, while 38% was for primary care and public health. Training accounted for 4% of the total. Public sector expenditures constituted 77% of the total expenditures. The total outlays for both public and private represented 2.85% GNP.

Health Manpower

Health manpower in Malaysia is characterized by different types of imbalances. In general, professional and semi-professional staff in the public sector are still in short supply. Projected requirements are much higher than posts established. Moreover, even the established posts have not all been filled, particularly that of doctors, dentists, pharmacists, etc., because of the loss to the private sector, and partly due to underproduction. Among doctors, there is a shortage of specialists in a number of disciplines, i.e. anaesthesia, orthopedics, ophthalmology, psychiatry and radiology. There is also the imbalance between doctors in the cities and rural areas.

The basic training of professional personnel is beyond the direct control of the Ministry of Health (MOH). There are three medical schools producing about 300 doctors per year. But the MOH facilitates post-graduate training by offering scholarships and providing non-pay leaves for doctors who are eligible. Paramedical and auxiliary personnel, however, are trained by the MOH's training institutions. The training of a doctor costs M\$103,000 to M\$140,000 per graduate, whereas the training of a paramedic such as a staff nurse or a medical assistant costs only M\$20,000 per graduate. An assistant nurse costs only M\$10,000 per graduate to train.

Priority Issues

The economic recession has forced the government to reexamine existing strategies for health manpower development and the utilization of existing manpower. An attempt is being made to maintain the numbers at their current strength without affecting the efficiency and coverage of services.

There tends to be a shortage of the higher and mid-level health professionals.

In addition to the problem of shortage and manpower imbalances, the other areas of concern are: (a) the escalating health costs and the burden they place on the government; (b) the rising public expectation for high technology, high cost medicine; (c) the unprecedented growth of the private sector and the need to take it into account in the overall national health plan; and (d) the need to increase the effectiveness and efficiency of health investments and programmes.

Table 2. Number of Posts and number of Technical Personnel Employed, 1983-1984

Type of Posts	1983		1984	
	Number of Posts	Number of Persons Employed	Number of Posts	Number of Persons Employed
Category A -				
Professional				
Medical Officers	2 511	2 158	2 868	2 236
Dental Officers	539	463	558	467
Pharmacists	265	230	276	263
Category B -				
Paramedical				
Health Inspectors	699	669	733	688
Physiotherapists	115	79	124	105
Radiographers	311	279	311	288
Nurses	8 935	8 431	9 282	8 616
Dental Nurses	669	629	758	697
Medical Laboratory Technologists	911	801	954	899
Assistant Pharmacists	978	950	1 072	1 007
Medical Assistants	1 941	1 867	1 959	1 837
Dental Technicians	194	178	230	209
Category C -				
Auxiliary				
Midwives	3 576	3 069	3 502	3 127
Rural Nurses	635	558	671	586
Junior Medical Assistant	448	430	476	460
Assistant Medical Laboratory Technologist	1 065	1 032	1 125	1 058
Dental Surgery Assistant	828	719	828	726
Public Health Overseer	1 253	673	1 498	1 414
Assistant Nurses	7 166	6 807	7 493	7 128
X Ray Film Developer	315	269	314	259

Source: Service Section, Ministry of Health

NEW ZEALAND

Health and Socioeconomic Indicators

New Zealand had an estimated population of 3.3 million in 1986. The population has been growing at an average annual rate of 0.81% from 1981-86. About 10.5% of the population is 65 years old and over. The per capita GNP in current dollars was NZ\$12,000 in 1984-85. The infant mortality rate was 12.9 per 1,000 in 1985, while the life expectancy at birth at around 1980-82 was 70.4 years for males and 76.4 years for females. The top causes of death are heart diseases, cancer cerebrovascular disease and respiratory diseases. Although New Zealand's health status has been improving, it has not maintained its high position relative to some other OECD countries.

Table 1. Health and Economic Socioeconomic Indicators

<u>Indicators for New Zealand</u>	<u>Year</u>	<u>Data</u>	<u>Source</u>
1. Area in Sq Km	87	268.000	1
2. Estimated population	86	3,307.084	2
3. Annual population growth rate (%)	81/6	0.81	3
4. Percent of population			
- less than 15 years	86	25.0	2
- 65 + years	86	10.5	2
5. Urban population (17 main urban areas)	86	68%	1
6. Rate of natural increase of population (per 1000 mean population/ann. average)	80/5	7.7	1
7. Crude birth rate (per 1000 population)	85	15.81%P	1
8. Crude death rate (per 1000 population)	85	8.40%P	1
9. Life expectancy at birth			
- male (years)	80/2	70.36	1
- female (years)	80/2	76.43	1
10. Infant mortality rate (per 1000 live births)	85	12.9	1
11. Total fertility rate (per woman)	85	1.93	1
12. Socio-economic indicators: year 2001			
a) Estimated population (base)	82	3,750.00	1
b) Projected life expectancy at birth			
- male (years) (2001)		71.4	1
- female (years)(2001)		78.1	1
c) Annual population growth rate (%)	86/2001	0.82	5
13. Per Capita Gross National Product (GNP) in current dollars	84/5	NZ\$12.000	1
14. Rate of growth of per capita GNP (at constant prices)	80-1/84-5	3.45%	1
15. Adult literacy rate - (Compulsory school education 6-15 years)			
16. Health expenditure (\$NZ)			
- Amount gross (estimated Govt. expend.)	85	\$2.464M	4
- per person, per year	85	\$760	4 & 1
- As % of GDP	85	6%	4
17. Per cent of low birth weight infants (\leq 2499 grams)	85	5.5%	4
18. Maternal mortality rate (per 10,000 live births) birth related	84	0.06	6
19. Morbidity incidence as measured by hospital discharges/deaths - per 100,000 population	85	503.042	6

Sources : 1 1986/87 Year Book
2 1986 census
3 Census 1981 1986
4 Health Benefits Review Data
5 Unofficial Projection
6 Selected Hospital & Morbidity Data

Health Care Sector

Through its 15 districts, the Department of Health is the main provider of environmental, health protection and health promotion services. Local government agencies also provide some health protection services. Curative services are provided by public, private and voluntary sectors. Of the total hospital beds of 30,999 in 1985, 79% were in public hospitals.

The State funds area health and hospital boards on a population-based funding formula and also funds the activities of the Department of Health. The State also subsidizes many private medical and other health services, virtually all of the cost of pharmaceutical prescriptions, and private/voluntary health services.

There are now approximately 1.3 million New Zealanders (over one-third of the population) who hold health insurance of some kind. Health insurance is not compulsory. It is basically regarded as "top up" insurance with the public hospital sector still being relied upon for the more expensive/acute forms of care and treatment. Health insurance has been sold since 1961 and in many cases, membership is held through unions or groups. The Accident Compensation system guarantees free treatment and fair compensation to the victims of all accidents, regardless of cause.

The expenditure on health as a percentage of GDP has been relatively stable over the last decade (6.73% in 1987 vs. 6.67% in 1976). It is estimated that public expenditures account for about 75-85% of total health spending. On average, each New Zealander spends a total of NZ\$760 (US\$435) a year on health care. About 80% is paid by taxes, about 3% from Accident Compensation Levies, and the remainder from patients either directly or through payments for private insurance.

There is a strong leaning in current reviews towards greater emphasis on health services paying their way, and on user charges, as well as a growing recognition of the need for more accountability from providers. There are indications which suggest a possibility of the wider use of health insurance, although it is likely that the long tradition of ensuring adequate access for all citizens will be maintained.

Health Manpower

Overall, New Zealand has a satisfactory size and quality of health service workforce. Its major imperfection is the uneven geographic and service distribution in some professions. There has been rapid growth in medical practitioner numbers and there are proportionately large pediatric registrar numbers. This may be indicating oversupply but, on the other hand, specialists in radiology, otolaryngology and community medicine are in short supply. Attrition rates in the workforce have caused a particular concern. Significant workforce planning in some occupational groups, particularly medicine and nursing, has been carried out in recent years. Major changes in the New Zealand society such as the aging of its population compound health workforce planning problems.

Basic level health workforce training is primarily provided by universities and technical institutes. Post-basic education is also available for many professions. A post-graduate level health administration diploma course has been available extramurally on a restricted basis since the mid-1970s, but health service managers have not generally been specifically trained for this activity. Health service management training is in need of development and is being given special attention.

The training of health professionals has been largely uncoordinated and it has not necessarily been needs-based. Universities and technical institutes have sought to develop courses, and the professions have also significantly influenced the numbers trained and the level and nature of their training. As a consequence, it has been observed that there is a tendency for overtraining with practically no control of the profession's drive to get as high a standard of training as possible. This leads to a growing "education inflation" regardless of what the tasks to be performed require in terms of reasonable education.

Priority Issues

Some priority issues in health workforce planning and management include:

1. strengthening the current workforce statistical and planning base;
2. coordination of workforce planning, production and management;
3. determination of effective ways to staff unattractive areas;
4. establishment of a national plan for health workforce development including priority recruitment and training plans, and ratification and publication by government;
5. development of agreed levels and standards of competencies for tasks and avoidance of overtraining;
6. breakdown of the divisions between occupation groups and facilitate team work attitudes;
7. definition of a strategy to avoid education inflation but at the same time provide encouragement of personal development;
8. determination of the onus of responsibility for health service training (education, health service, personal).

PHILIPPINES

Health and Socioeconomic Indicators

The Philippines had a population of 56 million in 1986 with an estimated annual growth rate of 2.8%. It has a very young age structure, with 42% of the population under 15 years of age. The infant mortality rate was 55 per 1,000 in 1986 while life expectancy at birth for both sexes was 63.4 years. The top five causes of morbidity in 1983 were bronchitis, diarrhoeas, influenza, TB and malaria. In the same year, the leading causes of mortality were pneumonias, diseases of the heart, TB, diseases of the vascular system, malignant neoplasms, diarrhoeas and measles.

Table 1. Summary of Health and Socioeconomic Indicators
(Including Health Services and Manpower)

Indicator	Year	Data	Source of Data
1. Estimated Population	1986	56,004,130	Population Studies Division, NCSO Projection
2. Percentage of Population	1986	M F	Planning Service, DOH ditto
0 - 15 years		21.6 20.7	
16 - 49 years		23.5 23.7	
50 + years		5.1 5.5	
3. Growth Rate	1986	2.8	Population Studies Division, NCSO Projection
4. Crude Birth Rate	1986	31.75	ditto
5. Crude Death Rate	1986	7.8	ditto
6. Infant Mortality Rate	1986	55.33	ditto
7. Maternal Mortality Rate	1986	0.9	Planning Service, DOH
8. Life Expectancy (both sexes)	1986	63.4	Population Studies Division, NCSO Projection
9. Literacy Rate	1986	87.6	NEDA
10. Per Capita National Product (GNP)	1986	P10,958	NEDA
11. Rate of Growth Per Capita	1986	-1.4	NEDA
12. Projection for the Year 2000			NCSO
12.1 Estimated Population		75,223,853	
12.2 Population Growth Rate		1.8	
12.3 Crude Birth Rate		23.9	
12.4 Crude Death Rate		6.2	
12.5 Life Expectancy (both sexes)		67.6	
13. Health Budget			
Amount Appropriated	1986	P 3.4 B	DOH
	1987	F 4.3 B	DOH
% over National Budget	1986	3.7%	DOH
	1987	5.3%	DOH
14. Health Manpower (DOH)	1986		Personnel Services, DOH
Physicians		8,817	
Dentists		1,120	
Pharmacists		796	
Nurses		10,612	
Midwives		9,789	
Health Educators		73	
Sanitary Engineers		229	
Medical Technologists and Laboratory Technicians		2,391	
Sanitary Inspectors		1,929	
15. Health Facilities			Planning Service, DOH
Hospitals (General)		Number/Beds	
Private	1985	1191/41623	
Government	1985	618/40245	
Special Hospitals	1985	6/7800	

Health Care Sector

The health care delivery system consists of a network of health facilities and services provided by both the government and the private sector. About 34% of these facilities are under the Department of Health. To insure adequate health services for the entire population, a comprehensive health system integrating the promotive, preventive, curative and rehabilitative components of health care was implemented in 1984 to support Primary Health Care. Health facilities (hospitals) for curative services are maldistributed, most of which are located in urban areas. While every municipality has a rural health unit complemented by barangay (village) health stations, a large proportion of the population (37%) was found in a 1979 health survey to be still underserved/unserved.

Of the total appropriation of the national government in 1985, about 4% was allotted to the Department of Health: 43% of this allotment went to personnel services.

Health Manpower

Since there is no comprehensive manpower plan and little or no coordination between manpower production and utilization, it is quite difficult to estimate the degree of unemployment/underemployment of health professionals in the country. Statistics show that in 1984, there were 145,235 registered nurses in the country, but about 61% of these were employed outside the country.

Since there is very little market for medical graduates outside the country for the past 3 to 5 years, some of those who passed the licensing examination are on residency training or on rural service, while others serve as adjunct/volunteer worker while waiting for an opening in medical/general hospitals. The chance for a new physician to go into private practice is slim because of the high competition from specialists in private practice or attached to medical centers. In spite of this, there are still vacant positions in rural areas with no takers.

Data on the distribution of health manpower in 1970 show glaring maldistribution of physicians by region (37% of physicians were located in Metro Manila). Unfortunately no recent data are available. In 1982, data show that most specialties are concentrated in urban areas.

Doctors, nurses, dentists, pharmacists, nutritionists, health educators, sanitary engineers, and medical technologists are trained in universities accredited by the Department of Education and Culture (DEC). Most of these universities are privately owned. Midwives are trained in midwifery schools attached to private or government maternity or general hospitals and are also accredited by the DEC. While the sanitary inspectors are basically high school graduates, they are trained at the College of Public Health, University of the Philippines or undergo in-service training once employed. The cost of training in government institutions is heavily subsidized by the government. For example, the tuition charged in government schools for medical education is only half that charged by private medical schools.

Priority Issues

The need for purposive manpower planning to evolve a Master Manpower Plan has been a felt need. The inventory of the DOH manpower and the establishment of a computerized data bank on manpower resources, particularly for the staffing pattern and equitable distribution of staff as provided for in the reorganization of the DOH, has to be done.

Specific concerns include the following: better recruitment and retention of doctors for difficult areas and clinical/managerial career pathing; widening the role and participation in decision-making and managerial career pathing for nurses; career progression for midwives; provision of training and development programmes for health administrators and non-technical staff; linkage between the DOH and DEC to improve professional education; and continuing training of all personnel, particularly the non-technical staff.

A key issue is the compensation and incentives of professionals. For doctors, private practice after office hours is being considered. Moreover, while the number of health staff remains inadequate, priority shall be given to quality development through training, motivation and managerial/leadership skills development.

SRI LANKA

Health and Socioeconomic Indicators

Sri Lanka is an island nation with a population of 16 million in 1986. The infant mortality rate in 1984 was estimated at 23 per 1,000 while the life expectancy at birth in 1979 was 66.1 years for males and 70.2 years for females. The morbidity patterns show an increasing importance of diseases such as hypertensive and ischaemic heart diseases, diseases of the musculoskeletal system, malignancies, mental health problems, geriatric problems, etc., while many of the communicable diseases, especially the immunizable group, have shown a decline. The incidence of malaria seems to be rising once again. The morbidity pattern, while retaining the characteristics of a developing country, also depicts diseases associated with higher longevity.

The annual real growth rate of GDP over the past eight years is 6%. In 1986, the per capita GNP was US\$354. Significant imbalances exist in the distribution of wealth.

Health Care Sector

Both the public and the private sectors are involved in providing health care services. It is estimated that the public sector contribution to health care facilities is 60%. Recent years have witnessed the increasing size of the private sector due to the economic policies of the government which encourages free enterprise. The government health sector is largely administered by the Ministries of Health, Women's Affairs, Teaching Hospitals, Indigenous Medicine, and Local Government. The services are provided free of charge. The Ministry of Health is responsible mainly for primary, secondary and tertiary health care services, both curative and preventive, while the Ministry of Teaching Hospitals manage some tertiary health care institutions that provide teaching facilities for medical and paramedical personnel. The main function of the Public Health Service is promotion of health and prevention of disease. The establishment of a National Health Development Network, the National Health Council and the National Health Development Committee, and six technical committees, is expected to achieve the necessary coordination of health and health related services at national level.

In 1985, the government health expenditures constituted about 3.6% of total government expenditures, and about 1.7% of GNP.

Table 1. Health Manpower in Position (1984)

Category	Cadre	In Position	Deficit	Required Number	Deficit
1. Medical Officers	2270	1667	603	2416	749
2. Asst. Medical Prac./Reg. Medical Prac.	1179	1115	64	1443	328
3. Medical Laboratory Technicians	550	483	67	1144	661
4. Staff Nurses	8013	7597	416	12500	4953
5. Midwives	4800	4314	486	7767	3453
6. Public Health Inspectors	1097	917	180	2020	1103
7. Hospital Attendants	5435	3756	180	9249	5593

Priority Issues

The main problems regarding health manpower are related to shortages and maldistribution of staff, both geographic and by specialty. The shortages are more acute in the preventive and administrative sectors. Certain main specialties such as pathology, anesthesia, and community health are considered less attractive than other specialties in terms of remunerative opportunities and social recognition. In another vein, manpower shortages are more acute in areas away from the principal cities. Lack of facilities such as good housing, transport, schooling for children are some of the main factors for this situation. In general, the shortages are related to the existing salary structures which are not high enough to attract and retain qualified staff. For some professionals, real wages have declined since 1975. This had led to emigration.

The policy of allowing government medical personnel to have private practices has led to certain problems. Lack of proper control of private practice by governmental medical personnel has led to the shift in the allocation of time of these personnel towards private practice. This has been at the expense of providing basic community health care in government institutions where they are employed.

There is an increasing tendency for health professionals to demand modern and highly advanced medical technology. This has resulted in a greater demand for large capital outlays as well as for specially trained personnel to handle such technology. Can the country afford this?

There are problems of lack of motivation and low productivity. Inadequate facilities and travelling allowances, lack of supervision and effective management, and the mismatch between job and skill requirements are among the root causes of these problems. There is also a lack of proper performance evaluation processes and appropriate incentives and disincentives based on performance.

Finally, there is no systematic manpower planning. There is no coordination between manpower planning and its development on the one hand, and manpower development and health development activities, on the other. Although there is political commitment for manpower development, the required budgetary allocations are not made for recruitment, training and for recurrent expenditures of the needed manpower. The training institutions, on the other hand, lack facilities such as space, trained staff, and teaching aids.

THAILAND

Health and socioeconomic indicators

Thailand is basically an agricultural country, with one-third of its national income derived directly from this sector. In terms of employment three-quarters of the population live off farming. The last two decades have seen a steady and consistent economic growth, tapering off in the later 70's and early 80's. However, income disparity between regions, rural-urban and different occupational groups persists.

The infant mortality rate in 1984 was estimated at 41.3 per 1000 while life expectancy at birth in 1985 was 60.77 for males and 64.76 for females. The leading causes of death (1982-84) are diseases of pulmonary circulation and other heart diseases, gastro-enteritis, accidents and injuries, and malignant neoplasms. The incidence of communicable diseases, especially the immunizable group, are on the decline.

Health care sector

Health care services are provided both by the public and the private sector. The ratio of per capita expenditure on health for the private and public sectors has been about 2:1 (1983). While the figure of expenditure on health in the private sector is higher than in the public, the coverage of services is lower. Provision of health care is not free: between a quarter and a third of its cost is raised for curative services at each level of care. However, families unable to pay are given medical indigent cards and fees are waived.

Table 1. Health Facilities of Public and Private Sectors, 1981

Health Facilities	Public Number	Sector %	Private Number	Sector %	Total Number	%
1. Hospitals	531	77.75	152	22.25	683	100.0
2. Beds	64,206	90.18	6,990	9.82	71,196	100.0
3. Midwifery centres*	1,498	96.27	58	3.73	1,556	100.0
4. Clinics	-	-	6,730	100.0	6,730	100.0
5. Health centres	4,777	100.0	-	-	4,777	100.0

Planning and overall administration of health services are under various departments of the Ministry of Public Health. Most activities are delivered through the MOPH's network of facilities and health workers. The system is three-tiered: health centres at village level, community or district level, hospital and regional or teaching hospitals. Health expenditure is 4.6% of the GNP.

Health manpower

The major issues in health manpower is an uncoordinated approach to manpower development, leading to inappropriate training and ineffective utilization of manpower. Scarce resources make it difficult to employ and retain health workers and consequently there is a chronic shortage compared to the increasing demands. This problem is aggravated in the rural areas.

Number of Health Manpower and Health Manpower/Population Ratio (1983)

Category	Health			Bangkok			Province			Health		
	Total Number of Health Personnel	Personnel/Population Ratio (Total Population) 49.2 mill. in MOPB.	Total Number of Health Personnel/ MOPB.	Others	Total Number	Personnel ratio in Bangkok (Bangkok pop. 5.5. mill.)	Other	Total Number	Personnel ratio in Province (Total pop. in Province 43.7 mill.)	Total Number	Personnel ratio in Province (Total pop. in Province 43.7 mill.)	Total Number
Physician	8,644	1: 5,695	3,148	1: 15,638	610	4,459	5,069	1: 1,092	2,538	1,037	3,575	1: 12,222
Dentist	2,158	1: 23,000	443	1: 111,128	-	1,794	1,794	1: 3,070	-	-	364	1: 120,000
Dental Auxiliary	579	1: 95,025	541	1: 90,997	159	38	197	1: 28,097	382	-	382	1: 114,381
Pharmacist	4,754	1: 10,355	857	1: 57,444	437	3,004	3,477	1: 1,592	384	161	545	1: 80,173
Nurse	24,419	1: 2,016	11,705	1: 4,206	1,440	12,882	14,322	1: 386	10,265	-	10,097	1: 4,327
Practical Nurse	21,497	1: 2,290	13,922	1: 3,536	1,056	6,684	7,740	1: 715	12,866	891	13,757	1: 3,176
Midwife	11,216	1: 4,389	9,302	1: 5,292	-	1,335	1,335	1: 4,146	9,298	583	9,881	1: 4,422
Health Worker	10,403	-	8,932	1: 4,729	-	577	577	1: 9,593	8,932	894	9,826	1: 4,447
Primary Health Care Workers*												
- Village Health Volunteer	38,976	1: 1,260	-	-	-	-	-	-	-	-	38,976	1: 1,120
- Village Health Communicator	375,538	1: 130	-	-	-	-	-	-	-	-	375,538	1: 120

*Cover 39,058 villages which is 71% of the total number of villages.

In its attempt to formulate medium-term and long-term health manpower plans, Thailand has encountered great difficulty in obtaining the information necessary for planning. The available data are not sufficiently reliable to be used as a base-line, and do not provide the basis for improved coordination and decisions. Although a number of studies attempting to estimate the demand for health manpower have already been done, they have not yet been widely recognized due to errors and omissions in the estimation techniques applied. The Ministry of Public Health is able to estimate future requirements of a number of categories of health manpower, since this is undertaken in the process of five-year health development planning. Nevertheless, there is still some difficulty in obtaining the necessary funds to finance the additional recruitment as laid down in the plan. In general, there is an observable shortfall in most categories of health manpower in Thailand compared with the requirements as stated in the development plan. Decisions concerning this disparity are still to be made, since the financial aspects of it have not yet been fully considered.

And, if more health manpower is produced, there might be an emergence of such issues as the excess supply of some categories within the foreseeable future. With respect to the cost of production, government subsidies and cost-sharing, and economic loss due to drop-out and other causes, Thailand is now having to undertake such studies as part of its health manpower development efforts, since they may have far-reaching implications regarding policy, especially as regards better use of limited resources.

The need to reorient medical education is urgent. For example, most medical graduates, after completing their time of compulsory rural health service, tend to move back to urban university hospitals for postgraduate professional training, and then set up practice in the cities. Medical schools are now rotating their students between clinical and community medicine in rural health facilities.

PEOPLES DEMOCRATIC REPUBLIC OF YEMEN

Health and Socioeconomic Indicators

In 1986, the estimated population was 2.2 million, growing at an annual rate of 2.6%. It is a young population with 48% under 15 years of age. Per capita GNP has risen from US\$ 170 in 1970 to US\$ 400 in 1985. Life expectancy for both sexes is 47 years. Based on a 1984 survey, infant mortality rate was 80 per 1000 in urban and 60 per 1000 in rural areas. The major causes of morbidity and mortality are respiratory tract infections, acute infantile diarrhoea, malnutrition, infectious diseases of childhood, malaria and TB.

Health care sector

The country is divided into six administrative regions (Governorates), each of which is divided into sub-regions known as Directorates, which in turn is divided into Districts. Each Governorate has its own Department of Health Services which is responsible for all the health services in the Region.

The health unit is the basic health care delivery station, and is staffed by at least an assistant nurse, or a medical assistant, but the latter may be supplemented by a community nurse midwife and a public health inspector in areas covered by the primary health care programme. Each Directorate has at least one 40-80 bed hospital. The government has a 100-200 bed hospital which is a referral hospital to those in the Directorates, which in turn act as referral levels for the health centres (20-30 beds) in the districts. The Teaching and Specialized Hospitals in Aden act as a tertiary referral level for the Governorate hospitals.

The primary health care programme covers the three largest Governorates outside Aden, and the delivery system is as follows:

- (i) Health Guides: voluntary part-time workers with three months training. The ratio is 1:400 inhabitants.
- (ii) PHC unit: staffed with a medical assistant with three years training, a midwife and a public health inspector. The PHC unit serves up to 5000 inhabitants and supervises the Health Guides.
- (iii) District Health Centre: 20 to 30 beds with a physician and supportive staff. It has a laboratory, X-Ray unit and pharmacy. It serves as the first referral point of the PHC unit.

There is no private sector in the health delivery system in the country. Private medical practice was abolished by law in 1972. Health expenditures are paid by the government in toto. The per capital health expenditure stands at US\$ 124 in terms of recurrent budget only. There is no contribution by the private sector. The government budget is supplemented by the Health Insurance Fund. This was established in 1983.

Health Manpower

Every Yemen graduate, whether locally or from abroad, has the right to obtain employment from the government. The same law applies to health personnel. Salaries for doctors and paramedical personnel have been reviewed and upgraded three times since 1972. In addition to basic salary, various types of allowances are provided.

The Institute of Health Manpower Development, now known as the Central Health Institute (CHI) was established in 1970 to train 14 categories of mid-level health personnel. It is controlled by the Ministry of Public Health. The Faculty of Medicine was added to Aden University in 1975. The Faculty is run by the University although the Ministry of Health contributes heavily to its financing. However, the MOH has no discretionary powers vis-à-vis the Faculty of Medicine, even in its functions as a health training institution. No studies to estimate the cost of education for any category or level of health worker have been done, and no effort has even been made to break down health expenditure figures into basic components.

Priority issues

The problems/issues are as follows:

- (1) inadequate quality of care and an attitude of indifference among the health personnel;
- (2) fewer female enrolment at the CHI especially in nursing and midwifery leading to a shortage;
- (3) low productivity among all categories of personnel;
- (4) extremely poor coordination between the training of health personnel and manpower planning. The faculty at Aden University maintains an indifferent stance to the invitation by MOH for closer ties and coordination in the planning, training and evaluation of health personnel.

In line with the Five Year Plan (1986-1990) the following measures are being taken:

- (1) development of more attractive career structures for all categories of personnel;
- (2) defining and drafting job description for all categories of personnel;
- (3) design and implementation of standard staffing norms from the health unit to the central hospital in the city at all levels of care;
- (4) updating existing legislation and setting new legislation for the licensing, registration and practice of health personnel;
- (5) improvement of the social living and working conditions of the health personnel working in rural areas;
- (6) revision of the training curricula to keep up with PHC trends (except doctors);
- (7) define relationship between the faculty of medicine and other institutions under the Ministry of Health;
- (8) further decentralization of services and strengthening of the managerial process, with special attention to the district level management; and
- (9) updating of the 1982 Health Manpower Projection Plan up to the year 2000.