

## REALISTIC MANPOWER PLANNING FOR PRIMARY HEALTH CARE: PRACTICAL CONSIDERATIONS

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There are a number of ways to look at health manpower planning. Some plans are developed for publication to attract resources from donors, others for practical implementation. This discussion will deal with practical planning for implementable health manpower development programmes appropriate to specific health care needs and adapted to the contexts of specific national health care systems.

### DETERMINING HEALTH MANPOWER NEEDS

In developed and developing countries, studies and plans on manpower supply and requirements have usually been done on a categorical basis - e.g. the supply of physicians, nurses, or laboratory technicians. Many planners make assumptions about future changes in the organisation of the delivery of health services and about the utilisation of manpower in categories other than those being analysed or developed. Too often the implications of increases in the supply of a single category of manpower on the need and demand for other categories of manpower are not taken into consideration. The introduction of new cadres of manpower, either de novo or through re-training of existing health personnel, presents difficulties that have inhibited the development of health manpower appropriate to a country's specific needs and resources.

Adequate objective data for health manpower planning are often lacking. There are no commonly accepted assumptions about the quantity or mix of health professionals and distribution patterns that would provide adequate, accessible care to all individuals. There are numerous methods for estimating the need and demand for health manpower, including:

- (a) techniques using physician/population or nurse/population ratios - these are too simplistic;
- (b) approaches based upon professionally defined criteria - these are subjective and strongly biased;
- (c) methods based on current utilisation rates of health services by a defined population group with access to comprehensive health services - these are insufficiently applicable since too much variation is possible;
- (d) economic methods, including econometric modelling - these produce apparently rational figures, but

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frequently they are too complex and assumption-ridden to be realistic; such methods ignore the irrationalities of the system, and they arbitrarily place values on phenomena to which it is difficult or impossible to ascertain numerical values.(1)

These methods have serious drawbacks. Most of them deal with the projection of manpower needs on a categorical basis, in isolation from one another. Frequently they are also isolated from the reality of services that are needed - services that often can be provided by personnel with less sophisticated but more appropriate training. Nevertheless, we have to live with these methods because planners have to offer and support systematic estimates of personnel needs in order to obtain resources for health programmes. Task analyses of the jobs that need to be performed could economise efforts and resources. To determine effectively an appropriate manpower mix requires ending the isolation of health manpower planning from the realities of the health workers' jobs in the field - that is, from the implementation process.

This is the thrust of this discussion, a thrust that has been given impetus by Alma Ata, other WHO initiatives and the work of individual countries diligently strengthening the delivery of basic services to their populations. A component of this thrust includes incorporating the linear, rational thinking of the planner with the unpredictable, irrational activity inherent in any social system. Consideration needs to be given to non-static political environments, dwindling resources, and elevated popular expectations. One must attempt to develop the possible rather than the improbable (and know the difference between the two). It should be apparent that health manpower planning needs to be focused on the provision of primary health care services utilising the most appropriate health personnel, in contradistinction to planning around established personnel categories only.

#### PROBLEMS FACING HEALTH PLANNERS

No single model for planning primary health care programmes has universal application. Circumstances vary significantly from country to country. However, a review of the experiences of many programmes indicates that there is a great deal of commonality in health sector problems and in the general approaches proposed to solve these problems. The problems facing health planners in much of the developing world include the following.(2)

Lack of a clear national health policy, leaving health planners without guidelines for programme development.

Low priority for health. Health receives a low priority in the development programmes of many countries, and health officials must compete for limited financial resources with more economically appealing industrial or agricultural programmes.

Imbalances within the health sector, giving rise to emphasis on curative rather than preventive/promotive services, urban rather than rural coverage, hospital rather than ambulatory care (particularly in allocation of funds and staff), quality rather than

quantity of care, high technology rather than appropriate technology, training of doctors rather than of auxiliary health workers, and scientific rather than traditional medical practice.

### Shortage and maldistribution of scarce resources

#### (a) Health manpower

- (i) Limited numbers of health workers, particularly doctors and nurses. Ratios range from one doctor per two thousand persons to one per seventy thousand.
- (ii) Inappropriate training of health workers, particularly for the health problems and working conditions of rural areas.
- (iii) Maldistribution of health workers. It is extremely difficult to induce doctors and other highly skilled staff to work in rural areas. It is unlikely that this difficulty will be overcome in the near future barring major social and organisational change in many countries.
- (iv) Inadequate definition of roles and insufficient delegation of simple tasks to individuals with less sophisticated but more appropriate training.
- (v) Inadequate utilisation of traditional healers and birth attendants.

#### (b) Facilities, equipment, and supplies

The limited capital available for initial purchase of equipment and supplies is an impediment to expanding services. This limitation is compounded by supply management problems, including transportation and communication difficulties that hinder distribution of supplies, and lack of capability for equipment maintenance and repair.

#### (c) Finances

Shortage of funds is a chronic problem for the health service system in most countries. Constant vigilance is required to insure that new programmes are affordable and that recurrent operating funds will be available for such programmes.

Inadequate population coverage. It is difficult to achieve adequate health service coverage of mobile or widely dispersed populations - e.g. island communities separated by ocean, villages isolated by rugged terrain (jungle, mountains, vast roadless lands).

Under-utilisation of existing services and resources is a problem in many areas. Planners must identify the reasons for under-utilisation, if past impediments are to be successfully avoided.

Insufficient or ineffective use of health education.

Insufficient community participation in programme planning and the operating and financing of health services frequently results in services which a community may not understand, desire, or use. Countries that have improved health services rapidly have paid special attention to community attitudes and participation and have sought maximum community participation.

Insufficient and inappropriate training resources - educational materials, inappropriate training systems, and inadequate numbers and quality of trained tutors - hamper development of necessary health manpower and may give rise to inappropriate training for the tasks required. This problem is particularly characteristic in the training of auxiliary primary health care manpower.

Inadequate attention to, and resources for, environmental sanitation, such as unsafe water supply, insanitary waste disposal, and poor or non-existent vector control.

#### APPROACHES TO HEALTH MANPOWER DEVELOPMENT

A variety of approaches are used around the globe to develop manpower to deliver primary health care services. Until recently, primary health care was thought of as curative services provided by doctors, assisted by legions of nurses and other support personnel. This hospital-based model is the predominant practice of developed countries and has been the goal developing nations have attempted to reach. It has taken a long time for health planners to recognise that this high-level, resource-intensive approach to health services is unrealistic because of excessive costs and continued inadequacies in coverage. There is now growing awareness that a plethora of doctors is not a panacea for the myriad of problems associated with the delivery of health services.

Third World countries have been in the forefront of the development of more appropriate methods to provide health care services to their people. Many developing countries have realised that the traditional, highly intensive medical care provided by elaborately trained professionals working in expensive urban hospitals reaches only a few of their people. A more desirable model relies on the services of mid-level and community health workers widely deployed throughout the country, especially in the rural areas. Such a model for the provision of primary health care services can reach many more people and makes better use of severely limited resources. This new model for primary health care services also pays attention to the provision of preventive and promotive health care (immunisation, safe water supply), and thus the demand for curative services is reduced. Numerous developed nations are now agreeing that the high-technology, traditional model is inappropriate, and they too are beginning to make changes in their health care delivery systems to reduce costs and to improve accessibility.

During colonial rule and after independence, many countries developed mid-level health workers\*, under central control but without peripheral connections. The workers were successful up to a point and for limited population coverage. These programmes were oriented primarily towards the training of health workers, without adequate concern for their support within the health care system. Emphasis was placed on tutor training, with little concern for the development of appropriate and relevant curricula based on an analysis of the tasks the workers would be expected to perform. Training usually was modelled on medical school curricula. Too frequently students did not acquire the necessary knowledge and skills when taught by traditional methods.

There are newer methods and technologies available, although some programmes will continue to use abbreviated medical school curricula to train mid-level workers. Other programmes are training health workers based upon manuals prepared by individuals and international organisations. Others use training methods such as the flow-chart or algorithm technology. Newer still, competency-based training will be discussed later in this paper.

China's dramatic emphasis on community health workers called attention to possibilities that country-wide basic health services could be provided at the periphery if there were national commitment to do so, and if national resources could be mobilised. The use of barefoot doctors in China undoubtedly influenced the World Health Organisation to alter drastically its concept of acceptable means for provision of health care services. The World Health Organisation began to promote the use of peripheral primary health care workers, and stimulated some developing countries and bilateral donors to support this movement. Recently, however, health professionals have become aware of serious problems associated with the training of community health workers in isolation from the rest of the health system. Since there is no Journal of Negative Results, only through informal communications which transcend politics have health professionals learned that programme failure is almost assured when programme design omits certain elements, such as strengthening management support in such crucial areas as supervision and logistics.

In planning the strengthening of a primary health care programme to improve the quality and quantity of services, including increased population coverage, particular attention must be given to the following.

Analysis and projection of health needs and the demand for services.

Enumeration of all types of existing health workers. This analysis should include paramedical workers and indigenous practitioners and healers, assess their productivity, and weigh the potential for upgrading these workers to become better providers of primary health care. Subsequently, specific task analyses and

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\* called in various countries: medical assistants, nurse practitioners, medex, physician assistants, feldshers, medecin Africain, etc.

job designs should be made, as foundations for the development of appropriate manpower.

Estimation of future health manpower requirements, in both qualitative and quantitative terms, and training needs in light of the overall health programme.

Detection of present and future imbalances between estimated manpower requirements and expected supply.

Assessment and strengthening of the existing management infrastructure for the health service system within which present health manpower function, including organisational structure and supervisory capability, and management systems of transportation, communications, drugs and supply, health information, facilities and equipment maintenance. (3)

## EIGHT PROBLEM AREAS

There have been numerous primary health care demonstration programmes involving mid-level and/or community health workers, but many have failed to make significant contributions to health care coverage for a number of reasons. The MEDEX group in Hawaii has examined the experience we have had in seven years of collaborating with five developing countries that have planned and implemented primary health care programmes, and we have gleaned information regarding the successes and failures of primary health care programmes in twelve other nations. In analysing these experiences, we have identified eight major problem areas. Consideration of these problem areas allows health planners to approach, in a logical and organised manner, key problems in the development of a multi-tiered health manpower infrastructure that will be the backbone of a national health care system.

First, a broad base of support is needed to bring together government policy-makers, training institutions, organised medicine, practising doctors, and others with vested interests in health care as part of the planning process. Together, they will offer the protective backing needed for the programmes to sustain themselves. Experience also dictates that a national commitment is needed if such a programme is to have significant and lasting impact.

Second, a receptive framework, within which new types of workers can perform, must be developed. Adequate pay and a new place in the personnel structure of the existing health system for the new personnel need to be secured. It is imperative that mid-level and community health workers be given a positive image that does not connote inferiority. There will be role dissatisfaction unless the image of these workers is positive, firmly established, and widely known. To aid this process, the primary health care worker could have a distinctive uniform as well as a special title in countries where these are considered important. The community should be involved in selecting candidates for training and in the planning process for the development of community health services. To prevent the community from feeling that they are getting "second class" care, some of these health workers should be assigned to the regional hospital out-patient

department and the rural primary care referral centre so that rural people will recognise that they are getting similarly appropriate care near their home.

Third, management capability, an area which is increasingly being recognised as the adhesive that holds primary health care systems together. Lessons from the successes and failures of other programmes are not difficult to find. Management capability is the key to successful programme implementation, operation, and replication. Special attention throughout programme planning and operations often needs to be given to an organisational structure that can provide a sound framework for supervision and support, and to management systems analysis and improvement in finance, personnel, facilities/equipment, supply, transportation, communication, and information.

Fourth, there must be involvement of doctors in developing the curriculum and in the teaching of curative care activities. Doctors must be involved because they feel and express responsibility for the quality of medical care practised in their country and are the ultimate referral point. If doctors design and help implement the training and then help supervise the workers (directly or indirectly), they will become strong supporters of the primary health care concept.

The fifth problem area is appropriate training. The abbreviated medical school model can be used or similar approaches based upon task analysis; however, competency-based training methods are now accepted in many countries as the most economical, effective, and resource conserving technology for developing countries. Based upon task analysis, the training is problem-oriented so that irrelevant knowledge is omitted from the curriculum. It is designed to assure that all students acquire all of the skills and knowledge required for competent performance of their specific primary health care roles. If this method is used, students are trained at low cost and in the shortest possible time. The training should be in rural areas if possible and trainers should have rural experience in both preventive and curative care. It is critical that attention be paid to communication and organisational skills. The University of Hawaii's Health Manpower Development Staff (the MEDEX group) is developing and testing a set of prototype modules that can be adapted to the specific needs of individual countries for training mid-level and community health workers. These modules constitute a competency-based curriculum that covers well-focused content areas and yet allows curricular flexibility. There are additional advantages to this modular approach: new curricular elements can be added or deleted with ease, achieved competence is easier to test, and the modules can combine a variety of educational methods and activities. The modular approach can also be used for continuing education.

With specially prepared modules, medex\* trained by the modular system can train more peripheral workers (community health

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\* To avoid confusion, medex is used in this discussion as a generic term to encompass all mid-level health workers.

workers), thereby creating a multiplier effect. If handled adroitly, this multiplier effect can be used to provide primary health service coverage to the majority of a country's population in a relatively brief time. To achieve this, doctors train and supervise medex. The medex, in turn, train and supervise community health workers, using a modular format that is similar to - but less sophisticated than - the modules used to train medex. The content of the community health worker modules is simplified, and there are other adaptations necessary for the training of less literate students. This system provides a unique training and supervisory interlock. This interlock and the resulting multiplier effect reduce the need for large centralised training institutions and conserve other scarce resources. In addition to covering curative, preventive, and promotive health, the modules also teach the needed skills of mid-level and peripheral management to these new health workers. Unlike doctors and nurses in developing countries, who are usually trained to a universally accepted standard, medex and community health workers are country-specific. The out-migration or "brain drain" of these categories of workers therefore will be minimal.

#### LIST OF STEM MODULES

Designed by the health manpower development staff, John A. Burns School of Medicine, University of Hawaii.

##### Core skills

Anatomy and physiology  
 Medical history  
 Physical examination  
 Causes of diseases  
 Formulary

##### General clinics

Common skin problems  
 DEENT problems  
 Respiratory system and heart problems  
 Gastro-intestinal problems  
 Genito-urinary problems  
 Infectious diseases  
 Common medical conditions

##### Trauma and emergency

Trauma and emergency

##### Maternal and child health

Problems of women  
 Child care  
 Family planning  
 Diseases of infants and children  
 Pre-natal and post-natal care  
 Labour and delivery

##### Community health

Community environmental health  
 Community family planning  
 Community nutrition

##### Community health work

Diarrhoea and dehydration  
 Nutrition  
 Hygiene  
 Clean and safe normal delivery  
 High-risk pregnancies  
 Community co-operation  
 Common clinical problems  
 Family planning I & II

##### Management

Organising and managing health services  
 Utilising management support systems  
 Evaluating and planning work  
 Supervising health team members

Sixth, to develop medex and community health workers without a deployment system is a major reason for the failure of many programmes that train health workers. In most instances, community health workers should be selected by and from the communities they are to serve. Where feasible, this should apply to medex as well. In any case, each medex should be destined for an area of serious need even before he is trained. He should not be trained and then allowed to settle in a comfortable and desirable location where usually there is less need for his skills. Where he will work following training should be pre-determined, and no effort should be spared to assure that he is assigned to the pre-determined location. Otherwise programmes such as these will have little long-term effect. In addition, if government priorities are not fully committed to providing adequate salary, housing, supplies, equipment, and supervisory personnel for rural health, one might as well not train these people. There has to be an adequate and on-going organisational and management infrastructure. Workers have to have adequate career security. Otherwise personnel will offer only curative care services (since villagers reward this behaviour), or they will migrate to urban areas. In other words, the medex and community health worker must have incentives to do a good job. These incentives are different in each culture and must be individualised.

Seventh, a continuing education and professional development programme must be implemented. Skills will decay if workers are not supervised, if performance is not routinely evaluated, if weaknesses are not identified and corrected, and if continuing training is not provided. Socially and educationally isolated in harsh rural environments, these exceedingly important contributors to development need to be satisfied in their jobs to be effective. They should not be deployed and forgotten. Attention to personal needs and desires for increasing skills should be recognised and fulfilled.

The eighth basic problem area is a health information feedback, evaluation, and planning system. This system should provide timely and accurate information on all aspects of the primary health care system, and the means for adjusting and improving training and programme management. Close attention must be paid to political as well as operational issues.(4)

These eight problem areas have become basic elements in a productive approach to improved health service coverage. They are areas to be considered following delineation of the services needed to initiate or strengthen a primary health care system using appropriate manpower as its action thrust. Initiating or strengthening primary health care systems with the MEDEX approach has added advantages: it is flexible and can be quickly adapted to solve country-specific problems, and it can be implemented and integrated into an already functioning health system. Consideration of these eight problem areas allows development of a planning and design approach to manpower needs for primary health care which has flexibility within a proven framework. Each country will handle these problem areas differently. However, with this approach to design and planning, the major elements of a successful primary health care programme with appropriate manpower are identified for appropriate action.

MEDEX is an approach to designing and implementing programmes which develop an appropriately supported manpower infrastructure to deliver basic health services throughout a country. Once developed, the functioning infrastructure can be the bulwark of a national system that extends and integrates the horizontal, inter-sectoral aspects of primary health care. Such a system should provide adequate means for permanently sustaining vertical programmes (e.g. immunisation, nutrition, child spacing, environmental sanitation) that are often crippled when interest in them and resources allotted to them diminish.

The MEDEX approach is a composite distilled from the experience of many professionals, based on their reported and unreported work in manpower training and primary health care planning. MEDEX staff members themselves have worked in more than seventeen developing countries. Their experience has been forged into an approach to improving and expanding primary health care. It is a clearly-defined but flexible systems approach to strengthen the delivery of country-specific primary health care services in the Third World. This approach emphasises systems planning and management, in addition to the training and deployment of mid-level and community health workers. The objective is to develop primary health care programmes which include the strengthening of planning, organisational structure, training, and management support systems necessary to extend and sustain basic, integrated, preventive, promotive, and curative health services on a nationwide basis, from the centre to the rural periphery. The first International MEDEX Network Conference, held in Honolulu in October 1979, verified the validity of this approach. Representatives from countries with MEDEX-type programmes (multi-tiered primary health care manpower) agreed that the major problems they had to solve in developing their programmes were encompassed under the categories discussed above, even though the conference participants represented countries with widely different geographic and social circumstances such as widely scattered island populations (Micronesia), small countries with difficult terrain (Guyana and Lesotho), and a large, heavily populated nation (Pakistan).

Health planners utilising the MEDEX approach feel that government health systems should have the following characteristics to improve and sustain primary health care services:

Planning capability

MOH planning evaluation system  
Integration  
Planning (integrating organisation and planning with resource allocation)

Management capability

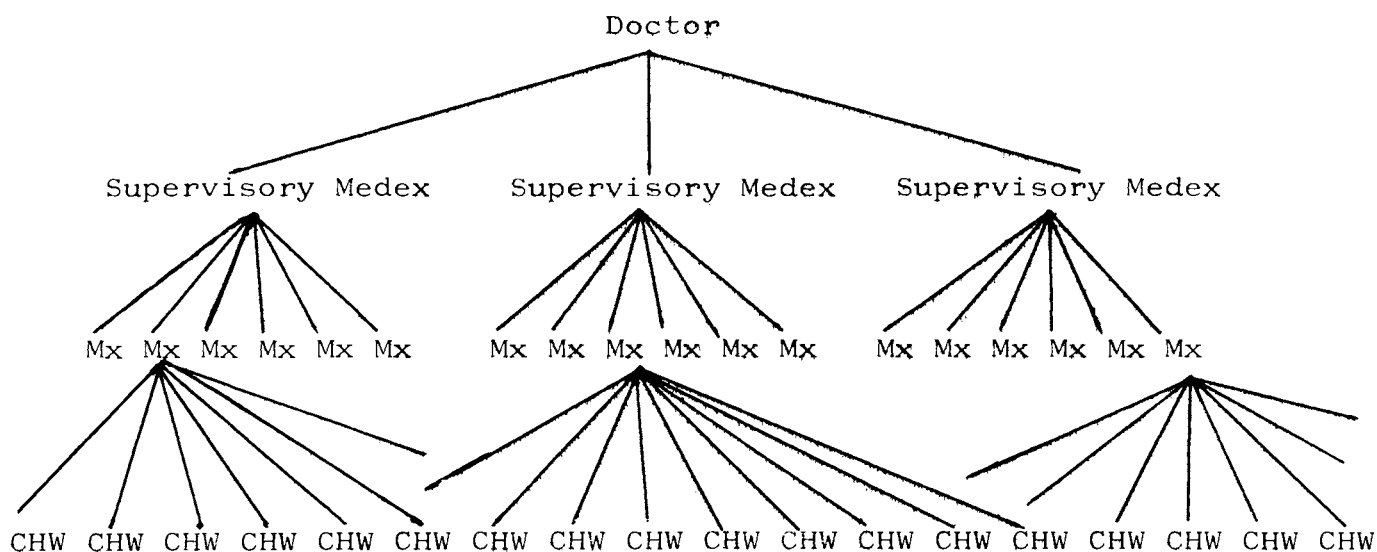
Organisation of delivery system (including supervisory structure)  
Management systems' Analysis & implementation:  
Finance  
Personnel  
Facilities/equipment  
Supply  
Transportation  
Communication  
Information

Training capability

Community health workers  
Mid-level workers  
Tutors  
Supervisors  
PHC physicians  
Health service administrators  
Management training (for all levels)  
Continuing education (for all levels)

↕ integration with health and other developmental systems ↕

This type of approach to primary health care makes it possible to expand services without excessive financial investment. The key to the system is the mid-level workers or medex, who serves as a "boundary spanner". This worker provides a liaison between central or regional resources and the community, and bridges the cognitive and social distance between doctors and the community health workers. Re-training of health workers already employed by the government (e.g. medical assistants, nurses, malaria workers) to become new kinds of primary health care workers conserves resources. The medex train and supervise community health workers near their villages without the creation of more expensive training institutions. The deployment and multiplier effect of this training/supervisory interlock resembles the following:



This paper has described an approach to planning improved and expanded primary health care systems based upon new manpower configurations. It is hoped that the review of problems confronted by those responsible for delivering primary health care services will prove useful to planners. Flexibility and the capacity to adapt and glean appropriate experiences for local consideration are important for planners who want to develop successful health programmes with significant social impact.

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