Health Manpower

file: health manpower (new)

Mrs. N. Bridges

WORLD BANK / INTERNATIONAL FINANCE CORPORATION

9/25

Nancy: I thought you would be interested in seeing, and perhaps distributing, the attached selected papers from the recent CIOMS Conference on Health Manpower.

Best wishes.

Larry

P-1852

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"HEALTH MANPOWER OUT OF BALANCE: CONFLICTS AND PROSPECTS"

XXth CIOMS Conference

Acapulco, Mexico - 7-12 September 1986

PLENARY SESSION I

Major Concepts of Health Manpower Imbalances

"World Situation on Imbalances"

Bui Dang Ha Doan

(Manuscript)

HEALTH MANPOWER IMBALANCES IN THE 90's :

A WORLDWIDE PANORAMA

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INTRODUCTION

Since the end of World War II, there has been a tremendous expansion of health manpower in nearly all countries of the world, parallel to an unprecedented growth of the demand for health services. However increase in the size of health personnel, instead of correcting the various imbalances, aggravated them considerably. At the world level, the gap between the developed and developing countries, as concerns availability of health manpower, was widening. Within national boundaries, geographical maldistribution of nurses, physicians, dentists, pharmacists and allied personnel, which had been evident for a long while, did not reduce. The mix of the various health professions appeared in many places highly unsatisfactory. In certain countries, highly-qualified personnel were lacking ; in other places, their number was sufficient but intermediate-level categories were in shortage. In a great number of countries, medical specialists grew at a faster pace than general practitioners and the increasing scarcity of the latter became a subject of concern.

The above picture was that of the 60's and the early 70's. Moreover, at that time, in many countries if not in all, due to the fast-growing demand for care, a strong feeling of health manpower shortage, and in particular of physician shortage was spreading among health professionals, decision-makers and the public as well.

Ten years later, in the middle of the 80's, all these imbalances have not disappeared. In many countries, they remained unchanged or even aggravated. But the novelty is that in other countries, *new trends have emerged* and health manpower imbalances have drastically changed their outlook. The panorama of health manpower in the world scene is now becoming more contrasted and more diversified than ever.

The present paper is an attempt to describe all the "classical" imbalances of the 60's and 70's as well as the new imbalances of the 80's. The term of "imbalance" is used here in its strict meaning : it is

only concerned with the quantitative aspects of health manpower (size, distribution... etc...) and does not deal with those non-quantitative aspects such as poor training, mismanagement, bad planning or unsatisfactory morale (1). These very important topics, for which it seems preferable to utilize the term of "irrelevance", are beyond the scope of the present paper.

From a worldwide perspective, five health manpower areas, inter alia, are plagued nowadays with imbalance ; (i) international distribution ; (ii) intra-national distribution ; (iii) international migration ; (iv) occupational and institutional mix ; (v) supply of physicians. The latter is specific to medical doctors whereas the four former are common to all health manpower categories.

1.- INTERNATIONAL MALDISTRIBUTION

1.1.- Health manpower is unevenly distributed among nations ; moreover, the absolute gap between well-staffed countries and underserved countries, instead of diminishing, is widening.

It is well-known that health manpower is unevenly distributed around the world. In 1980, the number of physicians per 100 000 population was 249 in Belgium, 276 in Czechoslovakia but only 6 in Benin. At the same date, the U.S.A. had 56 dentists per 100 000 population but the ratio decreased to 15 in Panama and 3 in Oman (2). Moreover , the spread of inequality between nations varies according to the health manpower category dealt with. Generally speaking, the health professions which record higher manpower/population ratios (or densities) are also those scoring larger dispersions. In 1975, there were in the world per 100 000 population about 153 nurses and midwives, 87 physicians and 15 laboratory technicians. At that date, the standard deviation, which measured the dispersion of national densities was in absolute terms, 16.1 for nurses and midwives, 6.8 for physicians and decreased to 1.4 for laboratory technicians (3). The higher the density of a profession, the more dispersed this density among nations. Sanitarians, radiological technicians (or radiographers), laboratory technicians, have on the average low manpower/population ratios (or densities) and the variation of these ratios among countries is relatively weak. On the opposite side, physicians and the nursing-midwifery group, who have higher densities, experience wider disparities of these among nations (Fig.1). Statistically speaking, a higher value of the mean is often correlated to a higher value of the standard deviation. For this reason, the coefficient of variation, which measures the dispersion in relative terms, is often used, as stated below.

The disparity of the density of health professions on the international scene is specific to each of them. However, within each profession, disparity does not proceed by chance, "without reason" : there exists an overwhelming reason behind the dispersion of national densities of health manpower, which is of an economic nature.

Fig. 1 WORLD 1975

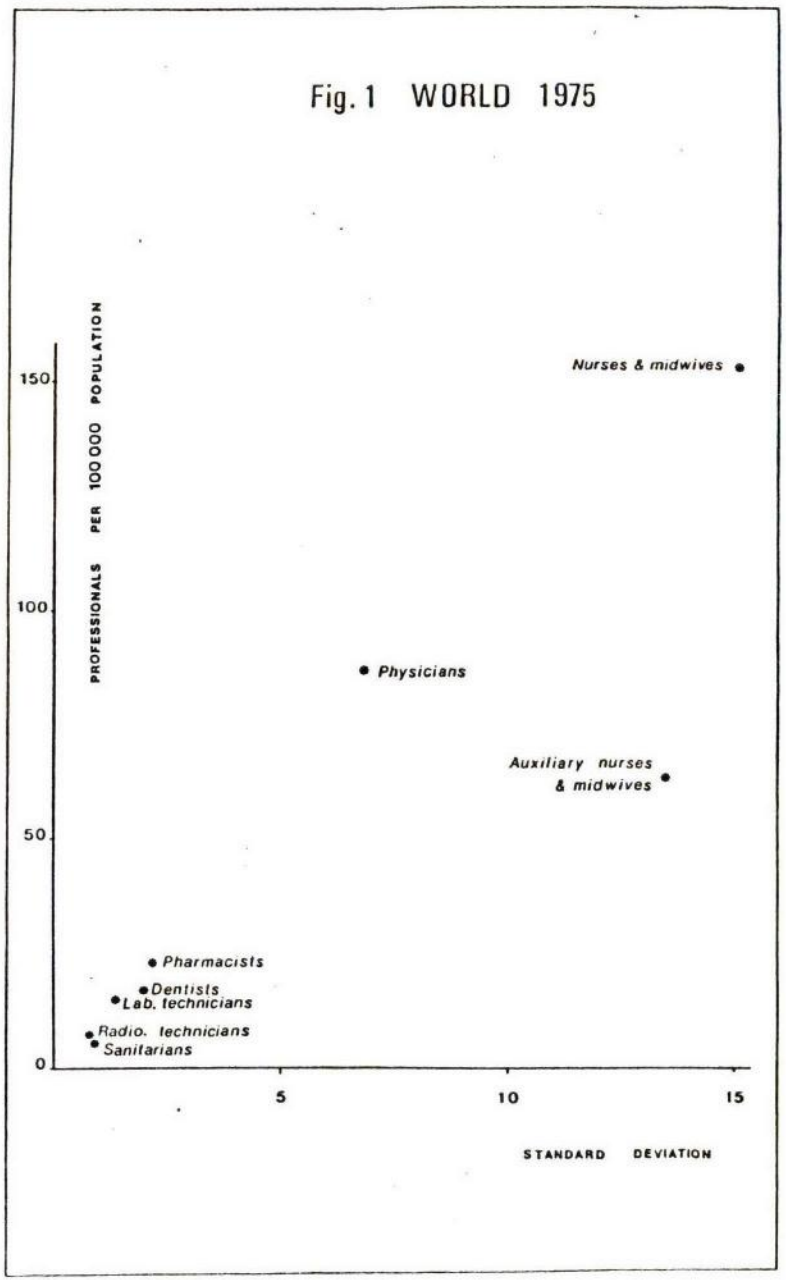
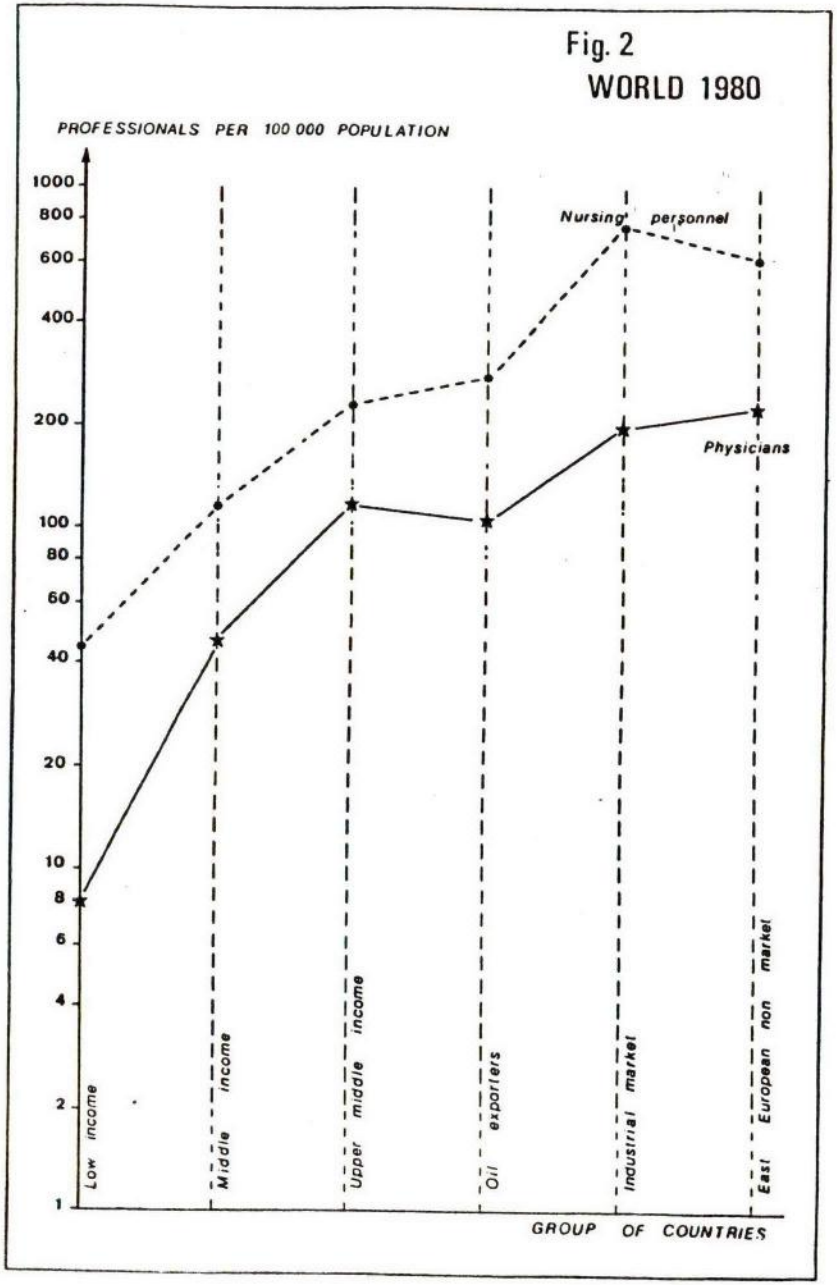


Fig. 2 WORLD 1980



According to a classification scheme of the World Bank (4), the nations in the world are gathered into 6 income-level groups : (i) the low income countries which had a Gross National Product (GNP) per capita equal or lower than 400 US dollars in 1983 ; (ii) the middle-income countries with GNP per capita between 400 and 1 500 US dollars in 1983 ; (iii) the upper-middle income countries ; (iv) the high income oil exporters i.e. those in the Middle East ; (v) the industrial market economy countries ; (vi) the East European non market economy countries. In 1980, the low-income countries registered on the average only 7.9 physicians per 100 000 population, whereas the group of industrial market economy countries had more than 197 physicians per 100 000 population. The physician density of the group of East European non market countries was even higher since, on the average, they had 236 physicians per 100 000 population (Table 1). In other words, the physician density of the East European countries is as much as 30 times that of the low-income countries. As concerns nursing personnel, the low-income countries had on the average 44 nurses and auxiliary nurses per 100 000 population while the ratio rose to 625 in the East European countries and 785 in the industrial market economy countries (Table 2). The less wealthy a country is, the less it is staffed with health manpower (Fig. 2).

During the last decades, all groups have raised their staffing level. The increase was spectacular among the oil-exporting countries of the Middle East : from 1965 to 1980, the gain of this group was 142 nurses and auxiliary nurses, and 66 physicians per 100 000 population. This means a 15-year gain of + 110 % for nursing personnel density and + 165 % for physician density. Such a growth was rendered possible by massive immigration of foreign health workers, especially from India, Pakistan, the Philippines, the Republic of Korea... During the same period 1965-1980, the groups of countries scoring the smallest gains were the low-income ones (for physicians) and the middle-income ones (for nursing personnel). The low-income group had 7 physicians per 100 000 population in 1965 and 7.9 fifteen years later. The gain was + 13 %, whereas the industrial market group raised its physician density by + 52 % and the East European group by + 51 %. In general, the less

rich a country is in health manpower resources, the less its staffing level increases. Needless to say, such a differentiated pace widens the gap between nations. As concerns the physician density, the standard deviation of all the countries studied was 59.6 in 1965 but rose to 91.2 in 1980. As concerns the nursing personnel density, the standard deviation of all the countries studied grew to 319.8 in 1980 from 210.3 fifteen years earlier. Nevertheless, in relative terms, the disparity, as measured by the coefficient of variation, did not widen at the world level for physicians (Table 1) and was slightly reduced for nurses (Table 2). In short, during the 1965-1980 period, at the world level, inequality between nations widened in absolute terms but not in relative terms. However, within certain groups of countries, inequality became more pronounced, both in absolute and relative terms.

1.2.- International maldistribution of health manpower is not an isolated phenomenon but is rooted in broader social and economic context.

The countries having higher physician densities are also well staffed with other health professionals. On the opposite side, those which are poorly staffed with physicians are also underserved by other health manpower categories. There are of course many exceptions but at the world level, this rule of "integrated poverty" is constantly observed.

Moreover, taking all health manpower as a whole, one can see that its distribution around the world is not only related to the economic wealth of countries (as stated in section 1.1.) but is correlated to a large range of social and economic factors (Table 3). The countries which are poorly staffed with health personnel are also those having weak educational levels, low life expectancies at birth, insufficient daily supply of calories. The countries which record high health personnel/population ratios have also high standards of nutrition, good educational levels, low mortality rates.

The close relationship of health manpower staffing and the broader social and economic context explains to a large extent that

during the last decade, there was a reduction of the health manpower/population ratio in certain developing countries. In Papua New Guinea, for instance, the physician density decreased to 6 per 100 000 population in 1980, from 7 in 1975 and 9 in 1970. In Vanuatu, physicians per 100 000 population numbered 20 in 1980 but 27 twenty years earlier, in 1960. In Grenada, physician density fell to 23 in 1978 from 28 in 1968. In Mozambique, physician density was 3 in 1980, from 7 in 1968 and 6 in 1971. In Uganda, there were 4 physicians per 100 000 population in 1980, from 8 in 1969, etc... (5). Political change, withdrawal of the ancient colonial powers and their nationals, social upheaval, economic regression, war, etc... contributed to lower the health staffing level of certain countries during the last decade. Even if they are small nations, such a regression is a more-than-disturbing feature.

2.- INTRA-NATIONAL GEOGRAPHICAL MALDISTRIBUTION

2.1.- In each country, health manpower is attracted towards certain provinces, and others, especially those with large rural areas are underserved ; the underlying economic constraints of such an imbalance make it difficult to reduce.

Within each country, health manpower is not geographically distributed on the same pattern as the national population it has to serve. Certain provinces have a relatively high manpower/population ratio (or density), others, on the contrary, are obviously underserved. In Senegal, for instance, the province of Cap Verde had in 1975 nearly 27 physicians per 100 000 population whereas the province of Sine Saloum had only 1 physician per 100 000 population. On average, the physician/population ratio in Senegal was 7 in 1975 (6). Senegal is not an exception but a rule, and the rule applies to the developing and the developed countries as well. In Italy, the number of physicians per 100 000 population in 1981 ranked from 223 in the province of Basilicata to 464 - more than double - in the province of Lazio, where Rome is (7). In Cuba, in late 1978, the province of Gramma had only 55 physicians per 100 000 population whereas the ratio rose to 72 in the province of

Las Tunas and to 158 in that of Matanzas (8).

The striking feature is that geographical maldistribution of physicians is rarely compensated by a different distributional pattern of other health personnel categories. The areas which are relatively well-staffed with physicians are also well-staffed with pharmacists, dentists or nurses. The areas which are underserved by physicians do not benefit from a larger pool of other health professionals. The provinces of Sine Saloum and Diourbel, which have the lowest physician/population ratio in Senegal, are also the poorest in terms of other health workers (Table 4). At the other side of the scale, the province of Cap Verde, which hosts Dakar, the capital of Senegal, shows the highest ratio in every health manpower category.

Health manpower is attracted towards the economically developed areas in each country, as is all the labor force of the service sector. In other words, health manpower is concentrated in the areas which have the highest income. In Brazil, for instance, geographical distribution of physicians closely follows that of the economic wealth (9). The province of Sao Paulo, which gathers only 19 % of the Brazilian population, captures however 36 % of the national income and 25 % of the medical profession (Table 5). At the other extreme, the "Nordeste", which is the poorest area of Brazil, has 30 % of the population but produces only 14 % of the national income and gathers 14 % of the Brazilian physicians.

As the economically developed areas are always the urbanized ones, there exists an urban-rural imbalance of health manpower distribution in every country. In fact, in most cases, the strongest determinant of inter-province inequality in health manpower distribution lies with urban-rural imbalance. In the early 70's, the physician/population ratio of the rural areas in Venezuela did not exceed one third of the physician/population ratio of the urban areas in the same country. Rural physician density represented 20 % of urban physician density in Morocco, 11 % in India, also 11 % in Nigeria, less than 4 % in Ethiopia. The poorer the country, the broader the gap

between towns and the countryside (10).

Urban-rural imbalance is not only caused by the unwillingness of health workers "to go to the people" but is also rooted in other factors. Among these, one has to quote the economic constraints which concentrate most of the service sector in the urban areas. In the field of health service delivery, this means that, on the basis of the same working time, the number of patients visited by a physician or a nurse is much higher in towns than in the rural areas. Among the various rural areas, decreasing productivity is similarly observed as their "rurality level" rises. A survey conducted in 1978 in France shows that the weekly number of patients visited by a physician both at his office and their houses decreases sharply between the densely-populated rural areas and the very remote ones. On average, a physician visits 129 patients a week in the densely-populated rural areas. This number decreases to 120 in the medium-populated rural areas, to 118 in the low-populated rural areas and 112 in the very remote areas (11). Parallely, the weekly number of kilometers traveled by a physician for home visits increases from 361 in the densely-populated rural areas to 392 in the medium-populated rural areas, 441 in the low-populated rural areas and 503 in the very remote areas. The more remote the area, the lower the productivity of the physicians and the heavier the burden of all kinds they have to endure. The same applies to other health professionals and explains why all the efforts deployed to correct urban-rural imbalance are not entirely successful so far. Some countries however have obtained a good score in stabilizing the health service deprivation of their rural populations, by creating mobile rural health teams, by implementing incentives for health professionals to serve in the remote areas and, last but not least, by training community health workers who serve "on the spot" (12). These strategies aimed at achieving the goal of Health for All through Primary Health Care (HFA/PHC) constitute a hope today for million of under-privileged human beings.

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In this connection, the success of Hungary in controlling the growth of the medical manpower in its capital, Budapest, is noteworthy

(Table 6). During the 1970-1975 period, the physician/population ratio increased in Budapest from 460 by 10.7 %, while the ratio in the rest of Hungary increased from 171 by 14.6 %. During the 1975-1983 period, increase of the ratio was 15 % in Budapest but reached 24 % in the rest of Hungary (13). It remained that in 1983 the ratio in Budapest was as much as 2.4 times the ratio in the rest of the country.

Urban-rural imbalance, as concerns distribution of health personnel, will probably continue in the foreseable future. Moreover, in many countries of the developing world, there is a serious risk of the gap widening drastically in the coming years, due to the growing rural population. According to the United Nations 1982 projections, the rural population of all the developing countries, which numbered 1971 million in 1970 and 2 343 million in 1980, will rise to 2 892 million in the year 2000 (14). No doubt that an urgent need is felt for new thinking and bold decision-making in the matter of organization of the whole health system in view of such a challenge. HFA/PHC provides hopefully a path for such a new thinking.

2. 2.- Another imbalance will arise from the fast-growing slums in the Third World from where the urban poor have nearly no contact with health personnel.

However, trends in recent years are showing a new type of imbalance, that contrasts the various parts of the large agglomerations, especially in the Third World. Under different vocables, "slums", "favellas", "villas miseria", "bidonvilles"..., the rural-to-urban migratory streams have created a great number of shantytowns on the periphery of the great cities. The people who live there are deprived of all sanitation, hygiene, and health services. The conditions of life and work in the urban slums, overcrowding, unemployment, stress, violence, etc... sometimes are worse than those which prevail in the rural areas. "Through Brazil, millions of people are abandoning the countryside and flocking to the cities in search of a better life. What they often find instead is unemployment and poverty... In Rio de Janeiro, for instance, one-third of the city's nine million people live in favelas or

shantytowns.... Recife is the largest city in Brazil's vast equatorial northeast, where a drought in the interior has swelled the number of people on the streets to 4 million" (15). At the world level, the situation is not better and urbanization trends announce its worsening in the near future. The average annual growth rate of the urban population during the 80's will be 3.5 % in the developing countries while it will be only 1.1 % in the developed countries and 2.5 % for all the world (Table 7). According to the United Nations 1982 projections, the urban population in the developing countries will grow to 1959 million in the year 2000 from 974 million in 1980. During the same period, in the developed societies, urban population will increase to 992 million from 802 million (14).

Moreover, according to the same source of projection, the urban population growth in the Third World will be mostly directed to the big metropolis of population of 1 million or more whereas the relative importance of small and middle-size cities will be reduced. Out of 100 urban inhabitants in 1970 in the Third World, 31 were in the cities of population of 1 million or more. The figure rose to nearly 35 en 1980 and will exceed 44 in the year 2000. Among these large cities, those having population of 4 million or more will be expanding very rapidly : they contained 13.2 % of the Third World urban population in 1970 but the figure will rise to 23.2 % in the year 2000 (Fig. 3). Mexico City, Mexico, which hosted 9.2 million people in 1970 and 15 million in 1980, will probably count 26 million at the end of the century. Seoul, Republic of Korea, had 8.5 million population in 1980 and perhaps will have more than 13 million twenty years later. Population of Greater Bombay, India, will increase to 16 million in the year 2000, from 8.5 million in 1980. Kinshasa, Zaïre and Lagos, Nigeria had each fewer than 1.5 million population in 1970 and grew to about 3 million by 1980. Lagos will probably have more than 8 million and Kinshasa nearly 9 million at the end of the century. Growth of the big metropolis means expansion of slums and shantytowns. In fact, there is no risk of predicting a tremendous increase of the urban poor in the Third World during the next decades. Health manpower to serve them will be lacking, due not to geographical distance but to social and economic barriers. The people in

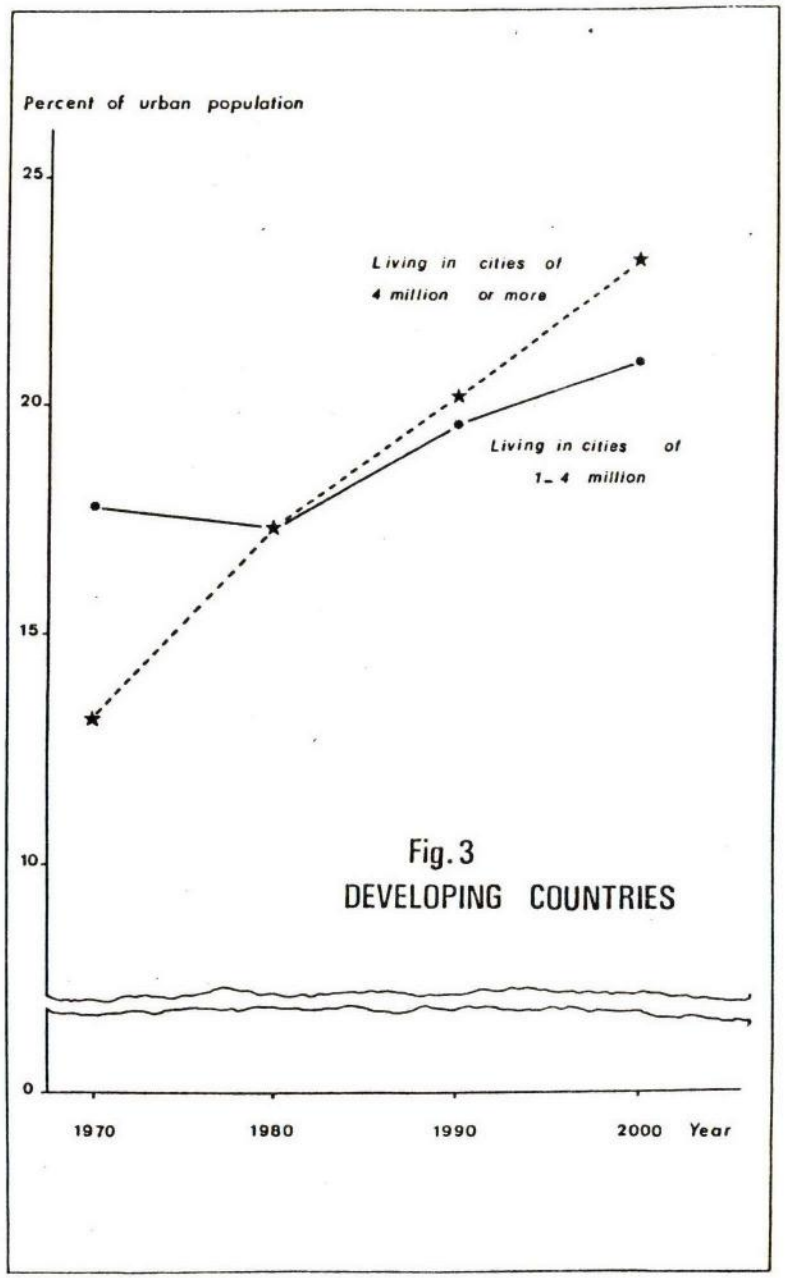

Fig. 3
DEVELOPING COUNTRIES

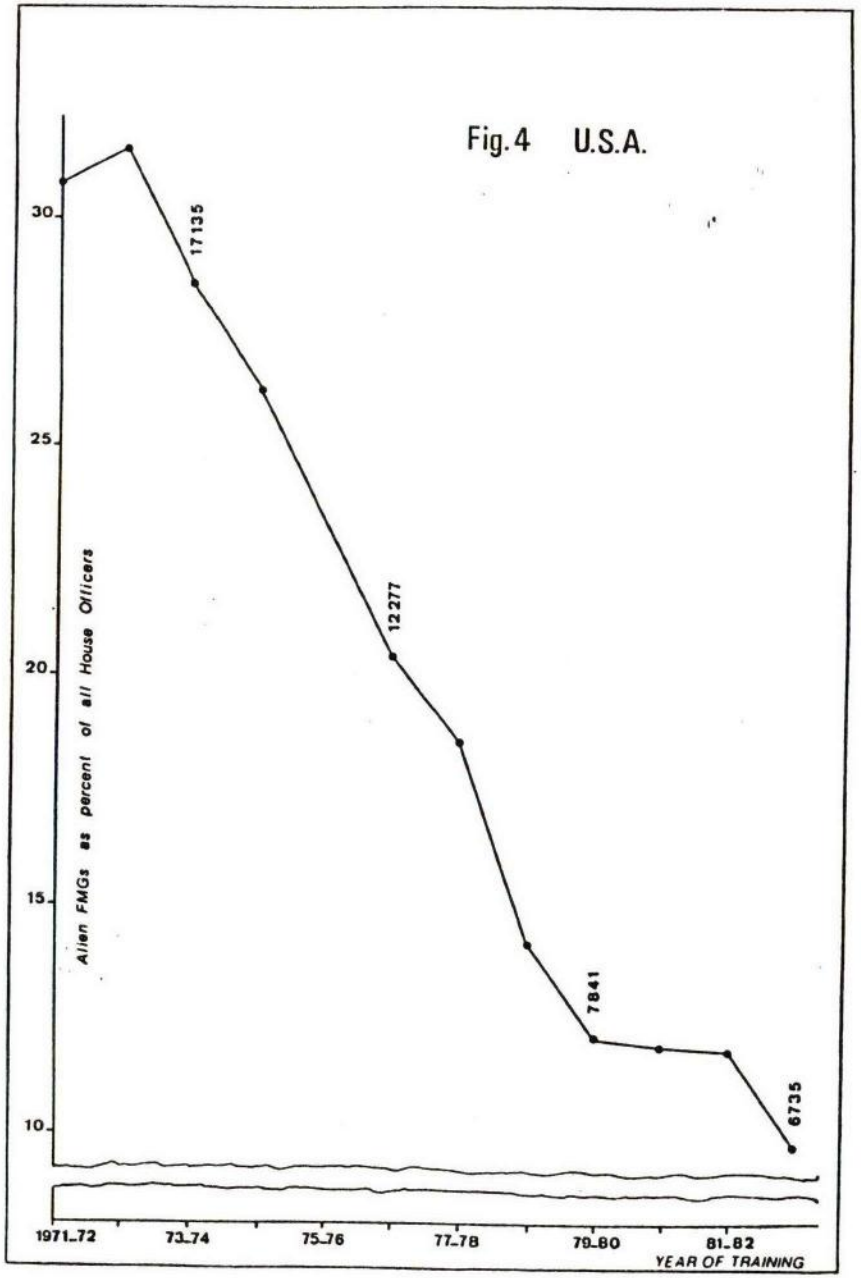

Fig. 4 U.S.A.

the shantytowns have no money to pay the doctors, their nations are too poor to cover their health needs, their knowledge of hygiene and prevention is probably nil, the health personnel, who are mainly recruited among the middle or middle-lower social classes, have neither the language nor the manners and customs of these pariahs to understand and serve them efficiently. Urban segregation and urban poor deprivation will be another challenge to those who will be in charge of health manpower planning in the coming decade.

3.- INTERNATIONAL DRAIN OF HEALTH SKILLS

3.1.- During the last decade, international migration of health manpower has drastically changed its size and directions.

During the 60's and early 70's, international migration of physicians, nurses and other health personnel has raised a great deal of concern, both at national and international levels. The attractiveness of the wealthier nations was so strong that fears were voiced about a possibly irremediable loss of health skills from the developing world. A study conducted in 1972-1974 by the World Health Organization indicated that the gains and losses in international migration of health manpower were deeply detrimental to the Third World (16). Circa 1972, on a stock of 1 746 000 medical doctors, the developed countries gained 118 000 by immigration and lost only 52 300 by emigration. At the same date, on a stock of 132 300 medical doctors, the developing countries gained 14 300 by immigration but lost 67 100 by emigration. Needless to say, the overwhelming majority of emigrating physicians went to a developed country. Data on nurses were not patterned in the same way - they were annual estimates instead of stock estimates - but showed a similar picture. Circa 1972, the developed countries gained annually 13 900 nurses by immigration and lost 8 200 by emigration. The developing countries gained every year only 1 200 nurses and lost 5 500 (Table 8). Most of the emigrating nurses went to a developed country.

Migration of health manpower is in fact a component of the general streams of human beings in search of welfare and happiness.

Therefore trends of health personnel migration were not significantly different from the overall international migration. Since the mid-70's, the latter has deeply changed. A report published in 1985 by the United Nations stated : "The past decade witnessed important changes in the migration flows between countries. In the early 1970's several European countries that had promoted immigration in order to offset the labour shortages they had experienced decided unilaterally to stop the inflow of migrant workers. In contrast, the resource rich countries of Western Asia were faced with the necessity of importing even more foreign labour in order to accelerate their development process. Also during the decade, several of the traditional immigration countries (Australia, Canada and New Zealand) adopted policies directed towards achieving a more satisfactory balance between immigration and economic conditions. Given the general poor performance of the world economy since the mid-1970's, these policies have often been translated into lower immigration ceilings" (17). What is said about the international migration in general is also applicable to physicians, nurses or other health manpower categories.

Since the mid-70's, migration of health personnel to the traditionally receiving countries has sharply decreased. In the U.S.A., the initial licenses issued by the State Boards of Medical Examiners to foreign medical graduates (FMG), which were 7 419 in 1973, fell to 6 436 in 1976 and 3 131 in 1981. The FMGs as per cent of all initial licenses decreased to 16.6 % in 1981 from 44.5 % eight years earlier (18). Moreover, among the FMGs, the proportion of US citizens (USFMG) increased at a very fast pace (Table 9). The estimated number of alien FMGs house officers fell to 6 735 in 1982-83 from 17 707 ten years earlier. This means a reduction of 62 percent in a decade (Fig. 4). The number of physicians immigrating into Canada decreased to 382 in 1981 from 1 170 in 1973. During the same period, the annual number of new graduates from Canadian medical schools rose from 1 328 in 1973 to 1 770 in 1981 (19). The annual number of medical immigrants, as a proportion of the national stock of active civilian physicians, fell to 8.6 per 1000 in 1981 from 33.9 per 1000 in 1973 (Table 10). One can quote other national examples of reduction in health manpower migration. After 1975 or 1977,

the nations which continued to receive a growing number of immigrating physicians and nurses were the oil-exporting countries only.

Nevertheless, starting from 1983, most of the oil-exporting countries themselves were implementing a reversal in their immigration policies. For instance, int the Middle East, many national governments have taken decisions aimed at : (i) not issueing work contracts to immigrant workers and thus rendering compulsory return migrations ; (ii) where work contracts were renewed, replacing manpower from South Asia and East Asia by that coming from other Arabic countries ; (iii) replacing alien workers by nationals. Such new policies were affecting all immigrant worker categories, including health manpower.

To fully understand the dimension of the problem, it is useful to recall that the stock of foreign workers in the oil-exporting countries of the Middle East amounted to 2.8 million in 1980, from 1.8 million five years earlier (20) (21). Of this stock, foreign workers from Arabic countries numbered 1.76 million in 1980 from 1.29 in 1975 (annual growth rate : + 6.4 %). Foreign workers from Asian countries numbered 820 000 in 1980 from 360 000 in 1975 (annual growth rate : + 17.9 %). Most of them were in the building sector but a large component worked in the health sector.

3. 2.- Drastic cuts in emigration and massive return migration of health manpower could paradoxically create serious problems in certain developing countries in the coming years.

In the coming years, due to the price decrease on the oil market, there will be a serious possibility that the oil-exporting countries (countries of the Middle East, Nigeria, Venezuela) will hasten considerably the return migration of foreign workers. The sending countries will be affected, in one way or another. A paper presented at the 3rd Asian and Pacific Population Conference in 1982 described some of the difficulties arising from return migration in the following terms : "The difficulties of return migration and reabsorption are likely to be compounded for a number of reasons. First, returning migrants will be

composed of workers in similar skill/occupation categories... This concentration of returning skills will create serious problems in the domestic labour market. Second, returning workers are likely to have unrealistic and inflated job/work expectations, in terms of both income and status... Discontent and long periods of job search are likely outcomes. Finally, the downturn in foreign exchange remittances which would accompany a significant return flow of migrants would create additional difficulties in creating the necessary jobs at home, by restricting the supply of scarce foreign exchange. These specific movements in labour to the Middle East and back to the domestic labour market create serious problems for manpower planning in the sending countries" (22).

As concerns health manpower, the difficulties of return migration are not basically different from those affecting the other sectors of the labour force. Massive return migration will combine its effects with the drying up of emigration opportunities. As pointed out above, during the last decade, the traditionally receiving countries have inexorably shut their doors, one after another.

At first glance, it would seem beneficial to the developing-sending countries to keep at home all their health human capital. These countries have very low health manpower/population ratios and preventing the drain of their health skills towards other nations would help them to quickly improve their capacities to cover the health needs of their people. Paradoxically, in many cases, this could not be exactly the effective course of events. Most of the people in the Third World have not sufficient income to pay the providers of health services and their nations are too poor to cover their health needs. A slow or moderate growth in the stock of health manpower would be absorbed in one way or another by the national economic system. But a sudden surge in the physician or nurse density - as in the case of massive return migration or drastic cuts of emigration - would considerably deepen frustration and increase the unemployment rate. In 1985, among the 30.4 million educated people of the economically active population of India, more than 4.6 million were unemployed (23). At the same date, among

the 184 000 medical graduates of India, 12 000 were unemployed. Five years earlier, in 1980, the medical graduates numbered 155 000 and among these, 10 000 were unemployed (Fig.5). The tragic irony was that, with 155 000 medical graduates, India had only 24 physicians per 100 000 population in 1980, while the physician density at that date exceeded 200 in Sweden and 270 in Czechoslovakia (24).

The new developments just mentioned above do not mean that the problems caused by the "brain drain" have disappeared in all countries. As a matter of fact, these problems remain acute in a number of developing nations. The novelty nowadays is that, at the world level, they coexist with difficulties of a new type which have been arising in other developing countries for the last decade or so.

4.- OCCUPATIONAL AND INSTITUTIONAL MIX

4.1.- In most countries, the internal composition of health manpower does not follow any rationality ; recent trends towards introducing new types of health workers have encountered many difficulties, some of them were unexpected.

The internal composition of the workforce in the health sector varies widely from country to country and within a country, from one point in time to another. Nursing and midwifery personnel, as a percentage of the total national health manpower in 1981, was 45 % in the United Kingdom, 43 % in Egypt, 18 % in China, 15 % in Pakistan, 7 % in Chile. At the same date, physicians were 22 % of health manpower in Cuba, 7 % in New Zealand and 5 % in Moroco. Large variations were also observed in the course of time. The share of nursing and midwifery personnel increased from 41 % in 1971 to 62 % ten years later in Zambia, from 26 % in 1973 to 50 % in 1983 in Iran, but it decreased from 87 % to 78 % during the 70's in Nigeria (Table 11). The specific share of a health manpower category and its change over the years may be understood in some cases. In Romania, for example, the very high staffing level of midwives as compared to other European countries, is caused by their assuming a large range of nursing functions and roles in

Fig.5 INDIA

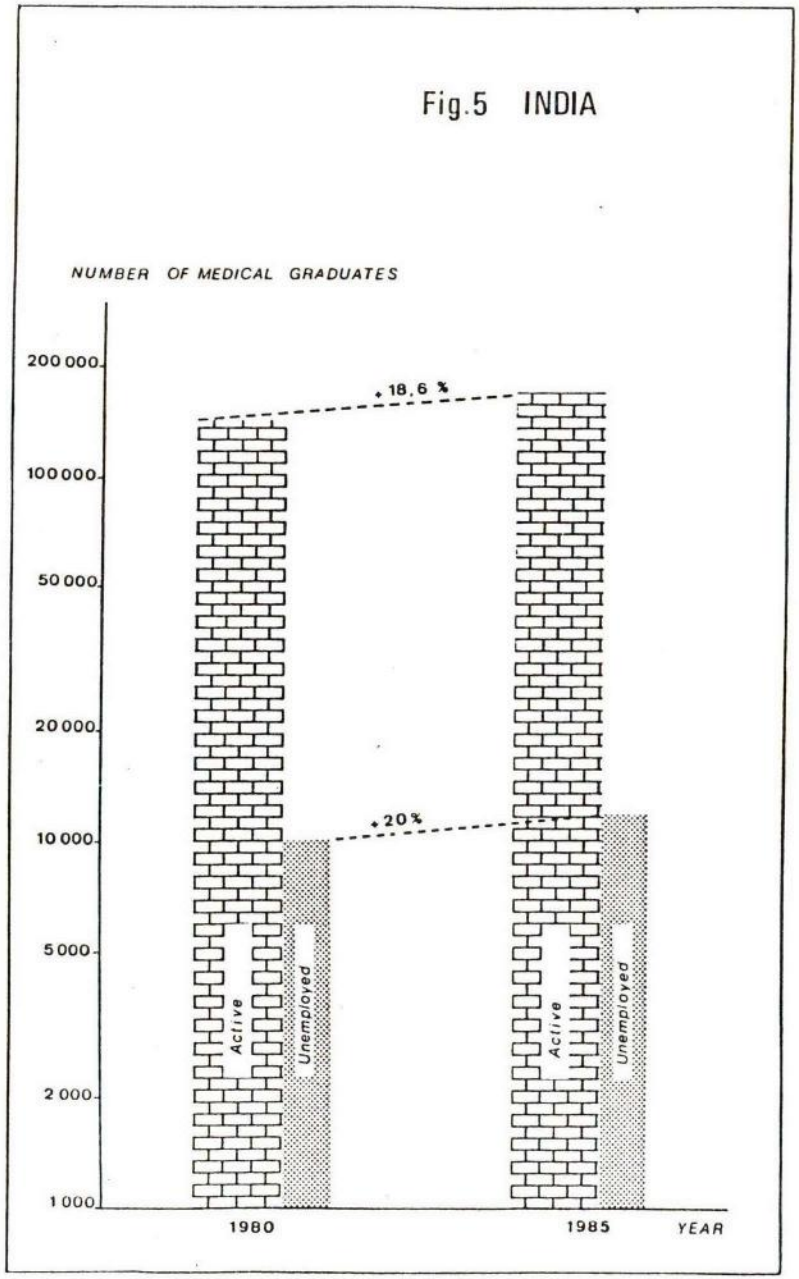

Fig.6
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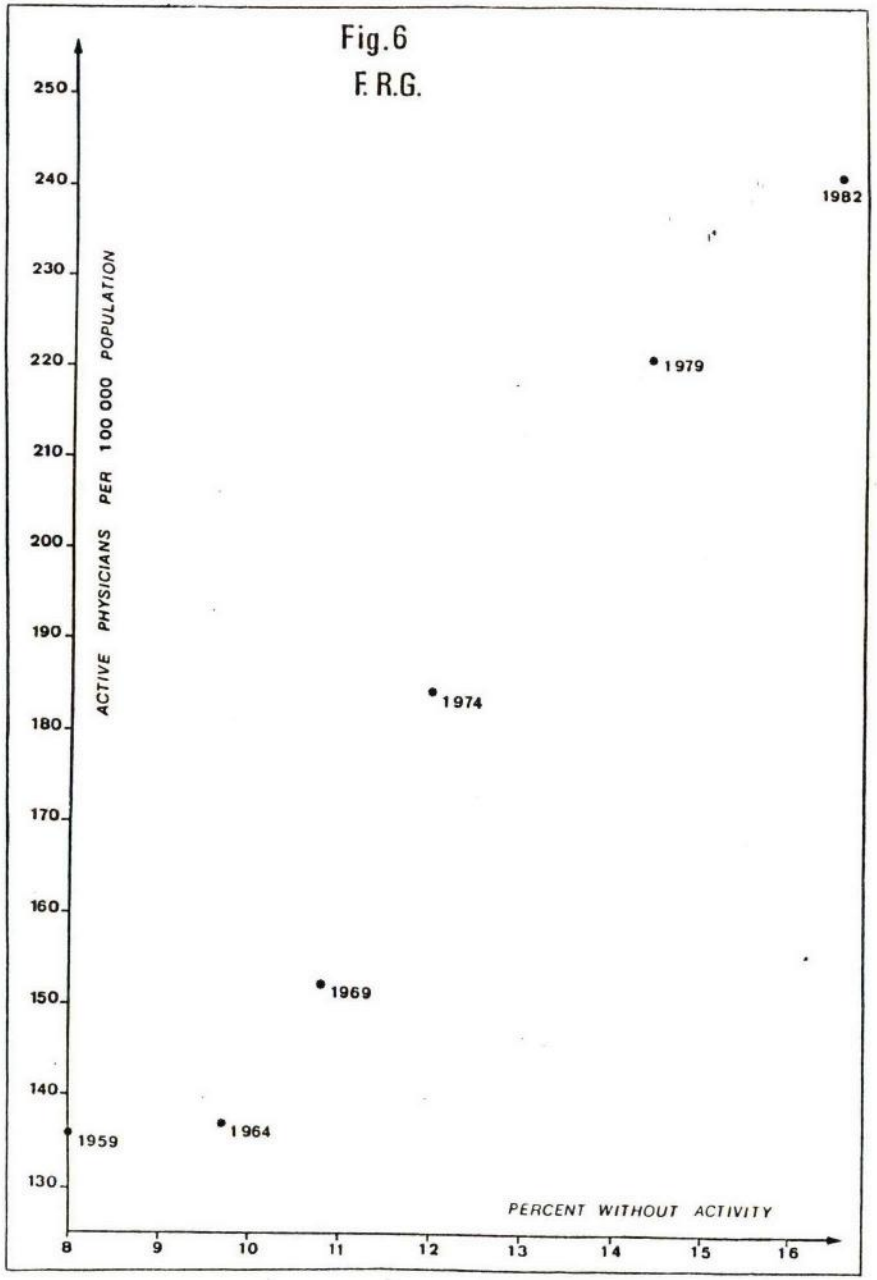


the rural areas (25). The increasing numerical importance of the group of "allied health personnel" in many industrialized countries is to a great extent due to the expansion of technology-oriented manpower, as already pointed out in an earlier analysis of manpower change during the 1965-1975 period (26). The International Labour Office pointed out that: "The gradually growing share of allied health personnel in the industrialised countries must be regarded as a typical structural change in the total workforce in their health and medical services. The increasing number of such personnel is largely due to the increase in relatively new health professions, such as those of various types of technicians and therapists. Moreover, these professions seem constantly to diversify into more and more specialities and subspecialities. The trend corresponds to a general move towards greater specialisation, an increasing division of labour and the increasing delegation of responsibility from "classical" health professions (physicians, dentists, nurses) to allied health personnel in the provision of health services. This development is to be seen as a consequence of the growing complexity of Western medecine and the accompanying simultaneous advances of medical technology" (27). It is noteworthy that delegation of responsibility and functions is part of the Health for All strategies which are being promoted by the World Health Organization.

Yet, by the time being in most parts of the world, the health system and its workforce are submitted to a multitude of contradictory factors, including laxity and lack of concern. Their evolution are rarely rationalized by the market forces or a clear political will from the State.

Recently, new trends have emerged and many countries nevertheless have taken steps to fully promote primary health care by implementing a wide range of policies : (i) training health workers during short periods of time and assigning them the task of serving their own communities ; (ii) promoting traditional healers ; (iii) giving more prestige and responsibility to "classical" health workers of a low level ; (iv) increasing participation of women in the health system at the decision-making level. All these policies will in the long run bear an impact on the composition of national health manpower.

Such policies have encountered a great deal of resistance, The promotion of community health workers or the struggle against "hospital centrism" for example, were not wholeheartedly accepted by all the "classical" health professionals in all countries. Nevertheless, at the world level, the panorama is nowadays more diversified than one may expect from the literature a few years ago. The power and prestige of Western medicine are surely overwhelming but in a number of countries only.

In French Guyana for example, certain Western medical doctors have established a peaceful coexistence with the powerful traditional healers and sent their patients to the latter, to complete their cure by psychiatric or psychological treatment (28). In a number of countries of Western Africa, the new medical graduate coming home from a medical school in Europe or North America has to contend with both the traditional healers and the nurses, most of them are males. As in many developing countries, the traditional healer has an immense prestige among the population since he detains religious and healing functions as well. As for the nurses, they are well organized and their association is powerful both at the professional and political level (29). The fact can be easily explained since the male nurses have in these countries a much longer history than do the medical doctors. In the past, the colonial powers permitted the indigenous population to be trained only in the nursing schools. In most cases the first medical graduates appeared on the scene after independence. They cannot nowadays have the number and the influence of the male nurses.

4. 2. - Certain developed and semi-developed countries are moving from a feeling of medical overspecialization to another which acknowledges oversupply of general practitioners.

In most cases, it is not easy to determine whether a given occupational or institutional composition of health manpower is relevant to the health system of a nation. Our knowledge on the matter is rather poor. To describe the growth of group practice among French physicians, I wrote in a recent book : "The expansion of group practice

deserves a special mention. In 1979, out of 100 physicians in private practice aged 55-64, 23 worked in group but the proportion rose to 42 % among those twenty years younger. Such a development may have a strong impact on the medical profession and all the health system. The point is that in the present state-of-the-art, it is difficult to identify such an impact and more difficult to determine whether it is relevant or not to the good functioning of the organization of health services" (30). However, certain trends lead to clear-cut imbalances and there is no doubt that their continuation is a risk for all the health system. That is the case of the growth of specialization in the medical profession since many decades and the concomitant reduction in general practice. In the United States of America, for instance, the general practitioners as a percentage of the medical profession were 74 in 1931, 33 in 1963 and down to 26 in 1966 (31). Although the specialization move of the American physicians was spectacular, their country was not an exception. As a matter of fact, in nearly all developed and semi-developed countries, there was a steady trend towards a higher level of specialization. In Yugoslavia, the specialization rate - or number of medical specialists as percent of all physicians - was 38.7 in 1962 and rose to 49.6 in 1972. In Portugal, the rate rose to 34.7 % from 26.9 % during the same period 1962-1972. As concerns the Swedish medical profession, its specialization rate increased to 47.9 % in 1970 from 36.5 % in 1960 (32). Data after 1970 confirmed the continuance of the upward trend. The Federal Republic of Germany of which the specialization rate reached 40.8 % in 1960 and 41.8 % in 1970, raised it to 44.8 % in 1982 (33). The report of a seminar organized by the Regional Office for Europe of the World Health Organization in October 1984 stated (34) : "The figures that are available indicate a widespread fall in the ratio of general practitioners to specialists, for example from 1.56 to 0.9 in Belgium between 1962 and 1980, from 1.33 to 0.57 in the Netherlands between 1957 and 1982, and from 1.27 to 0.39 in the Federal Republic of Germany from 1953 to 1983".

In the very recent years, however, concerns of a new type have appeared in certain countries : the emphasis is no longer put on "too many medical specialists" but "too many general practitioners".

First, the upward trend of specialization among medical doctors is seemingly at a turning point in some countries. In the USSR, the specialization rate (or number of medical specialists as a percentage of the medical profession), which was 75.0 in 1960, rose to 76.7 in 1970 but decreased again to 75.2 in 1975 (35). In Greece, the specialization rate rose to 76.1 in 1983 from 67.7 in 1970 but fell to 74.7 in 1984 (36). Secondly, in some other countries, growth of medical specialists continues but the current oversupply of physicians (which will be analyzed at length in section 5.2) makes it clear that sooner or later the increase of non-specialists will be at a faster pace than the growth of specialists. Control of the overall growth of the medical profession is much more difficult than control of the expansion of the individual specialities. When a feeling of oversupply is spreading - as it is in the early 80's in a great number of developed and semi-developed countries - the leaders of the individual specialities, who are often also in charge of training, move quickly towards restricting the entrance into these specialities. As it takes more times to control the growth of all the medical profession, the new graduates who cannot become specialists have no alternative except being non-specialists i.e. in most cases general practitioners. Such a development is being observed in certain countries, especially those with medical private practice. In a number of countries, an oversupply of physicians could possibly mean in the future mainly an oversupply of general practitioners.

5.- SUPPLY OF PHYSICIANS

5.1.- From 1945 to 1974, a feeling of health manpower shortage, and in particular of physician shortage, was spreading gradually, fueled by the growing demand for health care.

During the 50's and 60's, the number of health workers has increased at a fast pace in nearly all countries. Yet, due to various reasons, in particular the growing per capita demand for health services, there was a wide spread feeling of health manpower shortage. Concerning the U.S.A., Stewart and Pennell wrote in 1960 : "The future supply of physicians is not expected to keep up with the greatly

accelerated rate of growth of the population... Increases in dentist supply have been lagging behind the population growth despite large gains in the numbers being graduated" (37). Seven years later, Deliège put forward in 1967 the following diagnosis for Belgium : "As concerns Belgium, we have calculated the probable increases of the demand for health care on the basis of data from insurance organizations. The corresponding needs for physicians will be between 16 and 17 doctors per 10 000 population in 1970, between 17 and 20 doctors per 10 000 population in 1975, and between 18 and 22 in 1980... These figures are very high. They should moderate the chronic fears of the medical profession regarding an oversupply of physicians" (38). In 1963, West wrote about U.S. health manpower : "Between 1950 and 1960, while the population of the United States increased by 19 percent, the number employed in the health service industry increased by about 60 per cent. Still we are all well aware of many unmet needs, both present and emerging... Looking ahead, we can expect an increased workforce with a higher educational level. We can expect that an increasing proportion of that workforce will go into professional and service occupations and substantial numbers of these will go into the health field. But these persons will not enter the health service field spontaneously and prepared for work. They will enter the field only as incentives are created and as attractive training opportunities are made available" (39). The mood of this time was to acknowledge the huge increase in health manpower and, simultaneously, to be concerned with future shortage. Concerns about health manpower shortage were more acute when dealing with developing countries. For Central and South America, Cavanaugh calculated in 1964 that the number of physicians needed in 1970 would have been 196 000, as compared to an effective total of 116 200 in 1960. As concerns nurses, the needed number in 1970 would have been 175 600, as compared to an effective total of 33 600 in 1960. The two corresponding figures for dentists were 83 200 (needed for 1970) and 41 000 (effective in 1960). His conclusion was :"Constructive efforts and an intensification of present programs to overcome shortages of professional manpower are clearly indicated. The task is not easy in a world that is suffering from acute professional manpower shortages in all fields" (40). This was the time when the Todd Commission in the United

Kingdom assessed that the number of physicians needed in Great Britain in 1995 would be 119 800, as compared to the effective number of 62 700 in 1965 (41). Ten years later, in the mid-70's, the stage changed abruptly.

5. 2. - *The feeling of oversupply replaced that of shortage after 1975. Such a change can be explained by the varying economic conditions and the specific inertia of the training system (and, in final analysis, of all the health manpower system).*

Starting from 1975, or some years later, many developed and semi-developed countries replaced the feeling of shortage by that of oversupply. This applied to most health manpower categories, but particularly to physicians. "With astonishing speed, many countries have shifted from a perception of not enough physicians to one of too many. In the United States, the much awaited Graduate Medical Education National Advisory Committe (GMENAC) Report signalled a reversal of opinion that had occurred in less than a decade... In many European countries today, substantial numbers of physicians cannot find employment, whereas two decades ago, physicians were in great demand" (42). As for the U.S.A., the GMENAC report foresees an excess of 70 000 physicians by 1990 and nearly 150 000 by the year 2000 (43). A report published in 1982 forecasts a surplus of 7 000 in the year 2000 for Sweden. In Norway, the surplus in the year 2000 could reach 3 200 physicians. At that date, there could be an oversupply of 2 300 physicians in Denmark and 3 400 in Finland (44). In late 1982, among the 148 720 physicians of the Federal Republic of Germany, 29 399 did not mention any specified occupational activity (45). Their proportion was 16.5 % as compared to 7.8 % in 1959 (Table 12). All of them were not in search of an employment opportunity. Many were females who preferred to remain at home to rear their children, others were young doctors having not made decision on their career, others had completed their training but did not wish to take up immediately a full time job, etc... It remains that the proportion of physicians "without specified activity" is closely correlated to the physician/population ratio. The higher the ratio, the higher the proportion (Fig. 6). In many countries,

medical associations are now expressing deep concerns about unemployment of physicians, particularly of young medical graduates. The situation would be worse if there was not increased numbers of females among new graduates. As pointed out above, many female graduates do not enter the medical profession and therefore contribute to alleviate the labour market.

It is noteworthy that both the perception of physician shortage during the 60's and that of physician oversupply since the late 70's were not unfounded. Each corresponded accurately to a specific situation. The point is how and why there was such a drastic shift in such a short period of time. The brutal upheaval of the world economic conditions since 1973 was naturally a prominent determinant. However, the misunderstanding of the inertia in the mechanisms of training played also a crucial role. This inertia means that acceleration or deceleration in the production of health manpower - in particular of physicians - require a long time to bear their full-fledged effects ; the latter, in turn, cannot be suppressed overnight.

During the 50's and 60's, under the pressure of shortage, enrollment of medical students was widely increased and a great number of new medical schools were established. The total number of medical schools in the world increased to 1 151 in 1975 then to 1 344 in 1983 from 1 004 in 1970. The growth, already rapid in the developed countries was even speedier in the Third World. As a result, medical schools in developing countries, as percent of all medical schools in the world, grew to 55 % in 1983, from 49 % thirteen years earlier. Growth was also observed for training institutions of other health personnels. The number of dental schools in the world, for instance, increased to 530 in 1981 from 320 in 1958 (Table 13). Training institutions for nurses, laboratory technicians, X-ray technicians, etc... increased their number also rapidly.

As for the medical schools in the developed and semi-developed countries, all these tremendous efforts did not produce the expected results immediately, but 6 or 10 years later, according to the training

system. When the required number of physicians was reached, the training system continued to produce large numbers of new graduates and this led after some years to a state of increasing oversupply.

In the same way, a period of 6 or 10 years separates the decision to reduce sharply the medical school intake and an effective and significant decrease in the number of new graduates. Moreover, a significant decrease in the annual number of new graduates does not imply an instantaneous reduction in the medical profession size, as stated below (see section 5.3). Furthermore, in many countries, due to the strong action of the various lobby groups, it takes a long while for implementing the measures aimed at closing medical schools or reducing their training capacity. During this time, the number of physicians who cannot be absorbed by the national economy into the health system continues to increase, and the situation worsens.

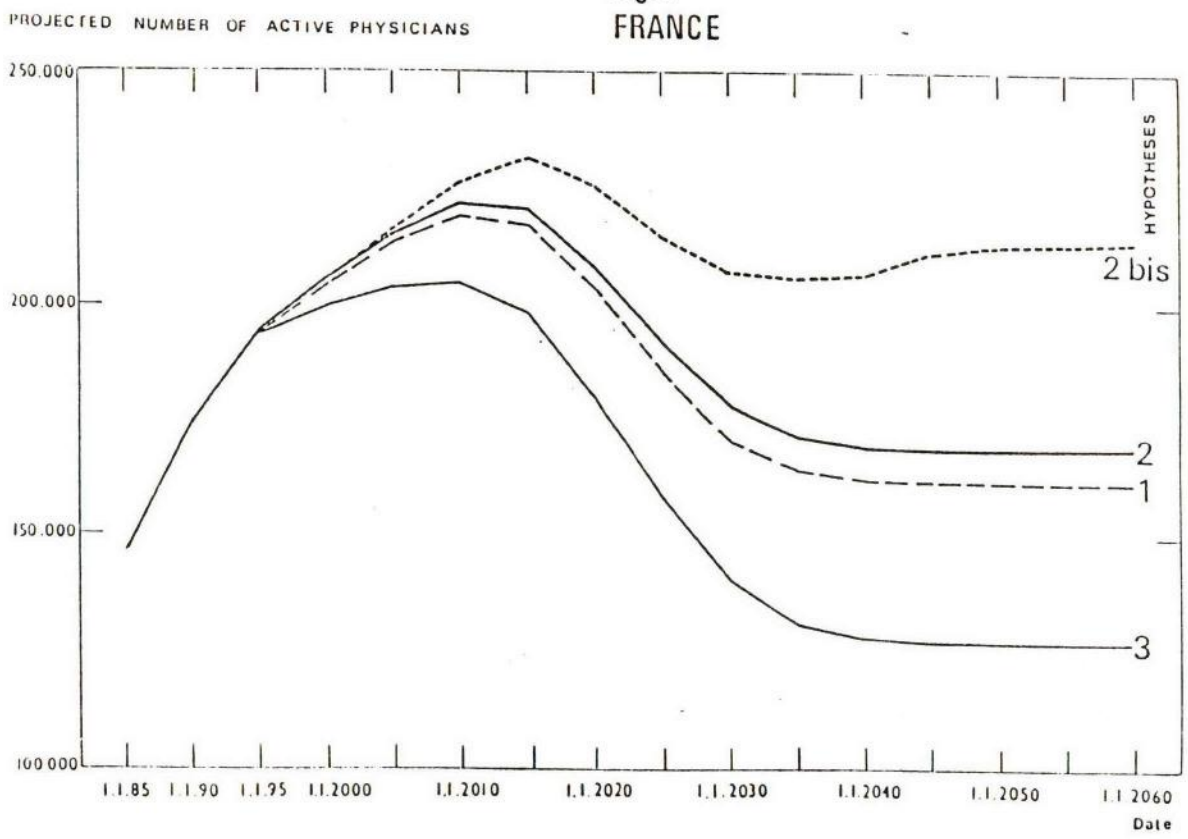
5.3.- The measures taken today, aimed at reducing medical school intake, will be followed by a decrease in the size of medical manpower, but with a time-lag of 15 or 25 years. At that time, decrease in the number of physicians will coincide with a tremendous increase in the number of the elderly.

The course of events developed above (see section 5.2) applies to many developed countries today. The number of students enrolled in the first year of the Italian medical schools decreased to 17 400 in 1983-84 from 26 700 in 1978-79, a reduction of 35 % in five years. Nevertheless, during this period, the number of new graduates, instead of decreasing, experienced a slight growth. The same "double trend" can be observed in other countries, for example in France (Table 14). A recent projection work in France showed that, although the intake reduction has been strongly implemented since 1977, the decrease in the annual number of new medical graduates would take place significantly only after 1987 and more realistically by 1990 (46). The longer the training period of a profession, the longer the time-lag.

Moreover, the projection work just mentioned stated that the size of French manpower would continue to increase through the year 2 010 (Fig. 7). In other words, the number of French physicians will be reduced only twenty years after a significant slowdown in the production of new medical graduates takes place. This second time-lag is somewhat more surprising and deserves some explanations. Starting from 1973, the number of French new medical graduates increased sharply (from 3 000 to 9 000 in 5 years). Under the boom, the French medical profession not only expanded its size but also underwent a wide younging process. In 1980, about 38 % of French physicians were aged under 36. As a matter of fact, the French medical profession is never so young. Consequently, the number of old practitioners is small and the annual number of leavers by retirement and death is very low today. And this will continue to occur during the coming decades. Each year, even with a reduced number of new medical graduates, the newcomers will exceed the leavers and therefore the size of medical manpower will continue to expand. The process will last until the year 2010. Due to the boom of the 70's, a decrease in the number of new graduates will not be enough to overcome the growth in medical personnel. In many countries, all planners have not so far clearly identified such a challenge.

What will happen after 2010 ? At that date, the vanguard of the 70's boom will reach retirement age, and the annual number of leavers will augment drastically. Even if the intake of medical schools is increased again after 1995 (hypothesis 2 bis on Fig. 7), leavers will largely exceed newcomers after 2010, and the size of the medical profession will be sharply reduced. The reduction process will take place during more than two decades, and will disappear only by the year 2040. In brief, there will be a sustained growth of French medical manpower from now through 2010 in spite of the current sharp decrease in the medical school intake (which went down to 5 864 in October 1984 from 10 188 in October 1977). After 2010, there will be a reversed trend and a drastic reduction of the size of health manpower : the sharper the decrease in today's intake, the sharper the reduction of the number of physicians after 2010.

Fig. 7
FRANCE


PROJECTED NUMBER OF ACTIVE PHYSICIANS
250.000
200.000
150.000
100.000
HYPOTHESES
2 bis
2
1
3
1.1.85
1.1.90
1.1.95
1.1.2000
1.1.2010
1.1.2020
1.1.2030
1.1.2040
1.1.2050
1.1.2060
Date

The specific behaviour of the French young graduates and the particular characteristics of the French training system render the various time-lags rather long and create large swings of about 50 years (25 years upward, 25 years downward). Swings could be about 30 years in other countries (15 years upward, 15 years downward). But whatever their duration, they cannot be avoided in the coming decades, unless we let the medical school intake stabilized at the highest level it has reached. Thus, due to the intake boom during the 70's and early 80's, and the drastic reduction which was operated afterwards, there is and will be a considerable growth of medical manpower, followed by a vigorous decrease which will take place in 15 or 25 years from now.

The measures which are being currently taken regarding the training system (i.e. to reduce the intake) will bear very few immediate effect : during the next 15 or 25 years, the medical manpower will continue to grow (but its growth rate will be diminishing gradually). Yet, the today's measures will be fully effective on the decreasing side of the swing i.e. in 15 or 25 years. As pointed out above, the extent and pace of the decrease in health manpower size will depend mainly on the vigor of the policy being implemented today.

This leads us to two remarks concerning the Western countries. In the year 2010, the first birth cohorts of the baby boom after World War II will reach old ages. The number of the group aged 65 and over will increase drastically after 2010 in all developed countries. In the U.S.A. the people aged 65 and over will increase to 45 million in 2020 from less than 25 million in 1980. In Japan, the same group will rise to 27 million in 2020 from less than 9 million in 1975. Due to high prevalence of many diseases at old ages, the growth of the elderly population will necessarily induce a higher demand for health services. Moreover one has to note that the elderly of the year 2010 or 2020 would have been used to abundant medical services in their adulthood. A diminishing medical profession and their own strong expansion will mean restricted access to medical care, at least in relative terms (47). Will they easily accept this situation ? In other words, social tension and inter-generation conflict could possibly outburst in 15 or 25 years,

caused by current decisions aimed at severely reducing today's intake of medical schools. Planners and decision-makers in the 60's, by their imprudent action, have created a great deal of difficulties for the health system of the 80's. Are those of the 80's, by an action of opposite nature, creating difficulties for the first years of the 21st century ?

This is not to say that the current state of oversupply does not deserve our attention. Various solutions may be envisaged, nevertheless they are beyond the scope of this descriptive paper. Yet the wise advice given to the decision-makers of New Zealand in 1982 is to be mentioned, for its bearing could go beyond the boundaries of a single country (48) : "Given that graduate and immigrant levels have been high over the last 5 years and hence that there is currently a bulge going through the system, it may be more relevant to consider how the bulge can best be used to improve the present system rather than devoting large amounts of time and resources to the removal of the bulge at the earliest possible time, regardless of the effects on medical education. In particular, it may be possible to utilise the increased numbers to divert resources into preventive medicine and primary health care. Such a change in emphasis is unlikely to be achieved by any attempts to take resources away from existing areas and in this respect removing the bulge may also reduce the options for change in the health system".

It is probable that every country cannot strictly follow this advice but it is certain that all countries have to take into account the long-range impact of their today's actions.

6.- OVERVIEW

Starting from the mid-70's, there were many drastic changes on the health manpower stage in all the world. International migration of health personnels continued in certain countries, drying up the human resources of their health system, whereas other countries faced new challenges originated from the threat of sudden flows of return migration. The various measures aimed at introducing new types of

health workers encountered many difficulties, some of them unexpected. As for medical manpower, the trends of specialization continued upward, but some nations are now entering a new era when there is an effective surplus of general practitioners. Moreover, the inertia of all the health manpower system prevented it from adjusting rapidly to changing socio-economic conditions and led to a state of oversupply of physicians - and of other health personnels - in many countries. The panorama of health manpower in the mid-80's in the world appears more contrasted and more unstable than ever.

There is no doubt that the underlying factors are to be found mainly in the economic upheaval which has shaken all the world since 1973 and, more importantly, since 1979. In most countries, unemployment has increased, poverty has struck new groups, austerity policies have been implemented, government health expenditures have been reduced. Increased malnutrition, famine, deteriorated health conditions have become realities in many countries. The health manpower system could not be immune from such a turmoil. New trends have emerged, challenging some of the conventional ways of thinking which were "à la mode" in the early 70's. It seems that the prime task nowadays is to build up new systems able to adjust themselves quickly and safely to changing adverse conditions.

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STATISTICAL TABLES

Table 1

Selected countries : physicians per 100 000 population, standard deviation and coefficient of variation according to income level (1965-1980)

Category of countries (a) (c)	Number of countries	CIRCA 1965			CIRCA 1980		
		Average (b)	Standard deviation	Coefficient of variation	Average (b)	Standard deviation	Coefficient of variation
Low income	30	7.0	7.83	1.12	7.9	6.99	0.88
Middle income	33	31.3	31.48	1.01	46.1	53.55	1.16
Upper middle income	18	70.0	58.98	0.84	117.8	74.55	0.63
High income oil exporters	4	40.1	47.01	1.17	106.2	51.86	0.49
Industrial market economies	19	130.0	23.60	0.18	197.5	41.75	0.21
European non market economies	7	156.3	31.15	0.20	236.7	69.22	0.29
All 111 countries	111	56.1	59.61	1.06	87.5	91.22	1.04

Notes : (a) Classification of the World Bank in World Development Report 1985

(b) Professionals per 100 000 population (arithmetic average of national ratios)

(c) Countries for which data are available for both dates.

Source : World Health Organization and World Bank

Table 2

Selected countries : nursing personnal per 100 000 population, standard deviation and coefficient of variation according to income level (1965-1980)

Category of countries (a) (c)	Number of countries	CIRCA 1965			CIRCA 1980		
		Average (b)	Standard deviation	Coefficient of variation	Average (b)	Standard deviation	Coefficient of variation
Low income	26	23.8	12.21	0.51	43.7	38.12	0.87
Middle income	29	82.7	73.78	0.89	114.7	81.21	0.71
Upper middle income	18	110.1	80.51	0.73	229.5	179.41	0.78
High income oil exporters	4	130.1	144.81	1.11	272.8	173.83	0.64
Industrial market economies	17	472.2	291.81	0.62	784.0	316.99	0.40
European non market economies	6	335.3	98.49	0.29	624.9	216.46	0.35
All 100 countries	100	155.6	210.03	1.35	267.6	319.77	1.19

Notes (a) Classification of the World Bank in World Development Report 1985

(b) Professionals per 100 000 population (arithmetic average of national ratios)

(c) Countries for which data are available for both dates.

Source : World Health Organization and World Bank.

Table 3

Selected countries : socio-economic indicators according to income level (circa 1983)

Category of countries	Physicians per 100 000 population	Nursing personnel per 100 000 population	Life expectancy at birth (years)	Daily calorie supply per capita	GNP per capita		Number enrolled in higher education as % of population aged 20-24
					US dollars	Average annual growth rate	
	1980	1980	1983	1982	1983	1965-83	1982
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Low income	8	44	59	2 408	260	2.7 %	4
Middle income	46	115	61	2 661	1 310	3.4	12
Upper middle income	118	229	65	2 880	2 050	3.8	14
High income oil exporters	106	273	59	3 271	12 370	3.8	9
Industriel market economies	197	785	76	3 400	11 060	2.5	37
East European non market economies	237	625	70	3 419			20

Sources : Col. 2 and 3 : see Tables 1 and 2.

Col. 4 to 8 : World Bank - World Development Report 1985, Oxford University Press, July 1985.

Table 4

Senegal : geographical distribution of health manpower (1975)

Province	Health professionals per 100 000 population			
	Physicians	Dentists	Pharmacists	Qualified nurses
Cape Verde	26.8	3.7	8.7	111.4
Fleuve	5.1	0.2	0.9	73.7
Thiès	2.1	0.5	0.8	48.8
Casamance	2.9	0.1	0.6	48.5
Eastern Senegal	1.5	-	0.4	47.4
Diourbel	1.4	0.1	0.3	35.6
Sine Saloum	1.4	0.1	0.4	33.7
Senegal	6.9	0.9	2.1	67.7

Source : C.P. Hogan in World Health Statistics Quarterly Vol.32, n°2,1979.

Table 5

Brazil : population, income and physicians geographical distribution
1973

Province	Population	Physicians	Income
North	3.9	1.7	2.1
Maranhas et Piani	5.0	1.5	1.4
Nordeste (excluding Maranhao et Piani)	25.0	12.5	12.5
Minas Gerais et Esp.Santo	13.6	10.3	11.0
Rio	9.7	32.1	16.2
Sao Paulo	19.2	25.0	35.9
Midwest	5.8	3.8	3.1
South	17.8	13.6	18.1
Brazil	100.0	100.0	100.0

Source : Carlos Gentila de Mella in Revista de Administraçao Publica, FGV, July-Sept. 1977.

Table 6

Hungary : physicians in Budapest and the rest of the country
(1970-1983)

	Geographic area	Year			Growth (%)	
		1970	1975	1983	1970/75	1975/83
Physicians (total number)	Budapest	9 236	10 378	12 093	12.4	16.5
	Rest of Hungary	14 288	16 677	20 942	16.7	25.6
	Hungary	23 524	27 055	33 035	15.0	22.1
Physicians per 100 000 population	Budapest	460	509	586	10.7	15.1
	Rest of Hungary	171	196	243	14.6	24.0
	Hungary	227	256	309	12.8	20.7

Source : Hungarian Central Statistical Office - Statistical Yearbook 1983.

Table 7

Wold : urban population in developing and developed countries
(1970-2010)

Year or Period	Developing countries		Developed countries		World	
	Urban population	% of total population	Urban population	% of total population	Urban population	% of total population
	Urban population : in millions and as percent of total population					
1970	666	25.2	695	66.4	1 361	36.9
1975	809	27.1	753	68.7	1 561	38.3
1980	974	29.4	802	70.6	1 776	39.9
1985	1 164	31.7	849	72.4	2 013	41.6
1990	1 389	34.4	897	74.2	2 286	43.6
1995	1 654	37.3	944	76.0	2 599	45.8
2000	1 959	40.4	992	77.8	2 952	48.2
2010	2 681	47.3	1 080	81.2	3 761	53.8
	Average annual growth rate of urban population					
1970-75	3.9		1.6		2.7	
1975-80	3.7		1.3		2.6	
1980-85	3.6		1.1		2.5	
1985-90	3.5		1.1		2.5	
1990-95	3.5		1.0		2.6	
1995-2000	3.4		1.0		2.5	
2000-2010	3.1		0.8		2.4	

Source : United Nations projections (The 1982 Assessment)

Table 8

Regions of the world : estimates of health manpower international migration - circa 1972

	Number of physicians (in 1000)			Number of nurses (in 1000)		
	Total stock in the country	Aliens in the country	Outside the country of origin	Total stock in the country	Annual gain from other countries	Annual loss to other countries
Europe	730.0	30.9	40.1	1 014.8	4.7	4.0
USSR	634.6		1.2	1 106.5		0.5
North America	360.1	81.8	8.0	913.4	8.1	1.9
Australia, New Zealand	21.4	5.3	3.0	76.9	1.1	1.8
Developed countries	1 746.0	118.0	52.3	3 111.6	13.9	8.2
Latin America	197.8		13.2	68.0		0.4
Asia (a)	369.5	6.2	48.2	367.7	0.7	4.4
Africa	47.1	7.8	5.7	97.0	0.5	0.7
Oceania	0.9	0.2	0.1	3.0		
Developing countries (a)	615.3	14.3	67.1	535.7	1.2	5.5
World (a)	2 361.4	132.3	119.4	3 647.3	15.2	13.7

Note : (a) Not including People Republic of China.

Source : A. Mejia et al.

Table 9

U.S.A. : Foreign Medical Graduates among all House Officers (1971-72 / 1982-83)

Training year	All House Officers	of whom			All FMGs as percent of all House Officers	Alien FMGs as percent of all FMGs
		USFMGs House Officers	Alien FMGs House Officers	All FMGs House Officers		
1971-72	54 578	699	16 767	17 466	32.0	96.0
1972-73	56 244	657	17 707	18 364	32.7	96.4
1973-74	60 109	1 198	17 135	18 333	30.5	93.5
1974-75	62 512	1 738	16 377	18 115	29.0	90.4
1975-76		1 466	15 414	16 880		91.3
1976-77	60 561	2 820	12 277	15 097	24.9	81.3
1977-78	56 019	3 361	10 348	13 709	24.5	75.5
1978-79	63 163	3 902	8 919	12 821	20.3	69.6
1979-80	64 615	4 229	7 841	12 070	18.7	65.0
1980-81	61 465	4 790	7 288	12 078	19.7	60.3
1981-82	68 217	5 838	7 359	13 197	19.3	55.8
1982-83	69 142	6 388	6 735	13 123	19.0	51.3

Source : Stephan S. Mick and Jacqueline Lowe Worobey in American Journal of Public Health, Vol. 74, n°7, July 1984.

Table 10

Canada : stock of physicians, new graduates from Canadian medical schools and new immigrants (1971-1981)

Year	Stock of active civilian physicians	New graduates		New immigrants	
		Absolute Number	Per thousand of stock	Absolute Number	Per thousand of stock
1971	31 166	1 133	36.4	987	31.7
1972	32 942	1 278	38.8	988	30.0
1973	34 508	1 328	38.5	1 170	33.9
1974	35 923	1 567	43.6	1 090	30.3
1975	37 297	1 546	41.5	806	21.6
1976	39 104	1 710	43.7	401	10.3
1977	40 130	1 688	42.1	312	7.8
1978	41 398	1 766	42.7	263	6.4
1979	42 238	1 755	41.5	298	7.1
1980	43 192	1 747	40.4	380	8.8
1981	44 275	1 770	40.0	382	8.6

Source : Health and Welfare Canada.- Canada Health Manpower Inventory 1982, March 1983.

Table 11

Selected countries : Percentages of total employment in health and medical services by occupational category
(Total employment in health and medical services = 100)

Country	Years of reference	Professionals		Nursing and mid-wifery personnel	Allied health personnel	Other personnel
		Physicians	Other			
AFRICA						
Egypt	1973	33.8	20.9	33.5	11.9	-
	1981	32.0	15.0	43.0	9.9	-
Morocco	1977	6.7	0.8	88.9	3.6	-
	1981	4.7	0.6	90.1	4.6	-
Nigeria	1971	8.0	3.4	87.2	1.4	-
	1980	9.6	4.7	77.9	7.7	-
Ziambia	1971	8.6	1.9	40.7	48.8	-
	1981	9.9	1.0	62.2	26.8	-
AMERICAS						
Chile	1975	6.9	2.5	5.4	3.7	81.5
	1980	8.7	3.0	7.3	4.8	76.2
Cuba	1973	16.6	5.8	40.5	37.1	-
	1981	22.0	6.7	39.8	31.5	-
Mexico	1971	35.9	-	53.1	11.0	-
	1981	38.1	-	46.9	15.0	-
Peru	1972	23.7	17.3	51.6	7.4	-
	1979	27.9	19.8	45.0	7.3	-
United States	1970	7.6	6.3	38.8	15.5	31.8
	1980	6.1	4.6	37.9	15.0	36.4
ASIA AND OCEANIA						
China	1979	9.4	0.5	16.8	26.8	46.5
	1981	11.2	0.6	18.3	26.4	43.5
India	1973	21.1	14.1	24.2	40.5	-
	1981	22.5	13.7	30.9	32.9	-
Indonesia	1974	8.2	4.1	61.7	26.0	-
Islamic Republic of Iran	1973	12.1	6.8	25.5	55.5	-
	1983	14.8	4.6	49.9	30.6	-
Republic of Korea	1975	16.0	18.3	58.0	7.8	-
	1982	13.3	14.4	58.9	13.3	-
New Zealand	1976	6.0	5.0	43.8	11.7	33.5
	1983	7.1	4.7	43.3	13.4	31.4
Pakistan	1975	18.6	1.8	12.9	66.7	-
	1981	21.2	2.2	15.0	61.7	-

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EUROPE						
Austria	1975	12.1	4.2	25.2	2.7	55.7
	1982	9.9	3.0	21.7	2.7	62.6
Belgium	1975	15.4	9.8	-	6.4	-
	1982	15.9	10.6	-	6.8	-
Bulgaria	1970	27.6	9.6	54.2	8.6	-
	1982	24.2	9.6	58.2	7.9	-
Czechoslovakia	1973	12.6	1.8	52.8		32.8
	1983	14.7	1.7	52.0		31.6
Finland	1972	6.3	7.7	45.2	4.3	36.5
	1982	7.4	6.1	42.6	6.8	37.1
France	1971	8.8	6.9	20.5	5.8	57.9
	1973	9.6	6.6	22.9	6.9	53.9
German Dem. Republic	1975	9.2	3.3	-	-	-
	1983	8.4	3.3	-	-	-
Federal Republic of Germany	1972	12.8	7.5	22.9	7.0	49.7
	1982	11.7	5.9	22.7	8.9	50.9
Hungary	1970	15.2	2.9	27.8	25.9	28.2
	1983	11.8	1.9	25.4	25.1	35.8
Japan	1970	14.0	11.5	40.9	10.7	22.9
	1980	11.6	10.8	43.2	12.4	21.9
Norway	1970	7.6	5.8	51.9	5.6	29.1
	1980	4.9	3.0	67.0	5.8	19.3
Sweden	1973	5.3	4.4	53.6	5.9	30.8
	1982	5.1	3.6	54.4	8.6	28.4
Switzerland	1970	12.4	7.5	42.4	37.7	-
	1980	11.9	5.8	42.6	39.8	-
USSR	1970	13.1	-	-	-	-
	1980	15.9	-	-	-	-
United Kingdom	1975	7.1	2.2	44.3	6.8	39.6
	1981	7.1	2.2	45.4	7.8	37.3

Source : ILO.- Data compiled from WHO and various sources and published in Employment and Conditions of Work in Health and Medical Services, Geneva, 1985.

Table 12

Federal Republic of Germany : population and physicians (1959-1982)

On 31 December	Population (1000)	Physicians			Percent without specified occupational activity	Physicians with specified activity per 100 000 population
		Total	With specified occupational activity	With specified occupational activity		
1959	54 882	80 792	74 486	6 306	7.8	135.7
1964	58 290	88 552	79 931	8 621	9.7	137.1
1969	60 850	103 981	92 773	11 208	10.8	152.5
1974	62 041	130 183	114 624	15 559	12.0	184.8
1979	62 337	158 387	135 586	22 801	14.4	217.5
1982	61 638	178 119	148 720	29 399	16.5	241.3

Source : L. Horbach and F. Strobrawa. Data are provided by the Bundesarztekammer in Köln (Federal Republic of Germany).

Table 13

World : development of medical and dental schools

Year	World		Developing countries only	Proportion of medical schools in developing countries
	Dental schools	Medical schools	Medical schools	
1955	.	646	241	37.3 %
1958	320	.	.	.
1960	.	754	336	44.6
1963	371	.	.	.
1970	.	1 004	493	49.1
1974	478	.	.	.
1975	.	1 151	591	51.3
1981	530	.	.	.
1983	.	1 344	739	55.0

Source : W.H.O.

Table 14

Italy and France : medical schools'intake and new graduates (1977-1984)

Medical schools'intake (a)			New medical graduates		
Year of training	France (2nd year)	Italy (1st year)	Year	France	Italy
1977-78	10 188		1977	9 186	
1978-79	9 489	26 738	1978	9 480	14 457
1979-80	8 946	22 182	1979	8 687	14 792
1980-81	7 988	21 131	1980	8 932	14 264
1981-82	7 290	19 254	1981	8 686	15 157
1982-83	7 302	18 134	1982	8 392	15 171
1983-84	6 700	17 442	1983	7 957	
1984-85	5 864		1984		

Sources: France : Ministry of National Education ; Italy : Ministry of Education (data provided by Dr M. Calcopietro).

Note : (a) Data cover all the students enrolled, including repeaters - Data for France are related to the 2nd year since the "numerus clausus" takes place at the end of the 1st year.

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FONDÉ SOUS LES AUSPICES DE L'ORGANISATION MONDIALE DE LA SANTÉ ET DE L'UNESCO

"HEALTH MANPOWER OUT OF BALANCE: CONFLICTS AND PROSPECTS"

XXth CIOMS Conference

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PLENARY SESSION II

"Economic Implications of Health Manpower Imbalances"

B. Abel-Smith

(Manuscript)

HEALTH MANPOWER OUT OF BALANCE

Professor B. Abel-Smith

The Economic Background

Health for All was launched in 1977 against the background of two hidden assumptions. The first was the prospect of continuing economic growth. Only in Africa South of the Sahara was there doubt about whether living standards per head were likely to grow. The second was the assumption that the richer countries of the world would give much greater assistance to the poorer if the case were well presented.

The World Economic Crisis radically changed this prospect. Between 1981 and 1983 average living standards actually fell by about 9½ per cent in Latin America and by 11 per cent in South Sahara Africa. There was also a fall in average living standards in the least developed countries of East and South East Asia. Low growth in Western Europe and America lead to a massive increase in unemployment.

The fall in living standards exposed the extent to which developing countries had fallen into debt. Devaluation and high interest rates made debt charges a formidable charge on government budgets amounting to up to a third or a half of export earnings. While some countries fought valiantly to maintain a level of their health budgets or even increase them, austerity policies drove many developing countries into reductions in spending on the health sector. In addition, balance of payment deficits forced many countries to cut imports of drugs and medical equipment.

At the same time industrial market economies were saddled with the problem of maintaining millions of unemployed, most of them young. This created a crisis in social security financing: more people needed maintenance, while there were less people at work paying taxes and contributions to support them. Containing the cost of health care became an overriding policy objective. In these circumstances budgets to help poor countries develop their health programmes were competing with extra heavy demands for public

expenditure at home. As a result, there was virtually no increase in external aid to the health sector and some recent evidence of a decline.

To start a paper on the imbalances of health manpower with a brief summary of the world economic situation may, at first sight, seem perverse, if not irrelevant. Health needs arise whatever is happening to the world economy. Indeed the sharp and sad accentuation of poverty due to falling average living standards, growing unemployment and underemployment, the fall in world prices of export crops, cuts in food subsidies, and on top of all this the tragic drought and famine which stalked across Africa during this period magnified the need for remedial health action. More services were needed to maintain health status let alone secure the improvements sought by the Health for All programmes. But countries' ability to respond to these problems was hedged in by economic constraints, shortages of foreign exchange and the limited international pool of aid made available. The response of countries was determined by what it was felt could be afforded by the health sector, not by what the health sector "needed".

Economic Constraints to Health Manpower Plans

The experience of the past few years has brought home even more forcibly the critical fact that the health manpower which any country can afford to sustain depends ultimately not on the need for their services but on the resources available to support them, whether in the private sector or the public sector. This is what economists call "effective demand", and it emerges from market forces in the private sector but is also mobilised through public health service programmes or the direct or indirect contracting of social security programmes. But the latter ultimately depend upon the revenue which is raised by taxation or contributions, which has in turn to come out of national production plus any assistance attracted from abroad. Money to pay for health services, NOT any copycat ratios of particular grades of health manpower to population, must be the basis for health manpower plans.

The tighter are economic restraints, the more reprehensible it becomes to waste economic resources by training people who will not be able to use

the skills they have been taught (quite apart from the social costs of disappointed expectations). Medical education is a good preparation for very few other careers. Moreover, it is no less reprehensible for these skills to be abused by the provision of excessive or unnecessary services which make a neglible or negative contribution to the national health effort. Not only the scale, but also the balance between different levels of skills of health manpower and womanpower training programmes, must be planned according to projected future effective demand, if resources are to be used efficiently.

The relative neglect of the economics of health manpower planning can be shown by the fact that, out of the seventeen national reports collected together for this conference, only three even attempted an estimate of the costs of training even two grades of health manpower, and only two gave information of the salary levels which the different grades could command, once trained. This is, however, essential information for manpower planning. It enables comparisons to be made of the opportunity costs of training options within the health sector. Surely it is useful to know, using the Pakistan data, that six auxiliaries or 2½ nurses can be trained at about the same cost as that for training one doctor. Or, using the Sri Lankan data, for the cost of training one doctor it is possible to train nearly three nurses, or seven midwives, or eight pharmacists, or 8½ assistant medical officers. Moreover, in Sri Lanka, as 41 per cent of doctors emigrate, it is possible to get 14 assistant medical officers working in Sri Lanka for the cost of training one doctor who will stay to work at home. Perhaps the policy significance is less for Sri Lanka than for some other countries because it sees itself as already desperately short of doctors relative to other grades. But for countries with unemployed doctors, and less nurses than doctors, the message stands out clearly, showing not only where resources could be redeployed but how they could be deployed to produce a precise number of available health manpower at no extra cost.

A common error made in the past has been to promote or allow the promotion of training for more doctors and dentists than can be supported within a balanced health plan because the result may be that effective demand

becomes channelled to doctors and dentists leaving no further resources either to train auxiliaries to work with them or to support them once they are trained. The market pressures and political pressures to train and once trained to provide work for highly trained health manpower are formidable in all societies and appear to be particularly strong in developing countries where, because of much more limited resources, the opportunity cost problem is much more acute. Even more important than the relative training cost is the difference in salary level. The Sri Lanka figures indicate that about two nurses or assistant medical officers could be employed out of the salary which would otherwise go to one doctor. In some countries, the difference in salary levels would be wider. The question raised is whether two to four extra nurses or paramedicals could do more to advance Health for All objectives, than one extra doctor.

The overproduction of Doctors

The pressures to train doctors are cumulative but derive from a number of different factors. On the supply side is the principle applied in a number of countries, that prospective students with the necessary minimum qualifications should have free choice of field of study. Thus, it is argued that university courses should expand according to the demand for them. On the demand side, is the popularity of medicine for prospective students and their parents in a situation where doctors and dentists are seen to have achieved high and relatively secure earnings by the standards of the country. This may have been originally caused by the level of earnings needed to attract expatriates to developing countries, attempts to retain doctors faced with opportunities of emigrating or a past doctor 'shortage' followed by monopoly and bargaining practices which have succeeded in maintaining past relatively high incomes.

Some developed countries (e.g. United Kingdom) have long limited entry to medical school though quotas were originally established in relation to the size of the associated teaching hospital and its capacity to provide practical experience and training for students rather than the expected "effective demand" for doctors. Other countries with less of an emphasis

on clinical experience in an associated hospital simply responded to student demand. This was the tradition in such countries as Spain, France, Italy and Latin America. It is only in the past few years that more and more countries in Western Europe have established either quotas for entry or for the numbers allowed to proceed to the second year (e.g. France) after a competitive examination, and countries which have long had quotas have reduced them. Thus Ireland has reduced the number of Irish entering students from 500 to 300, France from 8726 to 6000, Denmark from 850 to 745 and Portugal from 2000 to 800. But quotas are still not necessarily based on expected effective demand. The Spanish quota, despite 25 per cent of doctors being registered with the medical association as unemployed was established according to the number which could be given an education of acceptable quality which will continue to add to the pool of unemployed doctors. Two countries in the European community still have no quotas - Belgium and Italy. The absence of a Belgian quota causes problems for the Netherlands because students denied entry to their own schools go to this neighbouring country and also for Luxembourg which has no medical school but has become flooded with young doctors. The absence of a quota in Italy creates problems for Greece as Greek students go to Italy and then enter Greek schools later in the course. It also has an impact on doctor numbers in the United States as Italy is one of the places where prospective American students denied entry to US medical schools go to obtain a medical qualification.

The overproduction of doctors in the European Community is in conflict with national policies of cost containment given the Directive requiring free movement of doctors between the countries of the Community. In countries which allow any doctor to work in the health insurance or health service scheme or schemes, more doctors will mean more medical work done. It is not just the fees which the doctor can claim which are relevant but the authorization of diagnostic tests, the prescribing of drugs and the provision of other treatments. This has even been shown to be the case with surgery in the United States where it has been calculated that a 10 per cent increase in surgeons leads to a three per cent increase in operations performed. Surgeons per 1000 explain geographical differences in rates of surgery rather than any evidence of the incidence of conditions requiring surgical intervention.

It may be assumed that flooding the market with doctors will solve problems of geographical inequality: an excess of doctors is bound to lead to doctors settling in underprovided rural communities and deprived city centres. This, however, only tends to happen at a later stage and does so unevenly, after gross and costly overprovision in the popular areas. Moreover, countries in Western Europe with a high doctor-patient ratio do not appear to have more geographical equity in their distribution. The United Kingdom with a relatively low ratio of doctors secures this result to a greater extent than any other of the larger countries of the European Community, by limiting entry of general practitioners under the National Health Service to areas with a sufficient number in practice, and controlling posts for specialists throughout the country through a central committee. Without controls, doctors accumulate in the desirable urban locations, and in a free market many of them manage to secure a living despite excessive supply.

How far countries see themselves as faced with a shortage of nurses depends upon the standards laid down for entry to training, the length and rigour of the training provided and the number of different grades of nursing personnel with different entry requirements and periods of study. There is frequently a conflict of objectives. One aim of policy may be to raise the status of nursing by requiring a high educational standard for entry and making courses more and more academically demanding. Because enough recruits do not come forward to meet these standards, lower grades come to be established with lesser training or hardly any training at all to meet the competing objective of providing sufficient nursing staff to meet requirements for work both in hospitals and in the community. No country which has established high standards has managed to secure that all nursing work is done by those who have attained them. Thus the most qualified nurses tend to be supervisors rather than practitioners of nursing. The actual day-to-day nursing of patients may be done by persons with very limited preparation for it.

It is not only in nursing that the urge to raise status (and remuneration) by more advanced training is at work. It is to be found in pharmacy, physiotherapy, occupational therapy and many other paramedical professions. Moreover, at the same time there may be major changes in job content. For example, the pharmacist who once mixed and even manufactured medicines in the community has increasingly given way to the pharmacist who checks the appropriateness of the prescribed prepackaged preparations before handing them over to the patient, though he may also advise on the use of non-prescribed medicine. Educational courses are slow to adjust to changing job requirements.

In developing countries with limited career opportunities in business or commerce for highly educated persons, medical, dental and legal qualifications inevitably become heavily sought after by students. Moreover, there must be few, if any, developing countries in which there is no Minister with a son, daughter, nephew or niece either studying or practicing medicine. This may be a factor leading Governments to view medical education as a problem of student opportunity rather than of achieving a balance in national trained health manpower. On top of all this, there can be regional or provincial pressures. If one region or province has a medical school and the prestige hospital that normally accompanies it, then each other region demands one. Thus the number of medical schools and, to a considerable extent, the number of doctors becomes determined by the number of regions rather than the number which can be sustained financially in the long run within a balanced plan for all grades of personnel. Finally, if no measures are taken to prevent it, there can be a mushroom growth of private for-profit medical schools as in some countries of Latin America and in the Philippines: if medical education is in high demand for the children of wealthy families, there is money to be made out of providing this service like any other - particularly if there is no accrediting body imposing highly expensive requirements on private schools and inspecting to see that they are observed.

In developing countries, an excess of doctors is even less likely to lead to a more even distribution. The enormous geographical inequalities between regions and areas of developing countries lead to corresponding

differences in the effective demand for health services. These differences are not counteracted by additional provision of public services in the poorer areas. Moreover, making posts avilable in poor areas will not necessarily secure that they are filled, if doctors expect to supplement their salaries by licit or illicit earnings from private practice and expect also the amenities of good housing, electricity and high-quality schools for their children. Hence, in the extreme case of some countries in Africa, 80 per cent of doctors congregate in the urban areas which house only 20 per cent of the population.

The Orientation of Medical Education

Medical education is not and should not be a standard product. It is a preparation for a career and the precise job requirements inevitably differ both between countries and within countries. What the medical student is taught and the facilities with which he has been taught to practice inevitably determine the type of work which will give satisfaction to the doctor after his training. The proportion of the population under 15 is around 20 per cent in developed countries and around 50 per cent in many developing countries. The proportion of the population over 65 in developed countries is around 15 per cent and they occupy about a third of all hospital beds: the proportion of the population over 65 in developing countries is only 2 to 3 per cent. The main killers of developing countries are infectious diseases falling heavily on the young and in developed countries are cancers, coronaries and heart disease claiming disproportionately the old and middle-aged. In both types of society there is vast scope for preventive action but promoting it in such fields as basic nutrition, water, sanitation and immunisation is very different from promoting it by combatting smoking, alcohol and accidents. In both types of society primary health care may be accepted as the key to achieving health for all but the task of working as part of a primary health care team calls for a quite different knowledge base and skill in industrialised and developing countries.

Thus the orientation of medical education is of critical importance in achieving balanced manpower development. Or course, there is a common core

to all medical education which would include understanding the basic anatomy and physiology of the human body, absorbing the basis of the key biomedical sciences and learning to assess scientific evidence but the application of this common core is very different. But part of the problem of imbalanced health manpower has been the limited progress in adapting curricula not only for doctors but for other health trainees to the key health problems which confront particular societies and the new emphasis and new patterns of development which are intended to arise out of regional and national strategies and targets for health for all. It is not yet clear in many industrialised countries that the new generation of health trained manpower will emerge equipped and motivated to operate in a context of community participation or to spearhead the new thrusts towards promotion and prevention, care in the community and equity for the disadvantaged and minority ethnic groups, or even to be motivated to operate within, let alone lead, the primary health care teams of the future. Training the wrong people for the wrong job can be as wasteful as training people for no job at all.

In the case of the developing countries, there has been a reluctance to move beyond the colonial legacy of curricula not only modelled on those of developed countries but even in some cases still being accredited and externally examined by the bodies performing this function in the rejected colonial power. If countries had boldly designed their own curricula to meet their own health needs this could have protected them from emigration or at least made it much less likely. But instead therecame a new pattern of self-imposed imperialism in which people from developing countries voluntarily sought their basic medical education or much more frequently their post-graduate education in the highly industrialised countries. This trend was often encouraged by government sponsorship. The problem posed by those medical graduates who never return is discussed below. But the problems generated by those who do return can be no less serious. The prestige of foreign medical education is such that these doctors tend to be given positions of leadership in their own country on return, in Ministries of Health, in research and in the leading hospitals and medical schools. Unless the

post-graduate courses (e.g. in public health) have been deliberately designed for application in developing countries, the orientation which is likely to be brought back is that of an emphasis on sophisticated and highly specialised urban hospital medical practice often accompanied by the ideology of the professional superiority of private 'liberal' medical practice remunerated on a fee-for-service basis. Precisely what proportion of doctors now practising in Latin American, Thailand or the Philippines to name some examples at random, had their postgraduate education in the United States, or of doctors in francophone Africa had their experience in France, is not easily established. But their influence depends not so much on numbers but on the precise positions of administrative, professional or educational leadership they currently occupy.

But the influence of inappropriate training models does not stop at this point. Not only may curricula in developing countries be orientated towards the very different perspectives of the industrialised countries which are themselves only just beginning to be adapted to the Health for All priorities for those countries, but students themselves come to seek a curriculum in their own country which will assist them in obtaining their own post-graduate education abroad, or, more bluntly, the option of emigration to an industrialised country. This may seem a preferable option not only because of the financial rewards but because what their country expects of them is a period of rural service which is not only poorly rewarded but involves practice without all the support of facilities for diagnostic tests and therapeutic procedures of the well-equipped hospitals in which they were trained and even without a wholly reliable supply of basic drugs. They are expected to give health leadership to communities from which their education and upbringing has alienated them and to act as a catalyst for change in directions which have no evident connection to the diagnosis and cure of individual pathology on which their expert knowledge has been built. Many developing countries are also training the wrong people for the wrong job. This contributes to the combination of unfilled vacancies in rural areas and medical unemployment or underemployment in urban areas.

International Migration of Health Manpower

The international ramifications of the 'brain drain' were extensively analysed in the nineteen-sixties and nineteen-seventies. The key findings from these analyses were first that it amounted to an extensive form of unplanned donation from poor countries to rich countries. The poor countries paid for or heavily subsidised the education of health manpower and the rich countries received the gift of qualified manpower without having to pay anything for the original cost of their education. A net loss of 50,000 doctors from the developing countries to the developed, even at the Canadian cost of educating a doctor, was a gift of 10 billion Canadian dollars from the poor to the rich. The Philippines alone had lost by 1982 a total of 14,000 doctors, mainly to the USA, and 89,000 nurses - imports worth billions of dollars to the recipients. The fact that emigrants may transfer funds back to relatives in their developing country of origin and thus serve as invisible exports was hardly a convincing reply to the basic point - particularly if funds came back through black markets at unfavourable rates of exchange for the recipient country outside the grasp of governments which paid the cost of the education. Secondly, the developed countries generally used foreign medical graduates under the guise of training as 'interns' and 'residents' - in practice pairs of hands working long hours - in the less prestigious hospitals in which nationals who had the choice refused to accept appointments. Thirdly, a substantial proportion of emigrants stayed on and were given full rights of citizenship. When the United States was short of doctors it recruited them from the United Kingdom (often via Canada), from Latin America and the Far East. When Britain became short of doctors owing to losses mainly to North America, it made good the loss mainly from India, Pakistan and Sri Lanka. Britain also made good its shortage of nurses by recruitment of trained nurses or trainee nurses from Ireland, the West Indies, Mauritius and other countries.

The next wave of migration was to the newly oil rich countries of the Middle East and Africa: it included doctors and dentists but also nurses and paramedicals probably on a scale greater than earlier patterns of

migration. Syria lost doctors both to Europe and the Middle East. Malta more to the former, Egypt more to the latter. But this is far from completing the story of the movement of medical manpower and its complex patterns based on culture, language and acceptability of qualifications.

At its 'hey day' an internationally recognised medical degree became virtually equivalent to an international passport. But from the nineteen eighties this passport has become much less readily accepted. The United States has tightened its entry requirements, the United Kingdom has restricted medical post-graduates to a 3-year stay, and the oil rich countries have begun to replace contracted foreign doctors with their own nationals as their own medical schools have produced their own graduates. And some countries which once saw themselves as oil rich are no longer in this position and thus less able to pay for doctors imported under contract. Countries which no longer need doctors have erected barriers to keep them out as readily as they once created loopholes to let them in. Doctors who have enjoyed high salaries will not readily adjust to options of low-paid work or unemployment back in their countries of origin.

Readjusting to National Self-Sufficiency

The changing international market for health trained personnel has in the past made long term planning virtually impossible in the countries most affected. As movement between countries reached its peak, vital principles were sacrificed in the hope of retaining or securing the minimum of manpower needed to operate services. Doctors in government service, or at least specialists, were allowed rights to private practice to supplement the salaries which governments could offer without stretching to intolerable lengths of inequality the whole concertina of government salary structures for all grades of staff. To restore pre-existing terms of service as opportunities for emigration become restricted will be much more difficult. Moreover, countries which have rapidly expanded medical education and relaxed conditions of service in the hope of retaining some minimum proportion of its output for home consumption, will find much more resistance to cutting back and reimposing restrictive conditions if their medical markets suddenly become flooded by post-graduates thrust back after a fixed term abroad,

doctors whose contracts have not been renewed on top of new graduates emerging from the expanded schools. Already the problem of substantial medical unemployment faces Pakistan, Mexico, India and the Philippines. It will not be long before it faces such countries as Syria, Korea and Japan. It will be interesting to see how long countries take to adopt the economically logical but politically bold step of closing some of its medical schools or converting them into training schools for paramedicals for a period of some ten years or more, while the surplus of doctors in excess of effective demand is gradually absorbed. Already the Philippines, Egypt and Pakistan have shown, or are showing, the way. The money saved can be used for the further development of primary health care. Unless there is resolute action, the world faces the prospect of 150,000 to 250,000 unemployed doctors by the year 2000 - a wasteful mockery of Health for All.

Medical unemployment is particularly uncomfortable in political terms as the articulate young can give leadership to movements of insurgency. But to respond by creating new posts can add to the existing imbalance in health trained manpower - particulary if the new posts are where applicants want them to be, in urban areas. The evident shortage of doctors has made it more acceptable for some countries to train paramedicals to screen and treat patients. A surplus of doctors may lead some of these countries to come under pressure to retreat from this way of delivering services. Some may argue that it was only adopted as a temporary expedient rather than as the best way of obtaining maximum health benefit for the maximum number of people out of a health budget which was bound to be restricted.

The Current Imbalance

Evidence of unbalanced health manpower is not hard to find in both industrialised and developing countries. In many of the former there is not only an increasing surplus of doctors - in Spain, Italy, France and the Netherlands, and projected for the USA and Canada - but also a relative shortage of generalists to make a reality of the thrust to primary health

care teams. Within the specialists some vital areas tend to be short of recruits. They may include anaesthetists to work alongside surgeons, public health doctors to lead the new thrust towards prevention and psychiatrists and geriatricians to service the increasing proportion of the population facing mental infirmity and/or physical deterioration in old age. Thus the policy objective of securing that elderly people, like others, will be able to maximise economically and socially productive life will be hard to apply in practice. The choice of fields of practice of doctors tends to respond to what is regarded as prestigious and what has proved to be remunerative in the past, rather than to any priorities indicated in plans for Health for All. To realign both financial and professional incentives to accord with these plans will be a major challenge for these countries. Similarly, there are often shortages in key groups of other staff such as community nurses (including psychiatric nurses), occupational therapists, chiropodists and speech therapists with key roles to play in supporting the disabled and aged. Again it is often not clear which grade or grades of staff will be the key field workers in efforts to secure changes in lifestyle. But the savings in training fewer doctors can be used to finance training for the key new grades needed to achieve Health for All.

The key problem of most developing countries, for reasons suggested above, is the apparent excessive ratio of officers to train field workers - doctors to medical auxiliaries, dentists to dental assistants, pharmacists to pharmaceutical assistants and so on. There can at first sight be no rational defence of a situation in which there is one doctor to three or four nurses in several northern European countries, one doctor to 1½ nurses in south-eastern Europe, and one nurse to two doctors (Argentina) and to five doctors (Pakistan). But crude statistics of this kind do not really tell us all we need to know. They do not list all the persons actually performing the nursing function (apart from family members), nor indicate their knowledge base, what functions they actually perform, and whether they perform them in a way which is helpful or harmful to health? This would bring into account large numbers of traditional or village practitioners of different

kinds who give varying levels of support to persons who are sick or in childbirth. Moreover, the work of paid health manpower is increasingly seen in some developing countries as complementary and supportive to that of volunteers who have had short training courses and of traditional practitioners, some of whome have been given an element of formal training.

If countries are to make progress towards health for all in an era of continuing cost containment arising from slow economic growth, the manpower deficiency will have to be met by facing up to the problem of cutting down on areas where manpower is in surplus and using the resources to train more paramedicals. This will not be easy where the surplus is in areas of highest prestige. While some countries have begun to identify the extent of excessive surgery, overmedication, unnecessary admission to hospital and profligate usage of diagnostic tests all of which make negligible or negative contributions to national health objectives, there is a reluctance to act on these findings to achieve economies so that resources can be redeployed in ways which make a positive contribution to health. Moreover, there is a reluctance to train paramedicals and secure that tests are delegated to them which are within their competence.

Planning the Future

If countries are to plan a better balance for future health manpower, this plan will have to be contained within a limited health budget. The balance has to be planned for a long period ahead - some ten to fifteen years - in view of the time it takes for facilities to be provided to train further personnel, for periods of training in the case of the more highly qualified grades and for newly trained staff to accumulate within staff complements. This therefore raises two questions. First, how does one estimate effective demand so far ahead? Second, how does one set about planning a balance?

Future effective demand can be estimated by projecting present effective demand using three basic propositions. The first is that as a country's level

of living grows, effective demand can be expected to increase somewhat faster than the level of living. In other words, richer countries devote a somewhat higher proportion of gross domestic product to the health sector. There are, however, wide variations in what particular countries devote to the health sector at about the same level of living. This brings us to the second basic proposition which is that in general countries which are low spenders for their level of living continue to be low spenders and countries which are high spenders continue to be high spenders unless new sources of finance have been mobilised. There is no evidence of convergence. This says nothing about what countries ought to do, it simply describes what countries have tended to do in the past. There seems little reason not to assume the continuation of these past trends which represent the priorities each country has established for itself unless there has been a radical change in political direction.

The third proposition is that countries can improve on past trends if they develop new sources of finance. Such a source may be charges or further charges for health services, informal or formal voluntary health insurance schemes or compulsory health insurance. In view of the contrained economic context, more and more countries are investigating the potentiality for further sources of finance. The yield of any option chosen can be calculated and added on to existing sources in projecting future effective demand.

Choosing the mix of Health Manpower

Once one has an estimate for further effective demand, how does one plan a balance? One way to do this is to look at the different staffing options which can be paid for on a local basis. Assume provisionally that expenditure on central services (central administration, training, stores, tertiary hospitals, etc.) is kept constant up to the year 2000. Divide the rest of the projected health budget per 100,000 of population as projected for the year 2000. This would leave 300,000 currency units per 100,000 population. Assume for the moment that (say) a third of this local budget will be needed for supplies. Then look at all the alternative ways in which the remaining

200,000 currency units could be spent on staff salaries, assuming that salary levels increase in line with average level of living. To make it simple, let us assume that the salary levels for this country are 20 currency units a year for a doctor or dentists, six currency units for a nurse, medical assistant or sanitarian, who have three years' training following a completed secondary education, and two currency units for a rural medical aid who has had six months' training and only a primary level education. Possible options for spending the limited budget for staff of 200,000 currency units are shown in Table 1.

TABLE 1

STAFFING OPTIONS

Grade	Annual Salary	Number in Post		
		Option A	Option B	Option C
Doctor/Dentist	20	10	6	2
Nurse/Medical Assistant/Sanitarian	6	0	10	10
Rural Medical Aid	2	0	10	50

Spending all the money on doctors (Option A) would provide one doctor to 10,000 population, without any supporting staff. Option B would still only provide two lesser trained staff per 10,000, with only about half the time of a doctor to supervise and handle referrals. Option C would give one middle level staff and five lower level staff per 10,000. There are, of course, further possible options. But the task is to select whatever option has the greatest capacity to deliver the eight essential elements of primary health care available and accessible to the whole population. This involves working out tasks for staff at different levels. Once these tasks have been assigned, training programmes can be devised for each category of staff. Of course, it will be necessary to go back and check whether the allowance for supplies is in line with the chosen pattern of staffing and adjust supply and staffing budget until they are consistent with one another. It will also

be necessary to reconsider the appropriateness of the sum originally laid aside for the main hospitals and central services. Will this be sufficient to service and support the chosen pattern of local services and in addition retrain staff for the chosen job descriptions? If not, readjust all totals accordingly.

Conclusions

The process of putting health manpower into balance over time is therefore part of the process of making a financial master plan for health for all by 2000 which the 1981 world strategy called upon Ministries of Health to draft. Indeed, it is a crucial part of the rationale for making such a plan. The essential point is that the economic resources which can be mobilised determine the limits of the plan - the alternative staffing patterns which could be paid for. The present imbalance is in part due to a failure to accept this limitation in the past. Earlier plans were often made on the tacit assumption that if some ideal staffing pattern were established, the money would be bound to be made available to finance it. The developing countries are not short of demonstration projects and model health centres built to earlier specifications. The fact that these models were never generalised demonstrates that they proved to be economically unrealistic. Let us hope that future generations accumulate no further graveyards stocked with good intentions. Economic realism must now be the order of the day.

COUNCIL FOR INTERNATIONAL ORGANIZATIONS OF MEDICAL SCIENCES
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"HEALTH MANPOWER OUT OF BALANCE: CONFLICTS AND PROSPECTS"

XXth CIOMS Conference

Acapulco, Mexico - 7-12 September 1986

Overview of 16 Country Studies

(Manuscript)

51H

IMBALANCE IN HUMAN RESOURCES IN THE HEALTH FIELD: CONFLICTS AND PERSPECTIVES

Acapulco, Mexico, 7-12 September 1986

SIXTEEN COUNTRY STUDIES: AN OVERVIEW

1. Introduction

1.1. At the request of the World Health Organization, an analysis of the situation in human resources in the health field was carried out in 16 countries, with a special focus on compatibility between the products of health personnel and their employment in the job market.

These studies were prepared as background documents for the meeting sponsored by the Council of International Organizations in the Medical Sciences (CIOMS), to be held in Mexico in September, 1986. The central theme of the meeting is imbalances in human resources in the health field.

1.2. Many of these countries studies used the concept of "imbalance" as requested to describe and analyze specific situations. However, no study discussed the theoretical development of the concept and some authors preferred to replace the term "imbalance" explicitly with the expression problem. These imbalances or problems were seen as obstacles to achieving the objectives of the health policies of each country, generally inspired by the goal of "Health for All in the Year 2000"(HFA).

1.3. Unless otherwise indicated in this text all information compiled in this document was drawn from the 16 country studies.

In some cases the quantitative information provided in the case studies is inadequate to allow a systematic comparison of the 16 countries, especially for projections and forecasts for the year 2000. However, this lack of data does not prohibit analysis of overall trends. While this group of countries is not a representative sample of countries throughout the world, countries with very diverse socio-political and economic conditions were included. For example, the variations in the degrees of economic development of the countries studied can be demonstrated with a simple but useful indicator: the per capita gross domestic product. Table 1 shows how the countries studied can be grouped into four median income ranges.

TABLE 1

Distribution of Countries Studied According to
Per Capita Gross Domestic Product

Group	Countries*
I (US$ 100-500)	Mali Tanzania India Sri Lanka Pakistan
II (US$ 500-1000)	Egypt Philippines Cameroon
III (US$ 1000-5000)	Colombia Brazil Korea Argentina Mexico
IV (Over US$ 5000)	Canada United States

Source: The World Bank Development Report, 1983
* Cuba not included because data are not available.

The general concepts which guided this comparative analysis were:

a) The principal problems in human resources in the health field are comparable worldwide, i.e., they are evident in a majority of the countries as a result of circumstances of a political, economic and social nature.

b) However, their origins, forms of manifestation and consequences, as well as possible interventions to correct them, must be viewed in the context of the specific historical characteristics, socio-politics and economic development occurring in each country or group of countries.

c) The extent and the potential of the country's present demographic growth, industrialization, urban development, internal and external markets must also be considered. In addition the organization and use of health services in each country makes its manpower situation unique.

1.4. In this sense, what renders many of these determining factors more or less effective is the present socio-economic situation and labor market trends in each country of which the workers in the health sector are a part. It is in the context of the characteristics of the job market in general and the job market in the health field in particular similarities or differences among countries can be identified. For example, the surplus of doctors in the United States and the same situation in Canada are certainly similar phenomena, but those case studies differ dramatically from a surplus of doctors in Egypt. In each case the characteristics and dynamics of the job market in the health field will have to be considered in order to be able to compare one country with another and to draw conclusions.

The studies brought together here demonstrate that situations and trends are similarly expressed in a majority of the countries, but that there are specific differing variables within the scope of the job market according

5o structural and situational aspects of each country. However, an in-depth understanding of the relationship between supply and demand for health-care professionals through a comparison of countries in different states of socio-economic development would require subsequent studies based on demographic and macro and micro-economic methods.

1.5. The problems or imbalances in human resources in the health field discussed in the country studies will be summarized below in the following context:

a) Supply of physicians and their distribution by geographic region and by specialty;
b) Supply of nurses and other selected health manpower categories affecting the composition of the labor force in the health field; and
c) Human resource policies in the health field.

2. Supply of physicians and their distribution by geographic region and by specialty

2.1. Increase in the supply of physicians

2.1.1. In the last quarter century in virtually every country in the world there has been an extraordinary increase in the number of doctors. The overall availability of physicians underwent a much greater expansion than did the population, which consequently made it possible to expand health-services coverage to certain population groups not previously reached. Recently there have been indications in various places of the existence of medical unemployment and underemployment, resulting in even greater attention being paid to this situation by both specialists in human resources in the health field and government authorities.

From the data provided by eight of the country studies, we find that

with the exception of Sri Lanka the increase in the number of doctors significantly exceeded population growth. From Table 2 it can be concluded that in percentage terms doctors are increasing in these seven countries at least three times faster than the general population (a more rigorous comparison would require data for the exact same time periods.)

TABLE 2

Overall Growth in the Number of Physicians in Professional Practice and Population Growth for Selected Countries Studied

Country	Doctors				Population (1000's)		
	Period	First Year	Last Year	%	First Year	Last Year	%
USA	70-80	326,200	457,500	40.1	203,235	225,605	11.4
Canada	78-83	35,430	41,440	17.0	23,637	25,024	3.9
Colombia	65-85	6,232	18,158	191.4	17,485	28,100	60.7
Brazil	70-80	45,113	101,793	125.6	92,342	119,099	28.9
Egypt	70-80	18,769	48,153	156.5	33,000	42,000	27.3
Philippines	70-80	13,101	30,000	128.9	36,684	48,098	31.1
India	71-81	140,550	250,000	77.8	548,160	685,185	25.0
Sri Lanka	65-83	1,546	1,243	-20.0	10,903	15,416	41.4
Cuba	75-85	9,328	22,910	145.6	9,332	10,048	7.6

Source: Country Studies

The negative growth rate noted in Sri Lanka is due to a strong flow of doctors emigrating, causing the number of losses to exceed that of doctors trained each year.

2.1.2. The factors contributing to the expansion of the supply of doctors in most of these countries have been identified as: accelerated rate of urban development, industrialization, increase in median income of the population, expansion of public and private health insurance, and medical education.

Urban development appears to have had a considerable effect not only because of increasing consumer demand for health services, but also because of the demand for education basically expressed by the urban middle and upper classes of society, from which candidates for careers in medicine usually come. Thus, the increase in the number of physicians could be more directly related to the rate of urban development than to general population growth. The country studies, however, do not provide adequate information or analysis that might shed light on the relationship between the urban development process and the growing supply of doctors. However, one might speculate whether a possible lack of dynamism in urban development in Sri Lanka might not be one of the major factors responsible for the low supply of physicians and for the inability to keep them after their training.

2.1.3. Evaluating whether the supply of physicians exceeds a certain threshold beyond which it may be considered excessive is a difficult task. Concern with this difficulty was expressed in more than one of the country studies. A difficult task because data on what is really happening among professionals in the job market are unclear or unavailable. It would be necessary to know how many are actually unemployed and to have a fairly accurate estimate of the extent of underemployment through information on income, hours worked, number of jobs held, and so on. Furthermore, there is always a certain proportion of unemployed in all economic sectors, which can be considered "normal," and which is subject to fluctuation.

Two studies provide estimates on unemployment: 6,000 in Pakistan and 4,000 in Egypt. However, there are no specific surveys on physician employment in these or other countries, so that diagnosis of unemployment and under-employment is often established through subjective evaluations and informed judgements.

In the case of highly developed countries such as Canada and the United States, it is customary to use econometric calculations of manpower supply and need based on parameters of production and productivity of services. In Canada, for example, it is calculated that presently there is a 2.2% surplus in relation to the present supply of doctors, and a 12% surplus projected for the year 2000.

In developing countries, making such calculations is much more difficult. In these cases, there is always the possibility that an apparent surplus of doctors will be interpreted as resulting from an inadequate capacity to absorb the physician and active professionals in relation to the magnitude of the population's needs. In the study of Argentina, which has one of the highest physician/ population ratios among the developing countries studied, Dr. Aldo Neri is quoted as saying: "It is not certain that there is a great plethora of doctors, as one hears constantly in certain forums; what there is, is an excess magnitude relative to the type of (Health Care) organization. A change in the system would mean the possibility and the necessity of absorbing the present availability of professionals."

Furthermore, the corporate interests of the professionals and the political stance taken by the governments make the question a particularly delicate one. Pressure can be exerted by the medical profession for the purpose of establishing a diagnosis of surplus, or, in contrast, the government may be inclined not to officially recognize the surplus by virtue of the need to meet demands by certain other social groups. That is, the issue of phisicians surplus takes on strong political connotations. With these consideration in view, Table 3 shows the most recent information

regarding the supply of physicians. The evaluation regarding the status of the supply ("surplus," "adequate " or "shortage") reflects the opinions of the authors of the country studies, and in most cases reflects the position of the governments.

2.1.4. Sri Lanka is the only country which indicates the existence of a significant shortage, with a ratio of 8.1 doctors per 100,000 population. For Cuba, Brazil and Korea, the present supply is considered adequate. All of the other countries' appraisals indicated the existence of a surplus; however, with varying emphases and admittedly not always based on objective indicators.

A surplus was detected in countries having a low ratio of doctors per 100,000 population, as well as in those where the ratio is high. Such a diagnosis mas made for countries like Pakistan, with 27.1 physicians per 100,000, and the United States, with 197.3. Therefore, the diagnosis seems not to depend on any universal parameter or norm of doctor availability per population, but rather on effective capacity for absorption by the job market according to its dimensions and characteristics.

TABLE 3

Present Situation in Phisician Supply

for Selected Countries Studied

Country	Reference Year	Population (1000's)	Number of Doctors	Doctors/100,000 Population	Evaluation (1985)
USA	1982	235,700	465,026	197.3	Surplus
Canada	1983	25,000	41,440	165.7	Surplus
Colombia	1985	28,100	18.158	64.6	Surplus
Brazil	1980	119,099	101,793	85.5	Adequate
Korea	1984	40,559	28,015	69.1	Adequate
Argentina	1980	27,947	46,353	165.8	Surplus
Mexico	1985	77,777	95,000	123.4	Surplus
Egypt	1985	47,000	71,739	152.6	Surplus
Philippines	1982	50,000	30,000	60.0	Surplus
India	1981	685,185	250,000	36.5	Surplus
Sri Lanka	1983	15,400	1,243	8.1	Shortage
Pakistan	1985	94,700	25,650	27.1	Surplus
Cuba	1985	10,048	22,910	228.0	Adequate

Source: Country Studies.

It is also noted that the "surplus" evaluation was made in countries in all four levels of economic developments identified earlier according to the per capita GDP (Table 1).

In Table 2 Cuba's situation emerges quite particularly. Despite showing the highest ratio of physicians per population, there is no indication of doctor surplus or unemployment, due to planned regulation by the state of both training and utilization of the various types of professionals. Within the total of nearly 23,000 cuban doctors are included about 1,150 (5%) who provide services abroad as part of international cooperation with Third World countries.

For the purpose of providing an overview view of the physician supply situation, a selection of textual quotes drawn from various country studies are presented below.

2.2. Observations on physician supply in the country studies

2.2.1 "In the last two and a half decades, the United States government has invested a substantial amount of funds in support programs for education in health care professions, both in the form of aid to teaching institutions and through loans, scholarships and training for students. In the early years, the primary objective was to assist in increasing the total number of doctors, dentists, nurses and other major professional groups. Later, as the total supply reached more adequate levels, the focus turned towards meeting more specific objectives such as improving geographic distribution, expanding the number of providers of primary care, and recruitment of the growing number of minority group students. Throughout this period, the federal government shared responsibility for ensuring adequate supplies of health care professionals with the state and local governments and a variety of private organizations and groups." (United States, page 9.)

2.2.2. "At the present time it is estimated that the total supply of doctors

is more than adequate in Canada. A recent national study estimated that in 1980 there was a surplus of about 2.2% of the pool (that is, nearly 830 doctors) (....) To alleviate the present and projected surplus, a recent national study considered a number of policy options in the following areas: 1) physicians from abroad, 2) postgraduate training, 3) enrollment in the medical schools of Canada, 4) physician distribution/remuneration (....) Current efforts to limit the total supply of doctors in Canada while specific geographic and specialty shortages are being solved have been directed in part towards cost containment." (Canada, pages 9, 16 and 21.)

2.2.3. "In the Brazilian case it is incorrect to apply a diagnosis of excess supply of these professionals (....) Indeed, although there is no apparent reason to justify adopting measures to stimulate an increase in the production of doctors, neither is it appropriate in the present context to give free rein to a more restrictive policy than the one now in force, which is already limiting initiatives to starting new medical schools." (Brazil, Page 36.)

2.2.4. "Is there an explosion or supersaturation of doctors when their number is compared to real social needs? Or does this supersaturation exist only when this figure is put up against the state's lack of capacity for absorption (....) In the midst of these controversies we have resorted to dealing with the training of professionals in the following terms: preventing at all costs the creation of more medical schools for a reasonable period of time; preventing the anarchic increase in quotas and promoting the acceptance of just one class of new students a year instead of two; promoting an increase in the number of years in medical schools to return to seven years, as in times past. (....) We believe that the imbalance occurring with regard to production, training and employment is part of a greater mosaic, which is the style and dynamics of development in our emerging nations." (Colombia, page 2.)

2.2.5. "There was an overproduction of doctors beyond the available

medical care facilities during the last 15 years, due to several factors: free medical education, public demand both at the government level for having a medical school and at the personal level for having more doctors or enrolling more students in medical schools, caused by the relatively high income of doctors. The result is an excess of young graduates in the medical corps." (Egypt, page 2.)

2.2.6. "The supply of doctors has far exceeded market considerations and there now exists the problem of physician unemployment. Their number gradually rose from approximately 150 in 1947 to 1000 in 1971. Between 1972 and 1975 the number of medical schools and admissions expanded at a frenetic pace. The number of medical schools rose from 7 to 14, with an increase in enrollments from 1000 to 4000. The number of graduates began to rise in 1980, and since 1982 it has been around 4000 annually. The public sector began to expand, but it was unable to do so at the rate necessary to absorb all the physicians. The public sector is now capable of absorbing about 1000 physicians annually The private sector has grown slowly and is absorbing about 1500 doctors annually. In the late seventies, the doctor exodus was checked, and all must now find employment within the country The attrition rate is around 500 to 700 annually, giving a surplus of about 1000 doctors a year. It is estimated that at present about 6000 doctors are without work." (Pakistan, page 20.)

2.2.7. "Increases in the availability of skilled human resources adhered to the objectives of development of public health, and this as a branch of the economy, and, therefore, human, material and financial resources have been guaranteed (....) The state's budgets included allocations to cover expenditures arising from the increase in the public sector's level of activity and, within these, the allocations necessary for the increases in skilled human resources, whereby each new university professional or mid-level technician was assured of a job in the state public-health system, without producing imbalances or unemployment in this skilled labor force." (Cuba, page 22.)

2.3. Present international trends in the training and supply of physician

2.3.1. For at least 15 years, during the period from 1960 to 1975, and affecting virtually every country in the world, a political and economic situation occurred which proved highly stimulating for the extensive training of physicians and other health care professionals at the university level. International agencies and the countries' governments began with the premise that there was inadequate coverage of the population by health services, especially physicians care in urban and rural areas; and with an assumption that the situation was the result of the scarce supply of doctors.

At that time, the outstanding determining factors of that shortage were were identified as rapid population growth, urban development and the development of social insurance systems that encouraged unmet demands. In 1966 an article on this topic was published in the first issue of the PAHO journal, Educacion Medica y Salud, referring to such factors and mentioning that "the growing need for medical care and the unequal distribution of physicians have posed the problem of preparing more professionals in this field and in the associated disciplines."

PAHO and the WHO promoted various international meetings, at which the accelerated training of doctors was the primary topic of discussion, and the focus was on the development of new teaching methods for medical education, teacher training, modernization of the university system, and the introduction of new disciplines. Furthermore, this was a phase of expansion for the economy in most of the countries in response to a situation in international trade relationships that seemed favorable to all. The middle levels of the population saw higher education and medical education in particular as one alternative for advancement and social ascent. The physical infrastructure of health care services received large investments from the state from private initiative, and from social security agencies.

Out of this conjunction of factors there came tremendous growth both in the number of schools and in the enrollment in medicine. In many areas this occurred with an increase in private sector participation in medical education activities.

As this phenomenon was a response to factors both national and worldwide, the increase in graduates in medicine was not an isolated occurrence. In reality, it happened pari passu with the increase in the number of other professions inside and outside the health field. It was part of a larger process which took the form of a boom in higher education and forced modernization of the university as an institution in virtually every country.

2.3.2. What came to the fore in the mid-seventies were clearly expansionist orientations and policies in the training of physicians and other high level human resources in the health field. Even so, beginning in 1975 there gradually emerges an opposite attitude on the part of governments and international organizations. A feeling began to spread that the number of trainees was exceeding the capacity for absorption and that this could, through various forms of repercussion, have an unfavorable impact on the costs of medical care and on the health care system as a whole. In the United States a commission of experts (Graduate Medical Educational Advisory Committee - GMENAC) began to study the matter, issuing its opinion four years later: if the rate of expansion of medical education continued, there would be a surplus of 70,000 doctors in the United States by 1990; of the 645,000 expected to be practicing in the year 2000, more than 145,000 would be unnecessary. A 10% cutback in the number of students admitted annually was recommended. Similar studies and recommendations were made in other countries. As the change in policy made itself felt, medical education has entered a period of containment. There was then a search to define qualitatively the objectives of medical training policy: intensification of specialization, of continuing education, of the integration of teaching and service, and of primary care.

In the second half of the seventies, the world economic situation had changed considerably, and the rate of growth of the national economies, Partly under the impact of the oil crisis, began to slow, with few exceptions. The world economic cycle had entered a downware phase and state fiscal deficits became more acute, putting an end to the dream of achieving the welfare state for many countries.

Obviously manpower training policies needed to change in the face of this situation. More emphasis is now being given to improved productivity and quality of human resources in the health field.

A review of the Indian study allows us to follow the change in this policy through it's national development plans and is certainly a very interesting example. The Fourth Plan of India (1970-1974) is very incisive in pointing out the quantitative lack of doctors: "Despite a substantial increase in medical-education facilities over the last 15 years, the shortage of medical Personnel continues to be acute." The Fifth Plan (1975-1979) no longer recognized the existence of a shortage, but only poor distribution and the need for organizing postgraduate training. But the Sixth Plan (1980-1994) explicitly states: "in view of the growing unemployment of graduate doctors and also the imbalance in the ratio of doctors to paramedical workers, the government's policy is not to increase the number of medical schools or their capacity. The emphasis will be placed on qualitatively improving medical education."

This new policy was reflected basically in the number of students enrolled and in the creation of new courses in some countries, and in others new restrictions on the admittance into the country of foreign physicians, especially in the cases of the United States and Canada.

Why did the job market for medical professionals so suddenly reach an apparent saturation point? Could it be through the exaggeration of an expansionist policy incapable of foreseeing the appropriate number of physicians in relation to "true needs"?

Clearly the interaction of internal economic forces and the falling rate of investment (public and/or private) in health in many developing countries was not foreseen. Thus, the capacity to absorb health care personnel declined at a rate not anticipated. Unfortunately, this apparent saturation point comes at a time when access to health services is still very limited for a majority of the population. That is, this saturation cannot be viewed other than as a limit imposed by the way in which the resources are defined and utilized at present.

In the eighties, partly because of a spontaneous trend in educational demand and partly through the effect of containment policies with regard to training, the number of graduates and the total number of students in medical courses is beginning to fall or stabilize in some of the countries making up the sample.

The number of trainees or enrolled students is declining in the following countries: the United States, Colombia, Mexico, Egypt and Pakistan. In Brazil and Canada there is stability, and an as-yet-undefined trend in Argentina. The others are recording growth in the annual series. The lack of data for the African countries (Mali, Tanzania and Cameroon) does not permit any conclusion regarding future enrollment trends.

2.3.3. With regard to physician training policy, only two countries are not adopting a containment approach: Sri Lanka and Cuba. However, Argentina is recorded as indefinite on this issue.The classification of the policies adopted by the countries shown in Table 4 is based solely on information presented in the country studies and not on official documents. The studies did indicate a clear move toward a containment policy for most of the countries.

TABLE 4

Trends and Type of Policy for Physician Training in Selected Countries Studied

Country	Reference Year	No. Trained	Training Trend	Containment Policy
USA	1985	18,486	Reduction	Yes
Canada	1984	1,771	Stability	Yes
Colombia	1984	1,238	Reduction	Yes
Brazil	1983	7,239	Stability	Yes
Korea	1984	1,940	Increase	Yes
Argentina	1983	4,587	Undefined	Undefined**
Mexico	1983	14,099	Reduction	Yes
Egypt	1985	5,500	Reduction	Yes
Philippines	1983	2,697	Increase	Yes
India	1981	13,000	Increase	Yes
Sri Lanka	1983	140	Increase	No
Pakistan	1985	4,000	Reduction	Yes
Cuba*	1983	1,742	Increase	No

* In the middle of the 81-85 period.

** In the reference year

Source: Country Studies

2.4. As a basis for policy analysis, projections of the supply of doctors by the year 2000, taking current trends as a reference, were presented in some of the case studies: e.g. the United States, Colombia, Brazil and Korea. The availability of doctors for Argentina, Mexico and Egypt was calculated by the study consolidation team, taking a fixed rate of 2% losses annually and utilizing projected population data furnished by the World Bank (Table 5).

TABLE 5

Projections of the Supply of Physicians in the Year 2000 in Selected Countries Studied

Country	Estimated Population in the Year 2000 (1000's)	Annual Average of Doctors Trained 1986-2000	Total Physicians in Yr. 2000	Physicians/ 100,000 Population
USA	268,000	17,500	696,600	259.9
Brazil	179,000	7,000	181,033	100.0
Korea	49,000	13,500	63,174	128.9
Argentina	38,000 (1)	5,000	106,147	279.0
Mexico	109,000 (1)	12,000	259,879	238.4
Egypt	63,000 (1)	4,500	112,780	179.0
Cuba	12,000	3,460	75,000	625.0
Colombia	37,000	12,000	53,143	143.6
Pakistan	133,000	3,000	66,500	50.0

(1) Population data furnished by the World Bank.

Source: Country Studies.

From 1981 to 2000, the total number of doctors in the United States will reach 696,600, recording a 41% increase (over 1981). Estimates of need are on the order of 618,800, so that a surplus of 77,800 doctors is foreseen, a number smaller than that previously estimated in the GMENAC Report. The calculation was done assuming an acceleration of the decline in the proportion of doctors graduated abroad who enter the country each year. The ratio of physicians per 100,000 population will rise to 259.9 in the year 2000.

The Korean study anticipates that there will be a surplus of 26,500 doctors in the year 2000 in relation to the minimum demand for services, and a surplus of only 4,200 for the maximum demand estimate. Korea would have a ratio of 129 doctors per 100,000 population by the year 2000. No calculations of demand for services were done for Brazil, Mexico, Argentina, Cuba and Egypt.

Two facts are striking: first, if the current trend holds, the physicians/population ratio for Argentina will exceed that of the United States. Second, in Brazil's case, in contrast, the stable rate of training of 7,000 physicians annually would provide a clearly lower ratio in comparison with other countries at a similar level of development.

For Cuba, the figures shown are not the result of a projection but rather of a manpower development goal under the policy adopted by the government for expanding and improving the medical services provided to family groups domestically and, as international cooperation, abroad. The proportion of physicians in the population will be the highest of all countries studied (625 per 100,000).

Several country studies indicated that there is a wide margin for absorption of doctors trained abroad throughout the next decade, resulting from changes in the structure of health services. These changes will be made in order to deal with increased proportion of elderly in the population. For example, from an emphasis on preventive care and primary care to the technical development of medicine at complex levels of care.

2.5. Impact of the growing supply of physicians on their distribution by geographical region and specialty.

2.5.1. There is one problem about which all the studies expressed unanimous concern. This is the poor geographical distribution of physicians, evaluated either by comparisons among various administrative regions or divisions in the countries, or between urban and rural areas.

Canada is as a country with a privileged position in the area of physician distribution by geographical region. The difference in the proportion of physicians per 100,000 population between the regions with the highest proportion of staff (101.3 in British Columbia) and the region with the lowest staffing ratio (66.7 in New Brunswick) for 1983 is not significant.

It is not possible to construct a geographic distribution comparative table for the countries, due to the inadequate data and the heterogeneity of the type of territorial unit used in each study. However it appears that in density of physicians the magnitude of variation may be particularly influenced by the relative size of the country's capital. In Argentina, for example, in 1980 proportion varies from 468.1 in the federal capital to 81.3 in Formosa province.

The studies demonstrate that there are still major voids in the distribution of physicians between the least and most developed regions in each country, except Canada. In Brazil, the northeast - the poorest region and home to 30% of the population - has barely 19% of the physicians. Similar inequities are found in other countries and appear to result from the distribution of national income and the industrialization process, which favor certain cities and regions.

In Colombia it was found that 74% of the physicians were concentrated in the provincial capitals where 31% of the population lives. In India, 80% of the physicians are located in urban areas, while 80% of the population is in rural areas.

In Pakistan, the ratio of rural to urban population is 7/3, while for physicians it is 1/8. In the Philippines, the capital has one doctor for 660 persons, but in the other regions consisting of a great number of small islands, the proportions are as low as one doctor for 5,300 persons. In Brazil no less than 98% of the physicians practice their profession in urban areas. It should be noted that the proportion of physicians per population in the various regions of each country is not the only variable affecting access to health services.

In countries where there are transportation difficulties, and where economic selectivity is at work in the consumption of private and social-security services, part of the population continues to experience major difficulties in access, even when there is a high proportion of physicians in the population. Brazil, Argentina and Mexico are countries having such characteristics, and they are recognizing the need to reform their health care systems to order to make them universal and equitable in access to services.

2.5.2. In the last 10 to 15 years the growing supply of physicians has unequivocally worked in favor of better distribution by geographical area within the countries studied. This phenomenon was observed in the United States, Canada, Brazil and Cuba. In part, better coverage was also achieved in other countries (Colombia, Mexico and Egypt) through mandatory rural service upon completion of studies as a requirement for licensure.

at what PR?

In the United States there is an important voluntary program aimed at increasing the concentration of physicians in under served and ethnic minority areas.

In India and Sri Lanka, one constant concern in national socio-economic development plans has been to move physicians to the country's interior by offering them housing, salary incentives, and loans to set up private practice.

2.5.3. The increase in the proportion of physicians joining the job market via remuneration in the form of a salary, rather than fees for services also appears to be a consequence of the growing supply of physicians. Even in the United States, where private practice still dominates, competition and the need to lower costs are forcing physicians to work on salary in various pre-paid health services firms. **It is estimated that 50% of U.S. physicians will be salaried by the year 2000.**

In other countries, the public sector is of the utmost importance as the employer of physicians. In Brazil 50% of physicians are associated with the public sector, while in Argentina and Egypt the proportion rises to 60% and 80%, respectively.

As a consequence of the ever-growing competition among physicians in the job market, salaries are a universal trend and may be a positive factor in determining more suitable patterns of consumption of medical services by large segments of the population. Salaries paid by the state and even by private initiative offer possibilities for making medical care more accessible to the population in those places where it was formerly available only to the privileged few.

2.5.4. The growing supply of physicians was accompanied by, as we have mentioned, a change in the objectives of development policies, which began to give more priority to qualitative factors rather than only quantitative. In medical education emphasis was placed on specialization mechanisms through residencies and post graduate courses.

For countries like Colombia, Mexico, the Philippines, India and Pakistan, the need to establish or strengthen the existing domestic capacity for training specialists derived at least in part from the restrictions imposed by the United States, Canada and other developed countries on the entry of foreign trained physicians, who for many years had sought out their specialized training abroad.

Furthermore, in a situation of relative oversupply, the job market becomes more selective and demanding in terms of the qualifications of the medical labor force. This means that someone not managing to get some advanced specialization as an additional educational credential may be condemned to under or unemployment. The Mexican study in particular makes this clear. Thus one immediate effect of the relative oversupply of physicians is a prolongation of the actual training time required for entry into the job market. In many cases this prolongation has been considered excessive in relation to the capabilities required and has worked rather as a simple delaying mechanism for the doctor's entry into the job market, i.e., it acts as a buffer for the oversupply of physicians. According to some analysts, this situation is characterized as disguised underemployment, inasmuch as while the doctor is in in post graduate training status he receives a stipend far below the normal salary or income level of a physician.

In Canada, family physicians continue to increase more than specialists: between 1978 and 1983, the two groups increased at rates of 11.5% and 9.4% respectively. Generally speaking, the proportion of doctors practicing in ambulatory and primary level care has risen in all countries. This has been the focal point of all official policies and will certainly continue in the next decade. But there has been concern over the lack of specialists in the critical fields such as surgery, anesthesiology, laboratory analysis, and epidemiology.

In summary, there is an ever growing recognition of the need for medical post graduate education and specialization trends not governed by individual preferences or motivated by the relative oversupply of physicians, but rather that follow a national development plan. So it is that countries as varied as Mexico, the Philippines, India, Pakistan and Egypt, facing a an oversupply of physicians, underscore the imperative of setting a national plan for remedying the lack of specialists and creating incentives to keep them in the country.

3. Availability of the nursing labor force

3.1. The Definition of Nursing and its Components

3.1.1. Nursing as a discipline is complex. Different countries use different definitions for the nursing category and its components, and variations in the latter are great. The traditional role, linked historically to curative care and individual, basically hospital medicine, has been transformed in its content. Recently, the spectrum of functions of a nurse in relation to aspects of promotion, prevention, recovery and rehabilitation in a context of practice determined by changing health needs has been immensely broadened. Other roles have been developed for nurses as social and health systems have changed orientation, structure and organization. The nurse's role is also defined by her interrelationship with other health care professionals and nursing auxilliaries.

A labor market that historically did not place high value the nurse's work gave rise to great growth in this category, especially in the period of expansion of the health services system. Towards the end of the fifties and in the early sixties, in many countries in the Americas nursing assistants came to constitute the majority group in the health care labor force, especially in the hospital sector.

Other factors must also be noted in the case of a largely female professional category, such as the subordinate position and role of women in present societies. Likewise, the appropriation of knowledge by the hegemonic medical profession has also marked the development of nursing as a profession.

The lack of uniformity in definition of the profession presents a difficult problem in attempting to draw conclusions from the comparative analysis of the country studies. The countries studied defined the profession of nursing and its components in many different ways. This difficulty must be kept in mind through the analysis in this chapter.

3.1.2. In most of the countries studied, the length of the training of Professional nurses lasts from two to four years (Table 6). To acquire the title of nursing assistant, the time is shorter, with much variation among countries.

In some countries it is possible to acquire the higher classification of aide or assistant through ratification. This is the case in the United States, where a certain period of practice as aide (or its equivalent), especially in hospitals, may make it possible to be classified as assistant, or the corresponding higher level.

Training at the B.S. level is relatively recent in some countries like Mexico, while other countries have reorganized this training in academic grades or levels with a view towards enhancing the traditional training of the nurse, as is the case with Brazil and Colombia.

3.1.3. While the studies present a good deal of information on the medical labor force, the quantitative and qualitative paucity of information on nursing should be pointed out; this paucity has limited attempts to draw conclusions as was done for physicians in this analysis. This lack of data only reflects the situation in many countries, and from this viewpoint the sample of countries in the study could be representative. Health Manpower information generally is partial, out-of-date data (restricted to some institutions in the public sector), using various definitions for similar categories and which are very limited in terms of the characteristics of the nursing staff.

TABLE 6

Length of Training of Senior Nursing Personnel

and Availability of Nursing Personnel in Selected Countries

Country	Length of Higher Level Training	Nursing Manpower (except Aides & midwives)		
		Year	Number	Proportion Per 100,000 pop.
United States	2-4	1983	1'404,200	595.7
Canada	2	1983	176,768	706.4
Colombia	4	1985	31,841	113.3
Brazil	4	1982	112,090	93.4
Korea	3-4	1984	24,624	60.7
Argentina	4	1985	37,267	133.3
Mexico	4	1984	87,398	113.5
Egypt	-	1983	24,716	52.5
Philippines	-	1984	49,830	99.6
India	3	1983	155,300	22.6
Sri Lanka	-	1982	7,597	49.3
Pakistan	4	1983	5,542	5.8
Cuba	4-5	1985	39,409	392.2

Source: Country Studies.

3.2. Availability of the nursing labor force

3.2.1. Table 6 provides information on the availability of nursing personnel, except for aides and midwives, in both absolute and relative numbers, by proportions per 100,000 population for 13 countries.

Nurses having two very important characteristics that differentiate them from physicians. Firstly, they are a group which, as a profession, does not enjoy the recognition and social status, or the political influence, that doctors do. Secondly, it is a group of basically salaried workers in a dependent institutional job (independent or "solo" practice is not an important condition in nursing).

As can be seen, availability levels are quite varied, depending on the characteristics of the countries and their health care systems. The range for this group goes from as low as 5.8 and 22.6 nurses per 100,000 Population for Pakistan and India, respectively, to levels as high as 706, 595, and 392 for Canada, the United States and Cuba. The intermediate levels are found in countries like Argentina (133), Mexico (113), Colombia (113), Brazil (93), and Korea (60).

3.2.2. The influence of the type of health care system is demonstrated in Table 7. The English-speaking countries of the Americas with a different organizational model have a proportion of nursing personnel per 100,000 population that is significantly higher than the Spanish-speaking countries. The English-speaking Caribbean subregion, whose socio-economic development level is similar to or even lower than many Latin American countries, shows 289, in comparison with numbers between 83 and 153 for the Latin American countries.

TABLE 7

Availability of Doctor and Nursing Personnel

by Groups in the Americas, Circa 1980

Countries & Groups	Doctors per 100,000	Nursing Personnel per 100,000
Andean Area	102	114
Central America & Panama	61	153
Southern S. America	204	144
Brazil	93	83
Mexico	123	111
Cuba	200	355
English-speaking Caribbean	70	289
Canada	196	1052
United States	214	1372

Source: Data provided by the countries, to the Human Resources Development Program PAHO/WHO.

The ratio of the number of physicians to the number of nursing personnel is likewise inverted when we analyze these groups of countries: in the English-speaking Caribbean, the ratio favors nursing personnel (200/355), while in the countries of southern South America (204/144), Brazil (93/83) and Mexico (123/111) the opposite occurs. Even within Latin American countries there is an inverted ratio when we compare groups of countries with varying institutional organization: the countries of the Andean area and Central America, with their greater institutional weight in ministries of health, have a greater number of nurses than physicians per 100,000 population (102/114 and 61/153, respectively), while those countries with greater development and greater relative weight in social security (southern South America, Brazil, Mexico) show an inverted ratio.

A similar situation is observed in the European countries grouped by regions, where those with a greater number of physicians show a lower number of nurses, and vice versa. See Table 8.

TABLE 8

Availability of Doctors and Nursing Personnel in the Regions of Europe, circa 1980

Region	Doctors/100,000	Nursing Staff/100,000
North	1740	628
East	2040	530
South	2440	341
West	2070	607

Source: **K.R. Poulton: Nursing Manpower in Focus Unpublished, 1986.**

This evidence prompts us to consider the role that the institutional nature of the organization of health care systems plays in shaping the demand and pattern of utilization of various types of human resources. In conclusion, it is not only economic and social factors that work in defining the availability of the nursing labor force; a significant weight is also taken on by factors of a political and institutional nature in the social and health care systems. Analysis of the job market is essential in explaining the evolution and prospects of a human resource basically dependent on institutional employment.

3.2.3. Over the last few decades virtually all countries have experienced growth in the availability of the nursing labor force. Greater or lesser growth depended on the countries' economic situation as well as on the structure and organization of their health care systems. It has been pointed out that the increase was spectacular among oil-exporting countries: between 1965 and 1980 the increase was 110%. Such growth in this group of countries is possibly related to the immigration of health care workers from donor countries such as India, Pakistan, the Philippines, and Korea. Of the country studies, only four Provide adequate information to illustrate the degree of growth in the nursing labor force.

force of around 80%, at the expense of levels of B.S. holders (228%) and nursing assistants (167%) and, to a lesser degree, nurses' aides (13%). In Brazil the labor force grew by 78% between 1977 and 1983, with the greatest period of growth being between 1980 and 1983.

Between 1979 and 1983 Canada experienced growth of around 19% in absolute values and 13.4% in the proportion per 100,000 population. Likewise in the United States between 1970 and 1984 the nursing labor force grew by 94% in absolute terms and 67.5% relative to population. However, in this case there is a noticeable recent slowdown in the rate of growth, which between 1980 and 1984 was 14% in absolute terms. Regional analysis of the Americas in terms of the historical trend for the nursing labor force and its components from 1972 to 1984 shows that growth is neither universal nor uniform. In Table 9 it can be seen that the growth in nursing manpower in general is both absolute and relative (48% and 19%, respectively); however, growth was not constantly consistent: absolute growth between 1972 and 1976 was 13%, with 33% as ratio, but only 10% between 1976 and 1979. It again rose to 18% between 1979 and 1984, with 11% growth relative to population. Senior nurses increased by 144% in absolute terms and 94% in relative terms. Nursing auxilliaries, after increasing slightly between 1972 and 1976, began a downward trend which led to a 14% reduction in absolute terms and 17% in relative terms for the period 1979 to 1984. This is clearly reflected in the nurse/auxilliar ratio, which went from one nurse for every 1.3 auxilliaries circa 1972 to 1 per 0.7 circa 1984.

Analysis of the geographical distribution of nursing manpower and its components (1979 to 1984) shows that the growth was due basically to the countries of North America, the English-speaking Caribbean and Cuba, since the overall trend among Latin American countries was downward (see Table 9).

TABLE 9

Availability of Nurses and Nursing Assistants by Regions

and Subregions of the Americas, circa 1979 and 1980

REGION & Subregions	AVAILABILITY (Proportions per 100,000 population)					
	Circa 1979			Circa 1984		
	Nurses	Auxilliaries	TOTAL	Nurses	Auxilliaries	TOTAL
Latin America	40	109	149	41	78	119
Andean Area	34	102	136	48	97	145
Southern. S. Am.	57	107	164	40	104	144
Brazil	19	125	144	20	130	150
Central America	35	110	145	40	113	153
Mexico	58	87	145	46	65	111
Latin American Caribbean	96	109	205	134	73	207
English-sp. Caribbean	189	126	315	227	135	362
Canada	654	319	973	709	343	1052
United States	498	645	1143	830	542	1372
The Americas (Average)	237	318	555	353	264	617

Source: Data from countries compiled by HSM PAHO/WHO

3.2.4. Another of the trends revealed in some studies is increased qualifications for nursing personnel. Countries like the United States and Canada have now made explicit their intentions to be concerned less with the number of nurses than with their quality, qualifications and diversification. Another country with an explicit policy is Cuba. Thus, at the same time as Cuba shows a decline of 7% and 33% in the number of nursing assistants in the periods 1976-1979 and 1979-1984, respectively, it offers an inverse panorama for mid-level and senior nurses, who increased by 45% and 84% for the same periods, all in the context of an upward trend in its nursing labor force, which grew by 48% between 1976 and 1984.

The Colombian case also seems to correspond to a political decision, although not an explicit one as in the Cuban case. In Colombia between 1972 and 1984 the number of professional nurses grew by 228%, nursing assistants by 166% and nurses' aides by 13%. The number of B.S. graduates, specialists and nursing teachers grew significantly both in teaching and in services. The percentage of general nurses in health care services dropped from 81% to 19%, while that of B.S. graduates rose from 19% to 76%.

3.2.5. A different case would be that of Brazil, where market forces seem to have been behind a change in the internal structure of the nursing labor force, assuming that this is an indirect indicator of the overall qualification level of the personnel. Thus while senior nurses and nursing assistants show annual growth rates progressively greater than 5%, the "aides" category experiences a negative growth in 1981 and 1983.

3.2.6. It appears that the perception of governments and technicians in human resources planning is that the nursing problem is still more one of shortage than surplus in some cases, and of distribution among geographical areas, types of care (curative preventive or promotional), and among specialties, in virtually all the countries.

3.2.7. The Ten Year Health Plan for the Americas for the seventies set an overall goal for nursing manpower of 190 per 100,000 population (45 for nurses and 145 for auxilliaries). It has been 14 years since these goals were announced, and of 21 Latin American countries 12 still have not reached the goal for senior level nurses and 15 have not reached it for auxilliaries. For the countries of Latin America and for many in the Third World, like Pakistan, India, Egypt, and Sri Lanka, the overall quantitative shortage is still a serious problem.

3.3 The nursing job market and labor force.

3.3.1. The growth in the health services network, and in many countries the growth of private medical firms and services, required rapid expansion of health workers, all within the context of urban development and industrialization. Although this did not immediately generate difficulties in the area of basic manpower, given the large supply of unskilled manpower, it did create problems with regard to senior staff with higher technical and auxiliary training. What happened was that educational policies dealing with the health sector met this need to a greater or lesser extent depending on the country, forming a stock of selected professional categories (physicians and dentists, for example) greater than the immediate demand determined by the absorptive capacity of the health services system. This gave rise in many countries to problems with under-employment, unemployment and low salaries. The situation was somewhat different in regard to the nursing labor force.

In most countries the public sector came to be the primary place for skilled jobs in nursing. This is a basic characteristic of the labor market in nursing that makes this category a salaried, dependent, institutional job. In Latin America the jobs are primarily in the public sector, so that the characteristics of employment, of nursing personnel have their historical roots in state health services. From this there arises the problem of assessing this manpower in the current economic

crisis, since in many countries adjustment policies were based on severe cutbacks in public expenditure and employment, which has necessarily had effects on the imbalance between supply and demand for jobs in nursing, especially in the public sector.

3.3.2. The growth in the nursing labor force occurred differently among the various categories comprising it. The nurses' aides and nursing assistants categories (in the ILO nomenclature) grew more sharply prior to 1980, not only in developing countries in those health care systems where the doctor/nurse ratio favors the doctor side, but also where the opposite is true. The data from Brazil demonstrate this. Between 1956 and 1983 in Brazil, the growth in assistants was greater than for nurses and attendants, although the proportion of attendants in the pyramid did not decline. The expansion of university training produced a 436% increase in nurses compared to 1956, with the number of attendants also growing.

The case of Colombia is similar. In Colombia the growth between 1972 and 1984 for the nurse category was 228%, 166% for assistants and only 13% for aides. The nurse/assistant ratio went from 1/11.4 to 1/6.3. In Canada between 1979 and 1983 the increase in nurses was 19%, in comparison with 8% for nursing assistants. A similar change is occurring in the United States.

3.3.3. Changes in patterns of utilization of the nursing labor force seem to reflect the policies adopted in the health sector. Although in virtually all the studies it is indicated that employment continues to be centered in the hospital, there is a gradual shift in this pattern. The diversification and broadening of the roles of nurses have been pointed out, especially when primary care strategies and health care based on community needs are expanded. The impression is that in many developing countries nurses have gained leadership in these areas.

3.3.4. The predominant demographic characteristics of the nursing labor force are dominance by women and increasing youthfulness . Younger nurses is a phenomenon accompanying demographic changes in the economically active population and the impact on employment of education policies. Dominance by women, about 90% of the nursing cadre as reported in the case studies, is linked to the profession's historical roots. Although in recent years - and this is a universal change as well - an upward trend in the male contingent in the more highly skilled categories is now being observed.

3.3.5. We have already pointed out the influence of factors of a social and institutional, as well as economic and demographic, nature in the makeup of the nursing labor force. In Brazil, adverse working conditions, poor pay, an exhausting schedule, and inadequate legal protection have been pointed out. Brazilian nursing personnel also were reported to engage in other work outside the field of nursing. Furthermore, many of those trained in nursing are not taken into, or do not immediately seek to enter, the job market.

As this is essentially a female profession, there is a contingent that leaves the work force for family responsibilities, and this necessarily affects employment estimates. Furthermore, in some cases up to 30% of the manpower works part-time, thus needs for refresher courses and continuing education programs are created.

3.3.6. Due to these complexities any analysis of the supply-demand dynamics of the nursing labor force is difficult: is it possible to speak categorically of unemployment in view of so many contradictory factors? In light of the scant evidence from the studies, unemployment may not be real. Let us look at some cases for which there are data:

In India in 1983 there were 160,886 trained nurses, of whom 117,000 were working.

In the Philippines in 1984, of the 50,978 nurses practicing in the country (35% of the 145,235 trained nurses, with 61% abroad), 39,253 (77%) were reported employed, 10,577 (21%) were reported unemployed, and 2 to 3% were inactive or not practicing.

Canada reported that 20% of registered nurses were not working in nursing (Between 1979 and 1983 there was a 13% increase in the number registered, with a total of 218,334 registered). In Canada 98% of the nursing force is female.

In the case of Korea, apart from the massive emigration, it is estimated that 45% of the available force is inactive. In the case of Pakistan, out of 10,554 trained nurses only 5,500 are working in the country, the rest having emigrated or are not working in nursing. In Sri Lanka, out of 8,013 positions, only 7,597 are filled, with an overall shortage of 5,000 nurses reported. If we consider an attrition in Korea rate in training of more than 70%, the problem takes on dramatic scope.

In Brazil the training of nurses always exceeds the number of jobs created. From 1977 to 1983, 23,033 nurses were trained and only 7,629 jobs were created. It is believed that this oversupply is only apparent when analyzed in light of the characteristics of the labor force and the Brazilian health system. However, the difference between one figure and the other is so great that it can be characterized as a very poor capacity for generating jobs for nurses, but if we consider that for each nursing job there are 9.5 positions for doctors, we would then have to think of under-demand. However, as previously noted, no country reported a surplus of nurses.

3.3.7. In all the countries studied, the problems of poor distribution of nursing personnel was noted. Poor distribution geographically, by specialties, and by care levels. Maldistribution geographically is universal, affecting virtually all the countries to a greater or lesser

degree, and it parallels that of doctors. The factors affecting this distribution do not seem to be solely economic, with those of a social and institutional nature carrying significant weight. This takes on greater significance in those developing countries with serious rural-urban inequalities.

In the industrialized countries, the concern is directed towards distribution among specialties. Thus the United States and Canada are trying to resolve shortages in specialties such as intensive and coronary care, emergency, psychiatry, geriatrics and administration.

4.1. Supply of other professionals and problems of internal composition of the labor force.

4.1.1. The supply of dentists will be briefly reviewed from the data available in the country studies. Indications are that the supply of dentists has been increasing in recent years at a fairly rapid rate, and that there is a growing participation of women in this profession. The proportions per population nonetheless undergo tremendous variation when countries with different degrees of development are compared.

As can be seen in Table 10, the countries with a greater relative supply of dentists are Argentina, the United States, Cuba, Canada and Brazil, with more than 40 professionals per 100,000 population. At the other extreme of the spectrum are countries like India and Pakistan, which show a proportion of one professional for 100,000 population, this indicating a considerable shortfall.

TABLE 10

Supply of Dentists in Some Countries in the Study:

Absolute Numbers and Ratios per 100,000 Population

Type	Year	No. Dentists	Ratio per 100,000
USA	1984	137,950	56.8
Canada	1983	12,271	49.0
Colombia	1984	10,069	35.8
Brazil	1980	55,116	46.3
Argentina	1985	17,656	58.8
Korea	1984	4,972	12.2
Egypt	1984	9,643	20.0
Philippines	1983	17,496	33.7
Pakistan	1984	999	1.2
India	1981	8,648	1.2
Cuba	1985	5,070	50.0

Source: Country Studies

The dentist, a typical autonomous producer of health care services, has been moving toward salary-based occupations as have the physicians. Even so, a high proportion of those who earn their living work in a private clinic: 88% in the United States, for example, and 70% in Brazil.

The Canadian study concludes that the surplus of dentists that will continue to worsen until the year 2000. The Egyptian study Points to the clear existence of unemployment among dentists. In this case it is noted that despite the fact that the availability ratio is only 20 per 100,000 population, the population's low income and the economic crisis make survival through the private clinic unviable and is causing unemployment. It should be mentioned that the low level of investment in public dentistry means that at times as many as six dentists take turns using a single dentistry equipped facility. In the other countries studied no appraisal was made of the correspondence of supply of dentists to demand.

4.2.1. The supply of specific types of professionals may cause problems in the internal makeup of the total labor force in the health field characterized as imbalances of either surplus or scarcity in relation to other groups of professionals. Of course, "internal balance" is a concept open to criticism, because it is derived from ideal distributions that are more the result of the tradition of normative studies of human resources than of health policies and their dynamism as a whole.

A pyramid with three horizontal segments is often used to visualize the internal makeup of the labor force in the health field. All categories with university training are part of its apex; in the middle are found technicians and auxilliaries; and at the base, uncertified practicioners with little formal education.

The Korean study points out the existence of an appropriate distribution among these professional groups, using the pyramid model: "Korea has an ideal labor-force structure with a low proportion of doctors in the upper part and high proportions of nurses and nursing auxilliaries in the middle and lower levels of the pyramid."

This model is useful because it makes it possible to detect situations that are clearly anomalous, as happens in Argentina, where all nursing personnel together do not exceed 72% of the doctors, according to 1980 census data. This pyramid model may not be as useful for the future because a trend occuring in developing countries is the growth of programs for increasing educational levels and professional preparation for those who are at the base and in the middle of the pyramid, so that difference in length of training is reduced or even eliminated.

Also in many countries nursing functions are largely performed by nurses' aides who have no formal preparation or are only trained in short and superficial courses. In Colombia this group comprises 34.1% of nursing manpower (1984), and in Brazil it amounts to no less than 62% of all nursing positions (1982). Under these circumstances it is clear that the base of the pyramid is inordinately broad, and one of the objectives of human resources policy in the health field must be the educational and functional development of these categories, through courses, various incentives, and the installation of career structures which permit the individual's rise to better paying positions.

4.2.2. In studying the makeup of the international labor force in the health field, there is a major difficulty: the virtual incomparability of the characteristics that technician and nursing assistant take on in each country. In the United States, Canada and other English-speaking countries, control over these categories is distributed among innumerable corporate entities which set their own curriculum and registration patterns. In Latin America there is a tendency towards more uniformity

and centralization by the government, but the types of categories also vary a great deal from country to country. Generally speaking, the information available at the international level on the auxiliary workers does not permit general conclusions. One particular characteristic that is conspicuous and may be universal is the numerical predominance of nursing personnel among the auxiliary categories. Brazil is an example. Nursing assistant and technician positions accounted for 43% of the total of 215,000 mid-level Brazilian jobs in 1982. This high proportion of nurses justifies giving the nursing categories a prominent place in all expanded training and continuing education programs for auxiliary health care personnel.

4.2.4. The Argentine and Brazilian studies call attention to a very interesting feature of the internal structure of the health care labor force, which is its distribution by sex. There is an obvious inequality in the way in which women enter this job market. It happens that, although they are a majority in the total number of health care workers (60 to 70% in these two countries), women are in fact concentrated in the least prestigious or lowest-paying jobs.

In Brazil and Argentina women comprise only 20 to 30% of university-trained professionals, while at the lowest level of nurses' aides and service personnel their percentage rises to over 80%. In this sense it can be stated that women in the health field suffer functional discrimination by the fact that the most mechanized tasks in health care involving lesser educational requisites are reserved for them. Furthermore, "typically female" functions are marked by a lower level of authority in the hierarchy of power within health care institutions. It is true that the participation of women has been growing in the university professions, Particularly in the fields of medicine and dentistry. But the proportion remains low in relation to the total. In the United States the percentage of women among doctors rose from 7.6% in 1970 to 13.4% in 1983, and should reach 20% in the year 2000.

There are marked differences of an economic nature between the two sexes. For example, in the United States it was found that in 1983 male doctors had a median income of 102,000 U.S. dollars, while female physicians earned around 65,000 U.S. dollars. However, adjusted for productivity, the difference falls from 56% to 24% less.

After analyzing variables of this nature, the Brazilian study concludes the following: "In summary it may be stated that women, in relation to men:

a) more frequently work at a single job;
b) have proportionally lower income;
c) work fewer hours in a week;
d) have fewer opportunities for autonomous work."

The Argentine study emphasizes in turn: "One important aspect that confirms the imbalance in the distribution of sexes is expressed by the small number of female professionals in positions of sector leadership and in health care institutions, since out of the total number of workers performing leadership functions in 1980 89% were men, while only 11% were female professionals.

4.2.5. Another form of imbalance in the internal makeup of the labor force derives from the presence of ethnic minorities at levels not in keeping with their presence in society at large.

Minority status has an impact on the characteristics of professional practice. In the United States, for example, research demonstrated that 87% of patients cared for by doctors belonging to black minorities were also of that group. There is also evidence that doctors belonging to such minorities are more likely to devote themselves to primary care specialties than are other doctors.

4.2.6. During the sixties and early seventies the international migration of doctors, nurses and other health care personnel was the subject of much attention. A study carried out in 1972-1974 by the WHO indicated that the international migratory balance for health care personnel was profoundly prejudicial to the Third World. Around 1972, out of a total of 1,746,000 doctors, the developed countries gained 118,000 by immigration, and lost only 52,300. At the same time, out of a total of 132,300 doctors, the developing countries gained 14,300 by immigration but lost 67,100 by emigration. During the same period the developed countries annually gained 13,900 nurses through immigration and lost 8,200 by emigration. Developing countries each year gained only 1,200 nurses and lost 5,500. A majority of the emigrating professionals went to a developed country.

However, since the mid-seventies the migration of health care personnel towards the traditional receiving countries (United States and Canada, among others) began to decline. After 1975-1977, those countries continuing to receive a growing number of emigrating doctors and nurses were certain petroleum-exporting countries, but since 1983 these too have seen a decrease.

In the United States, first licenses issued by the state boards of medical examiners to foreign medical graduates (FMG), which numbered 7,419 in 1973, dropped to 6,436 in 1976 and 3,131 in 1981. The percentage of FMG licenses out of all first licenses fell from 44.5% in 1973 to 16.6% in 1981.

In the case of Canada, the number of immigrant doctors fell to 337 in 1984 from a total of 1,170 in 1973. The annual number of immigrant doctors as a percentage of the national total of doctors fell to 8.6% in 1981 from 33.9% in 1973.

Among the countries studied there are some with serious doctor emigration problems: the Philippines, Sri Lanka, India and Egypt are the principal ones. These countries also have problems with the emigration of nursing personnel: Sri Lanka, which faces a shortage of 5,000 nurses, is unable to fill the available posts and has significant emigration of nurses. The case of the Philippines is illustrative: of a total of 145,235 trained nurses, 61% are practicing their profession abroad. In Korea it is estimated that 17.6% of the licenses issued are for nurses outside the country. Pakistan also faces a serious emigration problem.

5. Bases for national policies on human resources in the health field

Virtually all the studies pointed up the need to establish national policies for developing human resources integrated into the health policies and socio-economic development plans of each country. Several of the study reports also propose various means to collect information and analyze supply and demand for health manpower for policy development.

However, the important conclusion that can be drawn from this analysis of the information presented in the 16 country case studies is that "imbalance" in health human resources can no longer be analyzed in the traditional terms of supply and demand or geographic and specialty distribution. In these country studies "imbalance" of physician nurse and dentist supply has been clearly demonstrated to be relative to the socio-economic conditions and tecnological development of the country and the manner in which health care is organized and available to the people. All the case studies indicated, either explicitly or implicitly, in the discussion of the country situation that the concept of "imbalance" has validity only in the context of the health goals of the country and the relative positions of those goals with other national priorities for the allocation of resources both within and outside the health sector.

Thus a new paradign for health manpower policy development is required. Traditional perspectives and methods must be replaced by a strategic planning designed to meet the needs of the population and takes into consideration the dynamics of the structure and function of the health delivery system and its role in the socio-economic development of the country. This paradigm must include prospective situational analysis with emphasis on scenarios anticipated in the year 2000. The cost-benefit of production and use of various categories of health professionals and their relation to scientific and technological advancements must be analyzed.

The productivity of health personnel must be viewed not only in terms of their cost, benefit, role function in society and in the labor market in general, but also in terms of possible non-manpower alternatives to the production and use of health personnel to achieve the countries' health goals.

New paradigms for health policy development and implementation which seek to meet the needs of the people for health must include strategic planning and evaluation in a political socio-economic development context which is much broader than the health sector and could led to its dramatic transformation.

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"HEALTH MANPOWER OUT OF BALANCE: CONFLICTS AND PROSPECTS"

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"Nursing Manpower in Focus"

Karin Poulton

REFERENCE PAPER

(Manuscript)

NURSING MANPOWER IN CONTEXT

The state of health is one of the fundamental cornerstones of a nation's standard of the quality of life, and health care is a major economic activity. The health needs of a nation are dynamic and can be met by a variety of society's activities, of which health services, are an essential part. To distinguish the health services from a number of other social influences they could perhaps best be described as activities which are grounded in health sciences and medical technology.

Two types of essential resources required are manpower and facilities such as buildings and equipment. They are closely interelated and have a profound influence on each other. Total resources as well as the balance of one to the other, however, depends on each nation's idiosyncratic conditions, policies, affordability and availability and needs to be considered against the backcloth of the nation's economic and social well being. The investments are extensive and health services not only require revenues for the delivery of health care but also to meet the cost of educating health care staff and the constructing and manufacturing of facilities.

The importance of balancing human and physical resources and its effects on total health care is being increasingly addressed in health care planning in the European Region. According to the conventional statistics in the World Health Statistic Annual (1), and by almost any acceptable definition of health, the European Region seems to be the healthiest of the WHO Regions. The WHO European Region has 33 member states stretching from the European

coastline in the west and includes USSR in the east, and from the North European Coast of the North Sea to Morrocco in the South. Nevertheless social and health systems in the European region vary considerably and therefore implications for health manpower policy of the Declaration of Alma Ata (2) and the strategies of health for all by the year 2000 also vary widely.

Health sector expenditures are now running at 5% to about 9% of Gross Domestic Product in most European Countries (3) but there are problems with direct comparison, because the boundaries of the range of services provided under this expenditure category are not coterminous in each country. There are of course other factors affecting absolute comparison, such as purchasing power and the relative cost of manpower. For example the ratio of doctors to production workers' average income around 1974 varied from 7.0:1 in France to 2.4:1 in Norway (4). Therefore the composition and size of health manpower which command the lion's share of health service expenditure is greatly affected by the country's economic resources.

The focus of this paper is on nursing and midwifery manpower in the European Region of the WHO and the service nurses and midwives provide, the role they play within the health care system; the education they require in order to fulfill their role, and against the backcloth of projected goals consider future developments. The nursing workforce including midwives form the largest single group of health personnel in the countries of the European Region and now totals over 2.5 million persons. In England for example nursing manpower forms almost half of the National Health Service workforce, cost 45% of the salary bill and account for 34% of the total NHS revenue

expenditure.

There are wide variations in the concept of the nursing contribution, not only in terms of the role of nurses and midwives but also in terms of the volumn of available nursing man hours and the distribution between and within specialties.

THE NATURE OF NURSING

The term 'nursing manpower' is a collective term used to denote the level and categories of nursing personnel, but the discipline of nursing is extremely complex and poorly understood. Historically it evolved from the need to care for the sick in hospital, and in many countries of the Region nursing personnel are associated almost exclusively with hospital services and their roles and numbers are determined largely as an expedient response to the hospital medical and administrative structures. This has left little room for the adequate preparation and professional education of nurses on the basis of the needs of people for health care which could best be met by nursing services. In the European Region many of those people employed in health care systems, classed as nursing staff, often perform a variety of nursing and non-nursing duties and work allied to medicine; such as laboratory technicians, doctor's assistants and medical secretaries/receptionists. This of course not only clouds any clear comparison of levels of the actual nursing component available between countries and the distribution of service within specialties, but more importantly confuse an already complex concept of the nature of nursing.

From the literature and in the view of many experienced nurses there is little doubt that the nature of nursing is extremely complex, which is particularly evident when searching for a definition of a 'good nurse'.

Florence Nightingale's basic concept of the primary nursing role is probably as valid today as it was in 1858, but the spectrum of nursing functions in terms of health educator and facilitator to meet todays needs and challenges has greatly expanded. The following quotes by distinguished nurses would best describe this, and applies to nurses and midwives alike.

Virginia Henderson (6) defined the unique function of a nurse as being:- to assist the individual sick or well, in the performance of those activities contributing to health or its recovery (or to a peaceful death) that he would perform unaided if he had the necessary strength, will or knowledge. And to do this in such a way as to help him gain independence as rapidly as possible.

McFarlane (7) in a charter for caring quotes that:- 'Nursing is synonymous with caring. The caring is central to nursing but shared with patients/clients themselves, with their relatives and with other health professions. It consists of helping and assisting with daily living activities which may be simple or complex. Giving help may involve not only acting for or doing something for another but guiding, supporting, teaching and providing the right environment for another. The act of helping is built on a scientific basis. Knowledge of underlying scientific principles is needed as a basis of judgement of nursing action'. When a person becomes incapable of performing activities necessary for daily

living, and the family and community are unable to cope, it is most likely that the professional nurse as an agent of the country's health care system would become involved.

The specific role of the nurse is to determine nursing needs and take the necessary action, which may involve other nursing colleagues and health professions. The group of nursing activities which include the assessment/planning, implementation and evaluation of care outcomes is known as the 'Nursing Process' and the implementation of this process is at various stages throughout the European Region (8). Measurement of nursing outcome are difficult to define and quantify and research into nursing practice as opposed to the organisation and education of nurses is now being conducted in most countries of the region. Perhaps as a better understanding of nursing as a discrete health discipline, separate from and complementary to medicine and other professions allied to medicine, evolves it will become easier to define and plan for the appropriate size of the nursing workforce.

COMPOSITION OF NURSING MANPOWER

In an attempt to define the various levels of nursing personnel the International Labour Organisation (ILO), recognising the vital role played by nursing personnel amongst others in the protection and improvement of the health and welfare of the population described a nursing personnel system which consists of three levels of workers (9).

(1) professional nurses, having the education and training recognized as

necessary for assuming highly complex and responsible functions, and authorized to perform them;

(2) auxiliary nurses, having at least the education and training recognized as necessary for assuming less complex functions, under the supervision of a professional nurse as appropriate, and authorized to perform them;

(3) nursing aides, having prior education and/or on-the-job training enabling them to perform specified tasks under the supervision of a professional or auxiliary nurse (9).

This classification system is now widely used throughout the Region in multinational discussions of nursing personnel.

With reference to workers at the first level in this system (i.e. professional nurses), the International Council of Nurses has over the years been particularly concerned to prepare up-dated definitions of "the nurse". This evolution of the definition of "the nurse" is demonstrated in the following two quotations (10).

"A professional nurse is one who has completed a generalized nursing preparation in an approved school of nursing and is authorized to practise nursing in her country. Such general preparation shall include instruction and supervised practice in order to equip the nurse to care for people of all ages in the promotion of health and in all forms of sickness, both physical and mental".

"A nurse is a person who has completed a programme of basic nursing education and is qualified and authorized in her/his country to practise nursing. The first level nurse is responsible for planning providing and evaluating nursing care in all settings for the promotion of health, prevention of illness, care of the sick and rehabilitation and functions as a member of the health team.

In countries with more than one level of nursing personnel, the second level programme prepares the nurse, through study of nursing theory and clinical practice, to give nursing care in cooperation with, and under the supervision of a first level nurse".

Both definitions relate to educational levels which have to be attained, and make little reference to the practice itself. Nor are there any descriptions or definitions issued by professional associations in the Multinational European setting. The laws of some countries such as Belgium, United Kingdom and France provide an overview of what the practice of nursing is seen to be in that country but a study of legislation concerning nursing services and education carried out in 1979 WHO (11) clearly demonstrated that there was no common ground in these descriptions and that the practice of nursing and in particular one which distinguishes the advanced practice of nursing is often blurred.

Nurses work in all areas where health care needs arise. The specialisms which perhaps are best distinguished are:-

- Nurses at Hospital level - caring for all people in General Hospitals

- Nurses caring for children in hospital and sometimes community

- Nurses caring for the mentally ill and mentally handicapped person in hospital and community

- Community Nurses/health educater working only in the community

- Midwife and nurse midwives responsible for maternity care in hospital/community.

Specialism and the preparation of a nurse for specialism will be further discussed under the education section. However the distribution of the nursing workforce between specialisms as well as the balance of hospital to community nursing staff is an important factor in achieving a better balance of total nursing manpower supply to meet the demand.

The composition, size and trend in the supply of nursing manpower depends on many factors, such as the demographic structure of a country's society, the economic system, people's expectations, the resources spent on health services, and the support service network not only within the health service but outside such as in the education and environmental services.

The size and distribution of the nursing workforce, its supply as well as the demand made on it therefore has to be seen against the background of the country's demographic idiosyncrasies, geographical location and economic resources.

DEMOGRAPHY (Table 1)

The size of the total population of countries within the European Region vary considerably and range from as little as 27,000 in Monaco to as large as over 271 million in the USSR. Variations in density are also extensive and range from as few as 2 people per square km in Iceland to as many as 16,667 per square km in Monaco, although this is considerably higher than the next most densely populated area of 1,032 per square km in Malta. This is followed by Netherland, F. Germany, England and Belgium with 350, 348, 324 and 322 per square km respectively. Other central European countries have a lesser density of between 100 and 200 per square km. This is of course not to say that the people of the lesser densely populated countries are distributed evenly throughout the country as many areas may not be suitable for living purposes such as the mountainous areas of Austria and Italy or the climatically hostile environment in some of the Northern and Western European areas.

The urban to rural distribution of the population varies considerably and this in itself affects services available and accessible to the population. By tradition health services, and especially high technology and services related to those conditions requiring hospitalisation are concentrated in towns and urban areas, where as community centres, polyclinics clinics and small peripheral hospitals often serve the immediate needs in rural areas. Therefore specialists and expert personnel is also more likely to be available in towns and urban areas, not only because of the attraction to centres of excellence but also because of the concentration of employment opportunities and the improved level of living standards.

Urbanisation however brings with it its own problems of today's inner cities, such as high turnover of population and staff, high proportion of homeless, foreign immigrants and one parent families. The demarcation of rural and urban distribution is sometimes difficult to establish but in the European Region, urban dwellers range from 91.7% of the population in the United Kingdom to as low as 31.2% in Portugal. There are 14 countries where more than 70% of the population live in urban areas and a further 10 countries where the urban population amounts to between 50% and 70%. In almost all countries there has been a migration of people to towns and urban areas.

The sheer density and accessibility to people and the distances between dwellings and services have considerable implications for the nursing work force not only in terms of urban and rural distribution of services but also from the point of productivity, and time available for direct patient/client contact.

The age structure, life expectancy and reproduction of the population as well as the associated health status in terms of perceived morbidity and causal mortality has an influence on the role of, and demand for nursing manpower.(11) There is a natural increase of 0.1 per 1000 population per year in Austria to as much as 32.5 in Morocco, but Denmark, Federation of Germany and Hungary have a natural decrease of 1.1, 1.8 and 2.0 respectively. Life expectancy in males range from 56.4 years in Morocco, to 72.6 years in Norway and Poland and for females from 59.5 in Morocco to 79.4 years in Iceland, Norway and Sweden. There is sufficient evidence that the young and the old make proportionally a greater demand on health

care services than the population between the ages of 16 - 65. Therefore where the proportion of young or old is high in relation to the total population the need for nursing services are undoubtedly affected. For example 46% of the population in Morocco is under the age of 15 years. However, the proportion of over 65 year olds only amount to 3.1% and life expectancy in that country is 56.4 years for men and 59.5 for women.

This is followed by Turkey and Albania where the population of under 15 year olds amounts to 37.9% and 37.4% respectively and the over 65 year olds to 4.4% and 4.8%. Conversely in the Federal Republic of Germany only 16.6% are under 15 years and 14.8% over the age of 65 years. Austria, Belgium, Denmark, Finland, Luxemburg, Monaco, Sweden and Switzerland all have an under 15 year population of less than 20%, but correspondingly a high proportion of elderly. Most of the countries of Europe have more than 10% of their population older than 65 years and in five countries this is above 15%. Nearly half of the countries have more than 3% of the population older than 75 years, and demographic projections in many countries suggest that a number will have one fifth of their population over the age of 65 by the end of this century. It seems almost certain that crude mortality will rise and that the morbidity associated with advanced age will result in unfavourable changes in total morbidity.

This has not only an effect on the total volume of nursing needs, and the demand for health care and its mounting cost seems to have no immediate limit, but in terms of supply will influence the total number of Nursing personnel available who will be of working age. Throughout Europe health has improved during the last century but especially countries with the least

favourable health levels at the present time have considerable variations and substantial inequalities in the distribution of resources between countries, urban/rural areas, hospital/community services and specialisms.

Infant mortality varies considerably within the European region from 8 per 1000 live birth to as many as 40 per 1000 in the least favourable and many countries have rates between 15 and 20 per 1000 live births. Mortality from diseases such as cancer and ischaemic heart disease are important factors and account for a substantial proportion of all mortality. Although with the increasing awareness of healthy living and the importance of diet and exercise there is some evidence that mortality from ischaemic heart disease is falling in some countries. As far as health services are concerned this is an important factor in terms of promotion of health and the investment on health education. However, morbidity and perceived morbidity is one of the principal influential components determining demand on nursing services.

Morbidity and especially perceived morbidity is difficult to quantify and hence documentation of morbidity levels is poor and relies on information based on Medical services utilisation. There is sufficient evidence that nursing needs do not necessarily correlate with medical needs in the diagnostic index. Therefore it does not follow that a patient who for example is admitted to have his Appendix removed requires standard nursing hours. It is more likely to be influenced by the age, physical and psychological condition and the family support the patient has.

This demonstrates how complex and varied circumstances and conditions can be

which contribute to the total make up of the nursing workforce, its composition and standards and quality of care.

TRENDS AND DISTRIBUTION OF NURSING MANPOWER

Quantification of the Nursing Workforce which includes the three levels of nursing personnel defined by the ILO and covers all specialities such as general, psychiatric, paediatric, community and maternity care throughout the European region is possible only in the most global terms and relies on WHO statistics published in 1983, supported by individual country profiles and studies relating to specific areas. It is therefore with some difficulty that certain assumptions are made and conclusions are drawn. Often data is incomplete or not available.

Comparison between countries is especially hampered by the fact that in certain countries only the number of nursing staff working in public hospitals are known, and nurses working independently or in private clinics are either left out of the account or are subject to estimates of varying degrees of reliability. A further variation in the data is the different length of working week which may be 36, 37 1/2 or perhaps 40 hours per week. For example, the UK presents data in Whole time equivalents which is substantially different from the absolute number of nursing staff. Since about 90% of nursing staff are women it is not surprising that about 30% are working part time, and therefore the absolute number of nursing staff employed is considerably higher. Furthermore nurses undergoing training up to now have been counted as part of the workforce and making a contribution to service. This is not so in many of the European countries and makes a

sizeable difference to the total manpower available.

These factors need to be considered and caution is necessary in any attempt to over interpret available information. What follows should therefore be taken as approximate and considered in terms of trends and directions rather than absolute.

Overall in the European Region the distribution of Nursing and Midwifery Staff numbered 548 per 100000 population, but it is interesting to see that by subdividing the region into North, East, South and West, Southern Europe has the lowest ratio of 341, followed by Eastern Europe with 530 and Western Europe with 607 closely followed by Northern Europe with 628.

The interesting fact is that almost the reverse order applies to the proportion of physicians per 100,000 population which is Northern, Eastern, Western and Southern Europe with 174, 204, 207 and 244 respectively.

Further analysis which distinguishes between Qualified Nurses and Midwives (in this case level I ILO definition) does not include Level II and Level III Nursing Staff. Data available from each country spans from between 1977 to 1981 (WHO Statistics Graph I and II) and a comparison study of health personnel (12) published in 1984 leaves no doubt that the nurse/population density ratio was unquestionably highest in the Scandinavian countries and Cechoslovakia at between 600 and 700 per 100000 followed by Scotland, Bulgaria, Hungary and Northern Ireland with between 400 and 500 Nurses, and a further group of Austria, Germany F, Poland, Portugal and Switzerland with 300 to 400 and a fourth group comprised

chiefly of the Iberian countries. Because of the variation of inclusion and exclusion and in particular the disparity between absolute and wholetime equivalent data supplied for England and Wales it would not be adviseable to analyse the data any further but to examine the trend over times.

It appears though that the Scandinavian countries who are already distinguished by their abundance of human resources in their national health systems have with the exception of Denmark, which grew by 62% between 1965 and 1978, increased slowly. Whereas in contrast, Hungary increased by 153% over the same period. It is possible that other Socialist countries also increased rapdily during that period.

England seemed to have increased its qualified nursing manpower by a substantial proportion, although because of changes within the classification, and in hours of work comparison is not strictly possible. From latest available data however, Nursing Manpower in real terms has increased by 9% between 1976 and 1983.

Within these global increases in nursing manpower throughout the European Region however, it is difficult to conclude which specialisms have benefitted most from the improved ratios over time nor indeed is it possible to form an accurate picture of distribution of nursing staff between specialities. One of the few exceptions being Maternity Care. Interpretation of data in specialities such as psychiatry, mental handicap and paediatric nursing care is therefore mainly based on focussed studies.

Psychiatric Nursing

Care of the mentally ill and handicapped people in the European Region has changed considerably during the last decade. A study (13) undertaken to evaluate the impact on WHO's long term programme in Mental Health for Europe as implemented in the 1970's and in particular the evaluation of its effects on Mental Health policies, principles and practices, suggests that significant trends have become discernable throughout the Region. Institutional care is giving way to Community psychiatry, with the emphasis on external facilities such as outpatient clinics, day care, rehabilitation/resocialisation hostels, domiciliary care and crisis intervention and if necessary hospitalisation within general hospitals. There has also been a move towards greater differentiation between subspeciality services for client groups to meet their specific needs; such as child and adolescent psychiatry, forensic psychiatry and psychogeriatric care.

Because of the assumption that the quality of life is enhanced and the outcome of psychiatric care is improved by the provision of community services and short term acute treatment services, the demand for nurse resources inlarge psychiatric institutions has declined. Available statistics suggest that patients with acute mental illness are increasingly being dealt with by outpatient services and general hospitals and that community services are becoming a reality, but the care of those with chronic psychiatric illness and the Elderly Severely Mentally Infirm requiring continuous nursing care and supervision remains largely unresolved. Changes in policy and practice of this magnitude have

substantial implications for nursing services and the role and education of the psychiatric nurse.

i The Nurse's Role

Data available from both the 1975 Baseline Study (14) and the most recent evaluation (13) gives little insight into the trends and ratios of psychiatric nursing staff in relation to services to the population. This is not unique to nursing personnel and the report acknowledges the fact that the inconsistancy of data is matched by the considerable inconsistancy of definitions. For example "what is a psychiatric hospital"?, "Outpatient Clinic"?, "A Nurse"?, or "Qualified Psychiatrist"? An additional problem is the differentiation between Mental Illness and Mental Handicap which some countries consider under one classification.

It is therefore not altogether surprising that the role of the psychiatric nurse and health care personnel classified as providing psychiatric nursing care varies considerably between countries of the European Region.

In 1975, a working group reported on the role of nursing in psychiatric and mental health care (15) which came to the conclusion that the title "Nurse" was applied to a wide variety of staff, both trained and untrained. It seemed that in the region generally there was a lack of accurate information on either the number or types of nursing personnel in mental health services or on the quality of nuring care being provided. It seemed however to suggest that in many European countries, most mental health nursing care was provided by workers who were untrained or trained only on an inservice basis

while few countries employed qualified psychiatric nurses in community health services. Nurse education in this field were reported to be unclear and one of the twenty recommemndations of the report focuses on the emphasis to provide specialist psychiatric training, directed and taught by nurses. The committee on training in nursing of the member countries of the EEC have since issued a report on the situation as regards training programmes which lead to diplomas authorising the practice of psychiatric nursing, and the feasibility of mutual recognition by member states of these diplomas (16). The current situation regarding the recognition of psychiatric nurses is shown on Table (2). It appears that some countries such as Denmark, Federal Republic of Germany, Greece and Italy regard general nurses as qualified to practise psychiatric nursing, whereas in some of the other countries specialist psychiatric nurse training is required.

ii Distribution of Psychiatric Nursing Staff

There is little reliable nursing personnel data available which could be compared between countries to establish trends over time and ratios between hospital and community psychiatric nursing staff.

Information available for 1982 but unfortunately not for 1972 makes a comparison between countries of all psychiatric nursing personnel per 100,000 population Table (3). This gives such a wide range (where data is not absent altogether) that it is difficult to come to any reliable conclusion. It appears that in 1982 in Turkey or Morroco there were 2 and 5 nurses respectively per 100,000 population whereas in Sweden there were 362 followed by 210 in Norway and 205 in Scotland and Ireland.

Little is known about the percentage of psychiatric nurses to total nursing workforce or indeed the distribution of hospital to community psychiatric nursing manpower. Two examples which may however be useful to give some insight are Norway and England (Table 4 and 5).

In Norway in 1979 6.4% of all nursing staff were employed in Psychiatric institutions a further 3.4% in Mental Handicap institutions, and only a few nurses worked in the Community Mental Handicap Service. In England the proportion of nursing manpower working in Psychiatry was 14.6% in 1984 and of that total 3.3% were working in the community psychiatric services; Both the total number of nurses working in psychiatry and the proportion active in the community is rising, (6% between 1981 and 1984). Mental Handicap nursing manpower constituted 7.7% of total nursing manpower and of that total 2.5% were in the community. Community nursing staff in mental handicap has increased by 1.7% of total mental handicap nursing staff between 1981 and 1984.

This demonstrates that even in these examples there is a sizeable difference between countries of the proportion of nursing manpower working within Psychiatry and Mental Handicap.

General Instituition / Community Nursing

The major proportion of nursing manpower is deployed in hospitals but the precise distribution between community and hospital nursing staff is difficult to assess throughout the European Region. Two points are of particular importance and may have a major influence on the size as well as

the skill mix and working practice of nursing personnel. Firstly the location and distribution of hospitals and nursing instituitions and secondly the support services and professions allied to medicine which may have a particular role to play in the community. For example; in the USSR some of the tasks carried out by Feldsher and Feldsher midwives are similar to some of the work carried out by Health Visitors, Community Nurses and Community Midwives in other European countries. This of course would account for some of the disparity in volume between different countries.

But accepting that there are anomalies it is clear that the majority of nursing personnel work in acute or subacute general or specialist hospitals.

The distribution of hospitals and services are dependent on each country's development of health services, but it is quite clear that major hospitals and the bulk of hospital beds are located within towns and therefore constitute a concentration of specialist services which often has a wide catchment area. Not only are services and specialities concentrated but very often provide training ground for health service personnel. Nursing is no exception and nursing staff numbers are often higher in comparison to service activity than in rural areas where patient dependency and discharge rate may be lower.

Once again in the absence of international statistics Norway and England are given as examples to demonstrate the point. In Norway in 1979 69% of all nursing staff were deployed in Somatic (General) Hospitals and Nursing homes, and 10% in the Community. Nurses work in most of health and social

care, both inside and outside institutions, but public health nursing has been regulated since 1957 and the law regulates post-basic education for public health nursing and defines the duties of public health nurses.

In England in 1984 58% of nursing staff were working in General Hospitals and General Specialities including Geriatric and Paediatric services but excluding Maternity, Mental Illness and Mental Handicap care in hospitals. 11% worked in the Community this includes District Nursing, Health Visiting, School of Nursing staff as well as Community, Psychiatric and Mental Handicap Nursing staff. Other unpublished material suggests that there is as much disparity of community nursing staff between countries per 100,000 population as there is in the total available nursing manpower, and these countries which have comparatively low overall ratios reflect this also in the community nursing ratio. It has not been possible to examine trend over time but data from England shows that there has been a steady increase in the proportion as well as total numbers of nursing staff within the Community Services.