Migration of Physicians and Nurses: a World Wide Picture

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WHO's Multinational Study of the International Migration of Physicians and Nurses, the subject of this paper, was the first step of WHO's response to a mandate calling for a study of health manpower migration and for collaborative efforts to regulate such migration where found to be undesirable. The study, which is both diagnostic and prescriptive, is based on an extensive library of published and unpublished literature. Major reports emanating from the study were: an analytical review of the literature; a statistical report on stocks and flows of migrant physicians and nurses for each of 137 countries; and a final report which provides an in-depth analysis of the characteristics of the migrants, the dimensions, directions, possible determinants, and consequences of the migration, and the actions taken by countries to regulate migration. It also suggests options for dealing with undesirable migration.

Perhaps the most important finding is that countries which produce far more physicians and nurses than they can economically afford become donors of such manpower and those that produce fewer than they can afford become recipients. Almost all other factors either derive from or are secondary to the economic factor.

INTRODUCTION

The international flow of highly trained manpower has become a matter of mounting political concern. Its implications in regard to economic development and social equity within and between nations has been a constantly recurring item in the agenda of both national and international meetings. Debates have seldom been based on reliable data; they have more often been supported by only fragmentary information or mere speculation.

Learned men have often travelled abroad seeking a more congenial intellectual milieu to realise their full potential. International exchange of scientific knowledge that results from the international mobility of skilled manpower is considered desirable.

Today, there is concern about a migratory flow of a different kind — that of the elite from less prosperous countries flooding into a few privileged countries of the world; the alleged effect of such movement being the widening gap between the rich and the poor nations. This form of migration has in the past involved many professional groups. Over the past decade, however, the trends of such migrations show a decline for all professions except health manpower, in particular physicians and nurses, exacerbating the maldistribution of health care throughout the world. Such migration is not a universal phenomenon in that only relatively few countries are heavy donors of physicians and/or nurses, and even fewer are recipients.

The enormous growth of the migration flows coupled with the lack of reliable data on its actual and potential effects has generated a great deal of anxiety. This is reflected in the multiplicity of literature on the subject and is also attested by the numerous resolutions adopted by the United Nations and related specialized agencies — resolutions which *inter alia* call for more information on the phenomenon and for measures to modify it in desirable ways.

The international flow of physicians and nurses is a significant, currently unpredictable, and largely uncontrolled movement which manifests a high rate of change in terms of size and direction. Its unpredictability adds to the uncertainty in health manpower planning, particularly in the forecasting of future health labour requirements.

THE WHO MULTINATIONAL STUDY

Scope method and constraints

The primary objective of the study was to identify a set of patterns of physician and nurse migration and to suggest, with respect to each pattern, alternative measures that could be considered to modify it. The
instrumental objectives were, in summary, to define the characteristics of the migrants and the dimensions, directions, and interconnections of the flows. The attainment of the objectives of the study was to constitute a first essential component of a broader purpose, that of cooperation with countries that so request, in selecting and implementing strategies for dealing with the problems that either foster or result from the international migration of physicians and nurses. The attainment of this aim, world in turn, contribute to the formulation of realistic health manpower policies and plans.

As originally designed, the study was to consist of three phases, with one phase being an analysis of societal factors, the next phase an analysis of health system factors and the last phase an analysis of personal motives, perceptions and characteristics of individual physicians and nurses. While a thorough understanding of world migration could well have resulted with the three-phased approach, it immediately became evident that anxiety evoked by migration had reached a peak in both major donor and recipient countries. It was, therefore, decided to streamline the study in the hope that its findings would be used in decision-making. As implemented the study was essentially based on existing published and unpublished information retrieved with the cooperation of WHO Member States.

The major phases of the study are reflected in its outputs which, in chronological order, were:

1. An annotated bibliography of world literature on migration (1).
2. An analytical review of selected references (2).
3. A statistical report on stocks and flows of migrant physicians and nurses for each of 137 countries (3).
4. A final report comprising an in-depth analysis of the dimensions, directions, possible determinants and consequences of the migration, a review of actions taken by countries together with suggested policy options as well as country-level analyses for selected countries.

The lack of uniformity among countries on availability of data is great. In general, receiving countries have better information on inflows than they do on outflows, while in donor countries the information base is weak or even non-existent for both inflows and outflows. A good information base is restricted to a few recipient countries, with the result that most of the attention is inevitably concentrated on those countries making them appear the only ones involved in the problem even though smaller but still important flows elsewhere have gone undocumented.

The migration field lacks precision, standard operational definitions of terms, this greatly reduces international comparability, particularly in a study of this type based on composite estimates from a variety of sources. The phenomenon involves the simultaneous movement of many different streams of health professionals between countries in patterns that are continuously changing over time. The migrants themselves are heterogeneous. It is difficult to define exactly what is meant by 'migrant'. Similarly, it is difficult to identify when migration has taken place. It has not always been possible to discern, for instance, whether someone termed a 'migrant' is a permanent migrant, temporary migrant or merely a student, or whether 'foreign' refers to foreign born, foreign national or a foreign graduate physician or nurse. Some movements are direct and others multi-stage, with migrants using an intermediate way-station to reach their final destination; some flows are returnees.

**STUDY FINDINGS**

**Dimensions and directions of migration**

About 1972 there were at least 140,000 physicians in countries other than those of which they were nationals or in which they were either born and/or trained. They comprised about 6% of the world's physicians at that time and were equivalent to more than the world medical school output in 1970 (excluding those in the People's Republic of China). Over three-quarters of these physicians were found in only three countries: the USA (with about 68,000 in 1972), the United Kingdom (21,000 in 1970) and Canada (9,000 in 1971). The Federal Republic of Germany (6,000 in 1971) and Australia (4,000 in 1972) were also important recipient countries.

By 1974, there were 76,500 foreign medical graduates known to be in USA, plus about 10,000 FMMGs not formally identified as such. One out of every five physicians and one out of every three intern and residents is at FMMG in the USA. The annual inflow of FMMGs has increased from 6000 in 1965 to 8000 in 1973. It is noteworthy, however, that about 10% of FMMGs are American-born physicians who graduated abroad. The countries of origin of immigrant physicians in the USA have changed over time. During the 1950s proportionally more came from Europe whereas, in 1973, one half came from Asia.

Medical migration to the United Kingdom reflects past colonial and language ties. Most immigrants to the UK come from Commonwealth countries, with about half coming from the Indian sub-continent. In 1970 the main donors were Asia (9,000), Republic of Ireland (2,500), rest of Europe (3,200), Africa (1,500), Australia and New Zealand (1,300), Canada (300), West Indies (200). Over one in four physicians in the UK is foreign-born. The UK is both a donor and a recipient of medical manpower. In 1973/74 there was an inflow of 4,025 as compared with an outflow of 900 of which 220 were British. The large majority of foreign physicians who emigrated were house staff (registrars and other hospital physicians) (5).

Canada is also both a donor and a recipient, in addition to being a way-station for the USA. The total number of FMMGs in Canada was 9,400 in 1971 and 11,200 in 1973, i.e. one in three physicians in Canada is an FMMG (3).

Another country which is both a donor and a recipient is the Federal Republic of Germany, where a heavy one-way traffic to the USA is more than compensated for by inflows of physicians and nurses from other countries. In 1971, there were 5,605 foreign physicians in the Federal Republic of Germany, including 1,000 from the rest of Europe and 2,200 from the Middle East (mainly from Iran).

The emigrants from the Philippines, Syria and Iran were equivalent to 68%, 49% and 39%, respectively, of physicians in those countries. More physicians from Haiti and the Republic of Ireland were outside their country at home.

Table 1 shows the percentage of loss or gain in physicians as a result of migration, again by broad geographical areas.

Approximately 14,000 nurses are estimated to be moving across national boundaries each year. Of these, about 91% go to Europe, North America, and the developed areas of the Western Pacific. Only 1,000 go to developing countries: about 700 to Asia (nearly a half of these going to Saudi Arabia) and about 500 to Africa.

Australia, Canada, Egypt, Hong Kong, the Philippines, and the United Kingdom are the major donors of nurses. The figures are largely based on the numbers registering abroad each year and it is not known what proportion of these nurses actually go and remain abroad. The percentage of nurses going abroad each year in relation to the domestic stock varies considerably from country to country, being as high as 12% in some cases. The countries

<table>
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<tr>
<th>Table 1 Distribution of world population and of physician stock: and physician migration, according to specified area</th>
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<tr>
<td>Area</td>
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<td>(cica 1972)</td>
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<tr>
<td>Europe</td>
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<tr>
<td>USSR</td>
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<tr>
<td>USA &amp; Canada</td>
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<tr>
<td>Australia &amp; New Zealand</td>
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<tr>
<td>Developed countries</td>
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<tr>
<td>Central &amp; South America</td>
</tr>
<tr>
<td>Asia</td>
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<tr>
<td>Africa</td>
</tr>
<tr>
<td>Oceania</td>
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<tr>
<td>Developing countries</td>
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<tr>
<td>World (excluding China)</td>
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Physicians abroad in developing countries include those on bilateral aid programmes.
with the highest ratio of migrant nurses relative to the domestic stock would appear to be Haiti, Surinam, Hong Kong, Jordan and the Philippines. More Filipino nurses registered in the USA and Canada than in the Philippines in 1970.

**Determinants of migration**

Most physicians and nurses who migrate are seeking to improve their professional and financial situations. This personal consideration is based on conditions in the home country as well as in the recipient countries. Why should physicians and nurses not only seek their welfare abroad but also seek it in certain countries rather than others? Any explanation of migration must take into account both the national and international perspective.

Regarding physicians, it was found that the basic "push" factor in the donor countries is that these countries produce more physicians than they have the economic capacity to employ. This "push" is reinforced by a "pull" factor in the recipient countries, which produce fewer physicians than they have the economic capacity to employ and thereby provide openings for foreign physicians. This relationship appears to be valid for developing and developed countries alike. Figure 1 illustrates the effect of these "push" and "pull" factors on physician migration. Thus, for example, at the lower end of the development scale such countries as the United Republic of Cameroon, Ethiopia, Gabon, and Nigeria — all of which have a lower level of physician stock per 10,000 population than the average for all countries having an equivalent Gross Domestic Product (GDP) — experienced a net inflow of physicians, whereas countries such as India, Pakistan, the Philippines, the Republic of Korea, and Egypt — all of which have a higher level of physician stock than is the average for that level of GDP per capita — suffered a net outflow.

It was found, in general, that in countries where such "push" factors are at work those with a low per capita GDP may have net physician emigration rates exceeding 10% of stock, some being as high as 60% or more; countries with a medium per capita GDP experience some emigration, though usually less than 10%; and countries with a high per capita GDP tend to attract physicians from abroad. Evidently, this is true only where the interational market forces operate freely. Otherwise development factors become secondary to other factors, such as prohibitive emigration or immigration policies. There is, in addition, a group of "poor recipient" countries (such as the Congo, Gabon, and Malawi) which have no medical schools and whose GDP, while low, is still sufficient to support the inflow of a certain number of physicians (Fig. 2).

The study also examined, inter alia, the role played by health manpower production rates, by the language of tuition, by urban/rural distribution of health manpower, by expenditures in the health sector, by income differentials, and by imbalances in the health team. Some of the findings have been summarized as follows:

(a) There was no discernible relationship between physician loss and either the ratio of government to private expenditure on health or the...

**Figure 2** Migration of physicians in countries having medical schools (per capita gross domestic product (1970) plotted against physician migration relative to stock)
percentage of total government expenditure allocated to health, if anything, there seems to be a greater tendency for physicians in rich countries to migrate when the health system focuses on the public sector.

(b) The maldistribution of physicians and nurses between the urban and rural areas in any country appears to be related to affluence, but there is no discernible relationship with migration.

c) Countries that do not have the economic capacity to absorb more physicians and that nevertheless have relatively high production rates generally lose physicians, and vice versa.

d) The income of physicians in the donor countries is, on average, about 18 times higher than the per capita income of the population, while in the receiving countries it is about eight times higher on average. There is a considerable difference, however, between the income of physicians in the major donor countries and those in the major recipient countries, the latter receiving at least six times as much.

e) In countries that have a low or medium GDP per capita, there appears to be a relationship between the loss of physicians through migration and a low ratio of nursing personnel to physicians. The same does not hold with respect to countries having a high GDP per capita.

(f) Rather strong links exist between the language of tuition of medical education and the direction of physician migration, e.g. those taught in English are more likely to go to English-speaking countries than those not taught in English.

g) There is a positive relationship between the migration of physicians to the USA and the proportion of specialists among physicians in the donor countries.

(h) Perhaps the most general view as to why physicians and nurses migrate is that the education and training that they receive has scant relevance to the health needs of the majority of people in the countries from which they emigrate. The testing of this hypothesis would be statistically laborious and costly; it was therefore not attempted by the study.

Consequences of migration

Statistics on the effects of migration are as different or contradictory as they are abundant. It is difficult to estimate the extent of the losses or the gains, given the diversity of the variables (some of them unquantifiable) that need to be considered.

Table 1: Numbers of emigrant physicians from certain countries and the time that would be needed to replace them, cost of training and government health expenditure

<table>
<thead>
<tr>
<th>Countries</th>
<th>Emigrant Physicians</th>
<th>Replacement time in years</th>
<th>Cost of training in US$ millions</th>
<th>Annual Government Health expenditure in US$ billions (circa 2010)</th>
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<tbody>
<tr>
<td>Columbia</td>
<td>1 200</td>
<td>3.3</td>
<td>12</td>
<td>78</td>
</tr>
<tr>
<td>Egypt</td>
<td>2 500</td>
<td>1.9</td>
<td>25</td>
<td>101</td>
</tr>
<tr>
<td>Haiti</td>
<td>500</td>
<td>10.5</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>India</td>
<td>15 000</td>
<td>1.9</td>
<td>150</td>
<td>647</td>
</tr>
<tr>
<td>Iran</td>
<td>5 700</td>
<td>6.2</td>
<td>37</td>
<td>230</td>
</tr>
<tr>
<td>Philippines</td>
<td>9 200</td>
<td>8.1</td>
<td>95</td>
<td>61</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>2 900</td>
<td>4.5</td>
<td>29</td>
<td>17</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>9 000</td>
<td>4.7</td>
<td>9</td>
<td>17</td>
</tr>
<tr>
<td>Thailand</td>
<td>1 300</td>
<td>4.1</td>
<td>12</td>
<td>87</td>
</tr>
</tbody>
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*A primitive estimate based on the conservative figure of US$10 000. Physicians abroad in developing countries include those on bi-lateral aid programmes.*
large cities.

Measures taken to modify migration

The measures taken by countries to modify the flows of health manpower are mainly unilateral and fall into two groups, those aimed at fostering migration and those aimed at curtailing it. Actions aimed at fostering migration include: active recruitment (e.g. Saudi Arabia, and the United States of America), changes in immigration laws (e.g. United States of America), expansion of training capacity without corresponding changes in employment policies (e.g. Republic of Korea and the Philippines).

Actions aimed at curtailing migration include: the restriction of the right to practise to French citizens who graduate from the nation's schools (France), the tightening of admission licensure examinations (e.g. the United States of America, Canada and the United Kingdom), the withholding from prospective emigrants of travel documents and currency and the imposition of a system of bonding (e.g. Sri Lanka), and the closing of ECPM examination centres (India). Both Canada and USA have recently introduced measures aimed at severely restricting the inflow of foreign physicians. At this point in time it is too early to assess the effect of these measures.

Some countries have taken measures to induce migrants to return, (e.g. Colombia, India, Iran, and Iraq). The types of incentives offered vary from country to country.

FOLLOW-UP TO THE STUDY

The increase in migration seems to indicate that the measures taken by certain countries to foster migration have been, on the whole, more effective than the measures to curb it. Restrictive measures appear to have merely postponed for a few years the emigration of health manpower or diverted the flow in other directions. In any case restrictive measures such as those mentioned above have failed to take into account the factors that lead to migration.

It is hoped therefore that the analysis and recommendations emanating from the study will be of value to all countries in which the migration of physicians or nurses creates problems. They are, however, unlikely to be adequate as a basis on which individual Member States can formulate realistic policies and plans of action to counteract either the factors that foster migration or the negative consequences of it. Nor will they be sufficient to help the major donor countries to cope with the new types of problems they may face as a result of the measures which some of the major recipient countries are now taking in order to curb the inflow of foreign health manpower. It is felt that the follow-up to the study should take a country-specific problem-solving approach. The following are proposed as the objectives for the follow-up:

To cooperate with each Member State which so requests:
(a) to design, and to implement through the health system, a feasible programme of action to modify physician and nurse migration in desired ways; and
(b) to develop a plan for monitoring the movement of physicians and nurses into and out of the Member States, in order to strengthen the information base.

Instrumental objectives are as follows:

To cooperate with each member State which so requests:
(a) to identify the given Member State's migration pattern;
(b) to examine those measures which the Member State has already taken or plans to take and to ascertain the effects of such measures;
(c) to outline a set of options for modifying the Member State's pattern of migration.

As envisaged, the follow-up to the study would focus on relevant problems within the health sector. The main problem is the presence of gross elements of contradiction within the health manpower system and between it and the health service system. This results, in many countries, in a plethora of highly trained manpower existing side by side with a crying need for health care.

To document how health manpower migration remains nothing more than an interesting but empty academic exercise unless the findings documented are used as a basis for effecting change, if change is warranted. Giver that the migration of health manpower is, for the most part, the result of unrealistic health manpower policies and plans, it therefore follows that the focus of change should be on development and implementation of realistic health manpower policies and plans. This being so, it is not enough for donor countries to merely lament the migration, to wash their hands of the affair by laying the blame entirely on the recipient countries, and to continue requesting more migration studies. There are good reasons to believe that the donor countries have failed to utilize what is already well known about migration as a basis for decision-making. This failure may well be a lack of

measures – as they are doing – to curb the inflow of physicians. Such measures will not automatically and immediately solve, for the donor countries, the problems underlying the migration, one such problem being the overproduction of physicians to meet the export market – a market which the major recipient countries either explicitly or implicitly had stimulated over the past decade. Through bilateral negotiations and in the context of the new concept of technical cooperation, perhaps a more mutually beneficial approach to regulating health manpower migration may be found. International agencies such as WHO could play an important role in such negotiations.

REFERENCES

(received 25 November 1977)