Managing Physician Resources: East and West

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Aim. To examine the current physician supply in western countries, Central and Eastern Europe (CEE), and the Newly Independent States (NIS) of the former Soviet Union. To assess the current management of physician resources in these regions and the potential for their future management.

Methods. Description and analysis of current physician to population ratios, graduating physician to population ratios, and specialty distribution of physicians.

Results. Maldistribution of physician resources, both by specialty and geographically, exists in the East and the West. The management of physician resources varies widely in the West, from virtually no attempts to manage the resources in the United States to increasingly regulatory methods in Canada. The CEE and the NIS face problems in managing physician resources as the movement to primary care continues. At the same time, changes in payment mechanisms create new and often perverse incentives for physicians, in addition to the problems inherited from the centrally managed systems.

Conclusions. Countries in the East and West face challenges in managing physician resources to overcome the current maldistribution of those resources. Efforts must be made to make the medical education system responsive to the future physician supply needs. This is especially true in the East where health systems continue the transition from centrally managed to more market based systems.

Key words: education, medical; Europe, Eastern; personnel management; physician shortage area; supply & distribution

The approaches to managing physician resources vary from country to country. Even in the western countries with a history of greater dependence on market-based health systems, the methods used to apportion physician resources are diverse. Many of the maldistribution problems found in the western countries have resulted from financial incentives, or the lack of incentives. Another major reason has been the unwillingness of physicians to practice in remote or isolated areas when opportunities were available in more desirable locations. In conjunction with these factors, there is an inability or reluctance on the part of governments to regulate the medical professions.

Countries, such as the United States, have done little to manage physician resources, relying almost entirely on the profession and the market to accomplish a desired balance. On the other hand, Canada has moved rather swiftly to implement plans to manage the number, mix, and location of physician resources, with plans emanating from provincial governments.

Countries in the Central and Eastern Europe (CEE) and the Newly Independent States of the former Soviet Union (NIS), currently in transition from the centrally-controlled health systems, face many of the same problems of maldistribution found in the West. At the same time, countries with health systems in transition have had to deal not only with the existing problems but with problems increasingly like those found in the West, as payment mechanisms are changed to more market-based systems. In addition, some of these countries have also had to deal with the disruption of civil unrest and war. This study examines examples of efforts in both the West and East to manage physician resources, the results, and the potential future impact of the efforts.

Physician Resources

The quantity of physician resources varies by country, with the difference often being pronounced. The actual number of physicians tells us very little, and thus ratios, either physician to population or population to physician, are generally relied upon to measure physician resources. While these are the widest used measures of physician supply, they also tend to be the crudest. There are other methods that may be used for determining physician resources and requirements, although each has its limitations (1-3).

Table 1: Physicians and physicians graduating per 100,000 population in selected countries, 1989 and 1995 or latest year. Source: WHO, OECD. The latest year is in the brackets. -, not available.

<table>
<thead>
<tr>
<th>Country</th>
<th>Physicians Graduating</th>
<th>Physicians (per 100,000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>3,300</td>
<td>2.7</td>
</tr>
<tr>
<td>Canada</td>
<td>3,600</td>
<td>2.3</td>
</tr>
<tr>
<td>Central and Eastern Europe</td>
<td>2,500</td>
<td>2.1</td>
</tr>
<tr>
<td>Newly Independent States</td>
<td>2,000</td>
<td>1.9</td>
</tr>
</tbody>
</table>
Table 1 shows the total physicians per 100,000 population for selected countries in the West, CEE, and the NIS. The range of the ratios is quite dramatic. The physician to population ratios in Western Europe range from 156.0 in the United Kingdom to 408.0 in Spain, with an average of 317.7 for the European Union (EU). The United States, Japan, and Canada each have physician to population ratios well below the EU average (4,5).

In the CEE, only Bulgaria, Hungary, and Slovakia have physician to population ratios greater than the EU, whereas six countries have lower ratios, with a range for the region of 140.9 in Albania to 337.4 in Hungary. When ratios in the newly independent states are reviewed, a somewhat different picture develops. Nine of the fourteen countries are above the European Union average. The ratios in the NIS range from 210.3 in Tajikistan to 429.3 in the Ukraine (4,5).

An important question is whether these physician to population ratios are based on some well-thought out plan or have occurred by chance. It frequently appears that the physician supply results less from planning than from happenstance and a medical education system which often operates with little coordination between physician requirements and medical school input. Although the structure of the health system in each country has an impact on the number of physicians required, it is unlikely that the disparities found in the countries result from differences in health system structure.

Table 2 shows the percentage of physicians that were general practitioners in the selected countries in 1989 and 1995. As with most data related to physicians, there are wide variances in these percentages and the direction of change during the period (4,5).

As a general rule, western countries have higher proportions of general practitioners (GP) than CEE countries and substantially more than those in the NIS. Exceptions in the west are the United States, Norway, and Sweden. The percentage of GPs tend to be declining in all western countries except Norway and Sweden (Table 2).

General practitioner percentages in CEE fall at the lower end of the range found in the west, with Hungary trailing other CEE countries. As in the west, the percentages in most CEE countries are declining with the exception of Albania and Slovenia. These declines do not bode well for the specialty mix needed for the ongoing shift to increased primary health care (Table 2). NIS countries trail far behind both western and CEE countries in the proportion of GPs. Only in...
Turkmenistan is the total physician workforce composed of more than 20 percent general practitioners. Only four NIS countries show an increase in GPs (Table 2).

Managing Physician Resources

The management of physician resources has resulted from the number of physicians growing at a rate faster than the population in most countries. Even with this growth, the imbalance by specialty and location that has plagued many jurisdictions continues. Generally, the management of physician resources attempts to manage the number, location, and mix of physicians based on the projections of the current physician supply into the future.

An underlying, but often overriding, reason to manage physician resources is financial. Controlling costs by attempting to manage physician resources is not unique to East or West, but has become critical in CEE and the NIS as health budgets have been dramatically reduced.

The methods used to project future requirements vary dramatically, with needs-based projections being attempted in some areas, whereas in other areas the projections tend to be based on the relationship of the supply of physicians to the population. A multitude of factors enter into any attempt to determine future needs, especially as health systems are reformed.

Managing Physician Resources in the West

While efforts to manage physician resources in the west have wide variation, North America contains two extremes. The United States has, to date, made virtually no efforts to manage its resources, instead depending on the profession and the market to solve any problems. To the north in Canada, increasing efforts have been made to manage physician resources, especially at the provincial level.

The United States has experienced an increasing upward spiral in the number of physicians compared to population growth (Table 1). The government has had little involvement in managing either numbers, specialty choice, or location, although a number of commissions have recommended changes to slow the growth and solve maldistribution problems.

Most recently, the Pew Commission on Health Professions recommended a reduction in the number of medical school graduates by 20%, by closing 20% of the 125 medical schools in the United States (7). It is highly unlikely that this dramatic change in medical education will occur. Medical education and control of the medical schools are primarily state functions in the United States. It is doubtful that state governors and legislators will be willing to fight the political battles necessary to accomplish the recommended reduction in medical schools (8). It is politically easy to open medical schools, but difficult to close them.

Earlier recommendations by the Council on Graduate Medical Education (COGME) found that the absence of a national physician workforce plan in the USA was a hindrance in solving problems faced by the nation. The council also found that there were too few generalists, access problems in rural and urban areas, and, even with too many specialists, shortages in some specialties (9).

None of the COGME or Pew recommendations have been seriously considered. As previous studies are reviewed, it quickly becomes apparent that many of these recommendations are not new and many have been made by previous groups charged with identifying solutions to problems with physician resources (10). Instead, government has generally, with the medical profession’s blessing, sat back and waited for the market to solve the problem. The current move to managed care in the United States has changed many of the dynamics of the physician structure and practice, but early results show little change in the specialty mix or location of physicians. Even though managed care organizations may change the incentives for physicians, many of the old incentives still exist for academic medical centers (11).

The opposite approach is taking place in Canada. Some Canadian provinces have made the management of physician resources a reality, albeit at varying stages and levels of effectiveness. A reduction of the medical school enrollment in Canada by approximately 10% was a prelude to the controls that have been implemented (12).

Because of the structure of the health care system in Canada, most policies dealing with physician resource management have occurred at the provincial level. There is a wide range of plans that have been implemented or are under consideration. New Brunswick was one of the first provinces to undertake a structured plan to manage physician resources and install one of the more regulatory plans in Canada.

The province’s plan to manage physician resources was a part of the overall plan to regionalize select health care resources within the province. The regionalization plan, which became effective on April 1, 1992, establishes region hospital corporations responsible for hospital services and physician resources in eight regions throughout the province (13).

The plan to manage physician resources establishes targets by region and specialty for the year 2000 (14). The location of specialists within the province is determined by the Hospital Master Plan 92
which specified the location of primary, secondary, elevated secondary, and tertiary care services within the province (15). The effort in New Brunswick was originally conceived by the Physician Resource Advisory Committee which had a wide representation of interested parties (16). The targets were established using population to physician ratios by specialty, with a goal of 50% general practitioners and 50% specialists, excluding tertiary care specialists, for the province. The region hospital corporations are authorized to grant privileges to physicians in their regions. Physicians who request privileges, but would cause the region to exceed the assigned targets, are denied privileges. Physicians denied privileges are in turn denied a billing number by the provincial government (13).

There are several problems with this type of plan and the impediments to its success. First, instead of moving to less desirable areas, physicians may simply go to another province or, increasingly for general practitioners, to the United States. Second, while a region may have an overall shortage or surplus of physicians there may be shortages and surpluses within individual specialties. Finally, while one region may have a surplus in a specific specialty another region may have a shortage in the same specialty. Only weak programs are in effect to reduce the surpluses or to force physicians to move between regions. It is unlikely that plans can or will be developed, which will have a significant impact on the management of the existing physician resources.

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on the health system.
There have been instances where war has had a profound effect on physician distribution and availability. In the portions of Bosnia and Herzegovinawith the Croat majority, the physician to population ratio has fallen well below the level needed to provide adequate care to the residents of the area. The decline has been caused by an out-migration of educated persons, an inability to attract new physicians to the area, and the lack of adequate facilities to train new physicians in the area. Many of the same problems exist throughout Bosnia and Herzegovina, which suffered a dramatic drain of educated persons during the war (31,32). Without incentives to attract physicians to the area, it is unlikely that a short-term solution to the problem will emerge. While it is well known that the medical education system must be adjusted to provide the proper output, little has been done in many countries to attempt to balance the output with the needed supply of physicians. A study in Croatia has established the needed level of medical school throughput to maintain the current physician to population ratio (33). Some type of projection model must be in place if any type of planning for the future needs of physician resources is to be accomplished. Efforts need to be made to make the medical education system responsive to supply requirements. This cannot be accomplished without the availability of adequate planning data.
Even with a surplus of physicians in many countries, little has been done to balance the training of physicians with the needs for the graduates. There is a growing number of graduate physicians in the NIS, even though the countries in the region tend to have high physician to population ratios (Table 1).
Many countries in CEE and the NIS are attempting to reduce the physician to population ratios. However, this must be done keeping in mind the specialty and geographic maldistributions. More general practitioners will be needed in most areas to make primary health care work, but specialists still tend to be dominate (23,32,34).
The move to more market-based systems has led to, or worsened, shortages of physicians in many rural areas. Efforts to restructure physician resources must consider geographical distribution as an important aspect of planning. Under the former centralized system, there were efforts in some countries to solve the geographic shortages by requiring physicians to practice for periods of time in underserved areas. In Romania, all new physicians were required to practice in rural or inner-city areas for three years under the former socialist system. With this requirement no longer in place, shortages of physicians have appeared in some areas of the country (28). However effective the former centralized planning methods were in solving some geographic maldistribution problems, it is unlikely that the current move to privatization and market based reforms will allow elements of the system to be revived.

Conclusions

Whether in the East or the West, there has been little success in resolving the maldistribution of physicians. Historically, the maldistribution of physicians, both by specialty and geography, has had little connection with the supply of physicians practicing in a given country. Increasing the supply of physicians has not led to an amelioration of the problems of not having an adequate number of physicians in the desired area and in the desired specialty. There has been more success in managing the specialty distribution than the geographic distribution. The shift to primary care requires an upgrading of the general practitioner and some reduction in the domination of specialists if primary care is to succeed. At the same time, a move from the centralized health systems of the communist era may, in some cases, make geographic distribution an even bigger problem, at least in the short-term. The distaste for central control that exists with the medical profession in the former socialist countries will make it difficult to implement controls that may be needed to resolve the problems. The ultimate goal of complete mobility for medical professionals between nations in the European Union will ultimately call for the coordination of physician resource management plans between countries. As the number of EU countries grows to include more of the former socialist countries, the scope of coordination required will be extended.

Further research is needed to learn the direct impact that the difference in the level of health expenditures between countries has on physician supply. Further examination is also needed to ascertain the degree to which different weights given ambulatory and institutional services, structure of the medical education system, and methods of reimbursement may influence the structure of physician resources.
The transition of health systems in Central and Eastern Europe and the newly independent states make some ability to manage physician resources important. Shrinking resources and a shift to payment mechanisms which often offer perverse incentives make it difficult to control costs without some degree of control over physician resources. Physicians directly consume a substantial portion of
health budgets and influence an even greater amount.
Greater coordination of the medical education system and physician requirements is necessary if the
numbers of physicians are to be reduced in CEE and especially in the NIS. The West offers few
examples of a willingness to control physician supply by controlling the medical education system.
The transition to market-based systems offers many opportunities to improve efficiency in the former
socialist systems, offering at the same time an opportunity to become mired in the same inefficiencies
that plague western countries. The choices made during the transition period will have far-reaching
ramifications.

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References
2 Capilouto E, Ohsfeldt R. Health workforce modeling, lessons from dentistry. In: Osterweis M,
McLaughlin C, Manasse H, Hopper C, editors. The U.S. health workforce, power, politics, and policy.
4 Organization for Economic Co-operation and Development. OECD health data 97 [computer
6 Curtoni S, Sutnick A. Numbers of physicians and medical students in Europe and the United States.
7 Pew Health Professions Commission. Critical challenges: revitalizing the health professions for the
9 Rivo M, Satcher D. Improving access to health care through physician workforce reform. JAMA
10 Christakis N. The similarity and frequency of proposals to reform US medical education. JAMA
11 Schwartz A. Will competition change the physician workforce? Early signs from the market. Acad
12 Ryten E. Enrolment in programs of study leading to the award of the MD degree, Canada,
13 Reamy J. Health service regionalization in New Brunswick, Canada: a bold move. Int J Health
14 New Brunswick Department of Health and Community Services. Physician resource management:
a plan for New Brunswick, Fredericton, New Brunswick: New Brunswick Department of Health and
Community Services; 1992.
15 New Brunswick Department of Health and Community Services. Master plan '92: the New
Brunswick hospital system. Fredericton, New Brunswick: New Brunswick Department of Health and
Community Services; 1992.
16 Physician Resource Advisory Committee. Physician resource plan. Fredericton, New Brunswick:
New Brunswick Department of Health and Community Services; 1991.
18 Ensor T. Health system reform in former socialist countries in Europe. International Journal of
Health Planning and Management 1993;8:169-87.
1995;17:6-10.
20 Albert A, Bennett C, Bojar M. Health care in the Czech Republic: a system in transition. JAMA
21 McKee M, Bobak M, Kalina K, Bojan F, Enachescu D. Health sector reform in the Czech Republic,
22 Hrabáè B. Family-centered care as a framework for primary health care development in Bosnia
Regional Office for Europe; 1996.

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