Introduction

Maldistribution of human resources for health is a worldwide phenomenon and may appear in different dimensions. The first and greatest concern is the inequitable distribution, particularly of high level professionals like doctors, both among countries in the world and within each country. Figure 1 shows the different doctor concentrations among 6 regions in the world\(^{(1)}\). The second form of maldistribution is the skill mix. Many countries, e.g., Bangladesh, Brazil and China, have more doctors than nurses. Figure 1 also shows the nurse : doctor ratio in different regions of the world\(^{(1)}\). The third is the problem of overspecialization. The fourth is the institutional maldistribution. And lastly, the gender maldistribution. These five forms of maldistribution are interrelated.

Multiple factors influence the maldistribution of doctors, ranging from general social and economic inequity, medical education system, payment incentives, public/private health system development, and social movement for crusading spirits (Figure 2). Thus the problem of maldistribution of doctors should be considered as part of overall social inequity, as well as a problem in health system management.

This paper aims at summarising the various strategies to solve the first form of maldistribution, i.e., inequitable distribution of doctors, by using the experience of Thailand as a case study for analysis.

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**Figure 1** Supply of health personnel by demographic region, 1990 or most recent available year\(^{(1)}\)
Figure 2  Factors determining HRH distribution

<table>
<thead>
<tr>
<th>Socio-economic</th>
<th>Health service factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Economic growth</td>
<td>- Health development policies</td>
</tr>
<tr>
<td>- Income distribution</td>
<td>- Private sector growth</td>
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<td>- Urban/Rural</td>
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<td>- Investment policy</td>
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<td>- Social norms/Globalization</td>
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<tr>
<td>- Education/Communications etc.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>HRD factors</th>
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</thead>
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<tr>
<td>- Students’ socio-econ. background</td>
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<tr>
<td>- Medical education system</td>
</tr>
<tr>
<td>- Supply of medical graduates</td>
</tr>
<tr>
<td>- HRH management</td>
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<tr>
<td>- Specialist training</td>
</tr>
</tbody>
</table>

Overview of the rural public health system and distribution of doctors in Thailand

Thailand is a lower middle income developing country with a population of 60 million, 70% of whom reside in the rural areas. The country is divided into 75 provinces, 774 districts, 81 subdistricts, and 6,397 communes called Tambons.

One main activity of early health system development in Thailand was to establish schools for production of health workforces. The first medical school was established in 1888. Later on the Nursing Colleges and the Schools of Dentistry and Pharmacy were also established. These professional level personnel were placed mainly in the central capital with few provincial placements undertaken. The government at that time realised the difficulties and high cost of expanding health care services by high level health professionals, thus lower level personnel were also produced to deliver essential maternal and child care, and immunization, and environmental health services in the rural villages. These were mainly midwives and junior sanitarians, who worked in a relatively limited number of rural midwifery and health centres. It was not until the early 1950’s that every province was covered with one provincial hospital, usually quite small (20-30 beds) with several doctors. During that early development period, medical students were voluntarily offered scholarships with a contract stipulating that they would work for the Ministry of Public Health (MoPH). After graduation, those who did not receive scholarships stayed mainly in the medical schools, and those who received scholarships were sent to the provincial hospitals and some big rural health centres.

The high demand for doctors in the US during early 1960s opened great opportunities for well-trained Thai doctors to migrate. It was noted in a US Congressional report that the first few batches of graduates from a northern medical school chartered flights to migrate to the US. Table 1 showed that in 1965, half of the new medical graduates migrated, mainly to the US.
Table 1  External brain drain, Thailand

<table>
<thead>
<tr>
<th>Year</th>
<th>Total new medical graduates</th>
<th>Emigrants</th>
<th>% external brain drain</th>
</tr>
</thead>
<tbody>
<tr>
<td>1963</td>
<td>233</td>
<td>56</td>
<td>24</td>
</tr>
<tr>
<td>1964</td>
<td>236</td>
<td>81</td>
<td>34</td>
</tr>
<tr>
<td>1965</td>
<td>276</td>
<td>140</td>
<td>52</td>
</tr>
<tr>
<td>Total</td>
<td>745</td>
<td>277</td>
<td>37</td>
</tr>
</tbody>
</table>

The problems of external brain drain of medical doctors seem to affect most developing countries, especially countries in Africa\(^{(1)}\). In Ghana, it was estimated that during 1985-1997, the cumulative average annual emigration rate was about 14%. This means that 50% of each batch of medical graduates will emigrate within 4.5 years, mainly to the UK and US\(^{(4)}\).

This period of **external brain drain** in Thailand, lasted about a decade and resulted in approximately 1,500 Thai doctors going to the US. This rapid exodus prompted the government in 1967 to enforce contracts with medical students for a compulsory 3 years of public work or face high fines. The first batch of compulsory contracted Thai doctors started their assignments in 1972, the time of social transformation which called for high social responsibilities of university graduates. About 2/3 of these doctors were allocated to work with the MoPH, the rest to the Ministry of University Affairs (MoUA), Ministry of Defense and other ministries. The high level of social awareness during the early 1970s, followed by the Alma-Ata declaration of HFA, encouraged a social environment to support an equitable health system. Hundreds of new district hospitals were built, medical schools increased their production and adjusted their curriculum in support of PHC/HFA and work in district hospitals. The resolutions of the 4\(^{th}\) National Medical Education Conference in 1979 stated that the medical schools should produce basic doctors suitable for the district hospitals\(^{(5)}\). These decisions resulted in the increase in number of rural doctors from 300 in 1976 to 1,200 in 1986, a four fold increase in 10 years (Figure 3).

The rural health development policy during the past two decades resulted in great expansion of rural public health services. There were 710 district hospitals in December 1997, covering more than 97% of the total rural districts. The district hospitals are 10-120 bed hospitals, although most of them are 30 bed. There were 1,874 district hospital doctors in May 1998, 59.28% as compared to the total requirement of 3,161, according to the staff frame determined by the MoPH and the Civil Service Commission. At the provincial level, there are 89 hospitals. Nineteen of them are designated as regional hospitals with 500-1,000 beds, the rest are general hospitals with 150-450 beds.

Although the rural emphasis continued, the rapid economic growth and rapid growth of the private health sector in the past decade (1988-1997) created a second period of brain-drain. This time it was **internal brain-drain** from the rural district and provincial hospitals to the rapidly growing urban private hospitals. In 1986, before the economic boom, the share of private hospital beds and doctors was around 10%. This figure increased to 25% in 1995\(^{(6)}\). Since 1990, while the number of beds of the district hospitals kept increasing, the number of doctors at first increased more slowly, soon came to a halt and then decreased during the past decade (Figure 3). On the other hand the number of private hospital beds increased along with the number of doctors. The private hospital doctors increased from less than 1,000 in 1985 to more than 3,000 in 1995, a more than three fold increase in 10 years\(^{(7)}\) (Figure 4). This situation of internal
braindrain was so severe that in September 1996, 21 district hospitals were without doctors\(^8\).

This internal brain drain with a severe shortage of doctors in rural public hospitals prompted the government to seek more financial incentives to attract doctors to work in the public sector rural districts, and to increase the annual enrollment of medical students from 880 to 1,200 in 1992 and to 1,500 in 1997.

However, the severe economic crisis since mid 1997 resulted in a rapid decline in private hospital beds and doctors. Empirical evidence suggested a 30% decrease in outpatients and beds. Some degree of reverse brain drain is apparent as the number of district hospital doctors started to increase in 1998.

Currently, all professionals except graduate nurses are produced mainly from the public universities under MoUA, while the paramedics and graduate nurses are produced mainly by the MoPH\(^9,10\). The recruitment systems for the professionals and the paramedics (including most graduate nurses) are quite different. For the professionals (trained by MoUA), general national entrance examinations are the main method used while the paramedics and most of the graduate nurses (trained by MoPH) are recruited from each province through provincial examinations.

**Figure 3** Number of doctors and beds in the district hospitals (1979-1997)

**Figure 4** Private doctors and beds in Thailand (1977-1995)

*Source:* Bureau of Health Policy and Plan, and Rural Health Division, MoPH

*Source:* Medical Registration Division, MoPH
Situation of maldistribution of doctors in Thailand

1. Inequitable distribution

During 1981-1990, due to priorities in rural health development\(^{(10)}\), there was a better distribution of doctors to rural district hospitals in the MoPH (Figure 3). This development reduced the gap of the regional distribution of doctors (Figure 5)\(^{(6)}\). The difference between population to doctor ratio between the poorest Northeastern region and the capital, Bangkok, decreased gradually from 21 times in 1979 to 8.6 times in 1985. Then the gap started to expand again up to 12 times in 1993 due to internal braindrain (Figure 6). This correlated well with the rapid economic growth and rapid uncontrolled expansion of private health facilities and doctors (Figure 4). It is also clear from Figure 7 that geographical distribution of doctors correlated well to that of income distribution.

**Figure 5** Trends of doctors distribution in various regions, 1979-1995.

**Figure 6** Difference in doctor density between the poorest Northeastern region and the capital, Bangkok, 1979-1995.

Source: Health Resources Survey, Bureau of Health Policy and Plan, MoPH
Figure 7  Population to doctor ratio in each of the 75 provinces as compared to their per capita Gross Provincial Products (GPP), 1995.


2. Skill mix
The doctor to nurse ratio in Thailand has remained fairly constant at about 1:3. Thus there is no serious problem in this aspect.

3. Institutional imbalance
During rapid rural health development (1980-1987) the proportion of doctors in the Ministry of Public Health rose rapidly. However during the period of rapid economic growth and rapid uncontrolled expansion of private health facilities, the proportion of doctors in the private sector rose rapidly while those in the Ministry of Public Health and other Ministries went down (Figure 8).

4. Overspecialisation
The trend toward even more specialization began with the start of specialist training programs in Thailand in 1968. Currently there is an increasing trend of board certified specialists (Figure 9). And even those GPs without special training who work in the provincial hospitals are practising in some specialties. The health resources survey of 1995 showed that the proportion of practising GPs was only 17.9%, and appeared to be headed even lower (Figure 10)(8). This overspecialization also contributes to the inequitable distribution, as specialists work mainly in the cities.
**Figure 8** Distribution of doctors by ownership (1971-1995)

![Distribution of doctors by ownership (1971-1995)](image)

**Source**: Health Resources Survey, Bureau of Health Policy and Plan, MoPH

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**Figure 9** Proportion of board certified specialists (1971-1997)

![Proportion of board certified specialists (1971-1997)](image)

**Source**: Thai Medical Council

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**Figure 10** Proportion of really practising GPs and specialists

![Proportion of really practising GPs and specialists](image)

**Source**: Report on Health Resources Survey, Bureau of Health Policy and Plan, MoPH
5. Gender imbalance

There was a gender bias towards more male doctors since the early days of medical education in Thailand. However, during the past decade the gender bias has decreased and now the number of new male graduates approximates that of females (Figure 11)\(^8\). This change in gender trend may affect doctor distribution as it is difficult for most female doctors to stay long in remote district hospitals.

**Figure 11** Number of medical graduates of each sex

![Number of medical graduates of each sex](image)

**Source**: Thai Medical council, 1998.

**Strategies Used in Solving Inequitable Distribution of Doctors in Thailand**

1. **Development of Rural Health Infrastructure.** To distribute health personnel to the rural areas, the health infrastructure of the rural areas first needs to be developed. In 1979 the Thai government initiated rural health development as part of an integrated national rural development project\(^10\). The effect was a shift of resources from urban provinces to rural districts, and the rapid increase in the number and beds of rural district hospitals (Figure 3, 12)\(^11\). This project is still going on and has resulted in nearly 100% coverage of modern and well equipped rural district hospitals and health centres.

However, since 1987 with the start of rapid economic growth, there was also an expansion of urban provincial hospitals and some hospitals in the capital. This change in policy, coupled with a rapid uncontrolled expansion of private hospitals through investment support from the government and easy foreign loans from Bangkok International Banking Facility (BIBF), resulted in the severe ‘internal brain drain’ as noted earlier. The expansion of beds in the rural district hospitals together with the ‘internal brain drain’, aggravated the shortage of rural district doctors (Figure 3). These situations created an increasing burden to the district hospital doctors. The annual OPD visits per doctor and beds to doctor ratio at the district hospital increased from 8,600 visits, and 7:1 in 1989 to 16,400 visits, and 12:1 in 1996\(^6\). This increase in workload is also an important factor that drew the doctors away from the district hospitals.
2. Educational Strategies

2.1 Rural recruitment and training

Rural recruitment, experience in the rural health facilities during education (using rural health facilities for training), hometown placement after graduation, and limited possibilities for private practices are factors which contribute to the successful distribution of graduate nurses, midwives, junior sanitarians, and other paramedics in the Ministry of Public Health\(^{(2)}\). They are now the backbone workforce for the rural health centres, and district hospitals. After being recruited through the provincial mechanism, which requires provincial residency, they have to sign contracts with the provincial health office. The contracts require 2-4 years of public sector employment in the same province after graduation. These students are educated in 34 nursing colleges and 6 public health colleges of the Ministry of Public Health which are scattered throughout the country. They receive highly subsidized (tuition fee at 5\% of actual educational cost) education including free clothing, dormitory, food, and learning materials during their school years. Practical training is carried out mainly in the rural provincial and district hospitals and rural health centres where the students will work after graduation. Thus they are quite familiar with the rural facilities and environment. Most of them, except for nurses and midwives, do not acquire a license to enable them to practise privately.

Attempts to use these strategies for medical education in Thailand yielded some degree of success. The first attempt started in 1974 in one of the central medical schools. Students were recruited from rural provinces by mechanisms which included provincial health administrators and medical school lecturers. After graduation they were sent to the provinces/districts from where they came. This system was expanded to other medical schools during the 1980s. Evidence from the experience of one medical school involved, which also sent their students to study in the provincial...
hospital during the three clinical years (year 4-6), suggested that it lengthened the rural service of the graduates. Two third of the graduates continued their rural placement after the 3 compulsory contracted years (Table 2)(8).

Table 2  Place of practise of MESRAP graduates

<table>
<thead>
<tr>
<th>Batch</th>
<th>% in the rural districts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>First 3 years</td>
</tr>
<tr>
<td>1-9</td>
<td>83.13</td>
</tr>
<tr>
<td>10</td>
<td>68.57</td>
</tr>
<tr>
<td>11-13</td>
<td>85.34</td>
</tr>
</tbody>
</table>

Source: Faculty of Medicine, Chulalongkorn University

A study in the Northeastern medical school found that to be more effective, the recruited students need to be restricted to those who were raised in the rural areas and exclude those who move their residence into rural areas 2-3 years before enrollment just to be eligible for recruitment(12). Due to problems of management of the placement system, such as some of the graduates could not be placed in their hometown because there were other districts with a greater need of doctors, the system was terminated in most central medical schools. Only 3 regional medical schools and one central medical school still allow part of their students to enter under this system. Thus the proportion of rural medical students, which used to be up to 47% in 1983, went down to 23% in 1994 (Figure 13).

Figure 13  Proportion of rural medical students

CPIRD = Collaborative Project to Increase Production of Rural Doctors.
Source: Faculty of Medicine of all universities.
In 1994, the Ministry of Public Health, in response to the internal brain drain and severe shortage of doctors in the rural areas, proposed a 10-year project (Collaborative Project to Increase Production of Rural Doctors-CPIRD) to produce 300 doctors annually, specifically for the rural areas. The students are recruited by transparent and participatory mechanisms at the provincial level. They spend the first three preclinical years at the medical schools (both central and regional) and the second three clinical years at 12 regional hospitals with the networking of district hospitals. Contracts are signed which require 3 years of rural public services specifically in the Ministry of Public Health. This project accepted 30 students in 1995, and increased to 250 students in 1998. It affects an increased proportion of rural medical students. These students will all be placed to work in the rural facilities under the MoPH, mainly in their original provinces\(^{(15)}\).

In April 1997, at the peak of the economic boom, 113 compulsory contracted doctors paid fines and resigned from the Ministry of Public Health after one year of compulsory work. Detailed investigation revealed that those with rural backgrounds and who had graduated from regional medical schools had significantly lower rates of resignation (Table 3). The three main reasons for the resignation were to go into private practice, inappropriate relocation and continuing education\(^{(14)}\).

**Table 3** Background of the new doctors (mainly rural) in the MoPH, who resigned and did not resign, May 1997.

<table>
<thead>
<tr>
<th>Regional background</th>
<th>Resigned</th>
<th>Did not resign</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>number</td>
<td>%</td>
<td>number</td>
</tr>
<tr>
<td>Bangkok</td>
<td>85</td>
<td>29%</td>
<td>205</td>
</tr>
<tr>
<td>Central</td>
<td>10</td>
<td>19%</td>
<td>43</td>
</tr>
<tr>
<td>North</td>
<td>9</td>
<td>15%</td>
<td>51</td>
</tr>
<tr>
<td>South</td>
<td>4</td>
<td>7%</td>
<td>51</td>
</tr>
<tr>
<td>Northeast</td>
<td>5</td>
<td>7%</td>
<td>70</td>
</tr>
<tr>
<td>East</td>
<td>0</td>
<td>0%</td>
<td>12</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>113</strong></td>
<td><strong>20%</strong></td>
<td><strong>438</strong></td>
</tr>
</tbody>
</table>

**Source**: Health Personnel Management Division, MoPH.

The rural recruitment also faced some problems because those rural students from poorer families seldom pass the highly competitive examinations. So the majority of the students are still from better-off families of the capital districts of each province.

It should be noted that rural recruitment and training also proved to be quite effective in achieving rural distribution of doctors in several countries, e.g., Australia and USA\(^{(15-17)}\).

Establishment of regional medical schools is also a good measure for the equitable distribution of health care services and doctors. On the contrary, central medical schools drew doctors into the capital. The resolution of the 5th National Medical Education Seminar in 1986 stated that “….there should be no new medical schools in the capital and vicinity provinces\(^{(18)}\).” However, since 1986 four new medical schools were established centrally including one private medical school.
2.2 Reform of medical education

The resolution of the fourth national medical education conference in 1979 stated that all medical schools will reform their curriculum to produce medical graduates suitable for working in district hospitals. Four main characteristic of these basic doctors are good clinical competence, supportive of PHC, trainers for paramedical personnel and health volunteers, and good managers\(^5\). This resolution resulted in a major reform of medical education and all medical schools sent their students to be trained at district or provincial hospitals for at least 3-6 months. Community medicine became one of the major departments in all medical schools.

Specialist training programs were also controlled by the medical council and experience in rural public services was used as prerequisite for the residency training programs. At least one year of rural services are required for most training except for some specific specialties, e.g., general practitioner, pathology, forensic medicine, and psychiatry (Table 4)\(^9\). Rural doctors also receive special quota to go for specialty training under the condition that they will come back to the district hospitals.

There are now 42 specialty boards approved by the Thai Medical Council. In 1998, the overall quota for specialty training was 1,083 while all the residency training programs accepted 728 trainees, as compared to 850 new medical graduates. This quota will be fixed until the year 2000. However, this specialist training control experienced much resistance from the medical schools and the results are not very promising (Figure 9, 10).

Table 4 Medical specialty training in Thailand, 1996

<table>
<thead>
<tr>
<th>Category</th>
<th>No. of working years before enrollment</th>
<th>Number and example of specialties</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>8 specialties e.g. general practitioner, family medicine, pathology, forensic, psychiatry, etc.</td>
</tr>
<tr>
<td>2</td>
<td>1 - 3*</td>
<td>5 specialties, i.e., obstetric/gynecology, internal medicine, pediatric, surgery, orthopedic.</td>
</tr>
<tr>
<td>3</td>
<td>1 - 3*</td>
<td>13 specialties, e.g., anesthesiology, rehabilitation, radiology, preventive medicine, neurosurgery, urology, neurology, hematology etc.</td>
</tr>
<tr>
<td>4</td>
<td>at least 3*</td>
<td>3 specialties, i.e., ophthalmology, otorhinolaryngology, dermatology.</td>
</tr>
<tr>
<td>5</td>
<td>at least 3*</td>
<td>8 specialties, e.g., thoracic surgery, plastic surgery, cardiology, nephrology etc.</td>
</tr>
</tbody>
</table>

Source : Thai Medical Council, 1996.

* Those with longer years of work experience receive higher priority of acceptance.

2.3 Bonding through conditional licensing

Many countries, e.g., Indonesia, South Africa, and some former socialist countries will give a license to practise to medical graduates only after a period of public work. This is a very strong measure without any choice for graduates. In some countries, e.g., Indonesia and Vietnam, it results in a situation where there are not enough posts in the public sector to absorb these graduates.

This measure has never been proposed or used in Thailand.
3. Financial Strategies

Financial strategies were used in 3 forms:

3.1 Voluntary scholarships. These were given to medical, dental, pharmacy, and nursing students. If they received the scholarships they would have to work for 2-4 years in public service. This practice was used in the early days of rural health system development. This system did provide some doctors for the early development of MoPH’s health service system.

This system does not exist any longer. However, some private hospitals give scholarships to graduate nursing students in the Faculty of Nursing in some universities in exchange for a few years of their work, so that the private hospitals will have enough nursing staff supply.

3.2 Compulsory public services.

This started for medical doctors in 1967 in response to the external brain drain, and the first batch graduated in 1972. In the first 4 years (1967-1970), it was a voluntary scheme. The medical students chose to work for three years (including one year of internship) in the rural public facilities or paid a high annual tuition fee (US$400 per year for 4 years or US$3,000 at 1997 prices). If they breached the contract, they would have to pay a fine of US$4,800. This fine was increased to US$8,000 and US$16,000 in 1971 and 1973, respectively. Due to high social concern, high tuition fees, and little opportunity for private practice, most medical students signed the contract. In 1972 this contract became compulsory for all medical students. This strategy, combined with the rural health service development, high social concern, and economic recession with low growth in the private sector, were the main factors contributing to the rapid increase in the number of rural doctors, and reducing the gap of doctor density during the decade between 1980-1990 (Figure 3 and 6). If the fine (US$10,000 in 1998 value - reduced due to devaluation) were adjusted to compensate for inflation, it would now be US$50,000.

The attempt to increase the fine to correct for inflation was strongly opposed by the medical schools. The overt reason is that increasing the fine will increase the unfair treatment posted to medical graduates when compared to graduates in science, engineering and other fields. However, one covert reason is that many medical students’ parents and relatives are teaching staff. The other more important reason is that increasing the fine would most likely reduce the number of graduates who are ready to breach the contract and pay the fine. This will reduce extra income to the university since the fine all goes to the university fund rather than back to the central public budget.

The effectiveness of this measure was negligible during the rapid economic growth in the past decade when a higher proportion of new graduates resigned after one year of compulsory intensive training in the provincial hospitals. However, the onset of economic crisis in 1997 greatly brought this proportion down (Figure 14).

The success of the compulsory contracts for the medical students led to the compulsory contracts for dentists in 1985 and pharmacists in 1987. This also resulted in better distribution of dentists and pharmacists. Now most district hospitals have at least one dentist and one pharmacist.

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a Since 1993 every medical graduate must receive one year of intensive training at a provincial hospital.

This is a condition required for acceptance into any specialist training program.
3.3 Financial incentives

To provide incentives for doctors who deliver rural services, the government started special allowances for district hospital physicians in 1975. There were two rates of allowance. For regular districts the rate was US$60 per month for the first year, and US$68 per month from the second year of service onward. For more remote areas, the first year allowance was US$80 per month followed by US$88 per month from the second year onward. These allowances were approximately equal to the monthly salary of the newly graduated doctors. These allowances were later on, in 1983, increased to US$80 and 88 for regular districts and US$100, and 108 for remote districts. These allowances prohibited rural doctors from accepting any travel per diem, or on call payments.

It was not until the rapid economic growth with the resultant rapid growth in the private health sector and internal brain drain that the government initiated increased financial incentives for public doctors. But these came rather late, with inefficiency and some degree of unfair implementation.

In 1994 travel per diem and on call payments were allowed for rural doctors who received special rural allowances. In 1995, a non-private practice allowance of US$400 per month was given to any doctor (in the MoPH) who agreed not to engage in private practice. To increase productivity, the MoPH in 1995 also started non-official hours services for elective patients (before that it was only for emergency patients) with special workload related payments.

Finally in October 1997, the government increased the special rural allowances from two levels to three levels. Doctors in regular districts received US$55
and 62 per month (reduced because of devaluation). Those in more remote districts received US$250 per month, and those in the remotest districts received US$500 per month (more than twice their salary).

In total, a new graduate working in a rural district may receive from US$825 (in regular districts) to US$1,379 per month (in the remotest districts.) However this is still lower than the new graduate in private practice who has an income of at least US$2,000 per month (Table 5)\(^{8}\). Soon, dentists, pharmacists, and graduate nurses, who had lower levels of internal brain drain, were asking for financial incentives and were finally given them although on a smaller scale.

It should be noted that in Table 5 only one item of the financial incentives was given to compensate for hardship rural practice (item 7) and it was hardly related to the length of time of rural work. It has been postulated that these incentives may only increase the income of new graduates which will make it easier for them to pay the fine for breaking the 3-year contract, and then move to the big cities. The three levels of special allowances to rural district doctors also created many inequities. Many district hospitals, which are only 10-20 km. apart on paved roads, experience a 5-10 fold allowance differential. This special allowance also faces the problem of an inefficient bureaucratic system. The increase of the special allowance was approved since October 1996 (before economic crisis), but the first allowance was received 1 year later (after economic crisis).

Table 5 Remuneration for MoPH doctors, October 1997.

<table>
<thead>
<tr>
<th>Remuneration</th>
<th>Rate (US$) per month</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Salary (new graduate)</td>
<td>203</td>
<td>standard salary for PC* 4 level 3</td>
</tr>
<tr>
<td>2. Non-private practice allowance</td>
<td>250</td>
<td>anyone without private practice</td>
</tr>
<tr>
<td>3. On-call payment (general)</td>
<td>250-300</td>
<td>US$20 per night (more than 8 hours)</td>
</tr>
<tr>
<td>4. Payment for special procedures during non official hours</td>
<td>72-126</td>
<td>rate depends on number and kind of procedures; provincial hospital doctors usually receive much more, sometimes up to US$1,500</td>
</tr>
<tr>
<td>5. Special allowance for rare** specialties</td>
<td>100</td>
<td>• mainly preventive medicine</td>
</tr>
<tr>
<td>6. Professional allowance**</td>
<td>90-250</td>
<td>• for medical profession PC level 7 up</td>
</tr>
<tr>
<td>7. Special allowance for rural district hospital doctors</td>
<td>50-500</td>
<td>• US$50-55 for regular districts (600 districts)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• US$250 for remote districts (127 districts)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• US$500 for the remotest and most difficult districts (69 districts)</td>
</tr>
</tbody>
</table>


The exchange rate is 1 US$ = 40 Bahts

* PC = Position Classification

** Not for new graduates

3.4 Increased tuition fees and payback by rural public work

There were some proposals to increase the tuition fee to medical students from US$400 to US$7,500 per year, to reflect real costs. Those who cannot
afford to pay receive a soft educational loan from the government and either pay back by cash after their graduation or pay back by rural work for 3 years\(^{(8)}\). The US experience in this system yielded varying degrees of success. It was found that about 30% pay back the loans by completing 3 years of rural work, 20% pay back totally by cash, and 50% pay back both by cash and by working for a shorter period in the rural areas\(^{(19)}\).

This proposal may soon be implemented in Thailand as all the universities will become autonomous before 2002 under the terms of the agreement with the Asian Development Bank on the Social Adjustment Program Loan in response to the workers economic crisis.

4. Professional Replacement Strategies

Training in basic medical care capacities for rural health personnel in the health centres was a very important strategy which improved those workers’ acceptance by the people, and reduced the number of outpatient visits at the hospitals. During the past three decades, the comparative number and proportion of the outpatient visits in the three levels of public health services, i.e., provincial hospitals, district hospitals and rural health centres changed from an inverted triangle to an upright one (Figure 15)\(^{(7)}\). Nevertheless, although these rural health personnel help screen many patients, there is still a high percentage (35-70%) of patients who bypass the health centres in favor of the district and provincial hospitals\(^{(20, 21)}\).

Training of nurse practitioners to serve in district hospitals where there were inadequate numbers of doctors was started in 1973. It lasted for 13 year and was terminated in 1986 after producing 688 nurse practitioners, due to a reduction in qualified applicants. At present, only 10% of the graduates still work as nurse practitioners. During the period of rapid increase of rural doctors (1980-1987), the nurse practitioners’ role was reduced greatly. Their career opportunities are limited compared to nurses in other services, and they are not allowed to engage in private medical practice. These are the main reasons for the low level of applicants, and the rapid loss to attrition\(^{(22)}\). However, some district hospitals still successfully use nurse practitioners, or self-trained graduate nurses to provide outpatient services along side the doctors.
Figure 15 Number and proportion of OPD visits at public health facilities

<table>
<thead>
<tr>
<th>Year</th>
<th>Regional H./General H. (%)</th>
<th>Community H. (%)</th>
<th>Rural Health Centres (%)</th>
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</thead>
<tbody>
<tr>
<td>1977</td>
<td>46% (5.5)</td>
<td>24% (2.9)</td>
<td>30% (3.6)</td>
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<tr>
<td>1987</td>
<td>35% (15.7)</td>
<td>19% (16.8)</td>
<td>36% (32.2)</td>
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<tr>
<td>1997</td>
<td>36% (40.4)</td>
<td>35% (35.5)</td>
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</tbody>
</table>

( ) : Number of OPD visits (millions)

Source: Rural Health Division, MoPH

5. Social strategies

The 3-year compulsory contracts rapidly increased the number of young rural doctors since 1975. These doctors were educated in the university during the period of high societal pressures against dictatorship and in favor of social justice.

These early rural doctors faced many administrative and logistic problems. They were not trained to be managers but had to become hospital directors since their first day of graduation. Many of them unintentionally broke financial and administrative rules of the government. Some of them were cheated by their accountants. Some suffered from failures in personnel management. With pressures mounting, due to their management inexperience and inadequate support from the MoPH, they finally created a society of their own called “The Rural Doctor Society” in 1978. The society started several management training programs, developed management handbooks, and created innovative activities to support rural district hospital directors, e.g., rural doctor journals/newsletters, public recognition for extraordinary performance, visits to rural hospitals by senior doctors for morale support, and provincial rural doctor coaches. In 1982, they also established a “Rural Doctor Foundation” to sustain their activities. Their activities boosted the crusading spirits among themselves and their pride of belonging to the ‘rural doctor’ group.

The society became widely accepted in the health arena, among the medical profession and by the public. The rural doctors were able to win several successive elections to participate on the Medical Council Committee, and influenced several changes in medical education and residency training to improve distribution of doctors. Apart from supporting rural health services, the society also moved actively to support public health movements, e.g., national drug policy, essential drug list and tobacco control. They also played active roles in the national movement toward democratisation and political reform as well as a ‘watch-dog’ role to counteract corruption and inappropriate administrative behaviour. In August 1998, they revealed evidence of a nationwide drug purchasing scandal which resulted in the resignation of the health minister and one deputy health minister. The success of the society boosted the
morale of the rural doctors and allowed them to work more happily in the rural district hospitals.

Apart from the creation of Rural Doctor Society and Rural Doctor Foundation, several public recognition awards were also established. An annual ‘hardship award’ is given to the best rural doctor in the most remote area in commemoration of one very good rural doctor who lost his life during his dedicated services in a border district in 1985. The oldest medical school, Siriraj Hospital, established a special annual prize for “the best rural doctor of the year” in 1976. The medical association and Medical Council also award the same recognition. Several medical schools also give special recognition for their alumni performing outstanding work in the rural districts. Many rural doctors are invited to become part-time and full-time lecturers in medical schools, mainly in the community medicine departments. Some of them also receive honorable Master or Ph.D. degrees from universities. Some of the rural doctors are recognized at the national level as “the model Thai of the year”.

All these social movements and supports improve the morale of rural doctors and allow them to stay happily in the rural districts.


Rural doctors, after the 3-year compulsory service, are free to relocate to their preferred jobs. Their promotion is also encouraged.

District hospital doctors, as all doctors in the public services, start their career at PC level 4 (total 11 levels). Within 7-8 years of services, most of them will be at level 7, and within 10-12 years at level 8, equivalent to the director of a division in the central MoPH office.

Since October 1996, it was approved that they may be promoted to the PC level 9, equivalent to the provincial chief medical officers (their direct bosses) and the deputy director general of a central department in the MoPH. This promotion will put them at a higher level even than the district officer (level 8). However, the detailed implementation guidelines are still not approved and there are still no single promotion as of October 1998.

Logistic support with paramedics, drugs and equipment supplies, housing, transportation and communications has also improved greatly. Most of the district hospitals are now very well equipped 30-bed hospitals with more than 60 full-time staff.

7. Increased Supply

Many people believe that increased supply of doctors will eventually lead to better distribution to rural areas. This method is a very expensive one. The operating cost for producing a medical doctor in Thailand was about US$72,000 in 1995. The total cost might go up to US$100,000. And evidence in other countries, e.g., Mexico, showed that an increased supply of doctors alone would not improve distribution, but would rather create oversupply of doctors\(^{(1,23-24)}\).

In Thailand, most health personnel are trained in public sector schools\(^{(3)}\). Previously, increased production of personnel was usually carried out in response to expansion of the public health services and external brain drain. Not until the internal brain drain in 1990 did increased production begin in response to increased demand, both in the public and private sectors. A private-for-profit medical school was established in 1989, with strong opposition from the rural doctor society. Two of their members in the Medical Council Committee resigned and held press conference to protest against it. Finally, the Medical Council ruled that only private medical schools under not-for-profit organizations would be allowed. Since then there is only one private medical school and there has been no more attempts to create another one. Graduates from private medical
schools have to pass licensing examinations, as compared to automatic licensing of graduates from public schools.

Figure 16 shows the annual output of medical doctors. It is evident that the increase in output is a response to external brain drain, rural health system development, and increased demand in the private sector. This level of production may result in a decrease of population to doctor ratio from 3,500 : 1 in 1995 to 1,500 : 1 in 2025, a quite balanced figure between supply and requirement\(^{(25-26)}\).

Since 1994, due to internal brain drain, many public hospitals started to hire retired doctors, both GPs and specialists, for part time services. Rules and regulations for licensing were also modified to facilitate the return of highly skilled expatriate Thai specialists. In 1997, the MoPH also allowed its hospitals to employ those foreign graduates who can not pass licensing examination, as temporary employees.

Some richer countries solve this problems by importing foreign graduates to their rural areas. For example South Africa successfully imported Cuban doctors to their rural health centres\(^{(27)}\). This measure needs to be used with care as it may cause shortages of doctors in other countries, and there may also be cultural and language problems.

**Figure 16** Annual output of medical doctors

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<table>
<thead>
<tr>
<th>Year</th>
<th>Rapid economic growth</th>
<th>Hardship allowance</th>
<th>CPIRD (+300/yr)</th>
<th>Increase production (+340/yr)</th>
<th>Reformed curriculum with two batches of graduates</th>
<th>Rural recruitment</th>
<th>Rural health development</th>
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**Source:** Thai Medical Council

CPIRD = Collaborative Project to Increase Production of Rural Doctors.

**Lessons Learned and Recommendations.**

In the case of Thailand the current economic crisis, with the rapid decline in the private sector, has created a situation of “reverse brain drain”. The proportion of resigned doctors to new graduates decreased sharply (Figure 14) and the shortage of district hospital doctors has been eased. However, more sustainable measures are needed for the future.

It may be concluded from past experience in Thailand that :-

1. Many strategies were developed and used to improve geographical distribution of doctors. They are usually reactionary strategies in response to each crisis.
They are fragmented, un-coordinated, sometimes inconsistent and irrational, and rarely evaluated systematically. There used to be a committee, i.e., the Coordinating Committee for Medical and Health Issues, to coordinate these strategies. It was very successful in its early days, weakened during the rapid economic growth, and was abolished in 1995 due to political reasons.

(2) The strategies used have improved the distribution of doctors to a certain extent as evident from the increase in number and proportion of doctors at the district level. However, the fragmented, un-coordinated, inconsistent and sometimes irrational application of strategies resulted in a system that cannot attract doctors to stay in the rural areas when there are strong economic incentives in the urban private sector.

(3) The combination of rational strategies in compact packages with unified, integrated, consistent implementation supported by an efficient monitoring system are essential for the success of equitable geographical distribution of doctors.

(4) Finally, more equitable socio-economic development is the basis for the overall success in social equity. This need strong political leadership for support.

Following are recommendations on each strategy for the sustainable equitable distribution for doctors:

(1) **Reform of the health care delivery system**

Primary medical care should be the main focus of development both in urban and rural areas. Growth of the secondary and tertiary care hospitals in urban areas both in the public and private sectors, should be controlled and limited. No more financial support (tax exemption, etc.) to open new private hospitals in the cities should be allowed. A system of “certificate of needs” may be established. A good and efficient referral system should be established. This reform can be achieved through MoPH budgetary policy, financial reform of various insurance schemes and/or enactment of a comprehensive health security act focused on strengthening primary care and the referral system.

Such reform will increase the incentives and posts for primary care in the rural areas while limiting the incentives and posts for secondary and tertiary care in the big cities.

(2) **Reform of medical education**

Rural recruitment and training of medical students in rural district and provincial hospitals should be continuously promoted. Only those who grew up in the rural areas should have the eligibility to enter into this system. A system of support to the junior high school students in each rural district, probably by the district hospitals and the schools, should be developed to prepare candidates for this system. This will allow a higher proportion of students recruited from poorer families in the rural districts. These students should be trained in the existing rural health infrastructures particularly during their clinical years.

The current quota for specialist training of 1,083 should be fixed for at least 5 years, to prevent drainage of rural doctors into training programs as well as to reduce overspecialization.

(3) **Financial strategies**

Financial incentives should be more flexible yet focused. A lump sum hardship allowance, judged on the basis of provincial hardship, should be given to each province and the district hospital doctors in each province should decide on the
appropriate allowance rate. In this way there may be many more rates as compared to three fixed rates determined by central ministry. The financial incentive should also reflect more on the length of time that the doctors work in the district, particularly after the compulsory three-year period.

The fine for early termination of compulsory public services must be adjusted to reflect inflation. Replacement of a compulsory public contract with high cost related tuition fees and payback by rural work should be applied gradually and cautiously and in conjunction with other strategies.

(4) Personnel management
The guidelines for promotions of district doctors (in this case to PC level 9) should be approved and implemented promptly. This will benefit those who work for more than 10 years in the district. Relocation after the three-years compulsory period should be fairly free, particularly to the other district hospitals in any province.

(5) Increase supply
For at least the next 10 years, no further increase in the production rate of doctors should be allowed, particularly the establishment of new centrally placed medical schools. If there is an increase in demand in the future, the increased production should not be based on creating new and centrally placed medical schools, but should depend on a flexible collaboration project between the MoPH and the existing medical schools. Rural recruitment and rural training must be the compulsory systems for any future additional production.

(6) Replacement strategies
Health centre personnel should be further trained and supported to deliver good quality primary care to reduce patients by-passing local health facilities. Instead of retraining nurse practitioners, which proved to be not very successful, on the job training on basic medical care provided to the existing district hospital graduate nurses world be more effective and sustainable.

(7) Social strategies
Social movements toward acceptance and appreciation of rural district hospitals and health centre personnel should be continued and further strengthened. The Rural Doctors Society and Foundation should receive more social support and understanding from the MoPH to allow them to create positive activities to improve motivation of young graduates.

Finally it needs to be reiterated that only consistent, integrated, unified rational strategies supported by social and political commitment can guarantee the success of solving social inequity and inequity in the distribution of doctors. A national mechanism to coordinate health systems and human resources development at high policy level is needed and essential for the consistency and sustainability of the development strategies.

Reference:


The Paper under discussion provides an interesting case study of the experience of Thailand in seeking to address the problem of the inequities that bedevil the distribution of doctors. The case study has general interest to all those who are concerned - as academics, policy managers and practitioners - with issues that relate to the distribution of health care personnel for several reasons.

- The conclusions that arise from the case study raise several important issues concerning human resource management in the health sector that are yet to be adequately addressed by policy managers in developing countries.
- The experience of Thailand, as set out in the case study, is rich in terms of providing valuable insights in regard to possible policy approaches and their likely outcomes in given specific situations.
- The Thai experience in regard to attempts at coping with the problem of inequitable distribution of doctors has also useful lessons that apply with equal validity in regard to the supply of other health care professionals in developing countries.

Discussion

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Institute of Policy Studies, Sri Lanka
As one approaches the end of the twentieth century, almost all developing countries face major changes in the environment within which health care services are delivered.

- One such change is the emergence of the private sector (both non-profit as well as for-profit) as a major player in several of the areas that are of relevance in the delivery of such services. These include not only the actual delivery of health care services but also the development of human resources, the provision of infrastructure, ancillary services such as the manufacture and supply of pharmaceuticals, drugs and equipment as well as the provision of health care financing programmes such as health insurance schemes.
- A second is the expansion of employment in the formal sector – whether it is in agriculture, industry or services – generating its own compulsions in terms of expectations in regard to the ready availability and easy accessibility of health care services.
- A third is the continuing enhancement of literacy amongst the citizenry that contributes to a heightened awareness of health care standards to be expected.

What are of major interest to the reader are the strategies that were adopted by the policy makers of Thailand to respond to the inequitable distribution of doctors in the country. The Paper refers to strategies directed towards:

- development of a rural health infrastructure;
- recruitment and training of candidates from rural areas;
- reform of medical education to shift the focus to the needs of district hospitals;
- provision of scholarships to students who would work in the public sector;
- introduction of compulsory public service;
- provision of financial incentives for work in rural areas and speedier avenues of career advancement;
- enhancement of training given to personnel deployed at rural health centres; and
- increased social recognition of rural doctor.

However, as the Paper clearly points out, these strategies, in the main, were reactive to different crises at different points of time and did not constitute an integrated package – leading to inconsistencies in outcomes.

If the experience of developing countries concerning public policy management is anything to go by, the experience of Thailand in this regard is not unique.

*The key message that emerges from the Paper is the importance of co-ordinated public policy management in regard to the health sector as a whole.*

In this context it is important to review the function of public policy. Historically, most developing countries have often tended to regard public policy, in any sector, as being directive and controlling. Given the traditional perceptions of the role of the ‘government’ as being to rule ‘and govern’, this approach to public policy is, perhaps, to be expected.
However, as referred to earlier in this discussion, as one approaches the end of the millennium, the context of public policy has changed. The main contributor to this change is the emergence of the private sector and of civil society as role actors in what hitherto had, almost exclusively, been the ‘public domain’. Institutions and individuals have begun to respond more to incentives than to control mechanisms. Effective public policy management in any sector, therefore, calls for policy frameworks that are facilitative rather than directive. Public policy management in the health sector and, within it, in the area of ensuring the equitable availability of health care personnel is not an exception to this trend.

In its conclusion, the Paper stresses the need for ‘consistent, integrated, unified rational strategies supported by social and political commitment’. The ensuing brief discussion would attempt to offer some observations on how the developing countries could approach this goal in regard to their public policy frameworks concerning human resources development for health care.

At the outset, it is important to recognise that there are a number of stakeholders who play important roles in the activity of HRD for healthcare. These include:

- Those who wield political office and authority at different levels of governance – from national to local;
- The health sector bureaucracy;
- Those, both in the public sector and in the private sector, who are engaged in the task of education and training of health care professionals;
- Those, again both in the public sector and in the private/NGO sector, who are involved in the management of the delivery of health care services; and
- The different categories of health care professionals themselves – organised in their professional bodies or trade unions.

As is to be expected, these different stakeholders each have their individual agendas, goals and expectations. Their response to public policies, in respect of HRD, that are operationalised would depend on their perceptions as to the consonance of such policies with their own agendas.

*Hence, a major challenge to public policy management would be the reconciliation, at the stage of developing policy options, of the expectations of the different stakeholders such that the resultant policy packages gain their acceptance.*

Such an approach to public policy management calls for institutional arrangements for policy development that are participatory – involving the active participation of all stakeholders. Such institutional arrangements are not common in the structures of governance in many developing States. Hence the need for designing and putting in place new institutional arrangements that would meet this objective. The specific institutional arrangements would, obviously, vary from country to country. What is important is that all stakeholders should perceive that their voice is registered in the policy development process.

As important as gaining credibility from the stakeholders for the policy packages is the importance of ensuring that these packages remain relevant over time. As can be gleaned from the Thai Case Study, the economic, social and political conditions in the
HRD policy environment change over time. In such a situation, policy packages, if they remain rigid and unchanging, run the risk of losing their relevance. Hence, it is important to subject ongoing policies to continuous monitoring, in terms of their current impact and relevance, with a view to appropriate modifications.

A further question that needs to be addressed is whether the issue of the equitableness of the distribution of doctors could be adequately addressed in isolation. Should it not be addressed as part of the more comprehensive issue of the equitability of availability of all health care personnel? Would not an even more holistic approach of addressing the latter issue in a context of the issue of the quantum and range of health care services which are to be provided within a country-over a given time frame-be more appropriate? Perhaps, such issues need to be addressed in future discussions.

The policy management needs of the future as outlined above are a far cry from what has occurred in most countries thus far. For the tasks of policy management that encompass participatory approaches involving all stakeholders and provide for continuous review and impact of all ongoing policies, new institutional arrangements and processes would be required.

Transition to the new arrangements clearly calls for a major change in the mindsets of the political and bureaucratic cadres who, today, direct and control public policy management in respect of HRD for health care. How such changes in mindsets could be realised is the major challenge that faces public policy managers who address issues of HRD for health care in our countries.

The Paper on `Inequitable Distribution of Doctors: Can it be Solved?' provides a valuable opening for the discussion that lies ahead.

Riitta-Liisa Kolehmainen-Aitken, M.D., Dr.P.H.
Senior Program Associate
Management Sciences for Health

Few countries have the wealth of information and analysis about their human resources that this paper presents for Thailand. Its analysis of human resource trends over almost 20 years yields a fascinating look at the impact that external influences, combined with deliberate human resource strategies, have had on the staffing of health facilities and the distribution of staff. The rest of the world has thus much to learn from the Thai experience which this paper so compellingly lays out. I will highlight below those issues that appear to me to be most pertinent for other countries.

First, health sector reform efforts in many countries of the world now commonly include a strong push toward privatization. The sizable internal brain drain of physicians in Thailand that resulted from the rapid private sector growth should give these reformers pause. Private sector promoters may well argue that these physicians are not ‘lost’ to the country, because they still work in Thailand. They are, however, no longer available for work in rural district and provincial hospitals, where they are most needed. The exodus of these doctors has also greatly increased the workload of their public sector colleagues. The equity impact of this brain drain has been considerable, and the gains made during
the early 1980s in narrowing the gap between Bangkok and the poorest region in the ‘population to doctor’ ratio have been seriously eroded. With the recent economic reversal, many private physicians are now seeking to return to the public sector, but their loyalty to remaining in this sector under more favorable economic circumstances is open to question. Health sector reformers should take note that these same trends will most likely be repeated in a number of the countries that are now privatizing sizable parts of their health system.

Second, Thailand’s experience with financial incentives is very valuable for other countries to learn from. Only one out of the six incentive categories in Thailand is targeted at rural work. As the author points out, the increased income that many doctors derive from these incentives may have had exactly the opposite effect from that intended. Instead of keeping doctors in rural work, the incentives may have increased their departure from it, because the extra money may have made it possible for more rural doctors to pay the fine for breaking their contracts. These financial incentives have also increased the overall public sector wage bill by encouraging other health worker categories to demand similar incentives to those that the physicians receive. Other countries should thus take notice that the unintended results of poorly targeted incentives can be considerable.

Thirdly, the authors show that the different strategies that Thailand has used to address the inequitable distribution of doctors have been fragmented and uncoordinated. This is an experience that many countries share. Human resource issues commonly receive little sustained, coherent attention that would ensure the development of human resources in close accord with the evolution of the nation’s health services. Many ministries of health limit their role to being concerned only about public sector health workers, thus ignoring the severe impact that the private sector can have on public sector staffing. Training strategies are also frequently poorly coordinated with strategies about the employment and deployment of staff.

Human resource issues are likely to become even more acute in the future, given the worldwide trends toward health sector reform, and within it, privatization and decentralization. Coherent, well-formulated human resource strategies, and the organizational capacity to implement, monitor, and evaluate them on a consistent basis are essential for every country that is concerned about serving its rural and marginalized populations. This will require committed and skilled human resource planners and managers. It will require databases that yield the essential information on the number, type, location, salary level, skill set, etc. of critical health staff. Finally, it will require the development of appropriate linkages between health worker producers such as independent universities and public sector training programs; health program managers that employ these workers in both the public and the private sectors; and the patients that use these services.

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WHO Headquarters, Geneva

The paper tackles a seemingly intractable problem in human resources for health
development: the distribution of health personnel. Although the paper focuses on doctors, the lessons drawn apply widely to other health care providers as well. Using Thailand as the central example, the paper describes different approaches and analyses their varied successes.

Given the resources that have been expended in seeking solutions, why are we still far from achieving the health policy objective of equitable distribution of health personnel, much less equitable distribution of doctors? The answers lie in the degree to which the interactions between the factors categorized by the author in Fig. 2 (socioeconomic, health services and human resources development factors) are addressed in the design and implementation of relevant policies and strategies. In this discussion I would like to supplement and in some areas reinforce the author’s conclusions that “only consistent, integrated, unified, national strategies supported by social and political commitment can guarantee the success of solving social inequity and inequity in the distribution of doctors”.

Scope of imbalances

There is little need to provide further evidence of the problem, only to underscore the scope. A recent survey\(^a\), of the 46 countries in the WHO African Region, and two related meetings\(^b\) indicate that distribution of health personnel remains a significant concern for almost all the countries involved. The concerns included geographical imbalances, skill mix discrepancies and the dichotomy between education of health care providers and the requirements of the health sector. This last manifests itself in at least two ways: 1) the distribution of specialists (shortages of sub-specialists in many countries and overspecialization in others, such as countries of the former Soviet Union); 2) and underuse of existing skills -- “often the least skilled workers are doing the greatest amount of direct patient care, while it has been found that nurses in St. Vincent and the Grenadines with midwifery preparation have not been able to utilize their skills even though the need for them exists”\(^c\).

Gender imbalances persist in many countries, despite explicit government policy. In the public sector in Bangladesh, in the Health Directorate and in the Family Planning Directorate the participation of women doctors is 15.5% and 21.1%, respectively. In training and management positions the proportion is between 9% and 10\(^d\).

Another type of imbalance touched on by the author but not emphasized is in information. While this may not seem to be as directly related as those mentioned above, it is fundamental. In many countries there is no clear picture of active health providers and/or what they actually do. Professional bodies often produce data that are not useful for planning purposes. Data produced by the relevant ministries are often of poor quality or not linked to service provision, and universally there is a lack of data about providers in the for-profit and not-for-profit health sector. Without reliable data, and perhaps more importantly a process of validation by the key stakeholders, it will be difficult to make rational policies and effective interventions to address imbalances in the distribution of

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\(^b\) Meetings were held in Accra, Ghana (November 1997), with representatives of 18 countries and in Lomé, Togo (March, 1998), with representatives of an additional 23 countries and representation from WHO headquarters, regional and country offices.

\(^c\) O’Brien-Pallas et al. Strengthening nursing and midwifery - a global study. (Document WHO/NCP/NUR-MID/97.2)

\(^d\) Hossain B. The workforce situation in Health and Family Planning services, 1996 (unpublished document)
the workforce. A key point that is not addressed in the paper is that of the concept or measurement of inequitable distribution. Provider-to-population ratios and physician-to-nurse ratios are not sufficient measures because they do not differentiate between the population receiving the service and the provider giving the service. A population-to-services ratio that measures the use of services by different segments of the population will give a more accurate measure of the availability of services to the population.

**Potential solutions**

The paper discusses a range of approaches that have been used by countries in their attempts to reduce imbalances. These include single, focused initiatives such as differential remuneration to practice in designated underserved areas (rural, remote, difficult urban settings); approaches that bring together education and practice factors; and more comprehensive approaches that combine education, economic, social and cultural factors.

Systems of incentives/disincentives are often the cornerstone of strategies employed by governments to address imbalances. The paper suggests that the degree of success of incentives depends to a large extent on factors outside the direct domain of the Ministry of Health and sometimes outside the health sector itself.

A WHO study of the effect of incentives on provider practice (based on case studies of ten countries) found that when assessing the impact of incentives with reference to a specific policy objective it is also useful to identify the complementary measures (policies required to make the key policy lever -- incentive -- effective). As an example, the study countries of Bahrain, Ghana and Nepal have as an objective the recruitment and retention of doctors. One of their incentives is to allow after-hours private practice in public institutions. The complementary measure in this case is a set of service standards and controls to preventing lessening of work effort and quality in the public system. Without these the moral hazard to increase private practice at the expense of public practice can be expected to be high.

**Principles**

To tackle inequitable distribution of doctors, the following principles can be a guide:

- The involvement of the key stakeholders (providers, their representative organizations, the receiving communities, different Ministries -- education, health, transportation, housing, financing, taxation, etc.) is required.
- Strategies must be multifaceted; single strategies will not be effective.
- Complementary measures that may not always be in the domain of the Ministry of Health can add to the effectiveness of incentives.
- Reducing information gaps and developing agreed indicators to measure the policy objective is critical in finding solutions.
- Evaluation studies should be carried out to desegregate the interrelationships between different factors and strategies.

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Inequitable distribution of health care providers can be adequately addressed with multifaceted strategies directed to addressing clear policy objectives. Attention must be paid to the contextual factors and processes for the involvement of the key stakeholders.

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Based on the Thailand case study, this paper is quite extensive in its analysis of the several aspects of the doctors’ inequitable distribution. As mentioned by the author, this is not an isolated problem of Thailand alone, not even new and is known in other parts of the world.

The author presents, in a quite rich way, many strategies used in that country to reduce the inequitable distribution of doctors.

The reform and decentralization processes of the health systems that became the general prescription in these globalization times seems, however, to have a different nature and impact in several parts of the world, especially in the human resources field. Apart from the economic crisis that reduced the investment capacity in social areas, the decentralization process faced several conflicts that involved not only the health institutions but also the political forces and unions, councils and professional associations.

In Brazil, for instance, the decentralization movement expanded the employment opportunities in the municipal public sector, as well as in the private sector, in the same proportion that reduced the employment level in the federal public sector (figure17).

**Figure 17** Distribution of health workforce, Brazil, 1981/1992

![Figure 17](image)

**Source**: Dal Poz & Varella, 1994

This movement was accelerated in recent years, due to some financial incentive measures to municipal districts in order to take the responsibility for the management of the health services network and to develop some programs that included community participation and professionals' valorization, like the Health Family Program\(^{1,2}\).

This process is similar to what has happened to other Latin America countries taking into account their juridical and politics differences.

Also, as a result of the decentralization process and the increase of its administrative autonomy, the health systems and services have gained more followers to use instruments as incentives to productivity. These instruments made possible the improvement in the number of doctors that work in the health services for the lower income populations.
Finally, as a product of decentralization, the competition among the public and private sectors seems to be an improvement issue in the geographical and economical distribution of doctors. That competition is, however, extremely unfavorable to the public sector, due to the difficulties to outdo the private sector to bring better wages and work conditions to the health professionals.

References


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The number of physicians, nurses and midwives who annually qualify in the Philippines has always been seen as indicative of the high regard Filipinos have for the health professions. At the beginning of the decade (end-1990), the Philippines had the following numbers registered:

- 71,092 midwives
- 174,112 nurses
- 72,593 physicians

By the end of 1997, the latest numbers from the Professional Regulation Commission (PRC) for the top three health professions were presented in Table 6.

Table 6 Numbers of the top three health professionals, 1997

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</tr>
</thead>
<tbody>
<tr>
<td>Physicians</td>
<td>1,415</td>
<td>3,119</td>
<td>2,809</td>
<td>2,558</td>
<td>2,176</td>
<td>2,208</td>
<td>1,878</td>
</tr>
<tr>
<td>Nurses</td>
<td>9,165</td>
<td>16,986</td>
<td>30,921</td>
<td>29,445</td>
<td>27,272</td>
<td>15,701</td>
<td>11,693</td>
</tr>
<tr>
<td>Midwives</td>
<td>6,681</td>
<td>7,399</td>
<td>9,677</td>
<td>8,022</td>
<td>8,833</td>
<td>6,291</td>
<td>4,018</td>
</tr>
</tbody>
</table>

Cumulative total registered:

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Physicians</td>
<td>82,494</td>
<td>84,670</td>
<td>86,878</td>
<td>88,754</td>
</tr>
<tr>
<td>Nurses</td>
<td>259,629</td>
<td>286,901</td>
<td>302,602</td>
<td>314,295</td>
</tr>
<tr>
<td>Midwives</td>
<td>102,871</td>
<td>111,704</td>
<td>117,995</td>
<td>122,013</td>
</tr>
</tbody>
</table>

The last six years have marked the period of strong economic growth in the country, up to the onset of the financial crisis in mid-1997. One notes that during the period of the booming economy up to 1995, there were large numbers of nurses and midwives who were qualifying, contributing to a great extent to the near-doubling of their numbers towards the end of the decade. The physicians, on the other hand have kept a

Letter to the author from the Chair of the PRC dated July 20, 1998.
steady rate, due to the limitation on available slots in medical schools imposed through the National Medical Admissions Test (NMAT) that keeps enrollment at about 2,000 per year.

The continuing high demand for Filipino health professionals in the Middle East, Asia and Europe is one factor that continues to keep high rates of enrollment in courses that could lead to jobs abroad. Coupled with a strong local economy, this has resulted in the high numbers seen from 1992-95. However, overcapacity in the health sector has dampened enrollments (and qualifications) in the last two years, coinciding with the economic downturn and lower incomes for overseas workers.

Aside from these expected results, the decline in hiring by local governments due to tight budgets and high health worker salaries (due to Magna Carta for Public Health Worker benefits) after the devolution of health services in 1993 also may have dampened the numbers taking up the nursing or midwifery professions.

The Magna Carta for Public Health Workers is intended to make positions in rural areas more attractive due to increased salaries and benefits, particularly for clinic physicians who have been provided with a 25% salary increase and increased transportation and representation allowances. All other categories of health workers are given food and laundry allowances and hazard pay.

The improved status of the rural physician was further strengthened by the policy of Secretary Flavier who launched the Doctors to the Barrios program in 1993 (when he discovered that there were still 271 municipalities without doctors in 1992) which doubled the already high benefits for doctors who would volunteer for the remotest areas. The objective was to have one doctor in each of the 1,536 municipalities of the country by 1998.

Equity in Health Human Resource Distribution: An Evolving Role for National Health Agencies

Prior to decentralization, the national DOH did not bother to report the number of health workers, or the health worker to population ratio. This was due to the ability of the agency to improve the health worker to population ratio by the simple expedient of hiring more personnel or by sending doctors from adjacent areas to cover unserved areas, a practice called “radiating” health workers. The pre-devolution national health agency was thus a strong supporter of policies promoting health services equity by providing more health facilities, services and personnel for areas not served by the private sector (small island provinces or municipalities remote from the urban centers). With their fixed populations and administrative areas, local governments are unable to assume this role.

Local governments are also finding it more difficult to recruit doctors who are usually practicing in urban areas. Doctors also prefer to apply to the national agency or to national hospitals rather than to look for work in local government offices which are perceived to be hiring on a political rather than technical basis.

The national agency is now able to select its areas of intervention based on remoteness of the community, poverty incidence and political climate, thus getting the most effective results for the least expense.

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**Note:**

In pursuing its objectives, the national agency enters into contracts for assistance with local governments, contracts which are time-bound by the length of governance of the local government concerned. The requirement of counterpart funding by the local government is tied up also in these contracts, which become the means for enforcing counterpart funds provision. By mutual agreement, but often not extending beyond two years, local governments are provided the services of health personnel who will eventually be absorbed by the local government.

However, local government-wide cuts in funding in 1998 due to the financial crisis have increased the need for national subsidies for health worker salaries to avoid short-term salary deficits and the loss of health workers to more lucrative urban health practices. Such losses to the already favored urban population would be harder for local governments to recover from, most specially under a decentralized health care system.

The most recent studies on local government health policies have already shown an alarming increase in budgets for salaries of health workers far in excess of operating costs for clinics and hospitals; today 85% of local health budgets go to health worker salaries, and almost nothing is set aside for capital expenditure (buildings, equipment).

Clearly, the production and deployment of doctors, nurses and midwives in the Philippines will continue to be governed by “market forces” which can include the following:

- Demand for health workers by other countries
- Socio-economic conditions of a country
- Conditions of employment, particularly by local government
- Incentives from government for unserved areas

The maldistribution of doctors (and health workers) may be gradually resolved by government using the appropriate levers for optimal deployment of health personnel.

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Understandably, most physicians prefer to settle in urban areas offering attractive employment opportunities for professional development, education and other amenities for their families. As a result, there is a mismatch between the geographic distribution of physicians and the perceived needs for them (Anderson and Rosenberg, 1990). Indonesia, like many large countries, has also difficulty attracting doctors to deliver services in rural and remote areas. In case of the public sector, several issues have been identified.

**Incentive structure issues.**

Understaffed areas lack personnel because they offer fewer amenities and less opportunity for private practice and career development. There are no compensating location incentives for civil servants. The problem of relatively low salary is exacerbated by the practice of permitting civil servants and contract health workers to engage in their own account work, which encourages them to locate to the areas which offer the highest potential for private income. Salaries of the professionals in the public sector often represent a small proportion of their total incomes, with the largest portion being derived from their own account work, the opportunities for which are greater in urban, higher income areas.

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Personnel management issues.

Hospitals and health centers in Indonesia have a nominal authorized number of staff “slots”, ostensibly permitting rational planning and budgeting for personnel. However, the nominal staffing standards are not enforced for civil servants. There is no budget impact on a facility if it accepts a civil servant onto the staff, as the civil servant is paid from the central, not the facility budget. The result is undisciplined civil servant staff migration toward preferred locations such as health centers and hospitals in the more developed areas. Planning and supervisory units at provincial and district levels are not fully informed and lack the capacity to analyze and interpret existing patterns of staff distribution, skill mix, utilization and performance. While there is significant progress in information systems, managers still lack timely, accurate data on current staff distribution. Hence provincial and district health offices are not fully informed on allocations of new manpower and often rely on facilities’ self defined needs based on nominal staffing norms (i.e., not demand related).

From the discussion of the problems mentioned above, it is clear that solving the inequitable distribution of doctors in the public sector is beyond the power of Ministry of Health authorities. Without a major fundamental civil service reform, there will never be equitable distribution of doctors in the public sector in Indonesia.

However, some policy instruments have been implemented by the MOH to improve distribution of doctors. Every new medical graduate has to work for the Government on contractual basis for 3 years. New graduates who are willing to work in the very remote areas will get higher salary (than the new graduate who only willing to work in the remote areas) and will be given a guarantee to become civil servants after completion of the 3 year contract. A career in the civil service is still demanded by the medical doctors because the Government will provide specialist training for free and they are allowed to have private practice in the evening. The Government also provides additional fellowship allowances for specialist trainees who are willing to work in the remote district hospitals. Those policies have improved the distribution of physicians in Indonesia.

From reviewing the current health manpower policies, Kenneth M. Chomitz et. al, (1997) concluded that first, compulsory service is inequitable for medical students, mostly females, who are unable to accept remote or distant postings. The burden imposed by these postings is evident in the huge dis-utilities attached to these postings—compulsory service in a very remote area is viewed as equivalent to a ‘tax’ of Rp 4 million or more a month. These graduates are faced with unattractive set of alternatives: indefinite unemployment, illegal work as a doctor, or abandonment of their training in favor of a non-medical career. Second, providing specialist training as an incentive is not only expensive, but inefficient. Doctors who are particularly interested in specialist training may not be much interested in, or suited for, public health work in remote areas. Furthermore, delaying entry into specialist training by three years (of compulsory service) means that doctors do not complete that training until their late thirties or early forties. This significantly reduces the private and social returns to that training.

Reference:
This paper is quite good and I agree with most of the issues. I have some additional issues, comments and detailed strategies to contribute as follows:

The paper shows that Thailand has used nearly all strategies to solve the inequitable distribution of doctors. But the weakest point is that all the strategies were reactionary in response to the crisis or the movement of some social group as discussed in the paper. There is no long term plan to address this issue and no systematic evaluation. This can be interpreted as the Thai government considers this problem as a low priority and the rural population who are directly effected do not have so loud a voice to push the government’s concern to solve this problem. Therefore the investment for this has not been continuous and coordinated. So the commitment at the health policy maker level is the first barrier to overcome, otherwise not much effort will be dedicated to solve this problem. The people in rural areas should be empowered to demand accountability for their rights.

When considering the situation of doctor maldistribution in Thailand, the situation was much improved during 1979-1985, when there was a high investment in rural hospitals with the compulsory programme for doctors in rural areas, but after that the situation worsened during 1985-1989 and then did not improve after that period. One hypothesis for these events is that the Ministry of Public Health allocated doctors according to beds/size of hospitals and not by size of population. When hospitals were not well distributed, doctors also were not well distributed. The figure 18 shows that the population per bed ratio is also maldistributed similar to the population per doctor ratio. During the first period, all areas of Thailand lacked health facilities, therefore the intervention was quite effective. But subsequently the shortage was more complicated, when the establishment of new hospitals had to meet detailed appropriate criteria. This means that in order to solve the doctor maldistribution, MoPH also has to solve the health structures maldistribution, or the method of allocation of basic doctors for primary care should be based on size and pattern of population instead.

**Figure 18** The trend of health facility distribution in various regions of Thailand.

![Figure 18: Ratio of Population to Bed by Regions, 1979 - 1995](image-url)
The problem of doctor maldistribution in Thailand has to be differentiated between doctors in rural district hospitals (10-120 beds in rural districts) and provincial hospitals (150 -1,000 beds in capital districts of each province). Because the pattern of affecting factors and the severity of the problem are different (Table 7), some provinces have surplus doctors in provincial hospitals while shortages in rural district hospitals. The strategies to solve this have to be more specific for these two groups of doctors.

**Table 7** Health facilities and doctors in various areas, Thailand.

<table>
<thead>
<tr>
<th></th>
<th>Bangkok</th>
<th>Outside Bangkok</th>
<th>Municipalities (having provincial hospitals)</th>
<th>Non-Muang districts (no provincial hospitals)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health centers (1997)</td>
<td>325</td>
<td>135</td>
<td>135</td>
<td>9099 (no doctors)</td>
</tr>
<tr>
<td>Private clinics (1993)</td>
<td>3,532</td>
<td>3,759</td>
<td>2,631 (estimate 70 % of clinics outside Bangkok)</td>
<td>829 (estimate 30 % of clinics outside Bangkok)</td>
</tr>
<tr>
<td>Private Hospitals (1993)</td>
<td>145</td>
<td>223</td>
<td>223</td>
<td>2</td>
</tr>
<tr>
<td>Other government hospitals (1993)</td>
<td>40</td>
<td>54</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>No. of District Hospitals (1996)</td>
<td>--</td>
<td>699</td>
<td>46</td>
<td>699</td>
</tr>
<tr>
<td>No. of Provincial Hospitals (1998)</td>
<td>--</td>
<td>92</td>
<td>92</td>
<td>--</td>
</tr>
<tr>
<td>No. of Doctors (1993)</td>
<td>6,191</td>
<td>7,443</td>
<td>3,247 (only PH)</td>
<td>1,653</td>
</tr>
<tr>
<td>Population per doctor</td>
<td>903</td>
<td>7,708</td>
<td>1,324 (only PH)</td>
<td>24,032</td>
</tr>
</tbody>
</table>

Note: PH = provincial hospitals

**Source:** Srivanichakorn S. Situation of primary care in Thailand, Health Systems Research Institute Journal (in Thai). (In print).

The other condition making the interventions work well is good management with just managers and close monitoring so that the strategies can be implemented with the right targets, right places and right persons, e.g., give high remuneration to those who really work hard in the shortage areas or establish a new hospital with doctors in an area where it is really needed. In the case of Thailand, the HRH management is quite weak. One of the factors causing this weakness is centralization and the bureaucratic system, with most decisions, strategies and activities coming from the central organization. The autonomy of local authorities and provincial health offices with lump-sum budgets is needed to adjust the detailed strategies at the local level. The doctor maldistribution problem in Thailand is more complex, because the problem and resources in each area are different. Therefore, if the detailed intervention is made from the central office, the high chance of a mismatch or not cost-effective approach can occur.

The limitations and underlying problems of doctor maldistribution are the inequitable socio-economic development of rural areas and the low prestige of primary care providers/general practitioners. The lack of continuing education of rural doctors is another important problem that pushes doctors to leave rural hospitals. The facilities and functions of district hospitals in rural areas are equipped for general practice/family practice, but the trend of society and the process of education is moving towards specialization, looking down on the importance of general practice/primary care. Therefore, not so many doctors would like to work as the second class doctor in rural districts. From the study by Chunharas S. et al it showed that those doctors remaining

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working at the districts level beyond the compulsory period had certain sets of attitudes and values about their professions. These tended to be more comfortable with the types of services provided at that level compared to those who left district hospitals because they like the activities less. Those who value the work of specialists dealing with modern technologies and working in big institutions will be less attracted to work for a long period at the district level. The major reason that doctors leave district hospitals is the perceived need for continuing education, primarily specialty training. This could mean the creation of various types of educational opportunities other than specialist training which support working at district hospitals is one of the crucial components. This can be a good quality distance learning system of continuing education, an alternative training programme that may earn higher qualifications in various fields of medicine including family medicine, preventive medicine and health management. Moreover, more research and more academic work in primary care (include district hospitals) should be strengthened to form the body of knowledge of primary care to show the importance and the values of this care. This will make primary care have a higher prestige and be more acceptable by people and medical professions that will reflect back to support those working in rural districts. This is quite a long term plan that should be implemented along with the other strategies.

The financial strategies to use for solving the problem have to be more specific on which group to target and what is the outcome performance we want. Moreover, it has to used with a good management and monitoring system, otherwise it will result in adverse effects more than the expected outcome.

In conclusion, the situation of doctor maldistribution in Thailand at this moment needs to be more specified and differentiated among areas and groups of doctors. It needs more local adjustment, management to tackle the specific problems and systematic evaluation. Moreover, the overall rural development, the health care structure reform and the decentralization are the main factors that can accelerate the progress, which needs the leadership, commitment and long-term vision of high policy makers.

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Senior Researcher
National Institute of Public Health, Mexico

It is of major interest to see how a country such as Thailand has been dealing with the issue of doctors’ distribution. In my opinion the efforts have been enormous but the hurdles that have been present in the process have made it very difficult to obtain the expected achievements. It would not be an exaggeration to say that the level of effort that Thailand has accomplished is outstanding for developing countries’ standards. The variety of strategies used throughout the last 50 years has been ample and shows real commitment from the authorities in different periods which is rare in other regions. This commitment has resulted in positive changes as demonstrated in the article.

Just to give a point of comparison, the efforts Latin American countries have been attempting in this same period to attract doctors to rural areas could be mentioned. In the Mexican case in particular the social service for medical students was put in place in 1938 and from those days has had multiple changes but none of them can be regarded as important. Actually, these type of programmes have been considered as only a tradition, which for authorities is difficult to change without implying a political cost. The State ideology that backed the implementation of such a programme is no longer existing.
The referred paper describes the situation using an historical perspective where broad economic changes are highlighted, as well as changes in policy in the health arena. The links between these two factors are clearly exposed. Doctor’s labour market and distribution are also influenced by broad economic trends.

The different types of imbalances deserve to be mentioned. Authors normally consider geographical distribution as a major issue reducing the relevance that other types of maldistribution have. Which is more important, the geographical, the institutional, or the gender issue? Which has to be tackled first? Or should we develop a strategy to tackle them simultaneously? The answers to these issues depend of course on the particular cultural and political context and they should respond to country circumstances.

The style of the State to undertake strategies used to promote the distribution of doctors to rural areas in Thailand is also quite surprising. Even in periods of dictatorship the State has used incentives and not authoritarian measures. In Mexico, although there has not been a dictatorship, an authoritarian style has been used to send students to rural areas with no incentives at all. Only until the 1980’s when the expansion of the health services coverage to poor populations in the rural areas happened, doctors were paid real salaries to provide services.

A major factor that is proving to be a determinant in the distribution of doctors is the economic one and as a particular expression in the health field, means the expansion of the private for-profit sector. Again, it seems that doctors behave as subjects particularly attracted by monetary incentives. These trends are testing the regulatory capacity of the state, which as we mentioned earlier has not been particularly authoritative. Thus for many doctors in the period of economic boom it has been more attractive to pay a fine to the State and move to an area where the possibility to recuperate the amount paid and to reproduce that amount several times over is quite feasible. As the policy is not to forbid but to motivate, there is a point when incentives to stay in rural areas are not enough and can not be raised unless they want to be turned into a factual prohibition.

But economic conditions are changing in Thailand as part of the worldwide cycle of capitalist economics. Today incentives to move to rural areas may start working again as in the past and doctors may actually move back to rural areas. However, not only doctors are the ones that are moving. Populations also move. Many developing countries have witnessed in the second half of this century a reversal in the percentage of the population that live in the cities. Large and accumulative percentages of these populations are impoverished and the need to provide good services is a challenging issue. Doctors with true commitment, high ethical standards and specific training are required, particularly when they produce private services.

Economic and demographic conditions are not the only factors to explain why doctors are reluctant to move or stay in rural areas. Actually it has been demonstrated reiteratively that the way policy is conducted and the political issues involved are major factors to explain the success or failure of national efforts.

One more point that I would like to address is that in the rural areas the presence of other health care providers such as traditional healers remain prevalent as ever although in many countries health planners do not acknowledge them as useful resources. Nonetheless the important fact here is that populations seek out their services and doctors normally compete with them for the demand of health care. Although there are many examples on how these resources can combine their efforts, the article has no explicit mention on how these work in Thailand and if this is well regarded by society and health authorities.
Based on the previous point, a final reflection is the need to consider in perspective the real possibility of attracting doctors to rural areas including a discussion on what should be the major role in the provision of rural health services considering the potential participation of other resources. The policy of attracting doctors has been partially successful in the developing world. Still today some questions remain valid to be answered particularly in the era of the Reform. How much do we need to try to attract doctors to rural areas? How much effort is it worth? What do we really expect from it?

**Dr. Supachai Kunaratnanapruk**  
*Secretary, Medical Council, Thailand*

The author should be commended for his excellent review and analysis of the situation and strategies employed by the Thai government to solve the problem of maldistribution of doctors in Thailand. Even though Thailand is a free-market country, in the area of health every serving government has adopted centralized HRH planning and management to distribute doctors, dentists, pharmacists and other health professionals to serve people in rural areas. Of all strategies implemented, it is obvious that the imposing of the 3 year compulsory rural service for new graduates is the core and most powerful strategy and mainly accountable for the more equitable distribution of doctors in different regions of the country. Surprisingly, even though it is compulsory by nature, this strategy is well accepted by most new graduates who consider this as the good opportunity to gain more clinical experience and serve people in real need. However, one can clearly realize from this review that this strategy, supplemented by other incentives, can only keep these young doctors in rural areas for a short period. After their compulsory year, no less than 70% of each cohort returns to medical school for residency training and afterwards settles down in bigger hospitals in urban areas. The present problem of doctors practicing in rural districts in Thailand is not the inflow of doctors but the problem of high turn over rate which has a great effect on the functioning of the small hospital system.

The author rightly points out that the problem of maldistribution of doctors should be considered as part of the over all social inequity as well as problem of the health system management. In the present state of wide socio-economic disparity between rural and urban areas of Thailand, it would be too naive to expect that the problem of maldistribution of doctors could be solved completely, no matter how well coordinated the strategies may be. However, I strongly agree with the author that reform of health care delivery in Thailand with good, primary medical care is the most important strategy to render more equitable and efficient coverage of health care to people in need, especially in this time of limited financial resources.

And this can only be achieved by reform of the health care financing system focusing on primary medical care centres as gate keepers and controllers of flows of health financial resources. District hospitals in rural areas, functioning as primary care centres and backed up by a good referral system, will be the places where doctors may choose to work as their works will be more valuable and better pay.
To some extent, all five forms of maldistribution of human resources mentioned in the paper exist in Thailand. However, not all of them should be considered as problems, some of them are just phenomena. For example the improvement in gender inequity may affect doctor distribution as it is difficult for most female doctors to stay long in rural district hospitals. The interesting question at this point is the criteria to justify what form of maldistribution is a problem. In my opinion, what should be used as a set of criteria are the effects of maldistribution on the health care system in terms of equity, quality, and efficiency.

Furthermore, although inequitable distribution of doctors is an important problem, the provision of doctors into rural societies is not harmless. It may create several iatrogenic diseases. It often makes people more dependent on the modern health service systems, and reduces the role of the traditional ones. However, our basic assumption to solve the problem of inequitable distribution is that we will minimize these negative effects.

Several strategies used in solving inequitable distribution can be summarized into 3 directions. The first one is to increase the supply of doctors to rural areas. The second one concerns motivating factors. In this respect, the social strategies and the reform of health care systems are certainly crucial. This infers that MoPH should support and collaborate with any NGO that is working in this field. It is nearly impossible to gain more social support for the effort from the government side alone. And last, but not least, the more equitable socio-economic development might be the most efficacious measure to solve the problem of inequitable distribution of doctors. After a certain period of time, most doctors will eventually move to more urbanized area. They need less demanding and higher paying medical services, and their children need better education which mainly exists in the big cities. We should not expect that most rural doctors will continue their work in rural district hospitals for a long time or until their retirement, if the equitable socio-economic development is not foreseeable.