Conditions, Constraints, and Strategies for Increased Contribution of General Practitioners to the Health System in Thailand

Supattra Srivanichakorn [(1)] *and Monique Van Dormael* [(2)]

[(1)] *Ayutthaya Provincial Health Office, Thailand.*
[(2)] *Institute of Tropical Medicine, Antwerp, Belgium.*

Abstract

Huge efforts were made in the past decades in Thailand to establish a strong country-wide network of health facilities serving the community. But acceptability of existing first line services remains low. The rapid growth of specialization and parallel decline of general practice in medicine contribute to a health care system marked increasingly with hospital-and technology-oriented values. However, general practitioners are likely to be one of the key elements to promote and improve first line care, if adequate conditions are created. This paper analyzes the present situation of general practitioners in the Thai health care system and the conditions under which their contribution could be strengthened.

Definition of general practitioners' functions requires adaptation to the Thai context. The rural district general practitioner's role (presently hospital-based care, competing with rather than complementing health centers) needs reorientation towards responsibility for the functioning of the district health system as a whole, including support and supervision of first line care providers and clinical practice concentrating on secondary care. In urban areas, where the demand for medical doctors increases, health centers with general practitioners providing first line care themselves should be introduced gradually. This requires a sufficient number of general practitioners, whose functions are defined as complementary to those of specialists, whose training is adequate to their function, whose working conditions and career perspectives are reasonably motivating, and whose tasks are facilitated by adequate health service organization and policy.

Key words :- general practitioner, health service system, primary care.

The Thai health care system

Thailand is a country of 60.6 million people (1996).[1] Urban population is growing and represents 32 % of the total population.[2] Besides Bangkok (accounting officially for 6.5 million people in 1996), the country is subdivided into 75 Provinces, 810 districts, 7,195 “tambons” and 65,277 villages. On the average, a province contains 11 districts, a district contains 9 "tambons", and a tambon contains 9 villages.

The health service system under the Ministry of Public Health (MOPH)-which covers the whole country-is organized along this administrative pattern. Its strong expansion in the past 15 years resulted in significantly improved geographical accessibility to care in rural areas (see Table 1 and Figure 1).

In 1996, all "tambons" in rural areas have at least one health centre, for an average population of about 4,000.[3] Health centres are staffed on an average by three personnel, i.e., a midwife, a junior sanitarian and/or a technical, or a graduated nurse. These workers provide preventive and promotive care as well as curative treatment for minor illness and emergency cases.

In over 90% of the nation's districts, there is a "community hospital", normally with 10 to 60 beds-in some cases up to 120 beds-for an average district population of about 60,000. A community hospital has 1 to 7 physicians (mostly generalists), depending on the number of beds; in 1996, the average number of generalists per community hospital was 2.3.[3] Community hospitals provide both in and out-patient curative care as well as preventive, promotive and rehabilitative services, and are responsible for technical supervision and support to health centers in the district.

In the municipality areas, there is an average of one health center per municipality, mostly staffed by nurses and sanitarians, with a few are staffed by doctors. Provincial (General) hospitals, located in provincial municipalities, usually have 150-500 beds, and Regional hospitals up to 1000 beds. These hospitals provide secondary and tertiary care to the population of the province or region. As there is no urban structure equivalent to health centers, they are to a large extent utilized for curative first line care by the population living nearby, and are responsible for preventive and promotive care for the municipality population in co-operation with the municipal health office.

Besides the governmental sector (in which the MOPH plays a major role), the role of private medical services has increased in recent years. These services, initially concentrated in Bangkok, are presently expanding to smaller cities. In 1995, 27 % of the hospitals and 19 % of the hospital beds were private.[4] The private sector employs a growing proportion of physicians: 9% in 1986, 14% in 1989[5], and 24 % in 1995. In addition to private hospitals, small private clinics are flourishing. It is common practice for governmental doctors to hold a private clinic outside official working hours.

Production of manpower has been increased significantly. According to the Health Resources Survey conducted by the Ministry of Public Health, the nurse (technical & professional nurses) population ratio reached 1:725 in 1994, and the total

number of physicians increased from 5,790 in 1977 (1:7,500) to 14,098 in 1994 (1:4,165). About 800-900 new physicians are produced yearly, exceeding by far (at least for the next decade) the number of doctors likely to resign from practice. Urban/rural maldistribution of physicians however remains a major problem with nearly half of them concentrated in Bangkok (5,936 in 1994), and in the rest of the country also tending to work in larger cities (Table 2). This trend is aggravated by the growth of the big hospitals and the private sector in urban areas.

In theory at least, the Thai health care system is soundly structured along the concept of district health systems based on primary health care.[6] But in practice, the complementarily of the different levels of care seems to be jeopardized. First line facilities are supposed to respond to most health needs of the population, and to refer to the hospital only those patients who need more complex technical care. But in spite of increased geographical accessibility, health center utilization remains relatively low. In 1985, and 1995, 68% and 54%, respectively, of all out-patient cases recorded in MOPH facilities were seen in hospitals, and only 32% and 46% at health center level. Nevertheless, the trend of utilization at health centers is improving (Figure 2). This preference for hospital-based care has different roots in rural districts and in urban areas.

In rural districts, the acceptability of health centers as first line facilities is poor when compared with the competing hospital-based services: community hospitals care provide all services available at health centers, in addition offering to second line care. People tend to use hospital services, including problems which could be more adequately dealt with at the community level, assuming that health center functioning was satisfactory. For example, doctors attending a community hospital out-patient clinic considered that 52% of a sample of 442 patients could have been adequately treated at a health center.[7] Hospitals are overloaded with technically simple problems thereby losing part of their ability to function as secondary care providers.[8]

In urban areas (besides Bangkok) the supply of hospital-based care and private medicine contrasts with the absence of public first line facilities. Urban populations utilize either the private sector or the overloaded hospital out-patient clinics. The study conducted at the provincial hospital indicated that, in the opinion of attending doctors, 59% of consulting out-patients could have received adequate care at the health center level, but about a third of them were urban dwellers without access to health centers.[7]

The weakness of first line facilities is thus a major problem in the present Thai health care system. Effective first line facilities are needed to provide care which is not only technically adequate but also socially adapted to the individuals and the communities they serve. To what extent are general practitioners likely to contribute to the improvement of first line care ?

Present role of "general practitioners" in the Thai health care system

Distinct registration for specialized medical doctors was introduced in Thailand in 1971. Since then, the number of specialists has increased faster than the number of generalists (Figure 3), to the point of exceeding them in number: there were 10,950

specialists versus 10,153 generalists in 1996.[9] In addition, approximately 70 % of these so called “generalists” are engaged in activities other than general practice, such as :

- attending specialty training (1,860 in 1996)
- practicing as specialists in large hospitals
- working as administrators within the Ministry of Public Health or other Ministries.

Most of the generalists actually practising general medicine are young graduates who accomplish a compulsory service of 3 years (in community hospitals, Bangkok health centers, or other hospitals) before being allowed to specialize. The most typical place for a medical doctor to practice as generalists is presently the community hospitals; but in 1996, only 1,653 generalists worked in the 708 community hospitals.[3] Over the past 6 years, this trend has been stable or decreasing. (Figure 4)

A small number of young doctors remain generalists in the long run. Oven the past decade, an average of 70% of doctors had started specialization within 4 years after graduation and 90% within 6 years.[10] General practice appears to be a temporary medical activity, suitable at best for young graduates rather than a long-term function with a specificity of its own.

We may introduce a conceptual distinction between "generalists", characterized by basic technical knowledge in all specialties; and "general practitioners", characterized by their ability to combine this basic technical knowledge with social, behavioral and managerial competence in order to optimize patient management and care delivery to the community.

In that sense, non-specialized physicians in Thailand are so far considered as "generalists" rather than as "general practitioners". Health authorities plan for generalists to fill in positions where a little knowledge from each specialty is needed (emergency departments or small rural hospitals), not really to be responsible for continuous and comprehensive approaches in the health care system. Whenever generalists are preferred to specialists, it is for economic reasons rather than on the basis of unique general practice skills.

Potential of General Practitioners

The WONCA (World Organization of National Colleges and Academic Associations of General Practitioners/Family Physicians) defines the general practitioner as the physician "who is primarily responsible for providing comprehensive health care...", who "**functions as a generalist...", "cares for the individual in the context of family and community" and "exercises his/her professional role by providing care either directly to patients or through the service of others**”.[11]

This definition of general practitioners was developed on the basis of the Western experience, where general practice is trying to evolve, with more or less success, towards a discipline of its own, with specific training, journals, research and associations. Specialization and declining of prestige of Western general practitioners

in the 1960's led them to react as a professional group, in some instances with the support of national health authorities, in order to redefine their function within the health system and to gain legitimacy and recognition distinct from specialists[12]: Western general practitioners claim to be not only more cost-effective but also better first line care providers than specialists, emphasizing care in its human and social aspects, in addition to cure in its technical aspects of diagnosis and treatment[13]. In the Western context, this role model can be considered as congruent to a large extent with primary health care philosophy [14].

The process of specialization and declining prestige of general practitioners in Thailand shares some similarities with Western evolution and useful elements can probably be drawn from the Western experience. The strengthening of general practice in Thailand could become one of the key elements to promote effective first line care. However the Western model of general practice needs adaptation to the Thai health system, and the role and functions of general practitioners have to be defined accordingly.

The general practitioners' role will be different in rural and urban settings, because of the big difference is of the existing services at these levels.

Rural areas: district general practitioners

Presently in rural community hospitals, generalists tend to concentrate on care for hospital users (including first line care for patients bypassing the health center). They do not act as district general practitioners, responsible for the functioning of the health service system and the health of the population of the district as a whole[15]. They could however have major influence on the improvement of first line care in rural districts if their role and functions were reoriented. Providing first line care directly by themselves to the district population is not feasible in a situation where the average population per doctor is about 26,000; but they could adapt their roles to more actively support the health centers to whom they delegate this first line care. Therefore, their tasks would then include :

(1) supervision, technical and logistic support to first line care providers at health center level;

(2) providing secondary care for patients referred by health centers; and

(3) management of the district health service as a whole.

The challenge is to combine hospital-and disease-centred attitudes with community-and health-centred attitudes. Of course these general practitioners need technical skills (such as general surgery) enabling them to provide adequate secondary care. But they should also be competent in first line care delivery in its technical and human aspects, as well as in health center management and organization. If they delegate these tasks to health center staff, they must be able to train and supervise them. They should also be competent in adequate resource mobilization (human and financial) and management of the district health service as a whole-including the hospital but not limited to it.

Urban areas: first line general practitioners

In urban areas, the situation is quite different, as there are no structures equivalent to rural health centers. The development of public urban health centers can be an alternative to the unsatisfactory hospital-based or private-for-profit first line care.

However the acceptability of urban health centers staffed only with nurses may be low in those urban settings where the medical service is abundant and where populations are accustomed to care delivered by medical doctors. The gradual introduction of general practitioners is probably a condition of success for such urban health centers.

In these settings, general practitioners would then primarily function as first line care providers. However, the relative shortage of available general practitioners must be taken into consideration. Even in the best hypothesis where a significant proportion of doctors get involved in long-term careers of general practice in the public service, the need to reduce geographical maldistribution cannot be underestimated. Under these conditions, one general practitioner would have to provide first line care to urban populations of at least 5,000 to 10,000, and possibly more. This implies that the health center team should be organized in such a way that nurses perform, under the responsibility of the general practitioner, a far larger part of first line care tasks than is the case in Western settings.

Required skills for these first line general practitioners are similar to those of district general practitioners. They should be competent in first line care delivery, supervision of health center organization and health workers on a daily basis. Management competence may be useful if they are involved in urban district health service management. However technical skills for secondary care are less important, as secondary care for referred patients would be the function of hospital specialists.

Constraints for strengthening general practice in Thailand

In order to effectively reorient and strengthen general practice in Thailand, according to the potential described above, major constraints need to be tackled. They can be classified into conceptual, educational and organizational constraints.

Conceptual constraints

No specific potential is recognized for general practitioners in Thailand, neither in terms of functions nor in terms of competence. The health system increasingly favours specialist-provided, technology-oriented and hospital-centered medical care. Specialists are granted higher prestige, including in the eyes of the public, and doctors themselves do not consider that being a general practitioner for a long period is desirable. Job-satisfaction of general practitioners is usually low, not only due to poor income or career perspectives, but also due to the absence of positive role models allowing for intellectual satisfaction and self-actualization [(16)].

Although the Thai health system is organized around the principle of complementarilty of first-line and second-line services, this seems to result more from

economic considerations than from the assumption that first line services can do better than second line in several dimensions of care (e.g. comprehensive, continuous and holistic care, long term patient management, communication) if they are organized properly. Consequently general practitioners are not motivated to promoted or demonstrate the merits of first line care.

Educational constraints

Thai undergraduate medical education, based on Western patterns[17], is strongly influenced by the dominance of specialization in medicine. The curriculum brings medical students from one specialized department to the other, where education tends to be high technology oriented. Medical education appears as fragmented into subdisciplines rather than based on problem-solving processes. Behavioral and managerial sciences are poorly integrated in the curriculum. Doctors that are trained that way, when asked to work in rural settings or in urban first line services, find that they cannot utilize their technical knowledge and skills and get no satisfaction from responsibilities for which they are not prepared. If they become specialists, the lack of exposure to general practice skills during undergraduate training leads them to look down at general practitioners.

These problems are however recognized, and successive National Medical Education Conferences have recommended to increase the relevance of undergraduate medical education to the needs of community. Some medical schools are in the process of introducing a more community-based curriculum integrating problem-solving skills. In spite of difficulties, these attempts represent valuable opportunities to reorient medical education.

A 3-year post-graduate training programme for general practitioners has been established for 20 years in some Medical Schools. But besides being unpopular and unattractive, it perpetuates the major problems of undergraduate education; its content is strictly bio-medical and fosters hospital-oriented rather than community and patient-oriented attitudes. It is based on rotation from one specialized department to another, where general practitioners attend (as "second-class residents") part of the training programme of the specialty-residents in the given discipline. No specific programme is foreseen to help them integrate this fragmented knowledge and develop awareness of specific skills in general practice. Now, there are attempts at reorienting the curriculum of this programme to be more comprehensive.

Continuing education for generalists is quantitatively well developed. Many short courses and publications are made available to generalists by several institutions (e.g. Rural Doctors' Association, Medical Schools, associations of each specialty, Thai Medical Council and MOPH). They deal with clinical issues or hospital administration and management, and respond to some extent to difficulties met by hospital-based generalists. But the continuing education system can not make them more confident of their competence or proud of their dominant psycho-social features. Most generalists feel that they have less and less knowledge and skills when they work longer as generalists.

Organizational constraints

Income and career perspectives for general practitioners are limited, both in governmental services and in the private sector. In the private sector, income differences between generalists and specialists are significant. In the public sector, where income and promotion are centrally regulated, the income of generalists and specialists is similar in equivalent positions. But the number of higher positions for generalists are small, and promotion can best be obtained through leaving general practice. Starting as community hospital doctors, generalists may become directors of community hospitals or move to work in larger hospitals. They may also apply for administrative positions at the provincial or central level. Promotion usually implies moving to larger institutions, and regular turnover in community hospitals[18]. This lack of continuity limits the potential for building up a positive role image of district general practitioners.

Working conditions are motivating factors for choosing general practice as a career. But at present, there are several structural constraints built in the health care system, that need to be tackled:

* Rather than being functionally complementary, health centers, district hospitals and provincial hospitals tend to compete by providing similar first line services. This overlapping is detrimental to the promotion of first line services, both in rural and urban areas.

* In rural districts, administrative authority over health centers is held by a non-medical district health officer (Ministry of Interior) while technical support is expected from the district hospital doctors. This double line of authority considerably limits the potential for proper delegation of tasks and supervision of health centers by district general practitioners.

* Bureaucratic and centralized functioning of governmental health services hinders flexibility in the local adaptation to the health needs of people and consequently to the degree of freedom of general practitioners in the promotion of first line care.

* There is presently no plan to regulate the production of specialists-and consequently the supply of general practitioners-nor to increase specialists' complementarity with general practitioners. Clarification of medical manpower policy is needed.

* Finally, privatization in the health care system calls for regulation in order to control adverse effects (inequity, supplier-induced demands for high-technology and specialized care, withdrawal of health resources from the public sector, and aggravation of medical maldistribution).

Strategies to strengthen the role of general practioners

The role of general practitioners in the Thai health care system can be strengthened through a package of integrated strategies, i.e. :-

Redirection of the health care system from acute, hospital-based, specialized care to primary, community based, continuous and integrated care. This can be achieved through changes in financial remuneration and incentives under various collective financing schemes, or a more progressive movement to develop an act for the

establishment of a National Health Service based on primary care as in the UK and some European countries. Under this system, there will be distinctive roles between each level of health care facility. This new health care system will allow for general practioners to live and work gracefully in the Thai society.

This strategy seems simple. However, it requires strong political leadership and public support to overcome the possible resistance from various interest groups.

Reorientation of Medical Education towards more problem-based, community-based and student-centred, interactive learning style. Training of general practitioners as a specialized discipline should also be more integratedly reoriented. This can be accomplished through financial incentives, participatory consultative workshops, pilot R&D projects, and active social campaigns. This strategy requires group leadership in the medical schools which may be developed through a process of "interactive learning through action".

Civic movements to support and to motivate and educate the public to understand and advocate the reorientation of the health care system and the medical education. Rural doctor society/foundation may combine its movement with the General Practitioner Association. Public education and debates in the media will facilitate the understanding and also motivate the public and politicians.

Development of Wisdom to support the change through R&D projects. Examples are R&D projects on urban health centres and innovative medical education systems. Wisdom created through these R&D projects will enable the smooth implementation of the reorientation of the health care and medical education system. R&D projects will also serve as role models to motivate the public, the politicians, and interest groups for more support.

These four strategies need to be combinel in an integrated package to achieve strong support for the successful development of the health care system including the role of the general practioners.

Conclusions

The Thai health care system is at a cross roads. Without political intervention, it will probably continue along the line of emphasizing specialization and apparently unlimited advances in technology. But intervention can reinforce the dimensions of an integrated health system, in line with official policy options.

The strengthening of general practice, complementary to specialized care, was presented here as a key element for future strategies for increasing the relevance of the Thai health care system to the needs of the community. There are presently a great number of Thai generalists likely to become adequate general practitioners, if the relevant training and working conditions are developed. This in turn requires solid analysis and strong commitment from academic circles and policy makers.

Acknowledgements

The author would like to thank the staff of the Institute of Tropical Medicine, Antwerp, Belgium who kindly supported the study and commented on earlier drafts and

wish to express much gratitude to the staff of Thai Medical Council, Rural Health Division and Bureau of Health Policy and Planning who supported the data for this article.

References

1. Population Institute, Chulalongkorn University, Thailand. Projection of Thai **Population in the 8th National Economic and Social Development Plan**, 1997-2001. Bangkok : Chulalongkorn University, 1996; 1.
2. The National Economic and Social Development Board. **Health Development Plan of the 8th National Economic and Social Development Plan, 1997-2001**. Bangkok : The National Economic and Social Development Board, 1996; 26.
3. Rural Health Division, Office of the Permanent Secretary**,** Ministry of Public Health. **Annual Report 1996**. Bankok : Veteran press, 1997; 49-50.
4. Bureau of Health Policy and Plan, Office of the Permanent Secretary, Ministry of Public Health. **Public Health Statistics 1995**. Bangkok : Veteran press, 1996; 220.
5. Chunharas S. **Case study on expanding of private sector: impact on human resources for health development**. Unpublished paper, 1992.
6. Division of Strengthening of Health Services, World Health Organization. **Proceedings of the Interregional Meeting on Strengthening District Health Systems, Harare, Zimbabwe 3-7 August 1987.** Geneva : World Health Organization, 1987.
7. Ayutthaya Research Project Team. **Twenty months experience from Ayutthaya Project**. Presented at the International Seminar on Collaborative Health Systems Research, Ayutthaya, 1990. Ayutthaya: Ayutthaya Project, 1991.
8. Van Lerberghe W, Lafort Y. **The role of the hospital in the district: delivering or supporting primary health care?** In Current concerns, SHS Paper no. 2. Geneva : World Health Organization, 1990.
9. Thai Medical Council. Unpublished paper, 1996.
10. Srivanichakorn S, Nittayarumphong S, Sriruksa P, et al. **General Practice System in Thailand: Situation and Proposal for Development**. Bangkok : Health Systems Research Institute, 1996; 89.
11. WONCA (World Organization of National Colleges and Aeademic Associations of General Practitioncy Family Doctors). The role of the general practitioner/family physician in health care systems: a statement from WONCA. *WONCA News* 1991; 17: 4-8.
12. Gray DP. History of the Royal College of General Practitioners - the first 40 Years. *Br J Gen Pract* 1992; 42: 29-35.
13. Engel GL. The need for a new medical model: a challenge for biomedicine. *Science* 1977; 196: 129-36.
14. Vuori H. Health for all, primary health care and general practitioners. *J R Coll Gen Pract* 1986; 36: 398-402.
15. PHRTU (Public Health Research and Training Unit). The training of district medical officers: a methodology tested in Senegal. *Health Pol Plann* 1989; 4: 148-156.
16. Ben-Zira Z. The plight of primary health care: the problematic of commitedness to practice. *Soc Sci Med* 1986; 22: 699-712.
17. Shapiro MC, Shapiro RA, Ubolcholket S. Medical education in Thailand. *Med Educ* 1992; 26:251-58

18. Srivanichakorn S. **Strategies to strengthen general practitioners in rural and urban settings in Thailand** an MPH thesis. Antwerp: Antwerp Institute of Tropical Medicine, 1992; 80.

Table 1 : Health Services Infrastructures, 1996

Administrative level	Health facilities	Manned by	Numbers	Coverage
Bangkok Metropolitan	Medical Schools	Specialist*	5	
	General Hospitals :		29	
	Ministry of Public Health		5	
	Ministry of Interior		5	
	BMA		7	
	Ministry of Communication		1	
	Ministry of Defense		6	
	Public Enterprise		5	
	Specialized Hospitals		24	
	BMA HealthCentres/Branches	-GP	59/81	100%
	Private Hospitals	-Specialists*	140	
	Private Clinics***	-Specialist*	4,062	
	Private Pharmacies	-Pharmacists***	3,566	
4 Regions	Medical Schools	Specialist*	5	
	Regional Hospitals		17	
	Specialized Hospitals :		25	
	MCH		8	
	Mental		8	
	Neurological		4	
	Leprosarium		1	
	Communicable Disease		2	
	Chest		1	
	Cancer Hospital		1	
75 Provinces	General Hospitals (MoPH)	Specialist*	75	100%
	Military Hospitals		51	
	Private Hospitals		316	
	Private Clinics***		8,122	
	Private Pharmacies	Pharmacist***	8,553	
132 Municipalities	Municipality Health Centres	G.P.	132	
729 Districts and	Community Hospitals		708	97.1%
81 Subdistricts	Branch Hospitals		4	
7,195 Communes	Rural Health Centres	Health workers	9,239	100%
	Community Health Station		521	
65,277 Villages	PHC Post (rural)		61,432	94.1%
	PHC Post (Urban)		808	
	Village Drug Fund**	VHV	27,566	42.2%
	Village Sanitation Fund**		16,149	24.7%
	Health Card Fund**		10,837	16.6%
	Nutrition Fund**		5,688	8.7%

*** with few GPs** **** Figures in 1994.** ***** mainly part time**

Source : Bureau of Health Policy and Plan, Ministry of Public Health

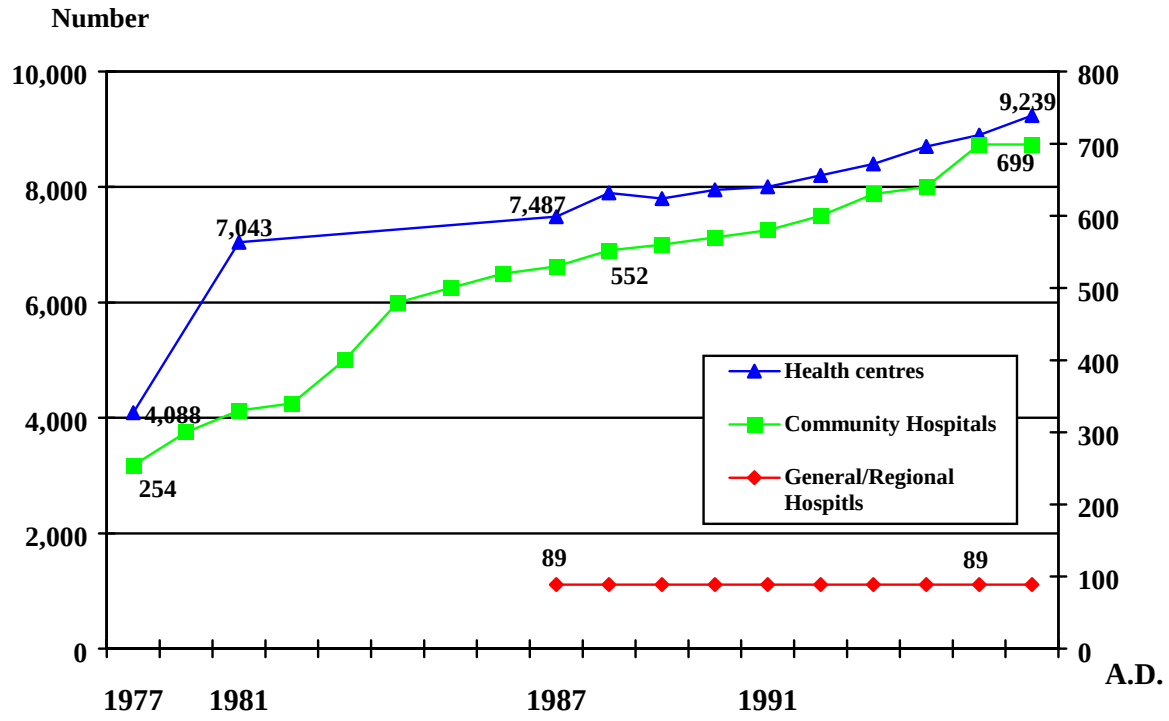
Table 2 : Number of Physicians and Physician/Population ratio in Thailand, 1994

Area	Number of Physicians	Population (millions)	Physician: population	Type of Physicians
Bangkok	5,936	5.6	1 : 943	mostly are specialists
Other urban areas	6,509	4.7	1 : 722	mostly are specialists
Rural areas	1,653*	48.4	1: 29,280	mostly are generalists
Total	14,098	58.7	1 : 4,163	

Source: Number of Population from Population Registration Office, as of 30 June 1994.
Number of Physicians from Health Resource Survey, Bureau of Health Policy and Plan, Ministry of Public Health, 1994.
* from Rural Health Division, Ministry of Public Health, 1994.

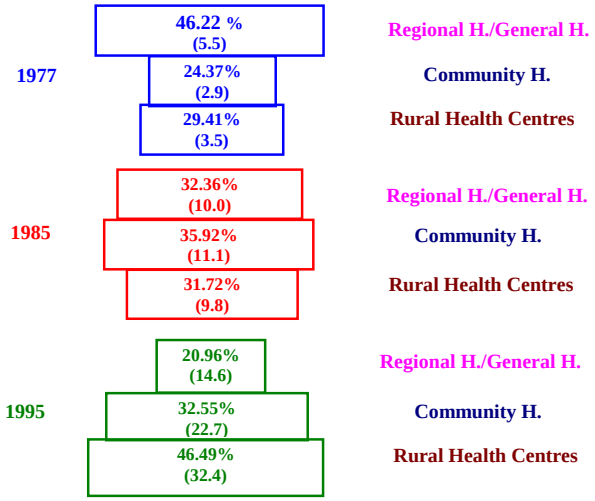
Note : Other urban areas = the capital districts of each province, outside Bangkok
Rural areas = the other districts outside the capital district of each province which have only district hospitals, no general hospitals

Figure 1 : Number of health centres and hospitals under Ministry of Public Health in 1977-1996.



Source : Rural Health Division, Rural Hospital Division, MoPH

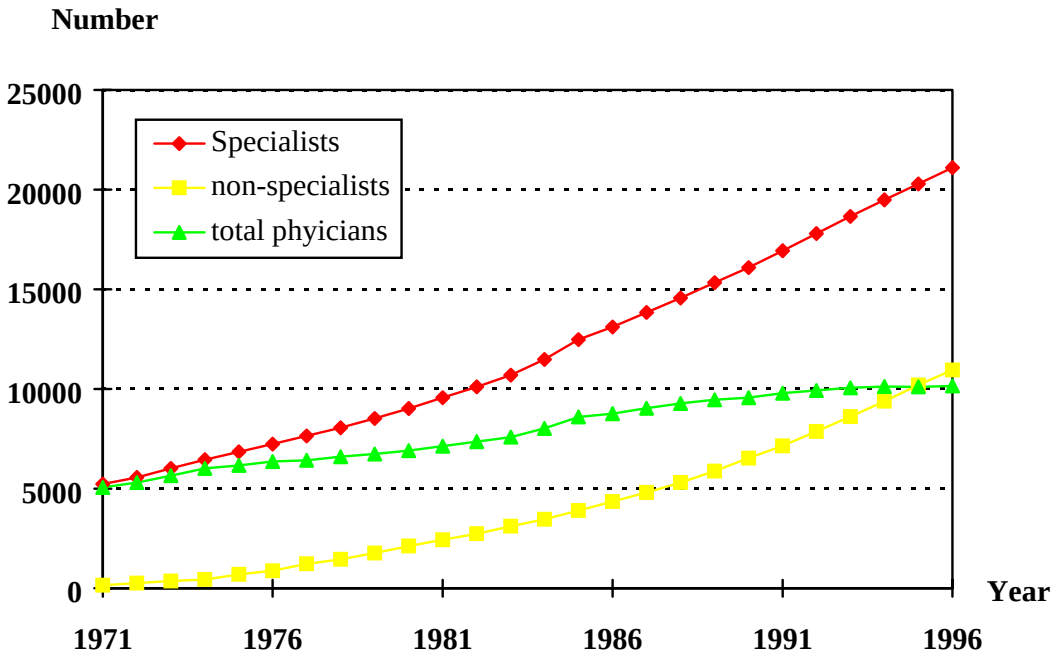
Figure 2 : Number and Proportion of OPD visits at Health Centers and Hospitals



( ) : Number of OPD visits (millions)

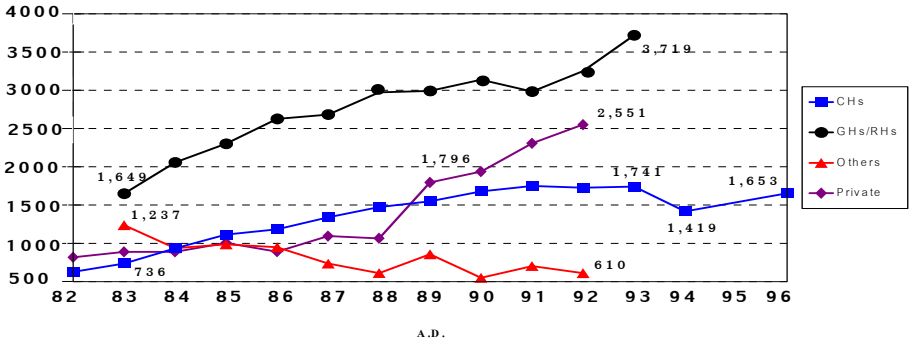
Source : Rural Health Division, MoPH

Figure 3 : Trends of Specialists compared to Non-specilaists (Generalists) in 1971-1996



Source : Thai Medical Council

Figure 4 : Physicians in various sectors in Thailand in A.D. 1982-1996



Source: Rural Health Division, Rural Hospital Division, Thai Medical Council