

Evaluating Thailand's Health Condition

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ABSTRACT

This study provides a broad-based view of the health conditions of Thailand at the beginning of the new millennium. It assesses the actual implementation of the Alma-Ata strategy and focuses on four main issues: 1) health status; 2) accessibility of health services; 3) coverage of health and welfare services (including insurance), especially throughout urban and rural areas; and 4) quality of health care services. The study included a literature review, examination and analysis of primary data, interviews with current and past health system personnel and a sample survey of 4,200 households, including 15,900 people. There was also an emphasis on qualitative data, collected in open-ended discussion groups with provincial health care workers and managers in charge of health policy transformation and implementation. In addition, key community leaders' opinions were solicited in order to provide more insight into the performance and the impact of health program on people at the community level.

Thailand's basic health data show considerable progress in health status, health insurance and in the accessibility of health services over the past half century. Overall satisfaction with health services is high in all regions and among groups of the population. These improvements have been experienced by all regions of the country and by all socioeconomic groups. Despite all these improvements, inequalities remain.

INTRODUCTION

Revolutionary Change

A little over a century ago, the clinics and hospitals Thais take for granted today were non-existent. Even the concept of 'medical care' was foreign. When people were sick they might consult a traditional healer. For the most part, however, it was the family and community itself that provided health care for its members.

Aside from the family, there is evidence that religious institutions also played an important role. The local monastery was a place where knowledge about health and cures was stored, disseminated to the population and passed on from generation to generation. The traditional medicine or health care had been transmitted from China and India over a thousand years ago.

In the 1980s the overall health strategy change somewhat. Thailand participated in WHO's Alma Ata Conference in 1978, and adopted the agencies' "Health For All By 2000" program. This conference also placed heavy emphasis on a purportedly new orientation through primary health care, implying community participation and preventive as opposed to curative strategies. While Thailand adopted the WHO strategy, it was not a completely new orientation for the country's Ministry of Public Health. For some years before the Alma Ata declaration, the Ministry had been developing its own primary health care program, which included increased community participation.

Now, more than two decades after the declaration and Thailand's adoption of the *Health for All By 2000* program, it is appropriate to evaluate the achievements. This study provides that evaluation.

OBJECTIVE

The objective of this study is to provide a view of the health conditions of Thailand at the beginning of the new millennium, assessing the "Health For All" policy. More specifically, it focuses on four issues: 1) health status of the population; 2) the accessibility of health services; 3) coverage of health and welfare services (including insurance), especially throughout urban and rural areas; and 4) the quality of health care services. In addition, we shall make some brief observations on the policy and programmatic changes that lay behind the current health conditions.

METHODOLOGY

The study used both primary and secondary data. It began with a literature review, covering past health studies, service statistics and budgetary data. The primary data consist of a national sample household survey of 4,200 households, including 15,900 people. The survey was not a simple national sample survey, since we wished to assess equity issues to follow the Alma Ata declaration. The country was divided into four regions: North, Northeast, Central and South. Each region was first stratified into urban and rural areas. Rural areas were further stratified into four categories: high and low primary health care performance, areas with strong social movements, and "Historic" areas, those that had had early health development projects with foreign assistance. Each of these was specifically selected and their subdistricts sampled so as to shed light on how these special areas differed from the overall Thai situation. Additionally municipal areas were over selected to obtain a large enough number of urban respondents for the analysis. Finally, more qualitative data were collected in open-ended discussion groups with provincial health care workers and managers in charge of health policy transformation and implementation. In addition, key community leaders were interviewed to obtain their opinions of the health care system.

Thailand's Health

Before examining the health system and its results in detail, certain basic data on Thailand need to be reviewed. This is because the characteristics of a country can be seen as both the cause and the effect of any development initiative and health development is no exception. The basic data are shown in Table 1.

Thailand's population more than doubled in the past four decades, increasing population density from about 60 to over 140 persons per square kilometer. It began this period in the first stages of the demographic transition. Mortality had fallen considerably, but fertility was still high. By 1990, the transition was complete. Fertility had fallen, in large part due to Thailand's very successful national family planning program. The infant mortality rate and family size declined dramatically. Life expectancy increased. The sex ratio changed slightly, from a small male numerical superiority in 1960 to a more substantial female superiority by 2000. All of this resembles the course of the more successful developing countries. In one respect, however, Thailand has been quite different. Its population remains predominantly rural. The urban proportion has remained at 20 percent until 2000, when it rose to 30 percent. This change, however, was largely due to administrative boundary changes, expanding urban areas to include a larger fringe population.

Table 1. Demographic Characteristics of Thailand, 1960-2000

Characteristics	Year				
	1960 (2503)	1970 (2513)	1980 (2523)	1990 (2533)	2000 (2543)
Population ¹	25,257,916	34,397,374	44,824,540	54,548,530	60,606,947
CBR ²	34.7	31.5	23.3	17.0	12.5
CDR ²	8.4	6.2	5.3	4.5	5.9
IMR ²	48.9	25.5	13.3	8.0	3.3
E.o Total ³	58.9	60.9	66.4	68.7	69.5
Males	55.9	58.0	63.8	66.5	67.4
Females	62.0	63.8	68.9	71.0	71.7
Sex Ratio ¹	100.4	99.1	99.3	98.5	97.0
% Urban ¹	20	20	20	20	30
Family Size ¹	5.6	5.7	5.2	4.4	3.9
Density/Km ²	61.1	80.0	104.3	126.9	141.0

Sources: 1. National Statistical Office (1960-2000)
 2. Ministry of Public Health (1999)
 3. Kiranandana (1998)

Primary Health Care

For more than two decades Thailand has been promoting national health through its Primary Health Care Strategy. Thailand's basic health data show considerable progress in the actual implementation of the Alma-Ata strategy.

Both nutrition and reproductive health have improved considerably over the past two decades. The most severe forms of malnutrition have been virtually eliminated. Even mild malnutrition has declined to very low levels. Low birth weight has declined and women have gained wide access to prenatal care. Postnatal care has not increased as much, but more than half of the women giving birth use some form of postnatal care. The contraceptive prevalence rate has gone above 70 percent, making Thailand what is called a "contracepting society."

Table 2. Achievement in Primary Health Care Program Performance.

	Year		
	1980	1990	1998
Nutrition⁽¹⁾			
Malnutrition (%)			
1 st Degree	35.7	16.9	7.9
2 nd Degree	13.0	0.8	0.5
3 rd Degree	2.1	0.01	0.0
Iodine deficiency (%)	NA	16.8	3.9
MCH⁽¹⁾			
Low birth wt. (%)	NA	10.2	8.5
Prenatal Care (%)	NA	65.2	85.9
Postnatal Care (%)	NA	46.4	56.4
CPR ⁽²⁾	53.4	70.5	72.2
Sanitation⁽³⁾			
% Households with			
Sp. Tank or Sewage	42.8	73.8	98.3
Safe drinking water	23.1	74.7	95.5
Endemic diseases⁽³⁾			
Diarrhea			
Incidence (/100,000)	476	1285	1814
Death rate (/100,000)	0.89	0.87	0.53
Hemorrhagic Fever			
Incidence (/100,000)	25.3	120.4	202.2
Death rate (/100,000)	0.87	0.75	0.64
Malaria			
Incidence (/100,000)	890	520	220
Death rate (/100,000)	8.1	2.3	1.3
Immunizations⁽³⁾			
% Infants Protected with:			
BCG (TB)	NA	96.3	100.0
DPT3 (Dyp., W.cough, Tetanus)	NA	89.4	97.3
OPV3 (Polio)	NA	89.3	97.2
Measles	NA	78.4	81.2
TT2 + booster (Tetanus)	NA	81.6	88.9
HB3 (Hepatitis)	NA	NA	95.9
Other Health Issues⁽³⁾			
Heart Diseases (/100,000)	16.5	51.3	72.1
Cancer (/100,000) ⁽⁴⁾	12.6	39.3	43.8
Road accidents			
Deaths (/100,000)	5.7	14.2	18.5
Mental Health			
Suicides (/100,000)	7.4	6.7	8.1 ⁽⁴⁾
Males	7.6	8.8	12.0 ⁽⁴⁾
Females	7.3	4.7	4.1 ⁽⁴⁾
Dental Health			
Carries (% > 18 yrs)	63.1	63.3	63.7

Sources: 1. Department of Health 2001, Sentinel
2. Chamaratrithirong et al (1997)
3. Ministry of Public Health (1999)
4. Lortakool (1998) in Sutra (2000)
5. Lortakool data for 1996

The past two decades have seen a dramatic increase in sanitation and water. Both sewage and safe drinking water are now almost universal. At the same time, the incidence of diarrhea and hemorrhagic fever appears to have increased, though the fatalities from the diseases have declined. The rising incidence in both cases is most likely due to greater accessibility, better reporting and better diagnostics. This can be seen later in table 6, which shows a dramatic increase by rural people in accessibility of medical treatment, accompanied by an equal decline in self treatment. Otherwise this is not in accordance with the spread of sanitation and safe water. The situation with Malaria is more positive, where both the incidence and the death rate have declined.

The protection of infants through immunization was already extensive a decade ago, and has advanced further since then. For all except measles, the protection is almost universal.

The decline of infectious diseases has been accompanied by a rise in degenerative diseases, consistent with the common patterns of the epidemiological transition. Heart diseases and cancer are on the rise. Similarly deaths from road accidents are rising. There is an interesting pattern in suicides, as a measure of mental health. The overall rate is falling slightly, but this is made up of two different trends. Suicides have fallen markedly among women, but they have risen slightly among men. This is an issue requiring further study; at present we have no explanation for the trends or the gender differences. Dental carries appear stable at about two-thirds of the population.

Accessibility

In 1988 the Ministry of Public Health conducted a national survey to determine the kinds of treatments people received when they were ill. In that survey, respondents were asked if they had been ill *within the last two weeks*. Among those reporting illness, they were asked where they went for treatment. We repeated this question in our 2000 survey, but to obtain a larger number of respondents, we asked about illness *within the past three months*. Thus the two results will not be strictly comparable. We had a larger sample, but our data may suffer from recall problems. Nonetheless, the data suggest no real change in the urban areas, but a substantial change in rural areas. The great majority of urban dwellers apparently visit a doctor if they are ill and they have done this for the past two decades at least. Self-treatment seems to be stable at less than one-fifth of the urban population. In 1988 about two-thirds of rural residents who were ill reported visiting a health facility with a doctor or with only paramedical staff. By 2000, this proportion had reached 90 percent. For rural people there was also a substantial decline in those reporting using traditional healers, or using only self-treatment. This reflects the result of the steady expansion of clinics into the rural areas. These data are seen in Table 3.

Table 3. Treatment Received by Persons Reporting Illness.

Clinic/hospital	1988 ¹		2000 ²	
	Urban	Rural	Urban	Rural
With MD	81.0	47.3	71.2	53.3
W/o MD	1.1	18.2	9.4	36.6
Traditional Healer	1.0	2.8	0.9	0.9
Self Treatment	17.0	31.7	18.5	9.2
Total %	100.1	101.0	100.0	100

Source: 1. Ministry of Public Health (1999)
2. Kamnuansilpa et al (2001)

Health-Welfare Coverage (Insurance)

Health insurance in some form has been steadily gaining ground in Thailand. In 1990 the government put in place a new public health-welfare coverage scheme under the Social Security Fund in the Ministry of Labor and Social Welfare. Workers, employers and government all made contributions to a scheme that provided co-payment services at government and selected private clinics.³ The next year, the Ministry of Public Health put in place another scheme that was directed toward poor people and those who lacked other forms of assistance through their employment. For 500 baht per year a family can get free medical services through the government clinics. Finally, the government developed an insurance scheme specifically for the elderly in 1992. Another scheme directed specifically at children was started in 1993.

Table 4 shows that as a result, those without any form of health insurance declined from 67 percent in 1991 to 22 percent in 1998. Kamnuansilpa et al (2000) found in the national survey that the proportion was slightly higher, just under 30%, a figure that was weighted by the (30-70) urban rural proportions of the population. Our 2000 figure is higher than that shown by the Ministry of Public Health's service statistics. The Ministry has accepted our figure, recognizing that theirs includes double counting and over reporting. In 2001 the government instituted a new scheme for the entire country, especially to cover those who previously had no coverage. The new scheme, labeled the 30 baht healthcare scheme, has the user pay 30 baht per visit, with additional costs covered by the government. In the tables that follow, we shall refer to the prior welfare-health-coverage schemes simply as "insurance."

Table 4. Percent of the Population with No Insurance

	Year						
	1991	1992	1995	1996	1997	1998	2000*
% W/o Ins.	67.1	44.5	28.0	23.0	19.3	21.7	28.7

Source: * Kamnuansilpa et al (2001), (weighted); all other data were from Ministry of Public Health (1999)

³Originally this was limited to establishments with 20 workers or more. Two years later the limit was dropped to 10 workers. Effective since April 1, 2002, there is no limit, as establishments with only one employee can join the Social Security Fund Scheme. Both employers and employees have to pay three percent of the wage to the scheme.

Table 5. Percentages of Respondents Who Had No Health Insurance by Selected Variables (N=15,900)

Predictor Variables	Percentage	Predictor Variables	Percentage
Region		Gender	
North	18.3*	Male [†]	30.6
Northeast	34.3*	Female	30.1
Central	31.2*	Education	
South [†]	40.7	Primary	21.3*
Areas of Study		Secondary [†]	32.5
Low performance [†]	29.9	Labor Force Participation	
High performance	35.3*	Not in labor force	26.7*
Historic initiative	28.8	In labor force [†]	34.8
Strong social movements	29.6		
Residence		Marital Status	
Urban	38.5*	Ever married	31.9*
Rural [†]	28.4	Single [†]	29.2
Age			
0-14	12.6*	Predicted Percentage	28.4
15-29	44.4*	Observed Percentage	28.7
30-49	42.8*		
50-59	41.6*		
60+ [†]	22.6		

Notes: In the list of predictor variables a dagger (†) indicates a reference category specified by a dummy variable. An asterisk after a number indicates that the underlying logistic regression coefficient differs significantly from zero at the 5 percent level; i.e., $0.01 < P \leq 0.05$. Percentages are adjusted by multiple classification analysis. The percentage of respondents who had no health insurance is calculated by setting all predictor variables at their mean values in the underlying logistic regression equation. Chi-square for Goodness of fit of the model = 1,699.3; $P < 0.01$.

Table 5, however, shows that coverage is not equal in all regions, areas of study, rural and urban residence, and other characteristics. On average 28.7 percent of the Thai population lacked health insurance at the time of survey. The range of those without insurance runs from a low of 18.3 percent (North Region) to a high of 44.4 percent (aged 15-29).

We conducted multivariate analysis by using a logistic regression model (see Retherford and Choe, 1993; and Ogawa and Retherford, 1997, for details of methodology and examples) as a basis to estimate percentages of respondents who had no health insurance, essentially adjusting for the effects of region, areas of study, residence, age, gender, education, labor force participation and marital status. With this analysis, we can identify group that are both advantaged and disadvantaged. Those advantaged have proportions not covered by insurance substantially lower than average (28.7 for observed grand mean and 28.4 for predicted grand mean). The disadvantaged are those whose percentages not covered are greater than the average.

According to the logistic model used in this study, those advantaged included people from the North, Children, elderly persons, people who finished less than secondary education. Those disadvantaged include people who were in the Northeast, South, urban areas, and those in the labor force ages (15 through 59). Little can be said about the effect of gender. This is because of the lack of statistical significance of male and female as dummy variables. Similarly, those who were in areas where there was an initiative in primary health care activities prior to the adoption of primary health care policy, those who lived in areas where there was a strong social movements, people who finished secondary education or more, single persons, and people who participated in the labor force did not show any significant difference from their reference category.

Report of Illness

Sickness and health are also distributed unequally among various groups of the population, as Table 6 shows.

Table 6. Percentages of Respondents Who Reported Being Sick Within the Last Three Months by Selected Variables (N=15,900)

Predictor Variables	Percentage	Predictor Variables	Percentage
Region		Gender	
North	32.1*	Male [†]	28.1
Northeast	23.6*	Female	32.4*
Central	26.3*	Education	
South [†]	45.1	Primary	26.8*
Areas of Study		Secondary [†]	32.1
Low performance [†]	33.6	Labor Force Participation	
High performance	27.9*	Not in labor force	28.2*
Historic initiative	26.0*	In labor force [†]	32.7
Strong social movements	29.9*	Marital Status	
Residence		Ever married	26.7*
Urban	24.9*	Single [†]	33.1
Rural [†]	31.8		
Age		Predicted Percentage	28.5
0-14	33.8*	Observed Percentage	30.3
15-29	20.3*		
30-49	24.3*		
50-59	35.9*		
60+ [†]	46.7		

Notes: In the list of predictor variables a dagger (†) indicates a reference category specified by a dummy variable. An asterisk after a number indicates that the underlying logistic regression coefficient differs significantly from zero at the 5 percent level; i.e., $0.01 < P \leq 0.05$. Percentages are adjusted by multiple classification analysis. The percentage of respondents who were sick is calculated by setting all predictor variables at their mean values in the underlying logistic regression equation. Chi-square for Goodness of fit of the model = 1,477.8; $P < 0.01$.

While some of the patterns are expected, others are not. Those in the South, and the elderly persons, are by far the most disadvantaged. There is an expected trend that children are more likely to be sick than young adults. Among all adults, the chance of getting sick increases as age advances. People in the North, people in low primary health care performance areas, people in rural areas, single persons, those who participated in the labor force, those who finished more than primary school, and females all are slightly more likely to be ill than what would be expected. Males, people in urban areas, people who had low educational attainment, those who were economically inactive, married persons, people who lived in areas of high primary health care performance, or in areas where there was an historic initiative in primary health care activities, or in areas where they have been known for strong health and social movements, all report being ill slightly their respective reference group. The findings here raise many questions about how and why health and sickness are distributed unequally among different classifications of people in Thailand. It is plausible that the process of self selection explains why single persons are more likely to have poor health than ever married persons. It is more difficult, however, to understand why people with better educational background and people who are economically active to be more likely to be ill. In the context of egalitarian and no clear social discrimination against females, it is also difficult to understand why females are more likely to be sick than males.

Use of Facilities

Equity in accessing health care services by socio-economic and demographic characteristics is desirable and a subject of particular for health care policy. Not having enough medical personnel and unfair distribution of medical doctor per population has been a cause for concern of Thailand's health program. According to the latest available statistic collected in 1998, there were only 22,730 medical doctors for the whole country (Ministry of Public Health, 1999). Among them, only 19,500 or 85.8 percent were still practicing medicine. When comparing this figure against the standard of 27,280 set by the Ministry of Public Health, Thailand needs to produce at least another 7,780 medical graduates. This is quite a formidable task, as Thailand can produce only about less than 1,000 medical doctor per year. This means that Thailand will face a shortage of medical doctors for at least another 10 years.

This problem is more severe in the rural areas than in urban areas, as most doctors find it more lucrative to practice medicine in big city, particularly in Bangkok. Therefore, even with the more medical doctors produced in the future, the disparity between urban and rural will remain visible for a long time. Since the degrees of urbanization are not equal by region, disparity by region is also clearly visible.

During the past two decades the disparity in population per doctor ratio by region remains more or less constant. As can be seen in Table 7 and in Figure 1, the Northeast Region is the most depressed area, reflecting a needed policy on distribution of medical doctor. To understand how the unfair distribution of medical doctor indirectly effects accessibility of health care, a logistic regression was used to estimate the proportions of people who sought treatment from a medical doctor when they were ill.

Unexpectedly, Table 8 shows that people in the Northeast are more likely to seek treatment from the doctor than their counterparts in other regions. This is happening in light of the unfair distribution and disadvantages of the region. This reflects that the medical doctors in the Northeast must have a heavier patient care load

than their counterparts in other regions. At the same time people in the North are least likely to seek medical attention from a doctor. Therefore, the patient care load of medical doctor in the North is not necessarily heavier than that of the Central and of the South. Characteristics of people who are more likely to seek attention of a medical doctor when they are ill also include living in historic initiative areas or in urban areas, and having advanced ages. It is noted with interest that people who are economically active are more likely to seek treatment from a medical doctor. Given that those who participated in the labor force are less likely to be covered by health insurance and are more likely to be ill, this is counter intuitive. On the other hand, we see a consistent trend of people who are more educated to be both more likely to be ill (as shown in Table 6) and less likely to seek medical treatment (as in Table 8). Perhaps it is because they are less likely to be covered by health welfare.

Table 7. Number of Population per Medical Doctor between 1979-1997, Classified by Region

	Year									
	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997
Whole Kingdom	6,956	6,847	6,259	6,414	5,595	4,361	4,426	4,297	4,180	3,649
Bangkok	1,210	1,362	1,404	1,449	1,418	1,062	958	1,045	999	720
North	13,112	12,075	10,879	13,098	8,297	5,331	6,317	6,117	5,844	5,791
Northeast	25,713	23,238	19,675	15,894	12,694	11,762	10,970	10,851	10,936	9,951
Central	11,652	9,407	7,179	7,726	6,663	5,920	5,805	5,180	4,091	4,506
South	15,641	13,164	10,061	8,457	7,705	6,306	6,079	6,257	5,591	5,216

Source: Ministry of Public Health (1999)

Figure 1. Number of Population per Medical Doctor between 1979-1997, Classified by Region

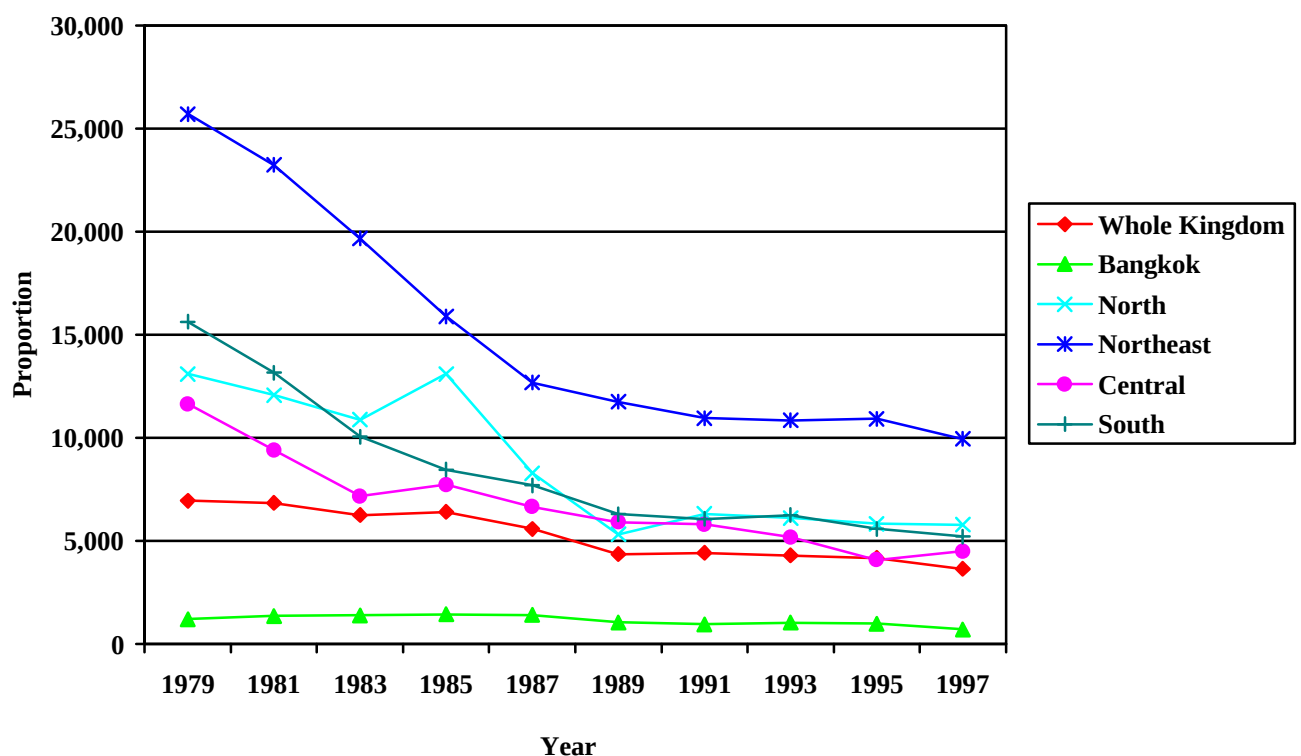


Table 8. Percentages Who Received Treatment by a Medical Doctor among Those Who Reported Illness in the Last Three Months by Selected Variables (N=4,815)

Predictor Variables	Percentage	Predictor Variables	Percentage
Region		Gender	
North	47.6*	Male [†]	57.8
Northeast	65.6*	Female	56.9
Central	57.3	Education	
South [†]	56.9	Primary	62.9*
Areas of Study		Secondary [†]	54.6
Low performance [†]	51.1	Labor Force Participation	
High performance	52.2	Not in labor force	55.2*
Historic initiative	73.3*	In labor force [†]	59.7
Strong social movements	55.9*	Marital Status	
Residence		Ever married	54.2
Urban	74.2*	Single [†]	59.6
Rural [†]	52.5		
Age		Predicted Percentage	56.8
0-14	51.4*	Observed Percentage	57.3
15-29	52.1*		
30-49	54.2*		
50-59	63.7*		
60+ [†]	70.4		

Notes: In the list of predictor variables a dagger (†) indicates a reference category specified by a dummy variable. An asterisk after a number indicates that the underlying logistic regression coefficient differs significantly from zero at the 5 percent level; i.e., $0.01 < P \leq 0.05$. Percentages are adjusted by multiple classification analysis. The percentage of respondents who sought treatment is calculated by setting all predictor variables at their mean values in the underlying logistic regression equation. Chi-square for Goodness of fit of the model is 452.6 and is statistically significant with $P < 0.01$.

An understanding of the issue of inequity in assessing health facilities can be enhanced by looking into the costs of treatment by different groups. This requires some explanation. We first asked people if they had been ill in the last three months. If they had been, we asked where they went for treatment. Those who went for treatment, including self treatment, were asked how much they paid for treatment. These are then reported by whether or not they were covered by the health-welfare insurance scheme (shown in the table as “W Ins” and “W/O Ins”). The reported median costs in Baht per visit among those who had to pay for treatment are shown in Table 9.

The best we can say about this table is that, in general, having insurance does in fact reduce the cost of treatment to the user. Among those who sought treatment from a health facility with a medical doctor, the saving of treatment cost is a nominal 20 Baht; but among those who sought treatment from a place without a medical doctor, though the absolute reduction is small, it has a relative high saving of about 33 percent.

Table 9. Median Costs of Treatment Among Those Reporting Illness in the Past Three Months and Were Able to Receive Some Kind of Treatment and Had to Pay for the Treatment (Baht per visit) by selected variables and by health facilities. (N=2,392)

Predictor Variables	Fac W. MD		Fac.W/O MD		Total	
	W.Ins.	W/O	W.Ins.	W/O	W.Ins.	W/O
Sample Size	916	689	385	402	1,301	1091
Region						
North	150	200	50	55	130*	200*
Northeast	200	200	50	95	150	200
Central	300	300	50	40	200	150
South	150	200	20	30	50	120
Areas of Study						
Low performance	120	200	20	20	40*	100*
High performance	200	200	50	70	130	150
Historic initiative	150	160	20	30	120	150
Strong social movements	200	250	30	30	145	160
Residence						
Urban	200	290	50	50	160*	200*
Rural	150	200	20	30	100	130
Age						
0-14	130	200	20	30	100*	150*
15-29	150	180	40	30	100	100
30-49	200	200	20	40	100	120
50-59	200	200	20	50	160	170
60+	250	300	45	50	180	250
Gender						
Male	180	200	20	30	120	145
Female	170	200	30	40	100	150
Education						
Primary	160	200	20	35	100	150
Secondary	200	200	40	30	130	150
Labor Force Participation						
Not in labor force	150	200	20	30	100*	170*
In labor force	200	200	30	30	120	130
Marital Status						
Ever married	200	220	30	40	150*	150*
Single	150	200	20	25	100	130
Total*	180	200	20	30	100	150*

* p < 0.05; Median Test

Looking for inequities within groups, we find two characteristics-gender, and education, where there are no significant differences in the payment. Where differences exist, those who pay more include urbanites, elderly persons, people aged 50-59, people in the Central Region, people in the Northeast, and people in areas of strong social movements. By contrast, those who pay less include people in the South, rural people, children and young people, people who lived in areas of low primary health care performance, and single persons.

Satisfaction

Respondents were asked how satisfied they were with the health treatment they received. They could give one of three responses: not satisfied, good and very good. Table 10 shows the distribution of the responses after grouping the “good” and “very good” responses together. Those small numbers of people who were ill but did not seek any treatment were excluded. Respondents were treated either by general services or by curative services.

There appears to be a very high level of satisfaction with both general and curative services, and there is little difference by any of the selected variables. There are significant differences in a few groups, after holding constant the effects of other variables; but the absolute differences are still relatively low in both services. We can say with statistical confidence that, after controlling for the effects of socio-economic and demographic conditions, people in the North and the Central are more likely to be satisfied with both services than people in other regions. People in areas of low performance are less likely to be satisfied with the services than people in other areas. In light of these findings we are hesitant to make much of these differences, in large part, because they are all so small. We prefer the overall judgement that satisfaction with all services are quite high among all groups of the population.

SUMMARY

Thailand has seen a great improvement in health status, health insurance and in the accessibility of good health services over the past half century. Mortality and fertility have declined. Infectious diseases have come under control, but this also implies a rise of degenerative diseases, consistent with what has come to be known as the epidemiological transition. These improvements have been experienced by all regions of the country and by all socioeconomic groups. Overall satisfaction with health services is high in all regions and among groups of the population. In spite of these improvements, inequalities remain. Though the differences are often rather small, they do exist.

RECOMMENDATIONS

We attempt to summarize inequalities by noting those groups advantaged and disadvantaged in four areas: insurance coverage, health and illness, treatment or accessibility, and payment for services. We do not include satisfaction here, since we have already argued that the differences are very small, and the overall level of satisfaction is very high. The following table attempts to make this summary. Here we identify advantaged and disadvantaged groups on the four dimensions. Advantaged groups are those who are statistically better off than others in what is being reported: lower in non-insured, lower in reports of illness, and higher in treatment by a facility with an MD, and lower costs. Disadvantaged groups are their counterparts, worse off on whatever is being reported. For the first three areas we have considered groups 5 percentage points or more above or below the predicted grand mean to be advantaged or disadvantaged, depending on the parameters we are referring to. Thus for example on insurance coverage, urban residence are classified as disadvantaged, since they have 38.5 percent uninsured, 10.1 percentage points above the predicted grand mean. At the same time rural residence are not considered advantaged since they show 28.4 percent without coverage, exactly equal to grand mean. Likewise, people who are not participating in the labor force are not considered advantaged because the predicted mean of the group is only 1.7 percentage

point below the predicted grand mean. Needless to say, this table would include more groups on both sides if smaller percentage differences were used.

Table 10. Percentages of Respondents Reporting Illness in the Past Three Months Who Found Health Services to be Good or very Good by Selected Variables.

Predictor Variables	Percentages	
	General Services (N=4,750)	Curative Services (N=4,750)
Region		
North	96.4*	96.4*
Northeast	89.0	91.1
Central	91.8*	91.8*
South [†]	88.3	88.9
Areas of Study		
Low performance [†]	89.1	89.8
High performance	94.1*	94.6*
Historic initiative	94.0**	94.8*
Strong social movements	93.9*	93.6*
Residence		
Urban	92.7	93.3
Rural [†]	92.1	92.6
Age		
0-14	91.4	91.4
15-29	91.0	91.8
30-49	91.3	92.6
50-59	94.4	94.2
60+ [†]	93.4	94.0
Gender		
Male [†]	92.1	92.7
Female	92.3	92.8
Education		
Primary	92.6	92.9
Secondary [†]	92.1	92.6
Labor Force Participation		
Not in labor force	91.9	92.3
In labor force [†]	92.5	93.2
Marital Status		
Ever married	93.1	93.6
Single [†]	91.5	92.0
Predicted Percentage	93.6	92.7
Observed Percentage	92.2	94.0

Notes: Separate logistic regressions were calculated for general services and curative services respondents. In the list of predictor variables a dagger (†) indicates a reference category specified by a dummy variable. An asterisk after a number indicates that the underlying logistic regression coefficient differs significantly from zero at the 5 percent level; i.e., $0.01 < P \leq 0.05$. Percentages are adjusted by multiple classification analysis. The percentage of respondents who sought treatment is calculated by setting all predictor variables at their mean values in the underlying logistic regression equation. Chi-square for Goodness of fit of the model is 149.8 for general services and is 128.5 for curative services; both are statistically significant with $P < 0.01$.

For payment of services, we have first considered the statistical significance of Median Test among different predictor variables. The groups that can be classified as advantaged will not only have to be statistically significant from other groups within each given predictor variable but have to be more than 5 percent below the costs of treatment of the total sample (100 Baht for those with insurance and 150 for those without insurance). Likewise, those disadvantaged are those who have both paid significantly more than their counterparts in other groups within a given selected variable and that what they have paid is more than 5 percent higher than the total average costs. It should be noted here that inconsistency of payment among those who have and those who do not have insurance coverage within any group will not be considered as a satisfactory criterion for making any judgment about the advantages or disadvantages a particular group is facing.

Table 11. Summary of Advantaged and Disadvantaged Groups on Various Health Related Issues

Issue/Groups	Disadvantaged	Advantaged
Insurance Coverage	Northeasterners Southerners Urban dwellers Labor force Aged 15-59	Northerners Children Elderly Primary education
Health status (reporting illness)	Children Southerners Elderly Aged 50-59 Low PHC performance areas Primary education	Northeasterners Aged 15-59
Accessibility, treatment by MD	Northerners Low PHC performance areas Children	Primary education Urban dwellers Northeasterners Historic initiative areas Aged 50-59 Elderly
Accessibility, payment	Northerners Northeasterners Urban dwellers Strong social movements areas Aged 50-59 Elderly	Southerners Low PHC performance areas

The summary in Table 11 can be viewed in many ways. Perhaps the most useful would be to start with a consideration of policies and programs. What can be done to help the disadvantaged? From that perspective, we can consider insurance, treatment and costs. Reports of illness reflect some epidemiological conditions over which it may be difficult to design specific policies.

Insurance. Those reporting non coverage higher than the predicted grand mean include people in the Northeast, people in the South, urban dwellers, people who are in labor force, and people in the working ages (15-59). Insurance programs that targeted these groups could alleviate the situation considerably. It is possible that the new “30 Baht” insurance scheme will relieve some of the disadvantage these

groups show. We shall shortly propose a simple tracking scheme to see how this new scheme meets the needs of the citizens.

Northerners, children, the elderly, and those with low educational background appear to be well covered, thus obviating any special schemes to address their needs.

Treatment by MDs. People in the North, children and those in Low PHC performance areas seem disadvantaged in their access to facilities with MDs. On the other hand, people who finished lower than secondary education, urban dwellers, northeasterners, people in Historic areas, people who are approaching old age and the elderly persons appear advantaged. As medical doctors are more likely to be concentrated in urban areas, it is no surprise that urban dwellers appear advantaged in their access to medical doctors. It is less intuitive why people in historic initiative areas are more advantaged in getting access to medical doctors. For people who are approaching or in the state of being old, their higher percentages of accessibility of medical doctors are simply a reflection of their actual medical needs. In other words, when these groups of people are sick they really need a doctor. The policy implication is that as the population is aging, Thailand needs more medical doctors, particularly more new geriatricians. If the North is somewhat disadvantaged, it is easy to say we need to assign more doctors to that areas. It is more difficult, however, to predict that this will happen in the near future, since Thailand is still in the throes of unbalanced health personals and population ratios.

Payment. People in the North and in the Northeast pay more for services than their counterparts in the South. Given the lower per capita income of the Northerners, and that of the Northeasterners, their higher payment of medical cares than the Southerners is quite anomaly. It is easier to understand why the urban dwellers have to pay more for the costs of medical care than their counterparts in the rural areas. Normally, the wages in urban areas are higher than in rural areas, thus having better ability too pay. This finding, therefore, reflects that some degree of equity in the costs of medical care between the urban and the rural has already been established. But people aged 50 and above, particularly those aged 60 and above also pay more than do others. We have already seen that the elderly are also advantaged in insurance coverage. Thus on the whole, if their better coverage does not also reflect higher payment, then it must be simply because the insurance does not cover all the medical care costs of the elderly. On the advantage side we find those in the South, and persons in low performance areas. The advantage of the South calls attention to the existing inequity of medical costs by region. That does not give any explanation why people in areas of low primary health care performance pay less than people in other areas. Why single persons should be advantaged here is also a question we must leave to further research.

The new “30 baht” insurance scheme could well address many of the disadvantages noted above. We will not know for a few years how the program is working and whether or not it addresses the problems of inequity that we have identified here. But we can propose a simple way to find out.

Tracking the 30 baht health care scheme. We propose a simple on-going tracking program to determine how the 30 baht health care scheme is working. The scheme stipulates that individuals or families register at their nearest government health center in a rural area or at their nearest hospital for those who live in an urban

area. If registered, they are eligible for service at that clinic at any time for 30 baht. For rural dwellers, referrals can be made from the clinics to the district or provincial hospital. When people register they provide information on their education, income, occupation, residence etc. It would be a simple matter for a research group to obtain the Ministry of Public Health data sets of normal service statistics on a regular basis and provide detailed reports on how the coverage is expanding, especially among groups we have identified here as disadvantaged. With access to these service statistics, a research team could provide semi-annual reports that would tell policy makers how successful this health care scheme is in filling the gaps in health care insurance. This would also make it possible for policy makers to adjust the health program specifically to target those gaps.

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REFERENCES

- Chamrathirong, A., P. Prasartkul, W. Thongthai, and P. Guest. 1997. **1996 Contraceptive Prevalence Survey in Thailand**. (in Thai). Bangkok: Institute for population and Social Research, Mahidol University.
- Department of Health. 2001. **Nutrition Surveillance of Pre-School Children 1972-1997**. (in Thai). [<http://www.anamai.moph.go.th/nutri/newpage31.htm>]. February 16, 2001.
- Kamnuansilpa, P., S. Wongthanasu, C. Leelakraiwan, P. Phanitchachevakul, L. Chareonthanyarak, and W. Virakul. 2001. **Evaluating the Implementation of Strategy for Health for All by the Year 2000**. (in Thai). Khon Kaen: Prathamakan Press.
- Kamnuansilpa, P., S. Wongthanasu, J. Bryant, and A. Phromo. 2000. **Health Policy Evaluation for the Elderly Person**. (in Thai). Khon Kaen: Prathamakan.
- Kiranandana, T. 1998. **Economic of Human Resources: Health Development**. (in Thai). (2nd ed.). Bangkok: Chulalongkorn Press.
- Lortakool, M. 1998. "Suicides in Thai Society: Age and Sex Perspectives", **Journal of Thai Psychiatric Association**. (in Thai). 43(1): 67-83
- Ministry of Public Health. 1999. **Thai Public Health 1997-1998**. (in Thai). Bangkok: Veteran Association Press.
- National Statistical Office. 2000. **Census Report**. (in Thai). Bangkok: The Office of Prime Minister.
- National Statistical Office. 1986. **Survey of Population Change**. (in Thai). Bangkok: The Office of Prime Minister.
- National Statistical Office. 1986. **1986 Health and Welfare Survey**. (in Thai). Bangkok: The Office of Prime Minister.

- National Statistical Office. 1984. **1984 Annual Report**. (in Thai). Bangkok: The Office of Prime Minister.
- Ogawa, N., and R. D. Retherford. 1997. "Shifting Costs of Caring for the Elderly Back to Families in Japan", **Population and Development Review**. 23: 59-94.
- Retherford, R. D., and M. K. Choe. 1993. **Statistical Methods for Causal Analysis**. New York: John Wiley.
- Taeareeruck, P. 1999. **The Impact of Economic Crisis on Health of Thai Population**. (in Thai). Nonthaburi: Komol Keemthong Foundation Press.

List of Abbreviations

CBR	=	Crude Birth Rate	CDR	=	Crude Death Rate
IMR	=	Infant Mortality Rate	E _o	=	Life Expectancy at Birth
Km	=	Kilometer	MCH	=	Maternal and Child Health
CPR	=	Contraceptive Prevalence Rate			