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Specialty Choice and Understanding of Primary Care
Among Japanese Medical Students

(short title: Specialty Choice---Japanese Medical Students)

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SUMMARY

To assess specialty choice and understanding of primary care among Japanese medical students, all students from seven Japanese medical schools (three public and four private) were surveyed by written questionnaire. A total of 3377 students provided data usable for this study. 89.8% of students wished to become clinicians, and 79.3% wished to have general clinical ability. About half of the respondents, 54.9%, replied that they had some or great interest in primary care, but their understanding of primary care was inadequate. Although almost half (56.3%) of the students answered that they had rich or some images of a general practitioner, this proportion was nearly the same among students in all years of medical school. While 1245 (36.9% of total) students (most of them in the 5th or 6th year) answered that they had experience in clinical training in hospitals, only 203 (6.0%) students had experience of working in clinics, and 129 (3.8%) students had experience in home visits and home care. An even greater number, 64.3%, replied that they had inadequate information about the career options available to them. Although many Japanese medical students wish to have broad clinical competence, their understanding of primary care is insufficient. In order to increase the number of primary care providers in Japan, the system of medical education must provide primary care physicians who serve as role models and information about post-graduate primary care training programs effectively. Post-graduate primary care training programs and rewarding positions for physicians who completed those programs should be increased immediately as well.

TEXT

Introduction

In Japan, only a few institutions systematically train primary care physicians (Kiikuni 1983; Tsuda et al. 1994). Career options for these physicians are also limited.

For the most part, primary care in Japan is provided by community-based general practitioners in privately owned solo practices (Kiikuni 1983), while public facilities covers sanitation and a part of the major hospitals. Needless to say, primary care providers ought to have general clinical ability. However, most of these primary care providers were originally trained as specialists (including subspecialists of Internal Medicine), and not trained systematically to be primary care physicians (Tsuda et al. 1994). Having completed specialty training, they worked as hospital-based specialists for some years, and then opened their own private clinics. In this way, primary care in Japan has been assumed by former specialists called "specialoids" by late J. Fry, the leader of general practitioners in U.K.(Fry 1992). Thus, there is no standard specialty or professional organization (corresponding to "General Practitioner" in U.K. or "Family Practitice" or "General Internal Medicine" in U.S.) that represents Japanese primary care physicians (Fry 1992). Although there are many departments of "Internal Medicine" in Japanese medical schools, almost all of them place emphasis on training subspecialists. Few departments accept the responsibility of training primary care physicians systematically and consistently (Kiikuni 1983; Fukui et al. 1990; Yano et al. 1992; Tsuda et al. 1994).

Of the 230,000 physicians in Japan (the population is approximately 125 millions), about 60,000 are community-based general practitioners who own their own clinics. More than half of this group are in their 60s or older. The percentage of physicians who open their own private clinics has decreased by almost half over the past ten years. At this rate, the number of general practitioners in Japan will shrink by another 10,000 over the next

ten years. These factors will produce a severe shortage of primary care providers.

Although the Japanese government (the Ministry of Health and Welfare) and Japanese Society for Medical Education have repeatedly proposed that all post-graduate training programs have a core segment dedicated to primary care training (Iwasaki 1986; Committee on the postgraduate education of the Japan Society for Medical Education 1990), these proposals have not exerted any significant impact. In the 1980s, three new medical schools and three national hospitals in Japan established departments and post-graduate training programs for primary care. These were patterned after "Family Practice" or "General Internal Medicine" programs in the U.S. However, only some ten or twenty physicians a year have been trained in these programs to date by reason of their capacity. In other advanced countries such as U.K., U.S., Canada, Norway, Australia, New Zealand and South Africa, most medical schools have departments of primary care, and post-graduate training programs to train primary care physicians.

The insufficiency of primary care training programs has been attributed to the assumed preference of overwhelming majority of Japanese medical students for specialization. No large-scale survey as to specialty choice among Japanese medical students has ever been done to confirm or disprove this assumption. What kind of physicians do Japanese medical students really wish to become? In this study, we surveyed medical students in seven Japanese medical schools as to their specialty choices and understanding of primary care. We believe the data to be useful in finding ways of increasing the number of primary care physicians in Japan.

Method

All students (from 1st to 6th year, 4733 students in all) from seven Japanese medical schools (three public and four private) were surveyed. From November 1991 to January

1992 (in Japan, the academic year begins in April), we handed out or mailed questionnaires pertaining to specialty choice and understanding of primary care.

In order to assess the factors to which students attach importance when choosing a specialty, we devised original rating scales (thirteen items with five grades). We translated the data from these rating scales into scores and calculated mean values and standard deviation (S.D.)(Table 2).

Because there is no standard specialty name for Japanese primary care physicians, we included "Primary Care" (with explanatory note on several Japanese names of primary care departments) in the list of possible specialty choices. To distinguish the preference of Japanese medical student for specialization, in this study, we defined "generalist" as a physician with general clinical ability and "specialist" as a physician who has narrow and highly specialized ability.

In order to survey medical students' understanding of primary care, we devised a question with seven possible answers. Each answer suggested a possible core activity that might be performed by a primary care provider. The seven options were "home visits and home care," "medical checkup," "health promotion," "health education at public hall," "emergency medicine (primary)," "treatment for common diseases," and "utilization of medical resources and welfare resources in a community." All of these seven activities are in demand in Japanese primary care, and have been carried out by eager community-based general practitioners in Japan.

Using a personal computer (NEC PC-9801) and software for statistical analysis (SPSS), we analyzed differences of mean value by F-test and t-test, and differences of proportion by chi-square test. P values less than 0.05 were considered statistically significant.

Results

A total of 3377 students provided data usable for this study. Total response rate was 71.4%. Response rate was highest among 6th year (final year of medical school in Japan) students (82.5%), and lowest among 2nd year (58.8%) students.

The percentages of students who had "decided already" or "decided probably" upon their specialties were approximately the same for students in the first to fifth years (about one third; 31.3~37.1%) but higher (71.6%) among 6th year students (Table 1).

The data regarding factors to which students attach importance in making a specialty choice are shown in Table 2. The scores were highest for "personal interest and aptitude for a particular specialty," and were relatively higher for "desire to study under a particular role model or mentor figure," "perceived prospects for a specialty," "attracted by the atmosphere of the department" and "drawn to a training curriculum."

64.3% of all students acknowledged that there was insufficient information available for making their specialty choice. The percentage of respondents who cited inadequacy was highest among 5th (81.9%; 489/597) and 6th (78.1%; 543/695) year students. Many students noted in particular that information about institutions and post-graduate training programs outside of their own medical schools was lacking.

89.8% of students wished to become clinicians. The distribution of their specialty choices are shown in Table 3. About 6% of students who wished to become clinicians chose "Primary Care" as the specialty of choice. This proportion was nearly the same among the students in all years.

Regarding the type of physician they wished to become (generalist or specialist), 26.9% of students wished to be generalists. The majority (52.4%) of students answered that they wanted to have both (generalist and specialist) ability. Only 14.9% of the students wished to become specialists in the strict sense. The proportion of students who wished to be generalists was significantly higher ($P<0.005$) among the group of students who chose

"G.I.M." or "Primary Care" as their specialty of choice (45.0% and 58.0% respectively).

Concerning types of post-graduate training programs, more than three-fourths (78.5%) of the students desired a program in which they could rotate through "all" or "some of the major" departments. On the other hand, about four-fifths (82.6%) of students were planning to belong to departments of medical schools (called "Ikyoku" in Japanese) in which it would be hard for them to rotate through other departments during their post-graduate training periods (Table 4). In the group of students who chose "Primary Care" as their specialty, the percentage who wished to belong to "Ikyoku" was 67.4% (116/172). Among the students who aimed to be generalists, this percentage was 78.5% (709/903).

54.9% (1821/3319) of students replied that they had some or a great interest in primary care. This percentage was lowest among first year (44.5%; 207/465) students and highest among those in their 6th year (63.8%; 436/683).

When asked about possible core activities of "Primary Care," only "home visits and home care" were chosen by the majority (57.2%) of students as activities thought to be assumed by primary care physicians. Only a small number of students chose "treatment for common diseases" or "utilization of medical resources and welfare resources in a community" (31.2% and 26.7% respectively). In the group of students choosing "Primary Care" as their specialty, these percentages were significantly higher ($p < 0.05$).

Almost half (56.3%) of the students answered that they had rich or some images of a general practitioner, i.e., they could envision a general practitioner at work. This proportion was nearly the same among students in all years of medical school. On the other hand, images of specialists in a hospital of medical school significantly increased as students went through medical school (Table 5).

While 1245 (36.9% of total) students (most of them in the 5th or 6th year) answered that they had experience in clinical training in hospitals, only 203 (6.0%) students had

experience of working in clinics, and 129 (3.8%) students had experience in home visits and home care.

Discussion

There are eighty medical schools (fifty of them are public) in Japan. The quotas for admission to each school vary from 60 to 120 students each year for a total of 7,710 admissions yearly. Since the Japanese medical school curriculum requires six years of study, there are almost 47,000 medical students in Japan. Thus, this study surveyed nearly one-tenth of all Japanese medical students.

Some longitudinal studies conducted in the past have revealed how a student's choice of specialty might change over the course of medical school education (Zimny & Senturia 1974; Carline & Greer 1991). Since this survey did not follow students over a prolonged period of time, we have no data to address that question. Nevertheless, many Japanese medical students seem to defer their career choice until the final year of medical school, i.e., only one-third of the students had decided upon their specialties before the 5th year. We think this is related to the periods of clinical training, i.e., in the 5th and 6th year of medical school. The decision-making period is similar to that reported for medical

students in the U.S. (Zimny & Senturia 1974; Brearly et al. 1982).

The importance of providing adequate information about primary care as a specialty to students has been pointed out in U.S. studies (Savickas et al. 1986; Primary Care Task Force 1992). In this study, Japanese students seemed to attach greater importance to their own experience and objective information than to advice they get from their parents and/or teachers. Most 5th and 6th year students felt that they had insufficient information upon which to base their specialty choice. Actually, it's hard for Japanese medical students to get information about training programs outside their own medical schools. In addition, there is no nationwide system for post-graduate training placement that would correspond to the "matching program" in the U.S.

There are many articles that point out the influence of students' experiences during clinical clerkships on their future choice of primary care as a specialty (Savickas et al. 1986; Mattsson et al. 1991; Kassebaum & Haynes 1992). However, Japanese medical students have little chance to be trained in clinics and home care because clinical training has been done mainly on wards of hospitals affiliated with medical schools. Only a few medical schools provide training periods in outpatient clinics and home care during their required curricula. This inadequate clinical experience may be a reason why students' images of the general practitioner didn't expand during their medical school experience.

Colwill suggests that medical students tend to view themselves as either potential specialists or generalists (Colwill 1992). Although their understanding of primary care physicians' activities are inadequate, many Japanese medical students wanted to have the capability to function as generalists. Thus, it is fair to say that Japanese medical students do not necessarily have a strong bias towards becoming specialists. This pattern is also seen regarding the types of post-graduate training programs favored. The majority of

Japanese medical students wished to be trained in programs with a broad rotation curriculum.

The proportion of students who chose "Primary Care" as their principal specialty was small. This is probably because few Japanese people recognize "Primary Care" as a legitimate specialty. We are confident, however, that there are medical students with the talent and aptitude to serve as primary care physicians in its true sense; in particular those who wish to become internists are likely candidates for a transition to primary care.

On the other hand, the majority of students were planning to belong to the departments of medical schools "Ikyoku" (Tsuda et al. 1994). This pattern seems to be contradictory to their reported interest in primary care because, in Japan, almost all post-graduate trainee who belong to "Ikyoku" are trained in hospitals affiliated with medical schools during their first or second postgraduate year. After that, they are transferred to various independent hospitals which have, for the most part, no systematic rotation programs involving multiple specialties. Some hospitals affiliated with medical schools have rotation programs, but contents of them are frequently poor, such as a few subspecialty of internal medicine and anesthesiology. In addition, whether rotation programs are provided or not, almost all clinical training is done on wards which are filled with patients suffering from rare diseases or malignancies. Thus, inspite of students' wish to have broad clinical competence by a broad rotation curriculum, most of rotation curricula are also insufficient for primary care training.

Outside of "Ikyoku," some post-graduate trainee may be trained systematically in other hospitals which are capable of primary care training. Unfortunately, there are very few hospitals in Japan which provide such training. In addition, almost all faculty posts at major hospitals are managed by "Ikyoku" of associated medical schools (Tsuda et al. 1994). Consequently, post-graduate trainee who don't belong to "Ikyoku" would be anxious about finding employment when they complete the post-graduate training programs. To open their own clinics after post-graduate training, most of them would have to take out loans on

the order of one half to several million dollars. This great expense is due to high price of land and elaborate facilities for diagnosis and treatment to equip with, e.g., ECG equipments, X-ray fluoroscope, endoscopy and echography (Kiikuni 1983). As patient have free access to outpatient department of hospitals, most of general practitioners tend to compete in equipments with hospitals. In this connection, generally, there is no public subsidy for private clinics. Thus, students wishing to become generalists face many obstacles in Japan.

There are several potential biases in interpreting the data in this study. The first problem is the ratio of public schools to private schools. As we surveyed at three public and four private schools, the ratio of public to private schools is different from the overall ratio in Japan (50 public and 30 private). Accordingly, our data may reflect a bias favoring private school students. Another potential problem with this study is the ratio of medical schools with primary care departments. Among the seven medical schools surveyed in this study, two (one public and one private) have their own departments of primary care. In addition to these two schools, there is only one other (private) medical school in Japan that has a primary care department. The students at these medical schools may have a unique advantage in career choice and understanding of primary care.

In order to examine these biases, we compared three public schools with four private schools, and two schools having primary care departments with another five schools that do not. In public schools, the proportion of students who had an interest in primary care was significantly higher (56.5%, $P < 0.05$) than that of the total (54.9%). Furthermore, the proportion of students who chose "Primary Care" as their specialty (5.7% of total) was significantly higher in the two schools which have primary care departments (7.3%, $P < 0.05$). These differences may have resulted from different selection criteria on admission, and curricular differences during the course of medical education. However, the magnitude of

these differences are small and overall study results do not seem to be greatly distorted by these potential biases.

Another problems of this study is the ambiguity in the definition of "generalist" in Japan. As mentioned above, "specialoids" provided community-based primary care, and outpatient departments of hospitals covers a part of primary care. On account of these circumstances, the meanings of "generalist" or "general physician" for Japanese people vary widely. Although these vagueness still remain, the proportion of students who aimed to have general clinical ability constitute a majority, and as many as half of medical students are interested in primary care.

In conclusion, although many Japanese medical students are willing to become generalists, they receive inadequate information about the programs and institutions for that purpose. Their knowledge of primary care as a possible career option is also inadequate. In order to increase the number of primary care physicians in Japan, post-graduate primary care training programs and rewarding positions for physicians who completed those programs must be increased. Japanese medical students need role models of primary care physicians as well as more information about post-graduate programs.

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Table 1 Students' determination of specialty choice

Year of medical school	Number of respondents					1)+2)/(1)+2)+3)+4) (%)
	1)decided already	2)decided probably	3)wavering	4)not considered yet		
1	25	151	169	130	176/ 475 (37.1)	
2	16	136	179	132	152/ 463 (32.8)	
3	20	142	239	106	162/ 507 (32.0)	
4	19	178	345	88	197/ 630 (31.3)	
5	33	167	342	55	200/ 597 (33.5)	
6	245	251	182	15	496/ 693 (71.6) **	
?	0	0	3	1	0/ 4	
Total	358	1025	1459	527	1383/3369* (41.1)	

* Eight out of 3377 students did not answer this question.

** This percentage is higher than that in other years. (P<0.005)

Table 2 Factors important to specialty choice

Factors	mean value±S.D.*	Number of respondents
1) Own interest and aptitude	1.76±0.58	3368
2) Desire to work under a particular mentor figure	1.16±0.94	3362
3) Perceived prospects for a specialty	1.04±0.99	3365
4) Atmosphere of the department	1.00±0.90	3363
5) Training curriculum	0.98±1.02	3356
6) Experiences in lectures and clerkships	0.94±1.00	3359
7) Perceived trends in health care	0.87±1.00	3348
8) Advice from friends and alumni	0.77±0.94	3365
9) Potential for high income	0.45±1.05	3363
10) Advice from teachers	0.25±1.09	3362
11) Anticipated position after residency training	0.11±1.18	3361
12) Perceived advantage for opening a private clinic	-0.07±1.33	3365
13) Advice from parents and relatives	-0.13±1.24	3348

* Answers of rating scales with five grades were translated into scores: attach great importance=2; attach some importance=1; not sure=0; attach little importance=-1; and attach no importance=-2.

Mean values and standard deviations (SD) were calculated. Mean values of each factors were ranked: 1)>2)>3)>4)=5)>6)>7)>8)>9)>10)>11)>12)>13) (P<0.05)

Table 3 Intended specialty: responses of students who wished to be clinicians

Specialty	Number of respondents	Percentage
Internal Medicine (with emphasis on a subspecialty, such as GI,etc.)	283	9.3
General Internal Medicine	652	21.5
Pediatrics	133	4.4
Surgery (with emphasis on a subspecialty)	338	11.1
General Surgery	351	11.6
OB-GYN	61	2.0
"Primary Care"	172	5.7
Ophthalmology	103	3.4
ENT	59	1.9
other	210	6.9
not determined yet	592	19.5
no answer	78	2.6
Total	3032	100.0

Table 4

Type of post-graduate training programme and kind of institution favored by students. Responses of students who wished to be clinicians

Kind of institution	Number of respondents					Total
	Type of post-graduate training program					
	with rotation (all departments)	with rotation (some major departments)	without rotation	others	no answer	
department of medical school (Ikyoku)	695	1266	308	231	4	2504
other hospital	127	143	27	27	0	324
other	14	12	1	6	1	34
no answer	51	72	7	40	0	170
Total	887	1493	343	304	5	3032

Table 5 Students' images of physicians in different fields health care settings

Year	N*	Number(=a) and percentage of respondents kind of institution			
		Private clinic a** a/N(%)***	Medical school hospital a a/N(%)	Other hospital a a/N(%)	Laboratory in medical school a a/N(%)
1	477	261 (54.7)	153 (32.1)	146 (30.6)	74 (15.5)
2	466	260 (55.8)	146 (31.3)	121 (26.0)	82 (17.6)
3	508	285 (56.1)	208 (40.9)	159 (31.3)	117 (23.0)
4	630	341 (54.1)	299 (47.5)	189 (30.0)	176 (27.9)
5	597	334 (55.9)	403 (67.5)	171 (28.6)	197 (33.0)
6	695	397 (57.1)	501 (72.1)	221 (31.8)	249 (35.8)
2	4	1	0	0	0
Total	3377	1879 (55.6)	1710 (50.8)	1007 (29.8)	895 (26.5)

* N: Number of students in each year of medical school.

** a: Number of students who could imagine the role played by physicians in each kind of institution.

*** a/N(%): Percentage of students described in **.

**** No significant difference between 1st and 6th years in percentage.

***** Significant difference between 1st and 6th years in percentage (P<0.005).