

## Education for Community-based Family Medicine: A Social Need in the Real World

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### ABSTRACT

One of the most critical social problems in Japan is the remarkable increase in the aging population. Elderly patients with a variety of complications and issues other than biomedical problems such as dementia and life support with nursing care have been also increasing. Ever since the Japanese economy started to decline after the economic bubble burst of 1991 and the Lehman Brothers bankruptcy in 2008, how we can resolve health problems of the elderly at a lower cost has become one of our most challenging social issues. On the other hand, the appropriate supply of medical and welfare resources is also a fundamental problem. The disparity of physician distribution leads to a marked lack of medical services especially in remote and rural areas of Japan. The government has been attempting to recruit physicians into rural areas through a regional quota system. Based on this background, the medical field pays a great amount of attention to community-based family medicine (CBFM). CBFM requires basic knowledge of community health and family medicine. The main people involved in CBFM are expected to be a new type of general practitioner that cares for residents in targeted communities. To improve the performance of CBFM doctors, we need to establish a better CBFM education system and assess it appropriately when needed. Here, we review the background of CBFM development and propose an effective education system.

**Key words** family medicine; medical education; primary care

The Japanese term “*chiiki iryou*” has recently received much attention in medical care circles in Japan. It is directly translated into English as “regional medicine” whose nuance means medical care in the community of one targeted region. We therefore define this concept as

community-based family medicine (CBFM), because it is targeted to a certain specific area and it requires the medical discipline and skills of family medicine. Study of CBFM has recently drawn a great deal of attention in medical education. In traditional medical education, students learn basic medicine first, followed by social medicine and clinical medicine. As most of the students are expecting to practice clinical medicine in the future, the school has put more focus on the clinical medicine program. Meanwhile, a remarkable increase in the aging population has been an urgent problem in Japan these days. Patients have a variety of complications when they visit their doctors’ office, and issues other than biomedical problems, such as dementia and life support with nursing care have been also increasing. Moreover, ever since the Japanese economy started to decline after the economic bubble burst of 1991 and the Lehman Brothers bankruptcy in 2008, the problem of how to resolve health problems of the elderly at the lowest possible cost has become an issue. On the other hand, medical fields in Japan have been further specialized into a variety of subfields along with the development of medical technology. Currently, only specialists (medical professionals who focus on particular body systems and so on) are usually prepared to practice medicine. For example, university hospitals, which are the main bodies of medical education, operate like this. However, this is not very efficient and is rather inadequate as a system, especially when we must deal with elderly patients who have lots of complicated issues. In the U.S. and Europe, family doctors and specialists are clearly separated; residents visit family doctors first when they have problems. We do not have this system in Japan. Frankly speaking, the quality of primary care in Japan is not very high. Therefore, the patients’ health and satisfaction levels are not as high as expected for the amount it costs to treat them. But CBFM education has been re-appropriated as a part of the medical education program to introduce medical professionals who can provide high-quality primary care. CBFM is not a popular term in the medical field, commonly known as “a community-based approach with the specific discipline of family medicine.” In this review, we discuss the current medical care system in Japan as a social issue, which measures should be taken, the role of CBFM education, and future issues.

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Abbreviations: CBFM, community-based family medicine; NHI, national health insurance; NHSC, national health service corps; OSCE, objective structured clinical examination; PSAP, the physician shortage area program; RMEP, the rural medical education program; RPAP, the rural physician associate program

## **SOCIAL BACKGROUND AND ISSUES DRAWING ATTENTION TO CBFM**

The population composition in Japan has been changing greatly in recent years; as of 2007, more than 21% of the entire population was already over 65, which suggests a quickly-aging society. The Institute of Gerontology of Tokyo University, which has been investigating issues associated with aging society, stated that the problems of an aging society are crucial as it includes not only medical care but also other issues such as nursing-care, quality of life, purpose in life, financial support, and town/community development. Even for the medical care issues, there are plenty of problems associated with an increase in elderly population such as an increased number of patients with cancer or cardiovascular diseases, vulnerability or dementia, multi-morbidity problems which involve a variety of diseases, an increased number of drug types (polypharmacy), as well as terminal care. Even long before the change in population composition, the types of diseases also changed from infection after the WWII to cancer or cardiovascular diseases at present. Infection is treated radically by administering antibiotics against bacteria, while for cancer or cardiovascular diseases it is important to detect the early stages of the disease before it is aggravated and to provide health education such as life-style advice to patients as the onset mechanism often involves multiple factors and therefore is affected by life-style or health literacy of the patients themselves. In other words, the increase in the elderly population and the shift in disease types have induced a social demand for medical reform.

From a financial aspect, medical expense has increased proportionally to the increase in elderly population. This is normal because it increases as incidence of diseases increases; each elderly patient may develop multiple diseases such as cancer, dementia, cardiac failure, diabetes mellitus, and hypertension, resulting in large medical expenses for procedures such as laboratory tests and drug administration, specifically performed for each disease. If Japan's economic situation is good, we can probably choose the best approach to treat each disease using the most advanced medical technology, but this is not the case. Due to the long-term economic recession after the economic bubble in 1980s, major domestic companies left Japan for cheaper labor abroad, such as other Asian countries. Consequently, employment opportunities were reduced, and the number of part-time workers increased as it was less costly than employing full-time workers. Meanwhile, other portions of the general population did not increase along with the increase in GDP. The economic recession in Japan became even more obvious after the Lehman Brothers

bankruptcy in 2008, and it continues. In such an economic situation, traditional hospital-based medical care, which is very expensive, needs to be reconsidered from a financial aspect.

From an elderly patient's perspective, it would be more convenient for them to have a doctor who can manage them in order of priority for all situations including life support and nursing care after hospital discharge. The national health insurance system in Japan has offered the general population easy access to medical care at a low-cost since 1960. Meanwhile, doctors are free to open private clinics, and it is they who manage such chronic patients. However, most private clinicians come from fields in which they specialized at universities, so they need to learn real primary care and disease management on their own at their new clinics. This private clinic system is managed by a self-supporting accounting system. Therefore, they are more likely to open their clinics in densely populated areas rather than rural underpopulated areas for the sake of management efficiency. The same tendency is observed for private hospitals. Municipal hospitals and clinics operating under the national health system oversee medical care in the rural areas, but they are always short of doctors and nurses. This inequality of access to healthcare is prominent especially in Tohoku and Hokkaido where the number of doctors per population is small. However, even in western Japan where lots of doctors are practicing, there is still inequality within prefectures according to the difference in population density. This is a crucial problem in prefectures in the Chugoku region such as Tottori, Okayama, Hiroshima and Shimane. Matsumoto et al. reported that the regional difference in distribution of physicians in Japan is nearly twice as much as in the U.K, where a family physician system has been adopted.<sup>1</sup>

So, the current medical problem in Japan is attributed to the mismatch between the social demand and the medical supply. This includes issues associated with an unbalanced medical service system which depends on hospital-based practice and associated medical expenses, which is very high, inequality in distribution of physicians among regions, and a medical education system which depends too much on specialists.

## **STRATEGIES TO BE TAKEN**

Now, we would like to talk about what sort of measures have been taken for the above-mentioned issues. For the unbalanced hospital-based medical service system, the central government started to promote rearrangement of the number of hospital beds in the CBFM reform plan. Their goal is to reduce the number of beds especially in acute care unit from 360,000 to 180,000, and to transfer

most of the remaining beds to recovery care unit, outpatient department, and home-based medical care. The basic idea is “all-inclusive regional care,” with which patients can achieve their life, medical and nursing-care needs within 30-minutes distance. For the medical aspect, the key factors include reduction of the number of beds in the acute care unit, which is especially costly, and improvement of home-based medical care. Currently, although there is no compulsion from the central government, hospitals are encouraged to rearrange the number of beds independently by designing a regional medical care plan for each secondary care district and by adopting a reporting system for each bed. The key factor for this rearrangement of the number of hospital beds is policy inducement from a financial aspect; conditions of hospital beds (e.g. severity of symptoms, duration of hospitalization) in acute care units are controlled more strictly by payment of medical expenses, namely, by revising NHI (national health insurance) points, while giving favor to the points for home-based medical care. Then, there is a need to cultivate human resources which can function according to this new system design. The flow of medical training roughly includes the following: 6 years of medical education, obtaining medical license by passing the board exam, 2 years of junior residency program, 3–4 years of senior residency program, and becoming a specialist. The specialist training, however, most likely follows a preexisting program offered by the corresponding academic society. Therefore, some argued that there had been no control over excessive issue or quality maintenance of specialists. In response to this criticism, the government decided to start a new board certification system in which each program is qualified by the Japanese medical specialty board, a third-party organization independent of any academic societies, from the year of 2018. During this process, a new category, general practitioner, was also established as one of the 19 basic specialty fields. General practitioners are expected to oversee local medicine through all-inclusive regional care, and are differentiated from family doctors such as private practitioners. Medical professional training for this new specialty field will be started soon.

### **INEQUALITY IN DISTRIBUTION OF PHYSICIANS**

For inequality in distribution of physicians, WHO guidelines in 2010 suggested that predictive factors for the settlement of physicians in underpopulated areas, as an index, included the background of being born or having residency experiences in those areas, as well as being a male, generalist, or having clinical training experiences in CBFM especially in underpopulated area during the final medical school years.<sup>2,3</sup> Scholarship programs

which do not mandate students to work in underpopulated areas after graduation, or projects to establish a medical school itself in those areas are available in some overseas countries and have been successful to some extent.<sup>4</sup> In some countries, all doctors must practice in rural areas for a certain period of time and this achieves considerable good results.<sup>5</sup> However, only two factors, doctors of rural origin and general practitioners, showed enough evidence for doctor’s imbalance in placement.<sup>3</sup> Here, we will discuss some important indicators as predicting factors for working at rural places.<sup>6</sup>

### **Doctors originally from remote areas**

Doctors originally from remote areas tend to return to their places of origin or similar places after graduating from medical school.<sup>2,3,7,8</sup> Perhaps, it seems reasonable to feel that living remote areas are comfortable because of its familiarity and nostalgia.<sup>9</sup> This is called homecoming salmon hypothesis, named after the phenomenon when salmon return to the river where they were born.<sup>10</sup> Shimane University is the only university that has been allowed to accept students preferentially who are from remote areas as regional quotas in Japan. Since the academic ability at the time of admission of students from remote areas is low on average, many worry about the passing rate on the national exam at the time of graduation. However, according to the reports of Jichi University and programs of the United States, it is found that the academic results at the time of graduation or those in clinical practice are equal to or rather higher than others.<sup>8,11</sup>

### **General physician or family physician**

In the United States, it is reported that family physicians have a 50% higher rate of working in remote areas than non-family physicians.<sup>12</sup> There are many other reports that physicians who choose departments with high comprehensiveness have a tendency to choose work in remote areas in general.<sup>3,13</sup> In the case of Japan, it is known that doctors who belong to departments such as internal medicine, surgery and pediatrics have a higher percentage of work in remote locations than others.<sup>14,15</sup> Comparing the UK, where general practitioners occupy 100% of the clinics, to Japan with many specialists, there is about a two-fold gap in the geographical ubiquity of doctors.<sup>1</sup> That is, in Japan, the uneven distribution of doctors to urban areas is large. In this regard, the momentum to increase general physicians is growing in Japan as well.<sup>16,17,18</sup>

### **Training program for doctors working in remote areas**

There are many reports on the effectiveness of the training program for the doctors in remote areas.<sup>2, 3, 10, 11, 15, 19, 20</sup> Some programs such as The Physician Shortage Area Program (PSAP) of Jefferson Medical School in the United States, the Rural Physician Associate Program (RPAP) of the University of Minnesota, the Rural Medical Education Program (RMEP) of the University of Illinois proved effectiveness by quantitative outcome assessments.<sup>11, 19, 20</sup> In Japan, Jichi Medical University established in 1972, which is operated by the investments of the prefectures where students are originally from, has a program in which students are required to work in those prefectures for 9 years after graduation (6 years of those are duty on remote sites). The rate of working in remote areas within the 9-year obligation period is 16 times that of general physicians, and the rate after duty is 4 times.<sup>21</sup> In addition to that, a regional scholarship system imitating the program of Jichi Medical University has been attempted by medical schools in the whole country, and it reached 17% of the entrance students of medical departments in 2004.<sup>22</sup>

### **Medical experience in remote grounds after graduation**

Early medical care experience after graduation is a significant predictor of future service in rural areas.<sup>14, 23, 24</sup> According to Inoue's report, the doctor who experienced service in the non-urban area (rural area) by the seventh year after graduation is three times more likely to work in non-urban divisions 20 years later than the doctor who only experienced urban areas. Even in the United States, physicians who received remote medical training have a higher probability of working in remote areas than doctors who did not.<sup>13, 25, 26</sup> They are considered candidates for career selection in the future to work in remote areas by experiencing such places when they start their career as a doctor.

### **Lending of scholarship on condition of employment in remote areas**

Overseas, there is a program to grant scholarships to medical students or resident doctors subject to a fixed number of services in remote areas, such as The United States federal government's National Health Service Corps (NHSC), Underserved Area Program of Canada's Ontario Government, and Australian Government medical rural bonded scholarship.<sup>27, 28, 29, 30, 31</sup> There are pros and cons for such programs. According to the medical scholarship program conducted by the state government of the United States, it is reported that its compliance

rate is 67%.<sup>32</sup> In the efforts in Japan, the above-mentioned Jichi Medical University program boasts a high obligation compliance rate, but it is still long before achieving the goal of the regional quota system started by each prefecture since 2004.<sup>22</sup>

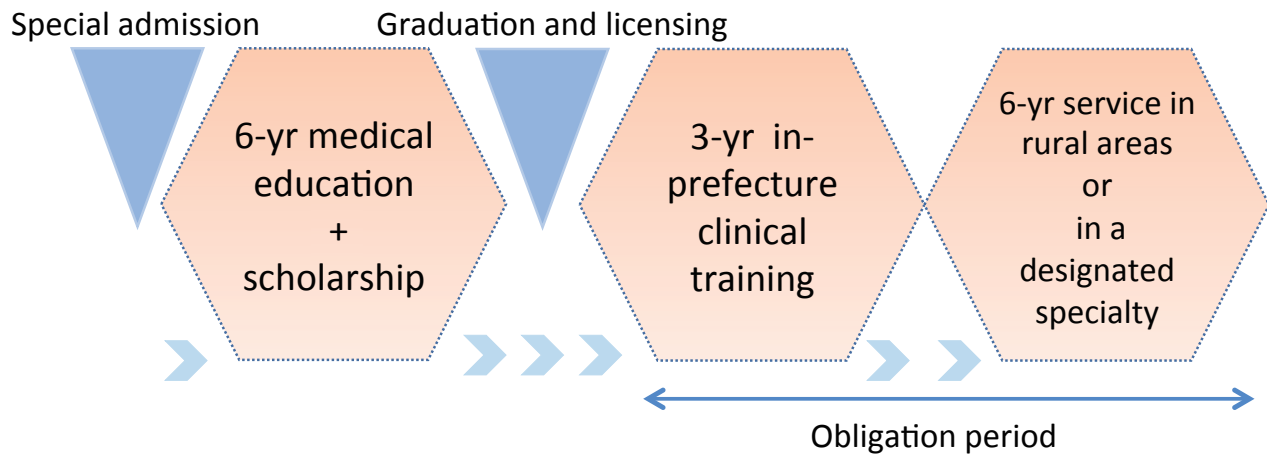
### **Establishment of medical campus in remote area**

In Australia, the efforts to install a part of campus of medical schools in remote areas have been promoted by the government's financial support. Clinical training at the remote medical facility group centering on the campus of the remote site is conducted for the desired students. Experience with this Rural Clinical School has raised the possibility of medical care career in the future in rural places, and it has been reported that students who chose this curriculum were not inferior to students who chose the curriculum conducted in urban areas.<sup>4, 33</sup>

### **Mandating to work in remote areas**

A system is operating in 70 countries that forcibly places physicians in medical depopulation areas.<sup>5</sup> There are some cases, for instance, working in remote areas in exchange for incentives such as tuition and salary (Japan, Australia, Thailand, etc.), being obliged to work in remote areas as conditions to be employed as civil servants (Myanmar, Cuba) and forced deployment without incentives (Iraq, Malaysia, Mexico, etc.). Among them, in Thailand, it is shown that disparities of physicians/population ratios of urban areas and rural areas became small, and the outflow of doctors abroad has decreased.<sup>34, 35</sup>

In Japan, we have special systems such as Jichi Medical University and the contract-based "home prefecture recruiting scholarship." Jichi Medical University was established in 1972, and the home prefecture recruiting scholarship (regional quota scholarship) was started in 2004. In 2013, 17% of students newly accepted to medical schools all over in Japan were enrolled in this scholarship. Jichi Medical University is especially funded by local governments of the entire country, and students are mandated to work in underpopulated areas of their home prefectures for 9 years after graduation. Surprisingly, the compliance rate of Jichi Medical University students for this obligation is 97%, which is extremely high compared to the similar type of medical school in the world.<sup>8, 36</sup> The home prefecture recruiting scholarship, on the other hand, is funded by each prefecture, mandating students to work in underpopulated areas of their home prefectures for a certain period after graduating from the university, varies greatly according to each prefecture (Fig. 1).



**Fig. 1.** One representative scheme. Regional quota system of medical school. (Tottori University Faculty of Medicine and Tottori Prefecture.) yr, year.

Moreover, unlike Jichi Medical University, the students are likely to lose motivation in CBFM because they study in the same curriculum as other students. Matsumoto et al. reported that buyout of the home prefecture recruiting scholarship as of 2013 was about 5%.<sup>15</sup> According to the data obtained by Nagasaki university, which was the first one adopting this scheme, the compliance rate was about 43%. Further investigations will reveal how much this scheme has contributed to correct the regional inequality in distribution of physicians. Around the same time, CBFM-related department (mostly funded by prefectures) were set up in medical schools in Japan. The goals of these departments were to promote settlement of these students enrolled in this scheme in their home prefectures, to create new contents of CBFM education, and to support underpopulated areas in the prefectures where there is few access to medical care. Although situations are different among prefectures, they have been searching their own goals in each university. Meanwhile, in the field of medical education, CBFM training has become mandatory in the core curriculum; in addition, general practice has been added to the new core curriculum as one of the major fields along with medicine, surgery, obstetrics and gynecology, psychiatry, pediatrics and emergency medicine. This reflects the current social situation of Japan as discussed earlier as well as the fact that general practice/family medicine has been also recognized internationally as a major field in medical education. They have made a great progress by including CBFM and general practice in the mandated core curriculum. However, we do not have many leaders who can teach this field in Japan, where the concepts of general practice and family medicine has recently been adopted. Moreover, it is assumed that

cooperation of other specialists will be required in the training programs of general practice as it substantially includes preexisting fields such as medicine, surgery, pediatrics, psychiatry and otolaryngology. It is however difficult for specialists to establish a teaching system to provide generous supports to the general practitioners as they fear general practitioners may interfere with vested interest of specialists. We may need to further investigate how to cultivate teachers and the teaching system for general practitioners in the future.

As a key point of discussion, we personally believe that the CBFM in the mandatory program of medical education and the contract-based scholarship to recruit future physicians to medical care in remote rural areas should be considered separately. Either way, there is no doubt that CBFM education is mandatory for medical students to learn in Japan with current social situations.

### **CBFM EDUCATION**

There is detailed description about CBFM in the core curriculum of the final year of medical education. However, the teaching method has not yet been established. The general objectives, individual objectives and evaluation indexes described in the core curriculum are as follows:

#### **General goal**

*Understanding the current task of healthcare practices and current problems, and acquire the ability to contribute to regional medical care.*

#### **Attainment goal**

*1) Outline the medical problems in communities (including remote areas and island areas), regional medical*

*care including its function and regime.*

2) *Explain the current situation of the unbalanced distribution of physicians in view of region and department.*

3) *Explain the necessity of collaboration between healthcare (maternal and child health, elderly health, mental health, school health), medical care, welfare and nursing care, and collaboration between multiple specialties (including administrative office)*

4) *Understand the necessity of primary care as the foundation of regional medical care, and acquire the skill necessary for real practice*

5) *Explain the system of emergency medical care and home care in the area*

6) *At the time of disaster, explain the necessity of establishing the medical system and explain the triage at the site*

7) *Actively participate and contribute to regional medical care*<sup>37</sup>

However, it is not possible to judge what kind of education would be appropriate if there is no foundation established for the basic education of CBFM, application/practice of CBFM, or the entire educational system of medical schools. A variety of CBFM trainings have been attempted in medical schools all over the country, by contacting local communities and regional medical institutions every year, visiting medical institutions in underpopulated areas for more than two weeks, and experiencing medical institutions of multiple levels. Okayama reported in their survey on training evaluations that improvement was observed on students' evaluations on CBFM and on physicians' satisfaction with their jobs, and we agree with this result.<sup>38</sup> However, it was not appropriate for an outcome index as it had been obtained from a questionnaire survey conducted on students immediately after their trainings. According to the previous studies, having experience in medical care in remote rural area was merely a weak predictive factor for future settlement in such areas.<sup>39, 40</sup> What kind of educational structure will influence their future practice in the remote rural area, will be a very important theme when we consider standardization of CBFM education curriculum. In addition, general practice is also an important field as a part of CBFM education, especially clinical skills. To be qualified as a general practitioner after 3 years of practicing clinical medicine, they will need to complete 18 months of General Practice Training I and at least 6 months of General Practice Training II. These are equivalent to the forefront primary care training held at clinic and to the hospitalist training at general hospital, respectively. This system suggests that

they need to learn the basics of general practice for both primary care setting and hospital-based setting, before they graduate from medical schools. If they do not have general practice department in a university hospital, it would be desirable for them to experience clinical trainings at a satellite training hospital.

After graduating from a medical school, the junior residency requires one month training of CBFM, and the senior residency requires general practice. The fellowship training in medicine also requires CBFM. Practicing medical care in remote rural areas immediately after graduation is a strong predictive factor for them practicing medicine in those areas in their future career.<sup>14, 23, 24</sup> Physicians who had gone through a tough time in rural areas right after the medical schools tend to practice again in those areas in the future. Otherwise, physicians born in the remote rural areas are more likely to be assimilated into medical practice in those areas (homecoming salmon hypothesis).<sup>10</sup> Junior residents in Japan, however, have only 1 month to practice CBFM. Moreover, it is not necessarily a clinic in a remote rural area where they practice, but instead it could be a public health center or a clinic in a town. It is therefore more questionable if this hypothesis is true for them.

#### **CBFM EDUCATION OFFERED AT TOTTORI UNIVERSITY FACULTY OF MEDICINE**

Tottori University Faculty of Medicine set up the CBFM department in both permanent and temporary settings in 2010. In 2014, Tottori University General Educatory Training Center for CBFM was established as a satellite education center in Hino Hospital near Yonago city where the medical school is situated, and then CBFM Support Center inside the University Hospital. They have been trying to establish a series of systematic CBFM education system where students can learn before graduating from the medical school (Fig. 2).

Core subjects will be family medicine, social medicine, and general practice. The current structure of the regional medical education consists of the first two years of early exposure and human communication, the middle two years of joining a research team and experiencing CBFM, and the last two years of clinical trainings I and II. The CBFM experience during the fourth year when they start having clinical knowledge is very meaningful. In this program, 4 out of 7 credits are allocated to the field trainings with cooperation of 50 institutions located all over the prefecture including city/local clinics/general hospitals. The learning objective is to stick with the theme of "patient-centered medical care," the core concept of family medicine. The instructors in this program give feedback each time to what the students

Curriculum	The first term (the first half)	The first term (the last half)	The second term (the first half)	The second term (the last half)	Student condition		Facility
					Except regional quotas	Regional quotas	
Year 1	Early experience	Early experience			Compulsory		On / outside the campus
	Human communication I	Human communication I			Compulsory		Outside the campus
Year 2	Human communication II				Compulsory		Outside the campus
		Seminar I (community-based family medicine)			Two combined seminars are compulsory	Compulsory	Part-time teacher
Year 3		Practice (community-based family medicine)				Compulsory (only special quotas)	Family medicine facilities
Year 4	Tutorial (social medicine)	Tutorial (social medicine)	Tutorial (social medicine)		Compulsory		Outside the campus
			Training (community-based family medicine)		Compulsory		Outside the campus
			Advanced Seminar (community-based family medicine)		Compulsory		Part-time teacher
Year 5	Clinical clerkship I	Clinical clerkship I	Clinical clerkship I	Clinical clerkship I	Proposed in a new curriculum		Education Training Center for Community- Based Family Medicine
Year 6	Clinical clerkship II	Clinical clerkship II			Elective	Compulsory	Outside the campus

**Fig. 2.** Lectures and training courses for community-based family medicine. (The curriculum 2016 of Tottori University Faculty of Medicine.) Red, practice or training. Blue, lecture.

learned through E-portfolio. Around the same time, in Advanced Seminar(Year4), they offer special lectures by clinicians, family medicine practitioners and researchers involved in the CBFM. The students described positive impressions about the programs on the portfolio, such as “now I know how they practice in a clinic” and “I could understand several types of works associated with primary care.” On the other hand, some left complaints as follows: “one day is not enough to understand the patients’ background,” “I would like to continue learning at one institution,” etc. These may be resolved in the subsequent clinical trainings I and II. CBFM will be mandated after 2017 in the clinical training I; it will be a nice opportunity to reinforce their general practice learning at outpatient clinics and to provide decent contents which yield high learning effects. It is not easy to decide how we set up outcome indexes for CBFM education. These may include a post-graduate career survey on students from the above-mentioned scheme, post-graduate intra-prefectural settlement rate, and the number of physicians who selected general practitioner as their career. The buyout rate among physicians who

experienced this scheme has already been around 5%, while the residence match rate of Tottori University Hospital has been increasing. This increase may be generally associated with the increase in the number of students in the regional quota. If we use the physicians’ intra-prefectural settlement ratio as outcome, the regional scheme system would present a success to some extent.

However, what we would like put focus on here is not the regional settlement rate but whether it is effective to offer CBFM education to the entire medical students. In Japanese medical education, students basically have a tendency of cramming knowledge. It is very strange that even after they finished clinical trainings and passed the national board exam, they cannot examine patients with common cold by themselves. While in the U.S. and Europe, they are expected to have a certain level of clinical practice skills immediately after they graduated from the medical schools. Thus, it has been recognized internationally that, in Japanese medical education, the clinical training period is too short and there are not enough trainings offered on interviews and diagnostic skills consequently. In Tottori University, the clinical

training period has been extended from 52 to 72 weeks, and the training itself has turned into more practical and participatory. The advanced Objective Structured Clinical Examination (OSCE) performed at completion of medical education has also been in the process of conversion into academic credits. For CBFM education, it also needs some devices which encourage students not only to learn how to treat patients but also to participate in measures against regional health issues (e.g. health education, vaccination) so that they will achieve more practical learning. We believe that CBFM education is a perfect setting for students to capture the entire picture of patients, namely, to understand patients' context, which is more addressed in family medicine, and reinforcing patient-doctor relationship. It will also be an extremely valuable that students, who are expecting to become specialists, experience the philosophy and skills of family medicine/general practice relating to CBFM.

### FUTURE VISION OF CBFM EDUCATION

Thus, CBFM education during medical school is an essential subject to cultivate medical professionals who can cope with social issues in Japan. For inequality in distribution of physicians, it appears essential to perform follow-up investigations in a cohort study on regional quota system. Currently, universities in Japan have been searching methods and evaluation indexes of CBFM education. Japan Primary Care Association and medical education committee will eventually promote standardization of CBFM education program in Japan. We strongly expect CBFM can be established as one of the systematic academic fields. If it contains principles as an academic subject, it must be useful for resolving actual social issues as well as health issues. Especially from social medicine aspects, it is noteworthy if the subject does contribute to the problem solving. We believe that there is an urgent need to identify CBFM and to verbalize its philosophical background as well as problem-solving methods and education methods; in other words, we need to create a basic theory of CBFM.

Sir Karl Raimund Popper, the philosopher of science, has written,

*But subject matter, or kinds of things, do not, I hold, constitute a basis for distinguishing disciplines. Disciplines are distinguished partly for historical reasons and reasons of administrative convenience ... and partly because the theories we construct to solve our problems have a tendency to grow into unified system. But all this classification and distinction is a comparatively superficial affair. We are not students of some subject matter but students of problems. And problems may cut*

*right across the borders of any subject matter or discipline (p.112).<sup>41</sup>*

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