

Primary care doctor fostering and clinical research training in Sweden: Implications for Japan

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Abstract

In 2018, a new training program for primary care physicians was launched in Japan. As physicians responsible for the training of new primary care physicians, we have faced many problems, particularly in rural areas. The influence of this new program on primary care physicians in rural areas of Japan has not been sufficiently investigated. The aim of this research was to improve training for primary care physicians in Japan by examining training programs in Sweden, where the population challenges are similar to those seen in Japan. In this paper, we will express our opinions and describe the differences in the primary care fostering systems and clinical research training for generalist in Japan and Sweden.

KEYWORDS

clinical research training, medical education, primary health care center, rural medicine, Sweden

1 | INTRODUCTION

In 2018, a new training program for primary care physicians was launched in Japan.¹ As physicians responsible for the training of new

primary care physicians, we have faced many problems, particularly in rural areas. The influence of this new program on primary care physicians in rural areas of Japan has not been sufficiently investigated. We focused on the Swedish physician fostering system, which

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has faced very similar problems to those seen in Japan (ie, an aging society and many rural settings). The primary health care center, to be described later, has an important role as a field placement for clinicians, as a training center for undergraduate and postgraduate clinical medical students, and as a flagship center for clinical research.²⁻⁵ To improve the training system for primary care physicians in remote areas in Japan, we visited several primary health care (PHC) centers and Lund University in Sweden between April 19 and 26 in 2018.² In this paper, we will express our opinions and describe the differences in the primary care fostering systems and clinical research training for generalists in Japan and Sweden.

2 | BACKGROUND AND MEDICAL SCHOOLS

Sweden is often cited as a country with progressive social policies including an advanced social security system and tax system; its welfare programs of the elderly is often considered a model for other countries.⁶ We compared basic characteristics between Sweden and Japan and identified several similarities and differences (Table 1). First, the total area of Sweden is somewhat larger than that of Japan. However, the total population of Sweden, approximately 9.6 million, is roughly one twelfth of the population of Japan (127 million). The population density of Sweden is approximately one nineteenth that of Japan (22 person/km² and 335 people/km², respectively).⁶ Second, the per capita gross domestic product (GDP) of Sweden is higher than that of Japan, and the poverty rate of Japan is higher than Sweden's.⁷ Third, the total health expenditure per capita in Japan is less than in Sweden (\$4519 and \$7919, respectively).⁸ Fourth, the average age of the population and the rate of older adults in Japan are slightly higher than in Sweden. In contrast, the two countries have a very similar average life expectancy, urban

TABLE 1 Comparison of demographic characteristics between Sweden and Japan

	Japan	Sweden
Population (millions)	127	9.6
Population density (person/km ²)	335	22
Average age (y)	46	41
Percentage of population over age 65	25	19
Urban population rate (%)	94	86
Immigrant population rate (%)	1.7	18
Life expectancy (y)	83.8	82.4
GDP per capita (USD)	38 972	51 845
Poverty rate (%)	16	9
Total health expenditure per capita in 2016 (USD)	4519	7919
Universal access and comprehensive coverage	Yes	Yes

population rate, and medical insurance systems, which include universal access to health care and comprehensive coverage.^{6,7,9} In the Swedish health care system, the responsibility for health care is divided among the central government, the counties, and the municipalities. Similar to Japan, Sweden provides all medical insurance coverage through national insurance and guarantees free access to health care without limitations; patients in Sweden can go to PHC centers and hospitals as needed.⁶ If the patient's fee exceeds 1500 SKr/y (about 20 000 yen), the government will cover the rest of the cost.⁶ Since Sweden has an aging society with a declining birthrate, similar to Japan, this creates obstacles to health care provision; these obstacles are compounded by a large geographical spread of the population.^{5-7,9} A similar problem is found in Japan, specifically the problem of geographical spread and problems providing medical care to those in rural areas.^{6,9,10} There is no system of obligatory work in rural areas for domestic medical students, perhaps due to the cultural norm of respecting the individual's choice in Sweden. Further, there is no system similar to the entrance admission examinations of Japan. Meanwhile, because medical students from foreign countries need to pay high tuition fees in Sweden, as compared to free tuition for domestic students, there are some cases of patching to local medical care for their scholarship.

Seven Swedish universities have medical departments that are nationally owned, and there are no private medical schools (Table 2).

TABLE 2 Comparison of the primary care physician fostering system between Sweden and Japan

	Japan	Sweden
Number of medical schools	82	7
Fixed number of medical students in each year	9000	2000
Year of medical school curriculum	6	5.5
Annual tuition fee (USD)		
Public	4600	Free
Private	44 642	
Duration of mandatory postgraduate training	2	1.5
Special training of primary care physician (y)	3	5
Registration with GP required	None	Yes
Mandatory clinical scientific methodology training	None	Yes
Primary care physician work setting	Mostly private	Majority is public PHC centers.
Primary care physicians who work at PHC centers	Very rare	Almost

There are roughly 2000 medical students in the country, and the acceptance process for medical school entrance differs between the two countries. In particular, in Sweden, one-third of those admitted to medical school are evaluated only by their high school record. In Japan, students are evaluated based on an entrance examination, a national unified test, and a comprehensive evaluation.¹¹ Medical students in Sweden can obtain a medical doctor's license upon receiving a graduate certification after attending courses for five and a half years. In contrast, the training process in Japan takes 6 years.¹¹ All classes are designed so that basic medical science and clinical medicine are closely integrated. For example, first-year students study medical interview techniques and clinical ethics, second-year students study auscultation methods based on physiology and anatomy, third-year students study clinical reasoning based on pathology, and so on. In this way, Swedish medical students are learning practical clinical medicine based on a deep knowledge of basic medical science. Even at the highest grade, students must continue to study basic medical science and to focus on pathophysiology throughout their clinical stages. After graduating from medical school and acquiring a doctor's license, the trainee must attend 18 months in a postgraduate clinical training setting which is called AT (Allmäntjänstgöring) in Sweden. In Sweden, approximately 20% of those who completed the AT training will go on to complete the primary care physician's specialty course (ST: Specialistutbildning), which is considered to be the most important in the Swedish health care field. The number of ST trainees is increasing each year.¹²

3 | HOW TO FOSTER PRIMARY CARE PHYSICIANS IN SWEDEN

Based on the amount of content and the intensity of training needed, ST programs for primary care physicians last at least 5 years in Sweden (minimum 3 years in Japan).^{1,12,13} Of these years, at least 3 years is spent at PHC centers, one and a half years at the specialty department inside the hospital, and the rest of the time in elective training.¹² Using an interactive online evaluation system, every supervisor can evaluate the trainee's progression through the training once a month based on multiple objectives; trainees are also required to complete self-assessments with a portfolio and an online system. Regarding hospital medicine (eg, internal medicine, obstetrics and gynecology, orthopedics, dermatology, psychiatry, pediatrics, otolaryngology, ophthalmology), training courses of primary care physician in Sweden are more focused on the skills for outpatient settings for primary care rather than learning the advanced techniques that are needed as a specialist.¹²

ST has four compulsory courses: (a) medical competence (ie, knowledge and skill of medicine), (b) leadership competence, (c) communicative competence, and (d) competence with medical science and work quality (ie, scientific thinking ability of clinical practice and clinical research). The trainee cannot complete the course unless they reach competence in these four areas.^{12,13} Compared to Japan, we believe one of the biggest differences is that in Sweden

there is a compulsory duration of clinical research training; they have to devote at least 10 weeks to this area.^{12,13} Over these 10 weeks, although it is not enough time to complete a publication, trainees try to create their own clinical question, create a study design, and collect the data. Through this process, they learn how to conduct statistical analysis, as well as to evaluate the appropriateness of their usual medical practices objectively with evidence-based medicine.

A mentor, who is the leader of the PHC, plays an important role in guiding young physicians in this clinical research training and is well situated to do so as they play an active role in the local community. In addition, some of the PHC leaders have experience in clinical research in PHC settings and hold Doctor of Philosophy (PhD) degrees. In addition, the trainees who become interested in research during the clinical research training period can go on to engage in long-term clinical research training. Approximately 10% of primary care physicians proceed to PhD courses while working as clinicians. Notably, thanks to the salary of the primary care physician, which was set slightly higher than the physicians who work in hospitals, the number of special training (ST) doctors in primary care has increased (three times higher) in 6 years.

In the past 3 years, the number of doctors holding additional postgraduate degrees (PhDs) has also increased by three times in the past 6 years.

4 | PRIMARY HEALTH CARE CENTERS

As mentioned earlier, about 20% of doctors who complete the AT training will go on to ST training, and 80% will go on to other specialist courses, including internal medicine or surgery, in training hospitals. Primary care physicians mainly work at PHC centers, which are located nationwide. Because there are few private clinic practitioners who transfer to primary care from specialist settings in hospitals (similar to what is seen in Japan), the PHC center is the primary location for clinical practice with community patients, the educational place for young physicians, and the place where clinical research occurs.^{7,9,14} Historically, in the Swedish health care system, most PHC has been funded by national budget as a public service, although in recent years the proportion of the private PHC has increased to around 40%. Based on previous studies of medical economics, which indicate that PHC is a qualitatively efficient and cost-effective system, PHC has been promoted as a national project in Sweden.^{6,7,9,13} The funding for PHC centers is strictly defined in the same way for both public and private budgets, and it is based on the number of patients seen and the types of disorders treated. In several examples of PHC centers that we reviewed, the number of full-time primary care physicians per PHC was four to seven. Additionally, the PHC center was supplemented with a part-time doctor who was also engaging in clinical research and clinical education work as an attending or faculty of a university. A typical primary care visit lasted for 15-30 minutes, and physicians saw approximately 10-18 patients/d.^{6,7,9,14} Patients must register at a PHC center to get care, with the exception of

emergency services. However, there is no obligation to register with a specific PHC. There were many kinds of specially trained co-medical staff at PHC centers that we reviewed, including approximately 20 full-time nurses, respiratory therapists, clinical psychologists, laboratory technicians, and physical therapists. PHC centers have outpatient rehabilitation equipment and facilities. The trained primary care physician has the ability to perform medical care appropriate to various outpatient settings (eg, acute and chronic) and medical needs including internal medicine, minor surgery, ophthalmology, pediatrics, gynecology, otolaryngology, dermatology, psychiatry, and orthopedics. Although PHC centers have equipment for examination and appropriate treatment, they do not have computed tomography imaging, magnetic resonance imaging, lower gastrointestinal endoscope, or an operating room for major surgery. Because PHC centers serve as emergency facilities (similar to first-level emergency hospitals in Japan), the physician on duty at the PHC center may play the role of emergency physician. Since the national health insurance system guarantees free access for everyone, patients can freely select between PHC centers and hospitals. However, given that primary care physicians work as gatekeepers, few patients go directly to hospitals.^{3,4,6,7}

5 | CLINICAL RESEARCH IN PRIMARY HEALTH CARE AREA

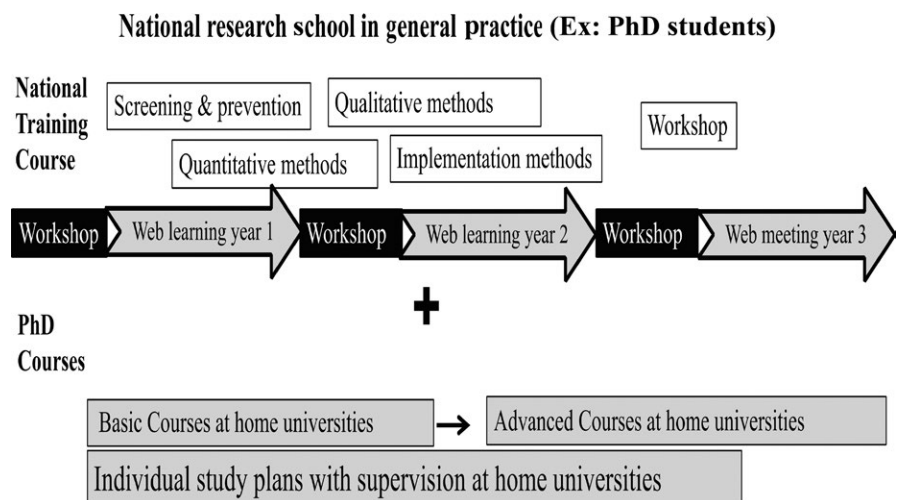
In Japan, the clinical research commitment for primary care physicians has been a problem for a long time.¹⁵ A recent study showed the publication rate of abstracts presented at the Japan Primary Care Association Annual Meetings was extremely low (3.8%), when compared to the abstract publication rates of other countries which are as high as 40%.¹⁶ In comparison, the Clinical Research Center of Lund University had 100 publications in family medicine fields and 24 publications in public health and health economics fields in 2015.¹³ We believe that one of the reasons for this difference is that there are very few opportunities to learn how to conduct clinical research in nonacademic hospital or clinics in Japan. In Sweden, clinical

TABLE 3 Factors that promote clinical research training in Sweden

Opportunities to continue to learn clinical research while actually working in primary care settings (mainly PHC centers).
Promoting distance learning via the Internet for clinical research and clinical practice.
Ease of generating clinical questions and conducting research at PHC centers.
Promoting clinical research for general medicine practitioners with nationwide projects.

research training encourages trainees to use their own patient data, and this practice has been increasing over the last 20 years. Based on our past experience and review of the Swedish system, this research team identified important factors for clinical research training and the following recommendations (Table 3). First, build a system in which primary care physicians can work in PHC centers while completing a PhD, and vice versa (ie, PhD students working in PHC centers). Second, promote distance learning via the Internet for both research and clinical training. Therefore, even if trainees are in remote areas, they can learn from top-notch instructors, similar to the Swedish mentor system. Third, there are opportunities to develop clinical research questions and conduct studies at the actual clinical frontier, rather than learning basic experimental medicine in university facilities. For example, young trainees can also receive mentoring to promote their research from their supervisors in PHC centers. Finally, promoting clinical research by general medicine practitioners, through a nationwide project, is vital. This is a key point we wish to emphasize in this article. The Swedish Research Council (SRC), which is a national association, has been contributing to the National Research School in General Medicine for the purpose of improving clinical research in PHC and collaboration between Universities, since 2009.^{13,17} They have designed a free clinical research training course, lasting 3 years, which is available, not only to medical doctors, but also to co-medical staff who work in PHC settings. There are obligatory face-to-face classes and workshops, Internet interactive classes called “webinars,” and a 3-month study period abroad

FIGURE 1 The National Research School in General Medicine for the purpose of improving clinical research in PHC and collaboration between Universities in Sweden. This course was designed a free clinical research training course, obligatory face-to-face classes, workshops, and Internet interactive classes in 3 y



(eg, in the United States, Australia, or the Netherlands) to strengthen international research skills and abilities (Figure 1).^{13,17} Although this clinical research training course is not mandatory, many motivated PhD students have participated since it launched. Over the past 8 years, 90 research students (more than 70% are physicians and more than 70% are women) were admitted.¹⁷ Before this course was initiated, there were few collaborative efforts between the different the university faculties. Since this initiative began, all seven medical schools in Sweden have participated and collaborated to improve clinical research nationwide.

6 | CONCLUSION

In Japan, primary care physicians often work alone in private clinics. Furthermore, physicians who do not belong to academic hospital have very few opportunities to acquire clinical research skills. The primary care setting in rural areas may be good places to offer additional educational opportunities like a Swedish system, but it is hard to say that it functions sufficiently as a training center in Japan.

Overall, there are many similarities between Japan and Sweden in terms of the primary care physician fostering system, but there are also several differences and opportunities to learn from the Swedish programs. In Sweden, primary care physicians are mainly engaged at PHC centers, which are centers for clinical practice with community patients, educational places for young physicians, and sites for clinical research. Sweden has developed a national clinical research training course for primary care physicians to increase research in general practice settings nationwide and to establish a new generation of well-educated researchers in general practice with the ability to collaborate with centers of excellence in Sweden and internationally. In conclusion, the Swedish system may be a useful model when developing strategies to advance Japan's clinical research training system for primary care physicians.

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CONFLICT OF INTEREST

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