Editorial

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What Has Caused the Shortage of Radiologists? Features Exclusive to Japan

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The "iron triangle" is a widely recognized concept in healthcare system design. This refers to the fact that cost, access, and quality, the three key aspects of design, cannot be improved simultaneously [1]. The premise is that an improvement in one of these factors, often comes at the expense of at least one of the others. This concept is often summarized as the need to "pick two" out of the three.

The Japanese medical system used to be the closest to the ideal, effectively managing costs while ensuring broad access and high-quality care [2]. However, this balance has proven to be short-lived. Analyzing Japan's healthcare system through the lens of the "iron triangle," we observe that two of the three aspects have already started to deteriorate. First, costs have been increasing. It is no longer one of the most affordable systems, consuming approximately 11% of the gross domestic product. Second, the quality of healthcare services have fallen behind global standards, especially in rural areas where healthcare professionals are limited. The sole aspect that currently remains relatively preserved is access.

A few core issues have contributed to this decline. These issues can be broadly considered under three factors unique to Japan. First, doctors have the freedom to choose their specialties. Second, no governing organization controls the number of specialists. Third, human resource mobilization is lacking. The first and second factors are interrelated but must be examined separately.

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How to Become a Cardiovascular Surgeon in Japan Even without Formal Training?

There is a unique system in Japan known as "自由標榜制 (Jiyu-Hyoubou-Sei)." As no official English translation truly represents this term, I will refer to it here as the "free profession system." Since this idea cannot be found elsewhere, a few paragraphs may be required just to explain it.

First, let me explain about the Japan Medical Association (JMA). The JMA is a professional association of licensed physicians, run primarily by general practitioners and not by specialists or academicians. Approximately 55% of all medical doctors in Japan belong to this organization, and it has a strong influence over the policymakers and the government.

The "free profession system" has been maintained by the JMA for decades. The idea is that once you have passed the National Medical Practitioners Qualifying Examination, you are eligible to put up any sign when you open a clinic. Here is a hypothetical example. Let us say that a medical school graduate passes the qualifying exam at the age of 24 (the youngest possible age to graduate from medical school). This medical school graduate is now entitled to open a clinic with a large sign saying, "Cardiovascular Surgery Clinic." Believe it or not, you do not have to undergo any formal training to do this. This is regarded as the doctor's right and is protected by the JMA. Such a system has led to serious incidents, with some even making the headlines.

This "free profession system" is counterintuitive from the standpoint of professionalism and directly contradicts the

board certification system. Approximately half a century ago, some specialists in Japan began a board certification system. The JMA stood firmly against this move and argued that "all doctors should have equal rights to practice any specialty." This issue is partly related to the factors discussed below.

The Number of Specialists is Unmonitored

In Japan, the number of specialists is not monitored. The only number being controlled is the headcount of medical school students. Hence, the government can predict the number of new doctors entering the field, but that is the limit of its control. The rest is subject to the "invisible hand" of the market as identified by Adam Smith.

Virtually all other developed countries have a system for regulating the number of medical specialists. Such regulation is imperative to have control over the total healthcare expenditure. This goal can be achieved through two distinct approaches: doctor-driven or government-driven. A typical example of a doctor-driven method is found in the United States, where medical societies determine the upper limits for each specialty. Similarly, in Europe, medical associations control the number of specialists. Government-driven approaches are more common in Asia and can be found in Korea, Taiwan, Singapore, and Hong Kong.

Why did the Japanese government abandon its efforts to regulate the number of specialists? It is because of the strong influence of the JMA, which opposes the notion of granting exclusive privileges to selected doctors to practice in certain fields. Knowing that the JMA will never give up on the "free profession system," the government did not waste its effort to override this ingrained principle. More recently, the Japanese government has delegated the responsibility of managing the number of specialists to a third-party organization known as the Japanese Medical Specialty Board (日本専門医機構; Nihon-Senmoni-Kiko). The feasibility of this approach remains to be seen.

No Career Mobility (Rather, it is Prohibited)

Lifetime employment used to be a charm of Japanese society. This system guarantees an employee's position if the person remains within the inner circle. Employees receive education and training to build their careers. They are also obliged to stay on and train their successors. In recent years, this concept has gradually devolved due to various factors, such as globalization, slow economic growth, and changes in working styles.

Another factor complicating the situation is the "school cliques." School cliques have a certain degree of influence on careers, especially among the elite. It is well-known that school cliques will cause the hiring of more alumni from their alma mater. It has also been claimed that members of school cliques manipulate promotions to favor each other over employees from other schools. This exclusivity diminishes the transparency of the organization and thus weakens society. Although this old custom seems to be slowly waning [3], this tribal attitude has not completely disappeared.

Lifetime employment and tribalism also exist in the medical field but in slightly different forms. Doctors are bound to a group of hospitals, with university hospitals at the top of the hierarchy. The culture dictates that a medical school graduate will choose to work in one of the university's "group", within which he or she will spend more or less their entire career. This system hinders the doctors' mobility and prevents them from moving from one location to another.

A 2001 OECD report highlighted that one of the problems with the Japanese medical system is the lack of standardization [4]. This issue, first identified a few decades ago, still remains a problem. The reason for this lack of standardization is clear. It is because doctors do not move around. The school clique system leads to isolation of each group, and the members lose their chance to see advances happening outside their circle. This isolation also leads to reduced competition among doctors. Consequently, the quality of medical care will slowly deteriorate.

What Happens When These Factors are Combined?

The "free profession system," a lack of a controlling organization, and tribalism are probably unique to Japan. These factors have led to problems. In particular, the lack of control over the number of specialists is concerning. The government is acutely aware of this issue, and official online documents have highlighted this tremendous imbalance (Fig. 1) [5].

For instance, Japan has more than 8000 board-certified neurosurgeons and only 6300 currently-practicing diagnostic radiologists. This is in stark contrast to the USA, which has only 3500 neurosurgeons and 30000 radiologists (note that the population of the USA is 2.6-times higher

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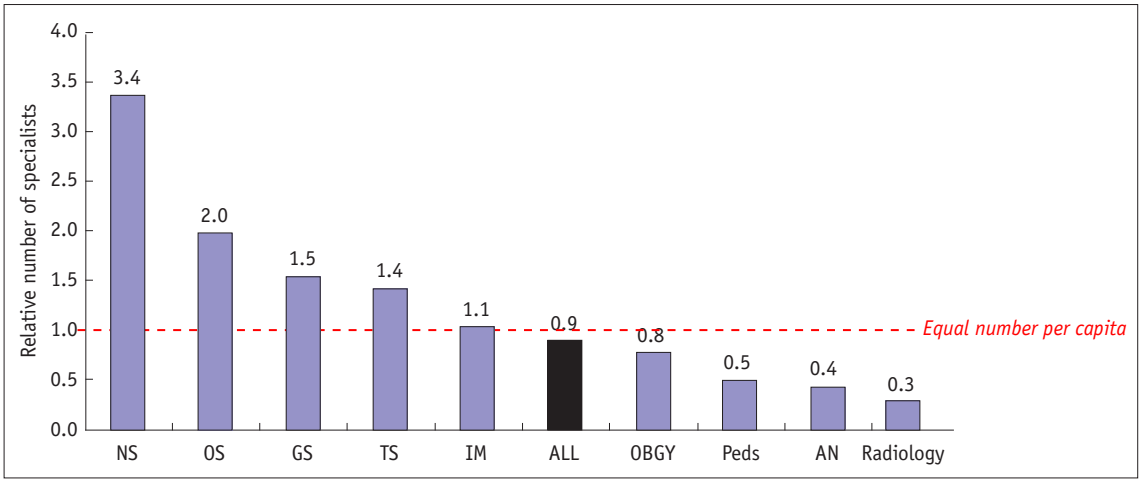

Fig. 1. Bar graph showing the relative number of specialists in each discipline in Japan, normalized by the population of the USA. The dashed line crossing the y-axis at level 1.0 indicates an equal number of physicians per capita. From the left, the disciplines are neurosurgery (NS), orthopedic surgery (OS), general surgery (GS), thoracic surgery (TS), internal medicine (IM), general physicians (ALL), obstetrics and gynecology (OBGY), pediatrics (Peds), anesthesiology (AN), and radiology. Modified from the original image available at Ministry of Health, Labour and Welfare [5].

than that of Japan).

This disproportionate distribution of specialists in Japan has led to a substantial structural deviation from the global standards in medical practice. For example, some radiology businesses are operated by individuals from other disciplines. For instance, neurosurgeons in Japan also cover neuro interventions, magnetic resonance imaging clinics (also known as the brain dock, the brain version of the health-check system), and gamma knife [6].

The abovementioned imbalance has an apparent negative impact on the operation of radiology departments. The situation is exacerbated owing to the quickly aging population. In this era, where the overall demand for radiology services is steadily increasing globally, Japan, with its unique situation, is struggling to meet these demands.

CONCLUSIONS

Each medical system has unique issues. Every situation is different. These uniquenesses originate from difference in history and culture. Uniqueness is acceptable if a system is functional and competent; however, this is no longer the case in Japan. To address a problem, the first step is to become aware of it. The second is to analyze the status quo. The third is to identify solutions. The final step is to implement the solutions. Each step will probably take at least a few years. Immediate changes are probably not possible. However, conversations can pave the way for the improvement of the current situation.

Conflicts of Interest

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