The importance of medical functional differentiation and regional packaged care -after the COVID-19 epidemic

Hiroki Konno¹, MEcc
College of Sports Science, Nihon University, Japan

The COVID-19 epidemic has affected Japan since early 2020. Many hospitals nationwide were busy securing beds for COVID-19 patients, and the vulnerability of the systems providing medical care in each region became apparent. These results highlighted the importance of medical functional differentiation and regional packaged care for local governments and medical institutions. This was because it was not possible to provide medical institutions suitable for a patient's pathological condition and stage in each region. Considering the COVID-19 epidemic, it is necessary to urgently rebuild a future regional medical care provision system, including the problem that the Ministry of Health, Labor and Welfare (MHLW) ordered the reorganization of public hospitals in 2019.

1. Public understanding of medical functional differentiation and regional packaged care

In Japan, policies to promote medical functional differentiation have been consistently promoted for more than 20 years. These policies were first stipulated by law in the Medical Care Act of 1998. The Medical Care Act of 2007 promoted medical functional differentiation and the construction of a cooperation system for regional medical care by reviewing the plans for medical care provision system, and the Medical Care Act of 2014 set out “the Reporting System for the function of bed.”

Moreover, in the 2014 revision of medical rewards, additional rewards were set for hospitals linking medical and long-term care. This revision was made in line with the following five policies: (1) the functional differentiation of acute and emergency hospitals and general hospitals, (2) functional differentiation of acute beds and beds for long-term care with medical treatment, (3) an increase in the beds for rehabilitation and a stipulation in appropriate rewards suitable for the rehabilitation function, (4) an increase in rewards for clinics with beds, and (5) establishment of a regional packaged care ward. In addition, the MHLW has instructed all prefectures to formulate “the Vision for Medical Care in the Region” to promote medical functional differentiation and enhance home medical care.

In July 2016, the MHLW established “the Working Group on the Vision for Medical Care in the Region to enhance the effectiveness of related policies. This working group announced the names of 424 hospitals subject to the reorganization of public hospitals based on an analysis of medical performance data in September 2019. However, some medical staff and the public opposed the reorganization of public hospitals without fully understanding it. The COVID-19 pandemic may increase opposition to the promotion of functional medical differentiation, as many people are now aware of the vulnerabilities in the system of medical care provision in each region.

¹ Hiroki Konno specialises in the economics of healthcare. After a Masters in Economics from Hitotsubashi University, Hiroki worked at the International University of Health and Welfare (Japan) before becoming associate professor at Nihon University’s College of Sports Sciences, where he studies health economics. He won the Encouraging Prize on Health Economics 2005. E-mail: konno.hiroki@nihon-u.ac.jp
2-1. Efforts to secure beds for COVID-19 patients in 2020–2021

During the COVID-19 epidemic, the medical care provision system has become dysfunctional in each region. In fact, the number of beds for patients with infections is slightly increasing in Japan. Although infections such as Middle East Respiratory Syndrome (MERS), severe acute respiratory syndrome (SARS), and COVID-19 were expected to occur suddenly, there were only 1,888 beds for infected patients nationwide as of October 2019. Regarding the people infected with COVID-19, the number of newly infected people totaled 5,986 on May 1, 2021 (survey by NHK: governmental broadcasting of Japan). Even if the hospital increased the number of beds by converting acute beds to beds for infections, once the peak was reached, it could not be dealt with.

In addition, the care of COVID-19 patients requires more nurse placement for patients with moderate and severe symptoms. In Japan, the staffing system in which one nurse cares for seven patients is the highest in general acute care hospitals. If a staffing system equivalent to that of an acute and emergency hospital is needed to care for patients, it will require approximately 3.6 times more staff. In this case, the number of COVID-19 patients will increase even in hospitals where the staffing of nurses has been spared, and the number of nurses will quickly become insufficient.

Some media criticized “the huge amount of taxes and insurance premiums have put into medical care, which were not well invested for countermeasures against new infections” (Yomiuri Newspaper (2021)). However, the utilization rate of beds for patients with infections was less than 3%. Therefore, it can be concluded that the medical care provision system has responded with sufficient spare capacity as a countermeasure against infections. This situation of the COVID-19 epidemic was an emergency. People understood that the medical care provision system was vulnerable, and preparations for the emergency were insufficient.

2-2. Construction of a critical path of regional cooperation by Kanagawa Prefecture during the COVID-19 epidemic

Looking back on the movement to secure beds for patients with COVID-19 in Japan, until the first peak (around May 2020), the total number of patients was small; therefore, all patients were admitted to the hospital although their pathology was not clear. However, in the second peak (from late July to early August), third peak (early
January 2021), and fourth peak (late April 2021), the number of patients increased rapidly as did the number of hospitals in each region that could not admit all patients.

The government ordered patients who could not be hospitalized to stay at a hotel with a doctor or to wait at home. However, it was difficult for patients who had left the acute phase to be transferred to another hospital. This is because COVID-19 is highly infectious and likely to cause a new outbreak at the hospital to which it is transferred. For this reason, Kanagawa and Chiba prefectures directly requested cooperation from many hospitals to secure beds for the care of patients.

For example, Kanagawa Prefecture has set up coordinating headquarters as a countermeasure against COVID-19 in the region. COVID-19 patients were classified into the following three categories and monitored: (1) Asymptomatic patients and patients with mild severity who do not require oxygen administration, (2) Patients with moderate severity requiring oxygen administration and additional medical treatment, and (3) High-severity patients require mechanical ventilation or extracorporeal membrane oxygenation (ECMO).

Hospitals that care for patients with moderate severity were designated as “priority hospitals,” and those providing care for patients with moderate severity or post-acute phase patients were designated as “priority hospitals cooperating.” Securing “priority hospitals cooperating” by public institutions was an indispensable intervention. However, these countermeasures against COVID-19 were the same as the operation by the conventional critical path of regional cooperation and also a model that has been applied to diseases such as stroke.

3-1. Reorganization of public hospitals as instructed by the Ministry of Health, Labor and Welfare

By enacting the Act of Promoting the Comprehensive Provision of Medical Care and Long-term Care in the Region, the Medical Care Act was amended in 2014. The Medical Care Act stipulated that a “Regulated Area” should be established to promote the functional differentiation and cooperation of hospital beds in each region. The government also instructed all prefectures to formulate “the Vision for Medical Care in the Region”, which should estimate the demand for medical care and home medical care in each area.

There were two reasons. First, the quality and quantity of medical needs would change as the population declined and with population aging, and it was predicted that securing human resources would become more difficult. Second, it was essential to work on the functional differentiation and cooperation of medical care to maintain a high-quality and efficient medical care provision system in each region.

Moreover, “the Working Group on the Vision for Medical Care in the Region” announced the names of hospitals subject to the reorganization of public hospitals in September 2019, as mentioned. In response, Governor Shinji Hirai of Tottori Prefecture asked, “Who will protect the lives and health of the citizens of the prefecture if the number of hospitals in our area decreases?” (Kobe Newspaper Next (2019)). Not surprisingly, the managers and staff of the 440 hospitals targeted for reorganization (424 in the first announcement) were uncomfortable. It was also a fact that there were problems with the assessment measures the government used as those standards.

3-2. Promotion of functional differentiation of medical care is not a disadvantage for everyone

However, the purpose of promoting the functional differentiation of medical care is neither to turn hospitals in the region into abandoned hospitals nor to disrupt the medical care provision system in the region. As a result of
the functional differentiation of medical care, patients living in the region could receive advanced acute care and acute care at a base hospital that intensively cares for patients in the same stage. If a patient’s stage shifts to a convalescent or chronic stage, they can be cared for at a nearby medical institution. In other words, it is important that patients benefit more from receiving acute care at a high-quality base hospital with a large number of cases.

Hardy et al. (2001) reported that a patient in the acute phase was discharged from the hospital earlier by collaborating with the Rapid Response Community Team after an acute care hospital in the United Kingdom established a new admission avoidance team in that hospital. They concluded that four factors were needed to enable patients to be discharged earlier: (1) Evaluate the patient’s condition early, (2) triage patients early, (3) early decision on the care menu after the acute phase, and (4) strengthen medical cooperation in the region.

One of the cases discussed in “the Working Group on the Vision for Medical Care in Region” is that of Ibaraki prefecture. Two public hospitals (Chikusei Municipal Hospital and Kensei General Hospital) and one private hospital (Sanno Hospital) were reorganized into two public hospitals. The decision to reorganize hospitals was appropriate in this case for three reasons: (1) Chikusei Municipal Hospital had an acute bed utilization rate of less than 60%, (2) Two of the three hospitals were run by seven doctors. (3) The field of medical treatment overlapped.

The most important needs for patients are to ensure the quality of medical care and medical safety, not access to medical care. Medical professionals are expected to improve their clinical skills as the number of cases increases and ensure medical safety by avoiding overwork.

Considering this, the functional differentiation of medical care in the region does not pose a great disadvantage to anyone. Important is that the efficient supply of regional medical resources to society enables securing the local medical system. This refers to the construction of a regional packaged care system.

4. Significance of functional differentiation of medical care differentiation and necessary efforts

There are three meanings of functional differentiation in medical care: (1) It can be expected to increase the experience of treatment and improve the quality of care by intensively caring for a large number of patients with the same diseases or having the same clinical outlook. (2) It is expected to improve the medical safety system by increasing the experience of treatment. (3) It is expected to efficiently supply scarce medical resources to society.

Of course, even if the number of cases in a specific medical field is small, there is a possibility that doctors and hospitals with high clinical skills can take care of patients. However, the quality of medical care will improve by increasing the skill level of clinical technology, and medical safety will improve alongside quality. The sophistication and specialization of medical care is progressing rapidly. To build a safe and secure medical care provision system for people in every region, we should emphasize the improvement of medical quality, ensuring medical safety, and the efficient use of medical resources. We must shift to a way of thinking from the idea of emphasizing accessibility to medical care.

Some regions may have many acute care hospitals, and others a small number of hospitals. As a priority, each hospital should have a perspective on what kind of medical function it performs in the region. Hospitals have their philosophies, which were set up since their establishment, and based on these, they take pride in contributing to regional medical care.

However, in reality, patients ultimately “select” the hospital to visit based on the excess or deficiency of
the medical care provision system in their region, existence of nearby hospitals, and reputation of patients and medical institutions in the region. When there is an "unselected" medical field in the region, the hospital should give up the medical field and transform its function to another medical field rather than improving the quality of medical care in that medical field. This shift must be aligned with the supply and demand of medical care in that region.

About five years have passed since the formulation of “the Vision for Medical Care in the Region.” Regional hospitals are now required to move in line with the supply and demand of medical care in the region, while adhering to the philosophy set forth at the time of establishment.

5. Medical policy to be revised in the wake of the COVID-19 epidemic

In the wake of the COVID-19 pandemic, the plans for medical care provision in each region should be reviewed and the medical care provision system expanded. The Medical Care Act of 2014 stipulated the establishment of a horizontal medical care cooperation system for cancer, stroke, acute myocardial infarction, diabetes, mental diseases, pediatric medical care, perinatal medical care, emergency medical care, disaster medical care, remote medical care, and home medical care. Infections should be included in this system.

Muto (2020) noted that the plans for medical care provision in the region and the setting of beds for patients with infection should be reviewed. This was because 90% of beds for patients with infection were in public hospitals, 24 of which were ordered for reorganization. “The Working Group on the Vision for Medical Care in the Region” also recognized this problem. At the 30th meeting in December 2020, the Working Group stated that countermeasures against new infections should be included in the plans for medical care provision in region, and beds and spaces that are easy to zone during an epidemic as well as human resources should be prepared.

Some emphasized that disaster medical care provision was required during the COVID-19 epidemic. However, after 2021, patients should be cared for by gradually operating the critical path for infection in each region because the pathological condition of COVID-19 patients is known. The same countermeasures against COVID-19 as the Kanagawa model mentioned above can be implemented nationwide.

If public institutions order asymptomatic patients and those with mild severity to stay at a hotel with a doctor or to wait at home, the municipality must specify the hotels and hospitals as the place of stay for COVID-19 patients or their priority hospitals for treatment in advance. In addition, the municipality must register with doctors and nurses in the region. Information on the medical field of expertise for doctors and nurses should also be registered to ensure medical staff can be flexibly utilized at regional hospitals during emergencies.

6. Secure the medical care provision system and improve the quality of medical care

Regional hospitals should urgently review their medical function depending on the diversion or reorganization of beds and capability of their own hospitals. Coincidentally, the vulnerability of the medical care provision system in the region became apparent during the COVID-19 epidemic. In addition, this may lead to the misunderstanding that the reorganization of public hospitals will be an obstacle to the establishment of medical care provision systems in regions for new infections such as COVID-19. However, the shortage of beds during the COVID-19 epidemic and need to reorganize public hospitals occurred because of the insufficient functional differentiation of medical care and construction of regional packaged care systems in the regions. Based on the
understanding that it is beneficial for the entire community to efficiently supply scarce medical resources to society, it is now necessary to promote the functional differentiation of medical care.

Reference
2. Yomiuri Newspaper “Care for infection into a strategic system”, (March 21st 2021). (in Japanese)