

Topics: Recent topics in public health in Japan 2021

< Review >

Human resources of health for universal health coverage in Japan: in the era of COVID-19

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Abstract

Japan has achieved universal health coverage in 1961. Although Japan's medical human resources are becoming sufficient in terms of quantity, there is a need to address the uneven distribution and to improve the quality of human resources. In recent years, there has been renewed interest in the role of public health personnel in responding to health crises such as disasters and emerging infectious diseases including the COVID-19 infection. Countries need to consider to build a tight network between public health and the healthcare delivery system, and also to establish a dual track health system utilizing limited human resources while maintaining normal medical care in response to medical emergencies.

keywords: Human resources, universal health coverage, public health, health crisis, COVID-19

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I. Introduction

Human resource sufficiency in the health sector is a prerequisite to achieving SDG (Sustainable Development Goals) 3.8, namely, "Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all" which is to be achieved by 2030 [1]. In Japan, as medical care becomes more sophisticated with the advancement of medical technology, the use of IT advances, and older population increases, various issues are expected to arise in medical human resources in the future. In addition, emerging infectious diseases such as COVID-19 will require a response to health crisis management. To provide high quality health care services to all people with limited human resources, it is necessary to deal with the uneven distribution of health care workers in different regions, to divide the service tasks, and to have a continuous education and training system, which are common issues in the world, including both developing and developed countries. This re-

view describes recent trends and future issues confronting current health care human resources in Japan.

II. Sanitation administration and human resources in Japan

1. Progress of sanitation administration

Japan's sanitation administration system began with the establishment of the Medical Affairs Division of the Ministry of Education in 1872. The prototype of the present public health center dates back to 1874. It handled sanitary administration, medical affairs, pharmaceutical affairs, public health, and medical education[2]. The biggest issue in public health administration during this period was the control of infectious diseases, such as cholera, typhoid fever, dysentery, diphtheria, rash typhus, and pox. Local hygiene administration was incorporated into policy administration, and various environmental sanitation regulations were developed.

In 1937, with the enactment of the (former) Public Health Center Law, Japan's first public health center was estab-

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lished with the aim of eradicating tuberculosis and improving maternal and child health. Public health centers were then given the functions of health counseling and health guidance in 1947 in addition to administrative functions, and were positioned as central institutions for the improvement and promotion of public health in the community.

In recent years, with the declining birth rate and aging population, changes in the structure of diseases, especially lifestyle-related diseases, and diversification of local residents' needs, public health administration has been required to emphasize the perspective of individual inhabitants. Therefore, the Public Health Center Law was revised and renamed the Community Health Law in 1994. This law reviewed the division of roles between prefectures and municipalities and established a new community health system.

2. Current sanitation administration and human resources

The various activities of hygiene administration can be broadly classified into four categories, namely, 1) general hygiene administration; targeting life in the home and community, 2) school health administration, 3) occupational health administration, and 4) environmental health administration. The basic system of general health administration in Japan has been established by the national government (Ministry of Health, Labour and Welfare), prefectures (health administration departments), public health centers, and municipalities (health administration sections), with

public health centers and municipal health centers as the bases of activities. (Figure 1)

Public health centers are institutions that play a central role in public health activities such as disease prevention, health promotion, and environmental sanitation (Table 1). The number of public health centers in Japan, which was 848 at the time when the Community Health Act was enacted in 1994, has gradually been consolidated based on the principle of matching areas defined as secondary medical care areas or long-term care insurance support plans, and the number has decreased to 469 as of April 2020 [3].

There is a huge difference in the number of full-time staff per 1,000 population by prefecture (Figure 2). Prefectures with large cities, such as Tokyo, Osaka, and Kanagawa, have an extremely small numbers of health center staff per 1,000 people. These densely populated areas are therefore forced to implement public health administration through different

Public Health Administration System

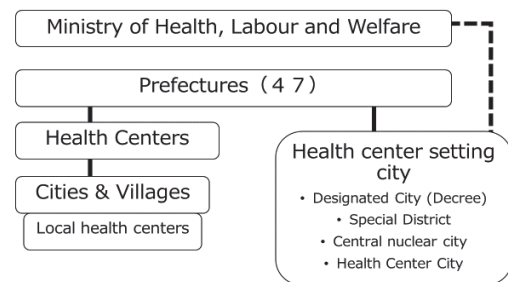


Figure 1 Public Health Administration System

Table 1 Services provided by health centers as stated in the Community Health Law

①	Dissemination and improvement of ideas concerning community health
②	Demographic statistics and other statistics related to community health
③	Improvement of nutrition and food hygiene
④	Housing, water supply, sewerage, waste disposal, cleaning, and other environmental sanitation
⑤	Medical and pharmaceutical affairs
⑥	Activities performed by public health nurses
⑦	Improvement and promotion of public health services
⑧	Maternal, infant, and elderly health
⑨	Dental health
⑩	Mental health
⑪	Health care for people who need long-term treatment due to diseases for which there is no established treatment method or other special diseases
⑫	Prevention of AIDS, tuberculosis, venereal diseases, infectious diseases, and other diseases
⑬	Hygiene testing and inspections
⑭	Maintenance and promotion of the health of other local residents

Specific examples of health center operations reported among COVID-19 measures

Consultation centers for returnees and contacts established at public health centers
 Coordination of consultations with outpatient clinics for returnees and contacts
 Transport of specimens to local health laboratories
 Administrative inspections (PCR tests)
 Explanations and negotiations with medical institutions and coordination meetings
 Information sharing with and advice to municipalities
 Active epidemiological surveys (including cluster measures)
 Daily monitoring of the medical condition of hospitalized (or home-based) patients
 Liaison and coordination between medical institutions in the event of a positive patient outbreak, etc.

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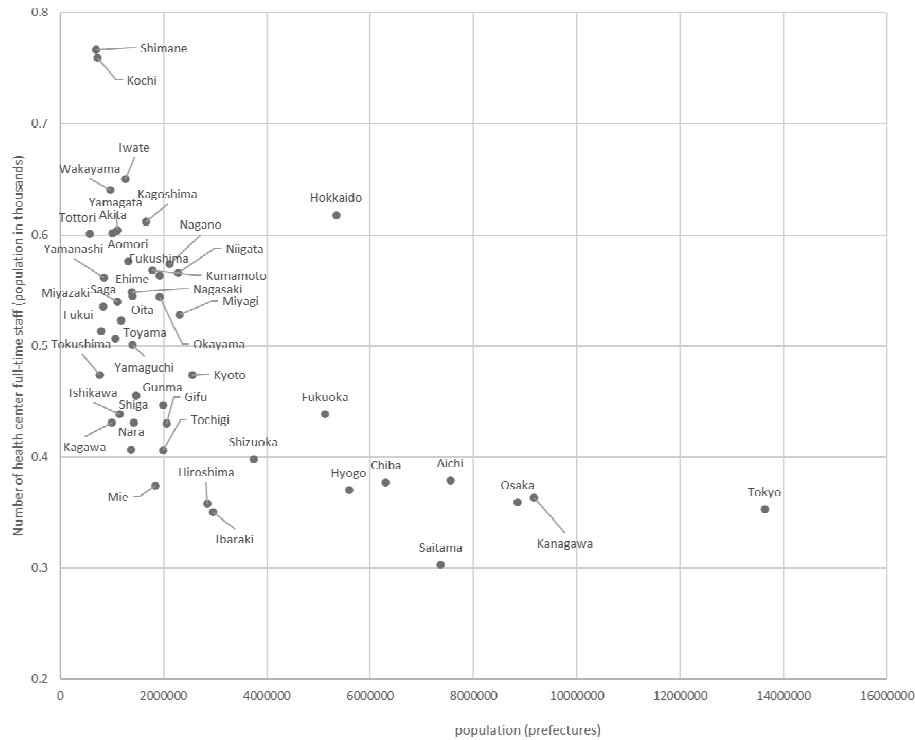


Figure 2 Number of full-time health center staff per 1,000 population by prefecture

Table 2 Numbers of full-time and part-time staff employed by health centers and municipalities in FY 2018.

	n		n/1000 population		Part-time/Full-time ratio
	Full-time	Part-time*	Full-time	Part-time*	
Physicians	907	49,518	0.007	0.388	54.6
Dentists	123	24,005	0.001	0.188	195.2
Veterinarians	2,463	12,312	0.019	0.096	5.0
Pharmacists	3,186	5,973	0.025	0.047	1.9
Public Health Nurses	26,342	388,124	0.206	3.039	14.7
Midwives	175	139,471	0.001	1.092	797.0
Nurses	726	341,262	0.006	2.672	470.1
Assistant Nurses	89	27,089	0.001	0.212	304.4
Physical Therapists	145	2,229	0.001	0.017	15.4
Occupational Therapists	101	2,738	0.001	0.021	27.1
Dental Hygienists	699	145,868	0.005	1.142	208.7
Medical Radiation Technicians	471	5,436	0.004	0.043	11.5
Medical X-Ray Technicians	4	229	0.000	0.002	57.3
Clinical Laboratory Technicians	701	13,909	0.005	0.109	19.8
Medical Laboratory Technicians	44	1,246	0.000	0.010	28.3
Registered Dietitians	3,542	158,841	0.028	1.244	44.8
Nutritionists	332	52,047	0.003	0.408	156.8
Others	15,569	842,794	0.122	6.599	54.1
Total	55,619	2,213,091	0.436	17.329	39.8
(Re-listed)					
Mental Health Welfare Practitioners	929	19,385	0.007	0.152	20.9
Mental Health Welfare Counselors	1,203	—	0.009	—	—
Nutrition Advisors	1,062	—	0.008	—	—
Food Sanitation Inspectors	5,758	10,971	0.045	0.086	1.9
Environmental Health Inspectors	5,104	13,157	0.040	0.103	2.6
Medical Inspectors	9,076	12,204	0.071	0.096	1.3

*Total number attending work

Source; Report on Regional Public Health Services and Health Promotion Services. Ministry of Health, Labour and Welfare

mechanisms than other prefectures.

There are various occupations such as physicians, dentists, pharmacists, veterinarians, radiologists, clinical laboratory technicians, dietitians, and public health nurses, who

are engaged in their duties at public health centers (Table 2).

Public health nurses account for the largest number of both full-time and part-time employees. The ratio of part-time vs full-time is the highest for midwives, who are supposed

to be engaged in mother and child health projects. The percentage of medical qualification holders such as physicians, nurses, midwives, etc. is small among full-time staff because medical procedures excluding vaccinations and blood collection are not conducted at public health centers in principle.

The number of physicians at public health centers is 907, which has slightly increased from 891 in the previous year. According to the Community Health Law, the director of a public health center is required to be a physician who has been engaged in public health practice for at least three years, or who has completed a training course at the National Institute of Public Health [4], or the director's skills and experience must be comparable to those of a physician (Article 4, Paragraph 1 of the Order for Enforcement of the Community Health Law). Although the number of physicians engaged in public health has slightly increased in recent years, the 2018 survey shows that 4,106 (1.3%) were engaged in administrative, industrial, and public health work. Therefore, the Order for Enforcement of the Local Public Health Law stipulates that in cases where it is extremely difficult to secure a physician, a technical staff member who is recognized to have the expertise necessary for public health administration equivalent or superior to that of a doctor may be appointed as the director of a public health center for a period of two years or less.

There are local health research institutes in most prefectures and designated cities. They conduct various tests and examinations, collect, analyze, and provide public health information, conduct surveys and research, and provide training and guidance to improve public health. The total number of full-time employees is reported to be 2.9 per 100,000 people in 2012, with disparities across the country depending on the size of the local government [5].

A municipal health center is an organization that pro-

vides comprehensive interpersonal health services such as health counseling, health examinations, and health guidance to local residents that is mainly operated by public health nurses. While the public health center is a wide-area, specialized, and technical center for community health, the municipal health center plays a role as a comprehensive center for health promotion at the municipal level [3]. The most employees are public health nurses, amounting to 26,000 full-time staff in health centers and municipalities nationwide. Public health nurses perform diverse tasks, and the content of their work varies depending on their position (Figure 3). Half of the work of municipal public health nurses concern health and welfare services, while a higher proportion of their work concerns communication and administration, district management, and coordination education and training services in prefectural public health centers. The activities of public health nurses have changed and expanded over time, and in 2013, a notice from the Ministry of Health, Labour and Welfare clarified the roles of public health nurses affiliated with prefectural health centers, municipalities, and these main offices.

III. Human resources involved in the provision of medical care

Since Japan achieved universal health coverage in 1961, it has maintained a system that provides medical care to all people. The UN's Universal Health Coverage sets thresholds of hospital access and medical personnel (physicians, psychiatrists, surgeons) per population as follows; 18 beds per 10,000 population, Physicians 0.9 per 1,000 population, psychiatrists 1 per 100,000 population, surgeons 14 per 100,000 population [1]. These indicators are significantly higher in Japan as in other high-income countries.

In Japan, the "National Medical Service Law" enacted

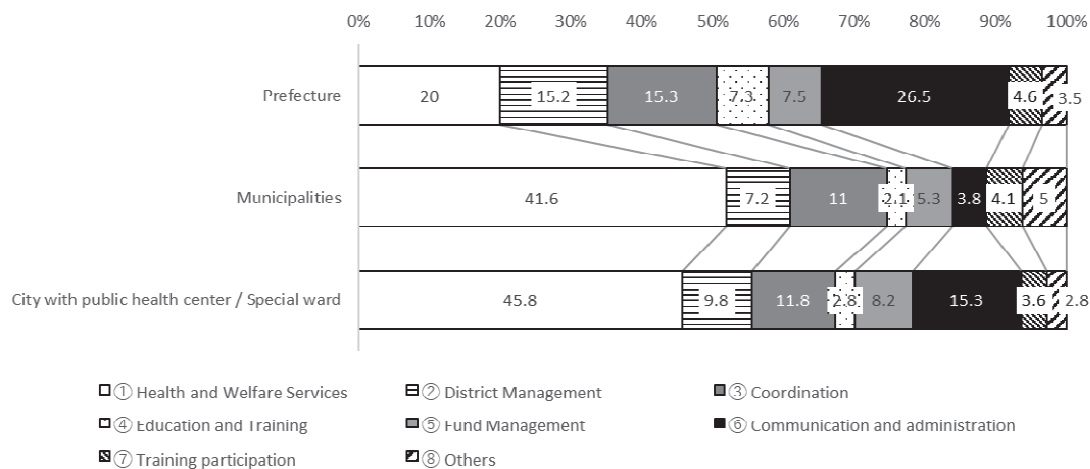


Figure 3 Activities performed by Public Health Nurses

in 1941 clarified for the first time the distinction between hospitals and clinics (10 or more beds are considered a hospital). Although the government injected public funds and promoted the establishment of a large number of medical institutions across the country, this did not solve the shortage of medical care at the time. At the end of the war in 1945, the medical supply system was in a state of complete destruction, and the Medical Service Act was newly enacted in response. The Medical Service Act was enacted in 1948, and Article 1 states, “The purpose of this Act is to contribute to the maintenance of the health of the people by ensuring a system for the supply of medical care through the establishment and management of hospitals, clinics, and midwifery clinics, and by providing for the necessary matters to promote the development of these facilities” [6]. In the post-war period of devastation, the number of infectious diseases increased and the main focus was on acute patients with those diseases. There was an urgent need to improve the quality of medical institutions and the facility standards of hospitals to ensure a proper level of medical care.

IV. Securing the number of physicians

The numbers and ratio of registered medical professionals employed nationwide (per 100,000 population) are shown in Table 3. The number of physicians in Japan at the end of 2018 was 327,210 (258.8 per 100,000) according to the survey of individual reports in the national survey, and 246.7 per 100,000 according to the survey of medical facilities, which is lower than 350 per 100,000, the OECD average for practicing physicians [5]. Countries with similar numbers of physicians as Japan were Canada at 272, US at 261, and South Korea at 239 per 100,000, respectively and countries with higher numbers were Austria at 5.24, Norway at 4.81, Switzerland at 4.34, and Denmark at 4.19 per

1000 population, respectively [7].

The sufficiency of physicians depends on changes in the social and medical environment, but in recent years there has been a debate about a shortage of physicians. With the increasing sophistication and specialization of medical care, it has become more difficult for one physician to remain updated in various fields and divisions. The long working hours of physicians has become a serious problem and it has become more difficult to balance work and family life. This is due in part to the recent increase in the number of female physicians, who have left the profession due to childbirth and childcare [8]. An increased demand has also been pointed out, namely, an increasing number of patients wishing to receive medical care on holidays or at night and requesting to visit major tertiary hospitals and specialists. Further, the increasing number of documents that physicians need to fill out and the increasing number of medical disputes also annoy physicians.

In light of this situation, the Ministry of Internal Affairs and Communications (MIC), the Ministry of Education, Culture, Sports, Science and Technology (MEXT), and the Ministry of Health, Labour and Welfare (MHLW) formulated the New Comprehensive Measures to Secure Doctors in 2006, and these included the creation of base hospitals for pediatrics and obstetrics, the establishment of networks among medical institutions, and the further dissemination of a pediatric emergency telephone consultation service [9]. In 2008, the MHLW stated its “Vision for Securing Safe and Hopeful Medical Care” and proposed measures to increase the number of physicians[10].

To improve the quality of physicians, the MHLW Ordinance on clinical training was revised in 2009, and it strengthened the criteria for designating clinical training hospitals and set conditions for the recruitment capacity of interns by local governments (prefectures) to reduce an

Table 3 Number and ratio of registered medical professionals employed nationwide (per 100,000 population)

	n	per 100,000 population
Physicians	327,210	258.8*
Dentists	104,908	83.0
Pharmacists	311,289	246.2
Public Health Nurses	52,955	41.9
Midwives	36,911	29.2
Nurses	1,218,606	963.8
Licensed Practical Nurses	304,479	240.8
Dental Hygienists	132,629	104.9
Dental Technicians	34,468	27.3
Anma Massage Shiatsu Practitioners	118,916	94.0
Acupuncturists	121,757	96.3
Moxibustion Therapists	119,796	94.7
Judo therapists	73,017	57.7

(Source: Survey of Physicians, Dentists and Pharmacists and Health Administration Reports in FY 2018. Ministry of Health, Labour and Welfare)

*The number of practicing physicians is 246.7 according to the National Survey of Medical Institutions.

Table 4 Employers of physicians, dentists, and pharmacists

	Physicians n=327,210	Dentists n=104,908	Pharmacists n=311,289
Hospitals	208,127 (63.6%)	11,672 (11.1%)	54,150 (17.4%)
Clinics	103,836 (31.7%)	90,105 (85.9%)	5,806 (1.9%)
Health care facilities for the elders	3,388 (1.0%)	34 (0.0%)	816 (0.3%)
Government	1,835 (0.6%)	314 (0.3%)	-
Industrial physicians	1,231 (0.4%)	-	-
Health and sanitation services	1,040 (0.3%)	59 (0.1%)	6,661* (2.1%)
Pharmacies	-	-	180,415 (58.0%)
Pharmaceutical companies	-	-	41,303 (13.3%)

(Source) Survey of Physicians, Dentists, and Pharmacists in FY 2018.

*Includes the government

uneven balance of physicians. The report compiled in 2018 stated that (1) the recruitment capacity should be reviewed, (2) regional quotas should be addressed, and the role of prefectures should be strengthened, (3) achievement targets, strategies, and evaluations should be reviewed, and (4) core clinical training hospitals should be enhanced and strengthened (starting from 2020)[11]. In addition, based on the amendment of the Medical Practitioners Act in 2018, the authority to designate clinical training hospitals and to set the recruitment capacity of clinical interns in the prefecture was transferred to local government to secure physicians. The current number of clinical training hospitals is 2,553, and the number of residents enrolled is 18,179 (including 11,156 at clinical training hospitals and 7,023 at university hospitals) [12]. In 2018, the MHLW expressed opinions to the Japan Medical Specialists Organization and 18 academic societies to secure training opportunities for residents according to the revised Medical Service Act and Medical Practitioners Act to improve an uneven distribution of specialists. With the new medical specialist system, an upper limit (ceiling) is set on the number of major specialty areas of physicians recruited in the five large cities (Tokyo, Kanagawa, Aichi, Osaka, and Fukuoka).

Table 4 shows the employers of physicians, dentists, and pharmacists. While 60% of physicians work in hospitals and 30% in clinics (or establishments), 86% of dentists work in clinics and 58% of pharmacists work in pharmacies. These data show that dentists working in hospitals, for example, represent a minority in the dental profession, but their actual working conditions in hospitals are similar to those of physicians[13].

V. Human resources to respond in an emergency situation

The national disaster prevention and response system is implemented in accordance with the Disaster Countermeasures Basic Act. Based on this Act, the MHLW has formulated the Disaster Prevention Work Plan (2019), which

envisages preventive (disaster prevention) measures, emergency measures, and recovery and reconstruction measures related to healthcare, welfare, and daily hygiene. In particular, the notification stated that it is advisable to seek human support to assist the Health Care Coordination Headquarters in its work when it is deemed necessary[14]. Therefore, the Disaster Health Emergency Assistance Team (DHEAT) was designed to support the smooth implementation of information collection, analysis, and overall coordination necessary for health crisis management conducted by the public health coordination headquarters of the disaster-affected prefectures [15]. DHEAT is a public support team operated by staff members of other prefectures than the disaster-struck one who have undergone specialized training and education to support the smooth implementation of information collection, analysis, and overall coordination necessary for health crisis management by the public health coordination headquarters and the health centers of a disaster-struck prefecture.

The recent case of COVID-19 infection reminded us of the need for collaboration between the health administration and the medical care-providing bodies in the community. Public health centers play a major role in preventing the spread of infection.

To reduce the workload on public health centers and to speed up the sharing and understanding of information, Health Center Real-time Information-sharing System on COVID-19 (HER-SYS) has been developed and introduced as an emergency response by the MHLW [16]. By using this system, information can immediately be shared among related parties such as public health centers, local governments (other departments than the public health centers), medical institutions, and contractors for related work. Due to the spread of COVID-19 infection, public health centers are still short-staffed and further urgent action is needed.

The MHLW, in cooperation with the IT Office of the Cabinet Secretariat, has established the Information and Telecommunications Infrastructure Center (Gathering Medical Information System on COVID-19: G-MIS) to col-

lect information from medical institutions (approximately 8,000 hospitals with 20 or more beds) nationwide, including the status of hospital operations, hospital beds and medical staff, and the availability of medical equipment (e.g., ventilators) and medical materials (e.g., masks and protective clothing). It is expected that this information site will be utilized for the supply of goods (masks, etc.) and to coordinate the transport of patients, thereby helping to secure the necessary medical care system. The development of such a nationwide information system will reduce human labor and plans can be made for the deployment of valuable human resources.

VI. Conclusion

Japan has achieved universal health coverage in 1961. Although the quantity of Japan's medical human resources is approaching a sufficient number, it is necessary to address an uneven distribution and to improve the quality of the human resources. In recent years, there has been renewed interest in the role played by public health personnel when responding to health crises such as disasters and emerging infectious diseases including COVID-19 infection. Countries have to consider building a tight network between the public health and the healthcare delivery systems and to also establish a dual track health system utilizing limited human resources who maintains routine medical care while responding to medical emergencies.

Acknowledgment

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<総説>

コロナ時代におけるユニバーサルヘルスカバレッジに向けた人材育成

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抄録

日本は1961年に国民皆保険を達成した。我が国の医療人材は量的には十分なものになりつつあるが、現在はその偏在への対応や人材の質の向上が求められている。近年、災害などの健康危機やCOVID-19感染症をはじめとする新興感染症への対応における保健医療人材の役割が改めて注目されている。各国は、公衆衛生と医療提供システムの緊密なネットワークを構築するとともに、医療緊急時には通常の医療を維持しつつ、限られた人的資源を活用したデュアルトラック型の医療システムの構築を検討する必要がある。

キーワード：人材，国民皆保険，公衆衛生，健康危機，COVID-19