



## REVIEW ARTICLE

# Building primary care in Japan: Literature review

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## Abstract

Japan's health system is well known for achieving one of the world's highest life expectancy with universal health coverage. However, the country now faces challenges of a rapidly aging population and changes in patterns and burden of disease. Primary care is an important component of a well-functioning health system. In Japan, primary care services are provided in both the community and hospital settings. The distinction between primary and secondary care may not always be clear. This review is based on the framework from the 2015 WHO publication on primary care systems in Europe. Our aim is to describe the journey of primary care in Japan, with its past, present, and future as a valuable addition to the academic English literature. We also hope that this article would inspire readers outside of Japan who might face similar issues in their respective countries.

## KEYWORDS

healthcare system, Japan, primary care, review

## 1 | INTRODUCTION

The foundations of primary care in Japan can be traced to the late 19th century when the first public medical school was established in Tokyo. Takemura<sup>1</sup> and Yamamoto<sup>2</sup> outlined the challenges of developing primary care in Japan in the 1980s and 1990s. Some of the challenges faced by Japan at that time are still relevant in 2018.

In the last few decades, Japan's health system has become well known for achieving the world's highest life expectancy and universal health coverage.<sup>3</sup> Demographic shifts such as an aging society and low fertility rate, as well as economic challenges including escalating healthcare expenditure and slowing of economic growth, have resulted in calls to reform the health system. As the Organization for Economic Co-operation and Development (OECD) mentioned in

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2014<sup>4</sup>, health care in Japan needs more quality assessment and control. In 2015, healthcare leaders published the “Japan Vision: Health Care 2035” document, which explains the need to build a sustainable healthcare system which is equitable and responsive to the needs of the population.

In this paper, we aimed to describe the current state of primary care in Japan and adopted the structure of a 2015 WHO publication on primary care in Europe<sup>5</sup> as a framework. This 2015 WHO article, complementing the previous WHO study<sup>6</sup> about the overview of primary care, provides detailed and comprehensive information about primary care in each European country; the main governance and economic conditions; workforce development; service delivery; and quality and efficiency assessment. There, from a systematic review,<sup>7</sup> primary care was assessed from the view of three groups consisted of 10 dimensions because of the subsystem aspect and the necessity of the overall evaluation of primary care. It would be useful to use this comprehensive framework in this review for the comparison of the primary care in each European country through the previous paper, as well.

We hope this review written in English will be informative and aid the mutual understanding of primary care because many papers written on primary care in Japan are in Japanese. We hope the journey of primary care development in Japan will inspire readers outside of Japan, who may well face similar challenges in their respective countries.

## 2 | THE CONTEXT OF PRIMARY CARE

### 2.1 | Country and population

Japan has a population of 127 million<sup>8</sup> in a territory of 380 000 km<sup>2</sup>.<sup>9</sup> The mean population density is 340.8/km<sup>2</sup>, and this is six times the global average.<sup>8</sup> Japan has 418 inhabited islands,<sup>10</sup> and 67% of the nation is covered with forests.<sup>11</sup> These geographical conditions result in a variety of practice of medicine in Japan. Due to the low fertility rate (1.44, in 2016)<sup>12</sup>, the overall population is decreasing by 1% every year.<sup>13</sup> Japan has a rapidly aging population. Population aged over 65 is 27.3%<sup>14</sup> and is expected to be at 33.1% in 2035.<sup>14</sup>

### 2.2 | Development and economy

Japan is a constitutional monarchy. The power of the Emperor is limited as sovereignty is vested in the people of Japan, as enshrined in the constitution adopted in 1947. Japan's legislative body is the bicameral National Diet, consisting of the lower House of Representatives and the upper House of Councillors. The executive branch consists of the Prime Minister and cabinet.<sup>15</sup> The Prime Minister appoints members of the cabinet to head ministries, which are responsible for specific sectors of public administration. The ministry responsible for health care is the Ministry of Health, Labor and Welfare (MHLW).

Japan is the third largest national economy in the world as of 2018, with a GDP of US\$ 4939 billion. Economic growth is forecast

to slow down in the coming decades (Global Economic Prospects, World Bank, June 2018). Japan risks financial instability because of the high government debt to GDP ratio and shrinking workforce. The Japanese Human Development Index combining life expectancy, education, and GDP is 0.903<sup>16</sup> (ranked 17th in the world, 2015). The GINI coefficients of equivalent redistributed income was 0.3759, while those of equivalent initial income was 0.5704 in 2014.<sup>17</sup> This shows income redistribution is effective to income equality. Expected years of schooling is 15.3 years in 2018.<sup>16</sup>

### 2.3 | Population health

Japan's population has the longest life expectancy in the world.<sup>18</sup> Life expectancy at birth is 81.0 for males and 87.1 for females (2016).<sup>19</sup> This has been increasing steadily since 1965. Healthy life expectancy is estimated at 72.1 for males and 74.8 for females (2016) and is maintaining an upward trend.<sup>20</sup> The duration of living with morbidity has shortened because the shift in the onset of morbidity exceeds the change in life expectancy.<sup>20</sup> While life expectancy is increasing, the birth rate is decreasing. In 2016, the total fertility rate was 1.44. This has decreased after the second baby boom from 1971 to 1974.<sup>21</sup> Infant mortality rate per 1000 live births is 2.0 (2016)<sup>21</sup>, the lowest in the G20 countries.<sup>22</sup>

The crude death rate in 2016 was 10.5 per 1000 population.<sup>21</sup> According to the MHLW data, the leading causes of mortality were malignant neoplasms (28.5%), heart diseases excluding hypertensive heart diseases (15.1%), pneumonia (9.1%), cerebrovascular diseases (8.4%), and senility (7.1%) in 2016.<sup>21</sup> The five diseases most prevalent in the outpatient setting in hospitals and clinics are as follows: gastrointestinal diseases; circulatory diseases including hypertension; musculoskeletal diseases; respiratory diseases including asthma and chronic obstructive pulmonary disease; and metabolic diseases (2014).<sup>23,24</sup>

### 2.4 | Characteristics of the healthcare system

There are two important characteristics of the healthcare system in Japan—universal health insurance and free access.<sup>25</sup> Universal health insurance was introduced in Japan in 1961. All residents of Japan including foreign nationals with a residence card are required by law to be enrolled in a health insurance program.<sup>26</sup>

There are two main types of health insurance: the employees' health insurance (including more than 3000) and National Health Insurance (NHI). The employees' health insurance system covers employed workers and their dependents. On the other hand, the NHI is provided to unemployed and self-employed people by municipal governments.

There is a uniform national fee schedule, which includes co-payment rates for patients, and reimbursement to healthcare providers for most healthcare procedures and products. The co-payment rates vary between 10% and 30% depending upon the patients' age. Low-income patients who require welfare assistance are exempted from cost sharing. Co-payments are required at every visit to clinics and hospitals.<sup>27</sup> Some local governments subsidize health care for children.

In addition, long-term care services for people over age 40 with a specific disease and people over 65 years old are covered by the public long-term care insurance (LTCI). The LTCI was launched in 2000; participation is compulsory. Day services, residential services, respite care services, lending welfare equipment, and home visits services by certified nurses, care workers, and physiotherapists are provided under the LTCI with a small co-payment.<sup>28</sup>

The second important feature of the healthcare system in Japan is “free access.” Patients are completely free to choose any healthcare facilities, regardless of the severity of their disease and their insurance status. However, patients who attend tertiary care facilities without a referral letter from a primary or secondary healthcare facility are required to pay an additional fee.<sup>27</sup>

The ecology of medical care in Japan has been investigated. Among 4548 national-representative participants, during a one month period, per 1000 inhabitants, 794 people report at least one symptom, 447 used an over-the-counter drug, 265 visited a physician's office, 70 visited a hospital outpatient clinic (60 community-based and 10 university-based), 6 were hospitalized, and 4 visited a hospital emergency department.<sup>32</sup> The results were similar to other East Asian countries.<sup>33,34</sup>

Table 1 describes the development of health resources and utilization in Japan with OECD averages. We need to pay attention that physicians in private practice in Japan can freely profess them as GPs even if not having the certification.

### 3 | STRUCTURE OF THE PRIMARY CARE SYSTEM

#### 3.1 | Primary care governance

The MHLW is the central governmental organization responsible for policy setting and administration of the healthcare system in Japan. At the tier of local government, prefectures and municipalities have designated roles in healthcare provision and administration.<sup>36</sup>

The Central Social Insurance Medical Council, an advisory body to the MHLW, revises the National Health Insurance and medical fee schedule once every two years.<sup>37</sup> This schedule stipulates the

economic incentives to healthcare organizations for the provision of health care.<sup>38</sup>

In 2000, the MHLW introduced “Health Japan 21”,<sup>39</sup> a major health promotion policy focusing on the prevention of lifestyle-related diseases. Prefectures and municipalities are required to implement this policy, under the Health Promotion Law enacted in 2002. This law<sup>40</sup> emphasizes health as not only a right but also an obligation for populations.

Presently, the government is building regional frameworks for the comprehensive provision of supportive care and health services, known as community-based integrated care systems (Figure 1).<sup>41</sup> Projections of demographic changes differ across regions. In the future, the urban population is expected to be stable, with a rapid increase in the proportion of the population over the age of 75. In rural areas, however, the population over the age of 75 will gradually increase, but the population as a whole is expected to decrease. Municipalities and prefectures that are insurers are required to construct this system mainly and voluntarily, not at the national level.

To discuss longer-term health policies, the Health Insurance Medical 2035<sup>42</sup> was formulated in 2015. The aim is to study strategic approaches to health promotion, the sustainability of healthcare systems, international contributions, and regional development.

The professional body representing primary care in Japan is the Japan Primary Care Association (JPCA), which was established in 2010 with the merger of three academic societies in primary care.<sup>43</sup> On the other hand, in a previous survey, more than 90% of physicians answered that they provided some form of primary care.<sup>44</sup> As evidenced by these findings, primary care in Japan is provided by different specialties.

The national professional body for doctors in Japan is the Japan Medical Association<sup>45</sup> (JMA). JMA's membership includes 167 000 physicians (approximately 84 000 self-employed physicians and 81 000 physicians employed by hospitals or clinics<sup>46</sup>). JMA participates in the policy deliberation on medical care, health, and welfare. Other activities include providing lifelong education for physicians and educating the public. JPCA has achieved the degree of certification of the lifelong education of physicians with JMA.

**TABLE 1** Development of healthcare resources and utilization (Japan/OECD average)

	Total health expenditure as % of GDP <sup>a</sup>	Total health expenditures per capita (in PPS\$) <sup>a</sup>	Hospital beds per 100 000 population <sup>a</sup>	Physicians per 100 000 population <sup>a</sup>	GPs as % of all physicians <sup>b</sup>	Nurses <sup>c</sup> per 100 000 population <sup>a</sup>	Average length of stay in all hospitals (days) <sup>a</sup>	Hospital admissions per 100 population <sup>a</sup>	Outpatient contacts per person per month
2015	10.9/8.8 <sup>d</sup>	4428.3/3756.5	1317/476	236/335 <sup>e</sup>	32.7/29.1 <sup>e</sup>	1096/907 <sup>e</sup>	29.1/8.3	12.4/16.1	1.58 <sup>f</sup>

<sup>a</sup>Cited from the OECD.Stat.<sup>29</sup>

<sup>b</sup>Cited from the Survey of Physicians, Dentists and Pharmacists by the Japanese Ministry of Health Labor and Welfare.<sup>30</sup> The percent is included all physicians working at clinics regardless of their specialty, because GPs cannot be divided from the others in Japan.

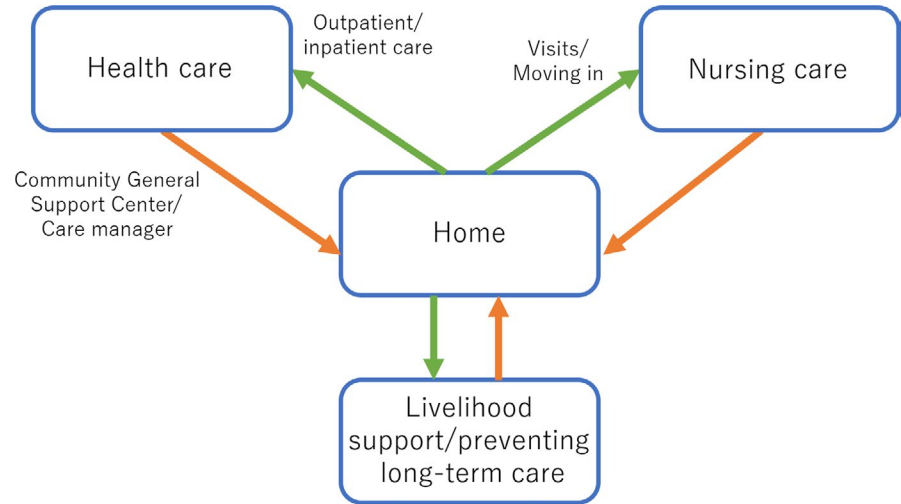
<sup>c</sup>Including associate nurses.

<sup>d</sup>Provisional value cited from the OECD.Stat.<sup>29</sup>

<sup>e</sup>Cited from the data in even number of years (1994, 2004, 2014), because the Survey of Physicians, Dentists and Pharmacists has been conducted every two years since 1982.<sup>30</sup>

<sup>f</sup>The data of OECD average were not available.<sup>31</sup>

**FIGURE 1** The community-based Integrated Care System Model Quoted and partially modified from reference<sup>35</sup>



### 3.2 | Economics

Japan spent 42 trillion Yen on health care in 2016<sup>47</sup>, which accounts for 10.9% of the gross domestic product (GDP).<sup>48</sup> The proportion of this expenditure attributable to primary care services is unknown. Medical expenditure per capita is 330 000 Yen.<sup>47</sup>

The aging population is cited as the main reason for the increase in medical expenditure. As of 2016, late-stage elderly accounted for 13.3% of the population but is expected to increase to 25% in 2025. Over 65-years old account for 60% of overall medical expenditure.<sup>47</sup> The increase in medical expenditure for the late-stage elderly is remarkable. The cost in the fiscal year 2017 is 16 trillion Yen. This accounts for 70% of the increase<sup>47</sup> and is expected to continue to rise in the future. In the 2018 review of medical fee reimbursement, primary care medical fees were increased for healthcare facilities with less than 200 inpatient beds.<sup>49</sup> This is hoped to incentivize primary care further and promote the primary care function of these facilities.

The level of user co-payments varies from 10% to 30%. The user co-payment rate is set at 30% for patients aged 3-69 years, 20% for children aged 0-2 years (with public support by the local government), and 10% for elderly patients aged 70 years or older (30% depending on income). In 2003, a flat-rate payment system for inpatient medical care was introduced. Hospital care expenditures are determined on the basis of the patient's disease.<sup>50</sup>

The salaries of physicians working in hospitals are similar across hospital specialties. However, as clinics are reimbursed under a fee-for-service model, the salaries of clinic physicians are usually higher than that of hospital physicians. The average annual salary of a hospital physician in 2017 came to 14.7 million Yen, while that of a physician running a clinic stood at 24.6 million Yen.<sup>51</sup>

### 3.3 | Primary care workforce

Japan faces an overall shortage of physicians including primary care. More physicians work in urban areas compared to rural areas. In order to overcome this maldistribution, the Ministry of Education,

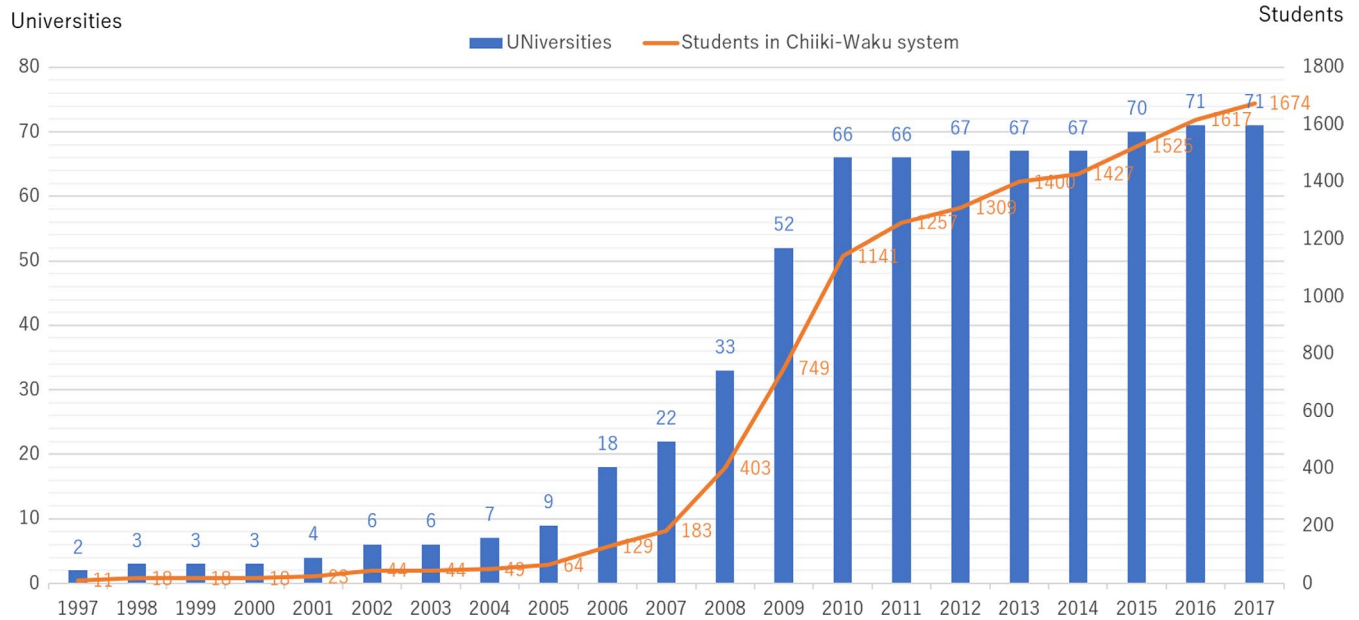
Culture, Sports, Science, and Technology increased the intake of medical students.<sup>52</sup> Many universities have also implemented the Chiiki-Waku system, a selective admission for medically underserved areas (Figure 2).<sup>53</sup> While the Chiiki-Waku system provides scholarships to medical students, graduates are required to work in a rural area in a certain period. As of 2017, 71 out of 81 universities with medical faculties have adopted the Chiiki-Waku-system which has recruited 1674 students in 2017. This is equivalent to 18 percent of all medical students, and the number of medical students is increasing, as well (Figure 3). The long-term impact of the Chiiki-Waku system should be assessed in the future. Also, the duration of service in a rural area and specialty choice should be standardized.

In universities, the Department of Family Medicine provides medical care, research, under/postgraduate medical education in the primary care field.<sup>54</sup> In a survey of 60 universities in 2016, 38 (63%) reported that they had primary care specialist/trainers. Since 2004, graduates are required to undertake two-year residency training, including four-week training of the community health.

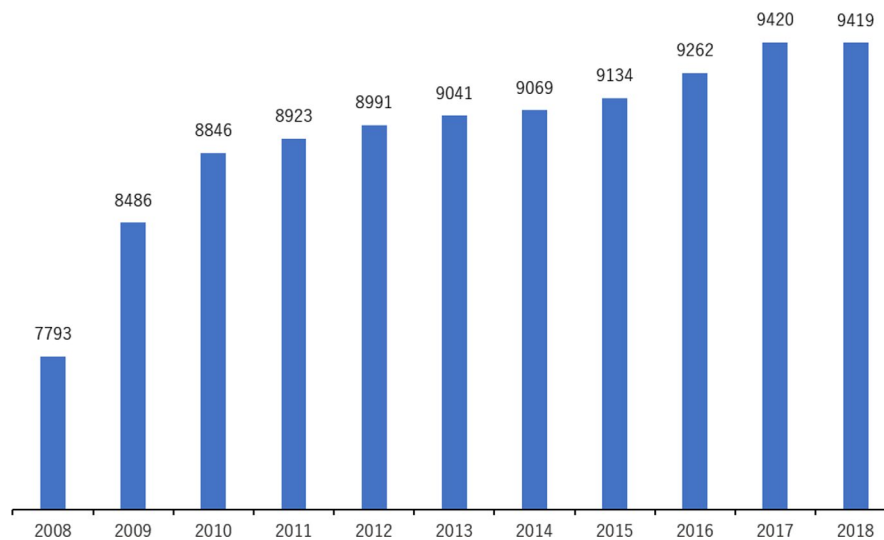
Around 0.5% to 1.1% of medical students become primary care physicians,<sup>55</sup> based on the number of medical students who passed the examination for physicians and primary care specialists.

According to a survey of primary care physicians in 2014<sup>55</sup>, 232 (76.8%) of 302 respondents (78.7% of all primary care specialists) were male, with a median age of 36 years: 224 (74.2%) between the ages of 30 and 39 years, 70 (23.2%) between the ages of 40 and 49 years, 5 (1.7%) between the ages of 50 and 59 years, and 1 (1.3%) over the age of 60 years. Current practice status was 273 (90.4%) in full-time and 19 (6.3%) in part-time practice. Of 291 respondents, 120 (41.2%) responded that more than 90% of their working hours is in clinical care, and 15 (5.2%) responded that more than 40% of their time is in research.

Since 2010, JPCA has certified primary care specialists, and as of July 31, 2018, 672 specialists have been certified.<sup>56</sup> The Japanese Medical Specialty Board certifies medical specialists from 2018<sup>57</sup>. JPCA also conducts training for hospitalists.<sup>58</sup> Other JPCA activities include a certified pharmacist project<sup>59</sup> and a certified nurse training project.<sup>60</sup>



**FIGURE 2** The number of universities adopting Chiiki-Waku system and students in it



**FIGURE 3** The number of first year medical students

## 4 | PRIMARY CARE PROCESS

### 4.1 | Access to primary care services

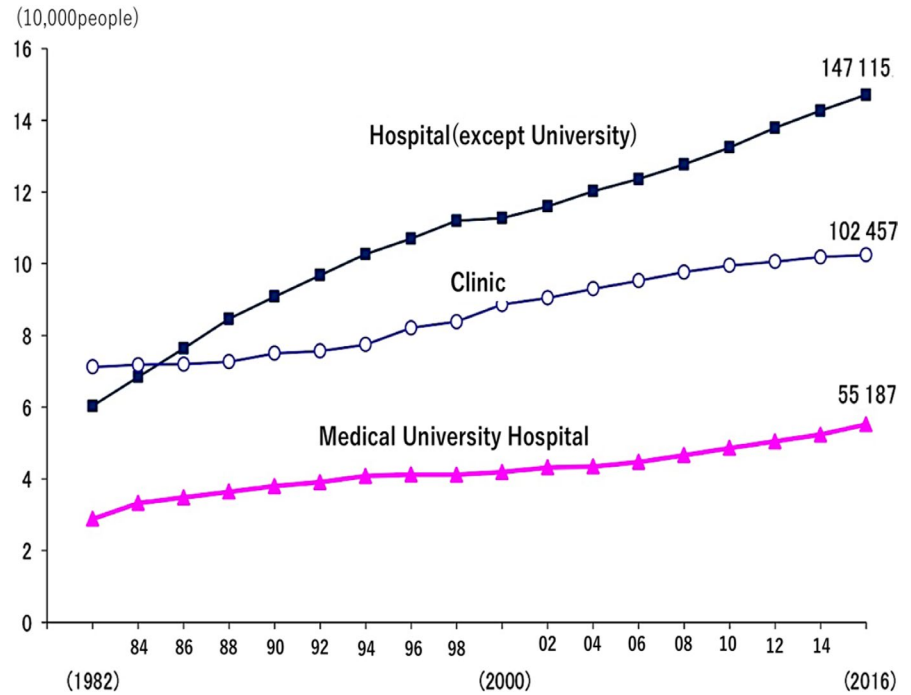
As we described above, primary care physicians do not have a strict gatekeeping role. People can access secondary and tertiary care facilities directly without a referral from a primary care physician. Physicians in hospitals, thus, need to provide not only secondary care but also primary care. The estimated number for outpatients was about seven million people per year, and its 30% was occupied by hospitals.<sup>61</sup>

Due to the unclear boundary between primary/secondary care and clinic/hospital care, it is difficult to evaluate the primary care workforce. From the available statistics, there are 15 125 physicians<sup>62</sup> who hold a “general internal medicine” practice status, and 102 457 of physicians<sup>63</sup> who work in clinics (Figure 4). Also, there is a

geographical disparity in the density of physicians.<sup>63</sup> The difference between prefectures with the lowest and the highest densities of physicians per population is 155.1 physicians per 100 000 inhabitants (ranging from 307.9 in Kyoto Prefecture to 157.2 in Saitama Prefecture). In contrast, for pediatrics, the difference is 78.1 pediatricians per 100 000 inhabitants (ranging from 153.4 in Tokyo to 75.3 in Ibaraki Prefecture).

In terms of consultation length, the average time in Japan was 6.12-10.2 minutes<sup>64</sup> among the 67 countries (average consultation length was from 48 s in Bangladesh to 22.5 minutes in Sweden). Out of hours, primary care is provided by the regional JMA (mainly for walk-in patients). Secondary care during out of hours is provided by local hospitals (mainly for patients need admission).<sup>65</sup> As we mentioned above, patients need to pay 10%-30% of the cost of

**FIGURE 4** The number of physicians in Japan



consultation and medication as a co-payment in both daytime and out-of-hours care.

#### 4.2 | Continuity of primary care services

The Japanese healthcare system does not have a patient list system or a registration system. Since patients can freely choose and change their physicians or healthcare facility, maintaining continuity is difficult for providers. Generally, continuity of primary care is facilitated by well-integrated medical records and connected care from inpatient to outpatient primary care settings. According to official figures from 2014, however, only 35% of clinics have an electronic medical record system.<sup>66</sup> Although this proportion has been increasing, the large number of electronic medical record systems available limits interoperability between different providers.

The government aims to encourage patients to utilize the same primary care clinics to develop an efficient healthcare system and reduce healthcare cost. Therefore, a patient who visits hospitals without a referral letter from a primary care physician needs to pay an additional fee, 5000 Yen ( $\approx$ 45 US dollars). Moreover, primary care clinics can receive incentives from the insurance body by the referral. For example, when a primary care physician introduces patients to a hospital physician, they receive a referral fee.

#### 4.3 | Coordination of primary care services

Ideally, primary care physicians should be the gatekeepers of a healthcare system. In Japan, however, the gatekeeping function of primary care physicians is weak. A physician in a hospital will need to provide primary and secondary care (see Sections 3.13.2 and 3.23.3). Therefore, evaluating the coordination between primary and secondary care is complicated.

Government efforts have focused on gradually increasing coordination of primary and secondary care. Regarding the number of hospitals, there are 8442 hospitals and 101 529 clinics in Japan. Of those, 18% of hospitals were a national or public hospital, 68.2% were a medical corporation and 2.8% were private hospitals. On the other hand, public clinics were only 3.6%, medical cooperative clinics were 40.5% and private clinics were 42.1%, and 102 457 physicians worked in the clinics.<sup>67</sup> The ratio of solo practice and group practice is unclear.

To strengthen the coordination of primary and secondary care, the MHLW provides reimbursement fees to incentivize joint working between primary care and secondary care teams. For example, if pre-discharge conferences are held before discharge from a hospital to community home-based care, the hospital and the provider of the home-based care will obtain an additional fee. The multidisciplinary conference involves a hospital physician, a home visit physician, a nurse, a pharmacist, a physical therapist, a social worker, and a care manager.<sup>68</sup>

A recent initiative by the government strives to promote coordination within the multidisciplinary team in caring people with dementia. The "Orange Plan" is a national policy on dementia which aims to strengthen the coordination of care between health care and social care.<sup>69</sup> It emphasized the importance of early intervention and initial intensive support teams for people with dementia. Initial intensive support teams carry out home visits, clinical assessments, and provide information for patients and families.<sup>70</sup>

#### 4.4 | Comprehensiveness of primary care services

Due to the nature of free access in the Japanese healthcare system, patients can and often visit multiple healthcare institutions. Moreover, there is an abundance of specialist clinics (eg, ophthalmology clinic) which deal with common health problems in each

discipline. Therefore, evaluating the comprehensiveness of primary care is difficult. However, an international comparison in primary care by Okkes et al<sup>71</sup> revealed frequent reasons for encounter were overlapped between Japan and other countries (the United States, the Netherlands, and Poland).

The scope of clinical practice of Japanese primary care physicians is varied<sup>72</sup> according to areas and available facilities. For instance, although obstetricians usually provide maternity care including routine prenatal checkups in Japan, some primary care physicians perform obstetrics and gynecology procedures in rural areas.<sup>73</sup> In terms of a certified family physician, 23.6% of physician provides antenatal and postnatal care.<sup>72</sup> Moreover, in Japan, because sometimes CT scan, ultrasonography, and upper gastrointestinal endoscopy are available in a primary care clinic/a specialist clinic, these procedures are carried out in a primary care setting.

## 5 | THE OUTCOME OF THE PRIMARY CARE SYSTEM

### 5.1 | Quality of primary care

We achieved a longer healthy life expectancy<sup>74</sup> and lower total perinatal mortality<sup>75</sup> in the world. However, they are outcomes of any levels of care, from primary to tertiary care. We need to assess the primary care outcome clearly. Japanese contribution to research in primary care is limited. From 2001 to 2016, only 0.15% of papers published in the top five high-impact international primary care journals were from Japan.<sup>76</sup>

Primary care in Japan is provided not only in clinics but also in hospitals. Diagnosis Procedure Combination (DPC) is a case-mix classification system for inpatient care to estimate payments for services by healthcare providers. Hypertension was ranked the highest, followed by chronic renal failure, dyslipidemia, and diabetes mellitus. Indeed, the top four are occupied by lifestyle diseases. These patients suffering from chronic disease are often treated in clinics, and it is necessary to construct a database showing the actual clinical practice for outpatients.

The National Database of Health Insurance Claims and Specific Health Checkups of Japan (NDB) contains data for medical administrative claims, as well as Specific Health Checkups and Specific Health Guidance. This is utilized by the Central Social Insurance Medical Council, an advisory body of MHLW on medical fee revision held once every two years. Such data-based discussions are expected to promote a better distribution of medical resources. These data have been made freely available online via "NDB Open Data Japan" on the MHLW webpage. These medical data disclosures are receiving a lot of attention, and Personal Health Record is another good example. With the spread of electronic medical records, integrated management and interoperability are expected to empower patients in self-care. Also, to improve the evidence-practice gap, the process approach is effective to evaluate the quality of practice and we should make the best use of artificial intelligence.

Quality of care from the patient's perspective is an important quality indicator in a health system. The Institute of Healthcare Improvement "Triple Aim" framework includes the domains of patient experience, population health, and per capita cost.<sup>77</sup> The Japanese version of the Primary Care Assessment Tool (JPCAT)<sup>78</sup> is a validated tool to evaluate the quality of primary care from patient experience<sup>79</sup>. Better patient experience is associated with increased uptake of breast cancer screening, advanced care planning discussion, and reduced bypassing of primary care. Evidence using the JPCAT tool is being accumulated.<sup>80-85</sup>

### 5.2 | Efficiency of primary care

The efficiency of Japanese primary care is unclear. Previous international studies have compared the relative efficiency of European primary care systems, with data from the European Primary Care Monitor based on the primary care conceptual framework described by Kringos et al. In Japan<sup>6,7</sup>, the division between primary and secondary care services and providers is vague. The comparative efficiency of primary care in Japan with other settings is therefore challenging. The efficiency of the Japanese health system has been described in several studies. The introduction of DPC to hospital management has been found to increase technical efficiency of several surgical conditions and improve the relative efficiency of public and private hospitals.<sup>87,88</sup>

Strengthening access to primary care, coordination of care and economic resources available for primary care should improve primary care efficiency.<sup>85</sup> Although data from Table 1 suggest that adequate availability of services nationally, access to primary care remains an issue due to the geographical dispersion and local acceptability of primary care services. In the dimension of coordination of care, Japan needs to establish a gatekeeping system by primary care and achieve greater integration of public health in primary care.<sup>89</sup>

As the above sections of access and governance mentioned, the allocation of healthcare resources has been decided between providers, payers, and the government. Following the enactment of Act for Securing Comprehensive Medical and Long-term Care in the Community in 2014, their discussion has been based on the estimated data of the optimal allocation of hospital beds, the number of patients, and treatment needed in 2025 by each municipal government, using national databases on claim bills and other utilization information.<sup>86</sup> The developing platform of national databases would visualize the maldistribution of health resources and the integration of public health in primary care, which may lead to more efficient primary care system through improving the access and coordination of care.

In 2016, the JMA has offered primary care training and certification for its members.<sup>90</sup> In 2018, the new certification program has been introduced by the Japanese Medical Specialty Board.<sup>91</sup> Specialist of primary care acknowledged as 19th specialty area will be certified by this board. Thus, senior resident training programs are reforming. It is envisioned that the provision of high-quality primary health care would decrease the bypass of primary care.<sup>92</sup>

Therefore, a senior residency program of high quality would improve the efficiency of primary care.

## CONFLICT OF INTEREST

The authors have stated explicitly that there are no conflicts of interest in connection with this article.

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**How to cite this article:** Kato D, Ryu H, Matsumoto T, et al. Building primary care in Japan: Literature review. *J Gen Fam Med.* 2019;20:170–179. <https://doi.org/10.1002/jgf2.252>