II 章
分担研究報告

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「エビデンスに基づく日本の保健医療制度の実証的分析」（H26-地球規模-一般-001）
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Context and challenges of Japan’s health system

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研究要旨

Japan is the world’s third-largest economy, with a corresponding high standard of living, level of development, safety, and stability. Japan is a constitutional monarchy with a parliamentary system of government. The country itself, is divided into 47 prefectures that span four main islands and a number of small archipelagoes. Japan is a country that is highly urbanised, and is host to one of the largest metropolis in the world, Tokyo. Japan’s population of 127 million people is ageing rapidly due to low birth rates and increased life expectancy. This has led to what some claim is an imminent demographic crisis. Since its founding in 1961 the Health-System in Japan has provided comprehensive coverage to all Japanese citizens. This can be largely attributed to the National Health Insurance System. Thanks to its overall effectiveness of the health system and paralleled advances in technology, Japan has for many years enjoyed increased in life expectancy along with decreased maternal and infant mortality. However, in recent decades the incidence of lifestyle-related diseases such as obesity and diabetes have increased significantly. This rise, along with population ageing, continues to place strain on the national health system. Coupled with over two decades of economic slowdown, Japan must now find policies that balance universal coverage, support for the elderly, and financial sustainability.

Ａ．研究目的

Japan is the world's third-largest economy, with a corresponding high standard of living, level of development, safety, and stability. Japan is a constitutional monarchy with a parliamentary system of government. The country itself, is divided into 47 prefectures that span four main islands and a number of small archipelagoes. Japan is a country that is highly urbanised, and is host to one of the largest metropolis in the world, Tokyo. Japan's population of 127 million people is ageing rapidly due to low birth rates and increased life expectancy. This has led to what some claim is an imminent demographic crisis.

Since its founding in 1961 the Health-System in Japan has provided comprehensive coverage to all Japanese citizens. This can be largely attributed to the National Health Insurance System. Thanks to its overall effectiveness of the health system and paralleled advances in technology, Japan has for many years enjoyed increased in life expectancy along with decreased maternal and infant mortality. However, in recent decades the incidence of lifestyle-related diseases such as obesity and diabetes have increased significantly. This rise, along with population ageing, continues to place strain on the national health system. Coupled with over two decades of economic slowdown, Japan must now find policies that balance universal coverage, support for the elderly, and financial sustainability.

This report will describe this context and set out the future challenges facing the Japanese health system.

Ｂ．研究方法

Using available data from the Ministry of Health, Labor and Welfare, and the published papers, this report summarizes the health context. Data was obtained on economic changes, demographic trends and core health indicators for Japan and OECD countries for the period 1980–2015. This data was summarized and combined with data on the burden of specific diseases obtained from published research and the Global Burden of Disease project 2015.

Ｃ．研究結果

C.1. Geography and sociodemography

Japan is an archipelago set between the Sea of Japan to the West and the Pacific Ocean to the East. Japan shares no contiguous land borders with any other nation, but due to the large number of islands within its territory, it has an extensive maritime boundary. Whilst Japan is comprised of over 6,000 islands, a large majority of its population inhabit the four main islands: Honshu, Kyushu, Hokkaido and Shikoku (in descending order of population). Due to mountainous terrain, land available for urban development is limited resulting in high population density in conurbations. Japan's geographic situation on the Pacific rim makes

the country particularly prone to seismic activity, earthquakes and tsunamis. As well as, typhoons originating in the Pacific Ocean.

Japan has passed through the epidemiological transition and is now ageing rapidly. Because of a sharp decline in Japan's birth rate, the shape of the population pyramid no longer resembles the form of a classic population pyramid (Figure 1). Two consecutive baby booms are represented by two corresponding bulges, with the first one occurring shortly after the Second World War (1947-1950) and the second one in the early 1970's. It has become evident that Japan has a large ageing population and faces an unprecedented ageing society when the first baby boomers retire (currently over 65 years old).

The population in Japan increased steadily from 117 million in 1980 to 128 million in 2010, followed by a population decline in 2016 (127 million) (Table 1). The proportion of the population aged 65 years and over was more than double the proportion of 0-14 years olds in 2016. The proportion of the population aged 65 years and older increased from 9.1% in 1980 to 27.1% in 2016, while the proportion of the population aged 0-14 years fell from 23.5% to 12.6%. The total fertility rate was below the replacement level (2.0 children per women) for all years from 1980 to 2015. As a consequence, annual population growth rate has decreased steadily since 1980, and since 2013 there has been negative population growth.

The crude birth rate has decreased steadily over time (from 13.6 per 1000 population in 1980 to 8.0 in 2016, while over the same period, there has been a consistent increase in life expectancy. Among OECD countries, Japan has the lowest fertility rate along with highest mean maternal age at first birth.[2] In comparison, there are several reasons for the population decline in other high-income countries like Japan: delayed marriage, an increasingly large unmarried population, changes in the housing environment and social customs, an increase in the number of women participating in the workforce, maternity and childcare leave, and the rising costs of childbirth and child-rearing.

The old age-dependency ratio, the number of people who are less than 15 years old and above 65 years old divided by the working-age population (between 15 to 64 years old), increased from 48.4 in 1980 to 61.1 in 2013. Urbanisation is also taking place quite rapidly. In 1980, 52.2% of the population was categorised as rural, but by 2015 this declined to 48.6%. It is expected that the rural population will further decline to 43.3% by 2050.

C.2. Economic context

Japan is the world's third largest economy by

gross domestic product (GDP) and is a member of the G7. Although in the immediate postwar period Japan's GDP increased rapidly, the economic crisis of the 1990s growth caused several periods of stagnation and recession (Table 2). Value added by the service was 72.7% of GDP in 2015, representing a 5.4% rise from 2000 levels. However, the value added by industry fell by 4.9% to 26.2% of GDP in the same period, as did agriculture by 0.5% to 1.1% of GDP.

Historically Japan has had low levels of unemployment. Though the unemployment rate has increased since 1990, peaking at 5.0% in 2010, and then decreasing to 3.7% in 2015, the proportion of part-time and contingent workers has continued to grow in recent years. The majority of this increase can be attributed to the growth in the number of older people and women - after child rearing, who have left the workforce, and later returned to work. Increasingly, the inequality in working conditions and low wages has been seen as a serious labour issue with social implications. Gini coefficients quantifying income inequality have declined consistently from 1962 to 1981 indicating that income was distributed more equally over this period. However, for the decade proceeding 1980, Japan's Gini coefficient increased, indicating higher levels of income disparity. In 2012, the Gini coefficient reached 0.33, which is higher than OECD average (0.318). However, an increasing number of children live under the poverty line, reaching 16.3% in 2012. Concerns regarding the impact of increasing inequality on access and quality of healthcare are ever present. In 2008, the MHLW announced that there were about 33000 children who were not covered by the national health insurance due to poverty. This is now a great political concern. At the centre of Japan's approach has been the constitutionally enshrined objective of universality in healthcare, translated into practice by universal healthcare access. An extended economic recession has had an impact on the fiscal space allocated to the healthcare system in Japan. As social inequalities increase, SDH will likely deteriorate, leading to poorer health of the population. Ensuring long term sustainability of universal health coverage system in Japan is presently challenged by rising healthcare costs and an ageing population with lower fertility.

C.3. Political context

In 2011, Campbell et al. analyzed the existing political features of the Japanese political system. The findings are summarized as follows:

- A parliamentary system of government with two houses that commenced in 1947. Though the Prime Minister and the cabinet ministers have strong power, each ministry and its related governmental organizations have strong influence on determining

setting of agenda and policy implementation.

- The “1955 system” that existed up until 1993 ,or some say until 2009, refers to the system that the Liberal Democratic Party (LDP) historically implemented, and has determined agenda setting in relation to health care priorities.

C.4. Health status

C.4.1. Life expectancy and mortality

Table 3 presents trends in life expectancy at birth, and death rates from 1980 to 2015. Life expectancy has increased rapidly over the past 50 years in Japan. The life expectancy at birth increased between 1980 and 2015 by 7.2 years for men, and 8.0 years for women. Thus reaching 80.5 years and 86.8 years, respectively.

Healthy life expectancy, the expected years of life in self-perceived good health, was 71 years for men and 74 years for women in 2013. There has been a consistent improvement in mortality rates over the years, with the greatest improvement seen in age-adjusted mortality rates. The difference between life expectancy and healthy life expectancy shows the numbers of years an individual can be expected to live in poor health, which was 7.9 years for men and 10.4 years for women in 2012. The crude mortality rate shows a gradual increase since 1980, reflecting the effects of population ageing.

There have been significant improvements in life expectancy over the past 50 years in all OECD countries, as shown in Table 4. Of the 11 high-income OECD countries. Japan has the highest life expectancy, at 83.7 years in 2015. This relatively long life expectancy, compared to other OECD countries has been sustained over time. Among other OECD countries, Italy (82.7) has the second longest life expectancy followed by France (82.4) and Korea (82.3). On the other hand, the lowest life expectancy among OECD countries was observed in Mexico (76.7). The Contributing factors to the relatively long life expectancy in Japan may be a healthy lifestyle, regular medical checkups, proper medical and long-term care, and healthy diet.

C.4.2. Specific diseases Like many other high-income countries, non-communicable diseases (NCDs) are now the leading cause of morbidity and mortality in Japan. While the burden of communicable diseases has decreased substantially in the past five decades. The major diseases as cause of death, disability, and burden during 1980 to 2015 are described below:

Table 5 shows the number and rate (per 100,000 population) of main causes of death in Japan by selected years. Overall, NCD deaths increased rapidly from 1990 to 2014 compared to communicable diseases. Cardiovascular

disease, cancer, cerebrovascular and ischemic heart disease and chronic respiratory disease have remained the leading killers over the past five decades in Japan. This trend has been increasing since 1980. However, the transport accident-related death rate has decreased by almost 50% in the past five decades (11.4 deaths in 1980 and 5.1 deaths in 2014) and suicide deaths rates decreased slightly since 2000 (24.1 deaths in 2000, 23.4 in 2010, and 21.0 in 2012). Similar to European and other Western countries, breast cancer deaths have tripled since 1980, making it the second leading cause of death amongst cancer patients. Infectious disease death rates, in particular tuberculosis, decreased sharply over this period.

C.4.3. Burden of diseases Disability-adjusted life years (DALYs) are a health metric used for assessing the burden of disease, which is defined as years of healthy life lost to both fatal and non-fatal disease. It is estimated by summing two components: years lost due to premature death (YLLs) and years lived with disability (YLDs). Table 6 shows the number, rate, and percentage of DALYs by major disease category. Broadly for Japan, while gains are being achieved for cerebrovascular diseases, and also for transport-related injury and suicide, for many of the major causes of disease burden the overall burden has increased over the past two decades. The improvements were largely achieved by death rate reduction particularly deaths due to infectious diseases. Conversely, overall an increase in DALY burden across many conditions is primarily associated with increased disability.

In 2015, NCDs contributed 27 million (or 84%) of total DALYs, while communicable diseases and maternal, neonatal and nutritional disorders contributed two million (7%) and injuries three million DALYs (9%). A slight increase in DALYs was observed for all categories of diseases over the past 25 years. Population ageing, high prevalence of hypertension, increasing risk from NCDs, high intake of sodium, and lower levels of physical activity may be responsible for this increase in DALYs in Japan.

Another measure of disease burden is years of life lost (YLLs), that is calculated by summing the total number of years of life lost due to death and multiplying the number of deaths by a standard life expectancy. Figure 2 presents the contribution of the top 15 leading risks for YLLs in 1990 (left panel graph) and 2015 (right panel graph) for Japan. The top five leading risks for lost life in Japan are dietary risks, high blood pressure, tobacco smoking, high fasting plasma glucose, and high total cholesterol. Dietary risks, high blood pressure, and tobacco use accounted for around 50% of YLLs in 1990 and 2010. Stable values in YLLs may be due to increasing prevalence of

hypertension among the Japanese adult population.

C.4.4. Health behaviours

Diabetes and hypertension

Diabetes and hypertension are two of the major chronic diseases in Japan, that have become a major public health concern among all OECD countries. The age-standardized prevalence of diabetes was 14.2% for men and 7.1% for women in 2015 (Table 7). Between 1980 and 2015, the prevalence of diabetes increased nearly four-fold in men and three-fold in women. Japan is among the top 10 countries globally, for the largest number of adults living with diabetes. The reason for this striking increase in diabetes among Japanese is not clear17. But low dietary fiber intake and high glycemic index could be associated with this increase. This is in light of preference for highly refined rice and bread as the country's main staple.

Hypertension (definition: systolic blood pressure is larger than 140) is another major chronic disease, acknowledged as one of the established risk factors for stroke and cardiovascular diseases in Japan. Japan has one of the highest prevalence of hypertension in the OECD group of countries, at 26.2% for men and 19.6% for women in 2015. Salt intake has been identified as a strong risk factor for hypertension in Japan, and as such, lowering sodium intake is strongly recommended to address this health trend. Public health programmes established to promote salt reduction and primary care management of high blood pressure with anti-hypertensives have been credited with significant reductions in hypertension in Japan.

Age and sex-specific prevalence of diabetes and hypertension that demonstrate Japan's achievements in hypertension control are shown in Figure 3 and 4, respectively. For both sexes, the prevalence of diabetes appeared to remain unchanged over the years in all age categories, except for men aged 60 years and older. Amongst this group a sharp increasing trend in diabetes prevalence can be observed. Age-specific prevalence of hypertension appeared to remain unchanged or showed a decreasing trend over time. However, because of the increasing prevalence of hypertension (2000 to 2010) amongst some older age groups, further monitoring is needed for men aged 50 years or older.

According to the recent report from the International Diabetes Federation (IDF), Japan is among the top ten countries, with the largest number of adults with diabetes. Figure 5 shows the prevalence of diabetes among OECD countries. Amongst OECD countries, Japan ranked 6th with a prevalence of 7.6%. The highest prevalence of diabetes, 9.6%, was in Portugal and lowest prevalence, 3.9%, was

in Lithuania.

Body mass index

In 2013 the prevalence of obesity with a body mass index of 30 kg/m2 or greater was only 4.5 % for men and 3.3% for women. While the prevalence of obesity was relatively constant for women over time. For men, an increase from 1.5% to 4.5% for the period between 1980 and 2013 was observed. These trends are summarized in Table 8.

Prevalence of overweight or obesity with a body mass index of 25 kg/m2 or greater is much higher in men than women. In 2015, the prevalence of overweight or obesity was 29.8% for men and 17.4% for women. While the proportion of overweight or obese women was constant, it increased rapidly in men from 18.0 % to 29.8 % between 1980 and 2015. Although, prevalence of obesity is still much lower than other developed countries, an increasing trend has been observed in both men and women since 1990.

Tobacco consumption

Japan has made limited progress in reducing tobacco consumption over the past few decades compared to other OECD countries, and it remains a leading cause of premature death. The trend in tobacco use in Japan is shown in Table 9.

Tobacco-related intervention programs including public awareness campaigns, smoking bans in public and work places, smoking cessation reimbursement support, and increased price on tobacco related products may have helped reduce the prevalence of tobacco consumption among the Japanese adult population.

The prevalence of smoking dropped by more than 50% in Japan since 1980. Around 30% of male adults in Japan now smoke daily, down from over 40% in 1980. Effective policies for tobacco control are needed in Japan in light of tobacco control ordinances consistent with the Framework Convention on Tobacco Control.

C.4.5. Maternal and child health indicators

There were approximately 1,000,000 births in Japan in 2015. In 2010, 9.6% of births were considered to be low birth weight, a trend which has been increasing over the past decades. Since the 1970s Japan has enjoyed low mortality rates for both mothers and their children. Infant mortality reached a new low in 2015 with 2.0 deaths per 1000 live births. This decrease was mirrored in all measures, including neonatal, perinatal, and under-five mortality rates. Likewise, the maternal mortality ratio (risk associated with each pregnancy) more than halved between 1990 and 2015.

Table 10 summarizes maternal, child and adolescent health indicators in Japan.

Adolescent fertility rates rose slowly for the period up until 2000, and decreased to 4.0 per 1000 in 2015. This is a trend which is also very low globally. Immunization rates in Japan are high and comprehensive coverage has been achieved for some years now, with the exception of measles where coverage fell to 73% in the 1990s due to fears surrounding the MMR vaccine. This drop proved to be temporary, and as of 2015 96% of children aged 12 to 23 months were immunized.

Ｄ． 結論

In the past five decades, Japan has achieved a great many noticeable successes. This includes the full implementation of universal insurance coverage, gaining the highest healthy life expectancy in the world and the eradication or control of common infectious diseases. In addition, alcohol consumption and transport accident deaths decreased substantially in the past 50 years. Despite these achievements, the country is facing many challenges including negative population growth with low fertility rate, an ageing population, shrinking economy, increasing unemployment rate, and increasing NCD-related disease burden. Many NCDs are preventable, since they are linked to modifiable lifestyles and dietary patterns. It is clear from the literature that for people who do not smoke, abstain from or are moderate alcohol drinkers, there are obvious health benefits. This portion of the population are more likely to be physically active, eat a healthier diet, are not overweight or obese. And as a consequence are less likely to die or encounter disability in early life compared to those who have unhealthy habits. Therefore greater focus in required when implementing effective policies on the health agenda. This is necessary in order to reduce the disease burden and prevent, or reverse a declining population growth rate. To prepare for a future of low birth rates, population ageing and slow economic growth, Japan also needs to reform its health insurance system and reorient its health system towards managing the health problems arising from a demographic transition.

E. 研究発表

1. 論文発表

特になし

2. 学会発表

特になし

F. 知的財産権の出願・登録状況

（予定を含む。）

1. 特許取得

特になし

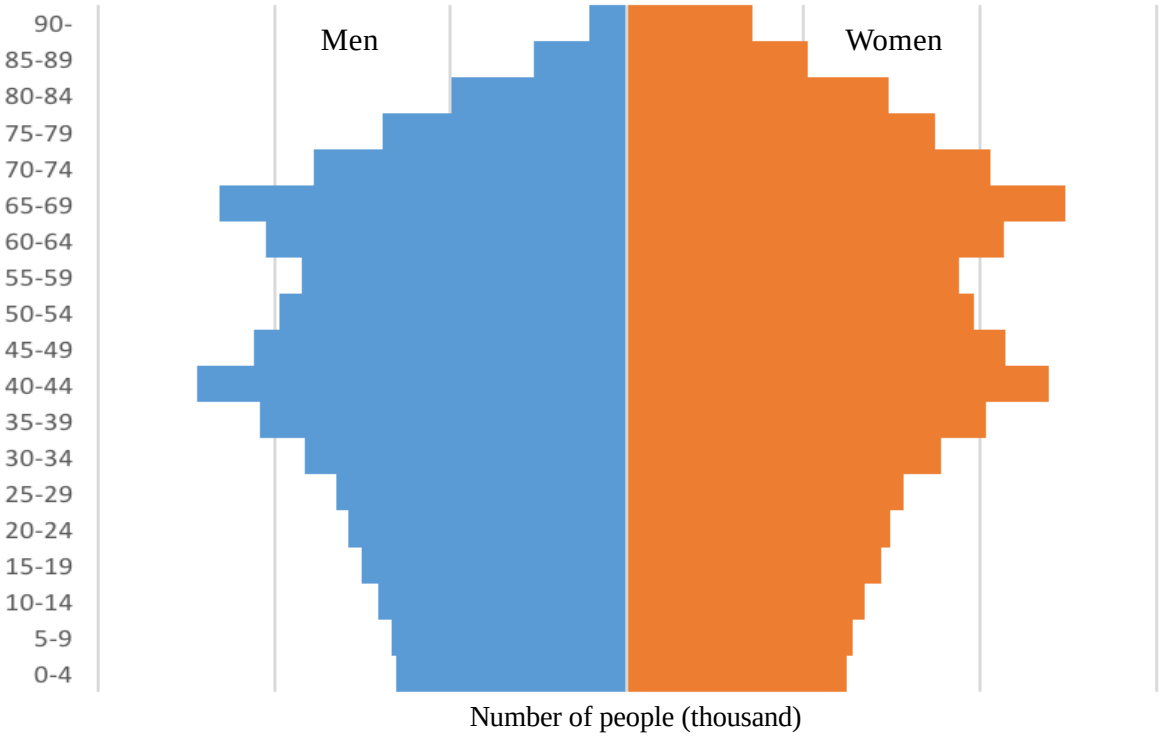
2. 実用新案登録

特になし

3. その他

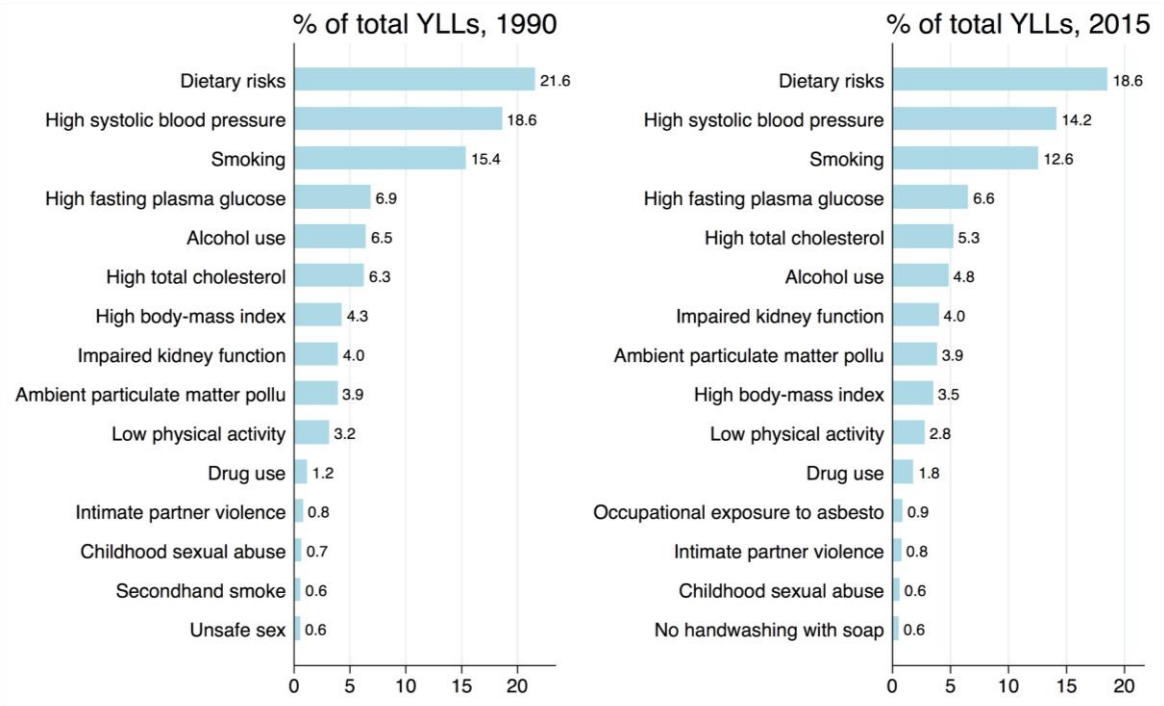
特になし

Figure 1: Japan population pyramid, 2016



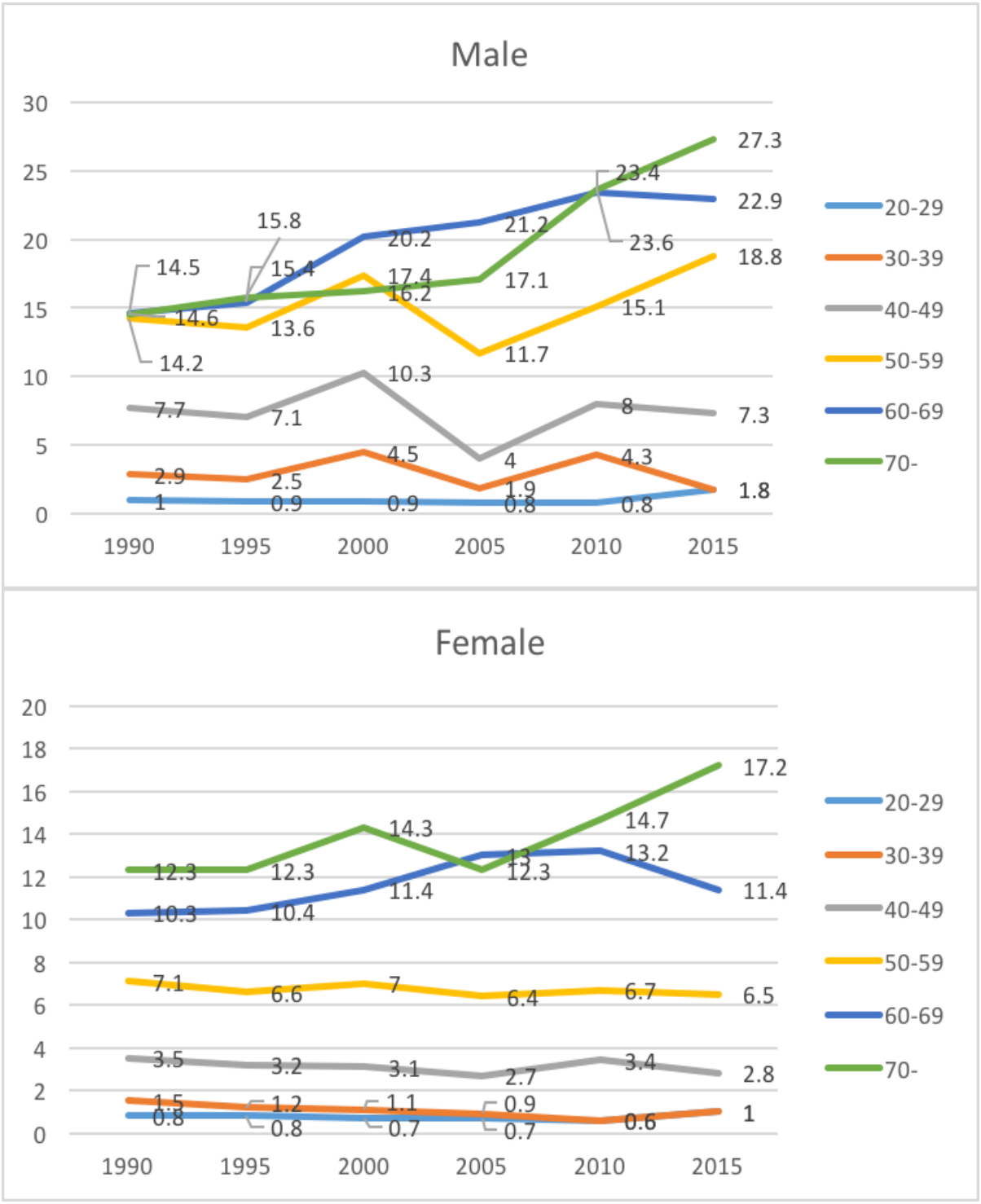
Sources: Ministry of Health, Labour and Welfare (MHLW)

Figure 2: Top 15 leading risks for years of life lost (YLLs) in Japan



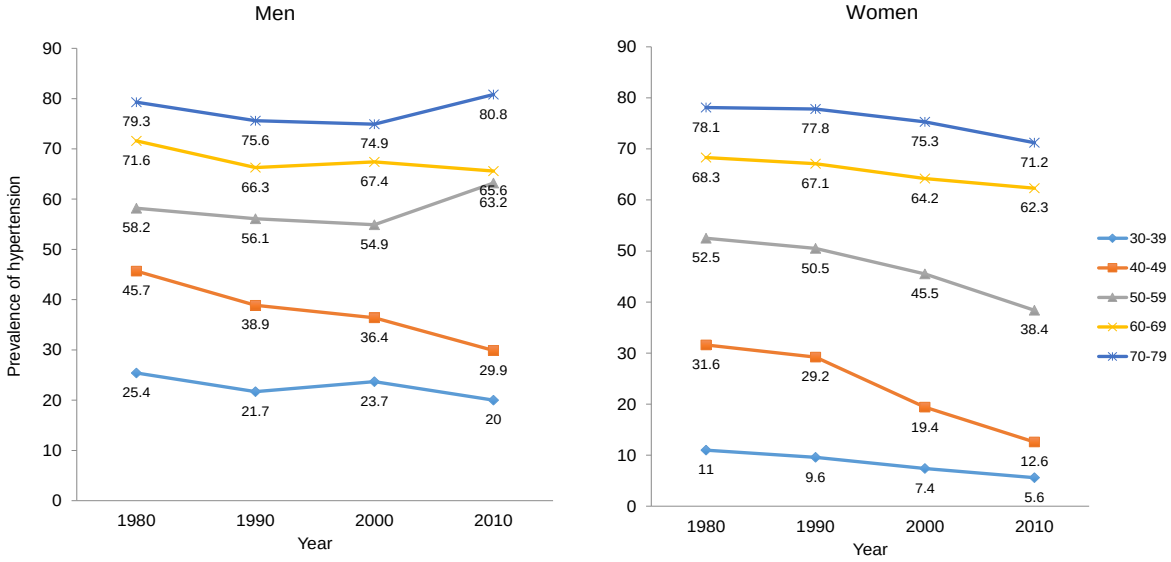
Source: GBD database

Figure 3: Age and sex-specific prevalence of diabetes in Japan during 1990-2015



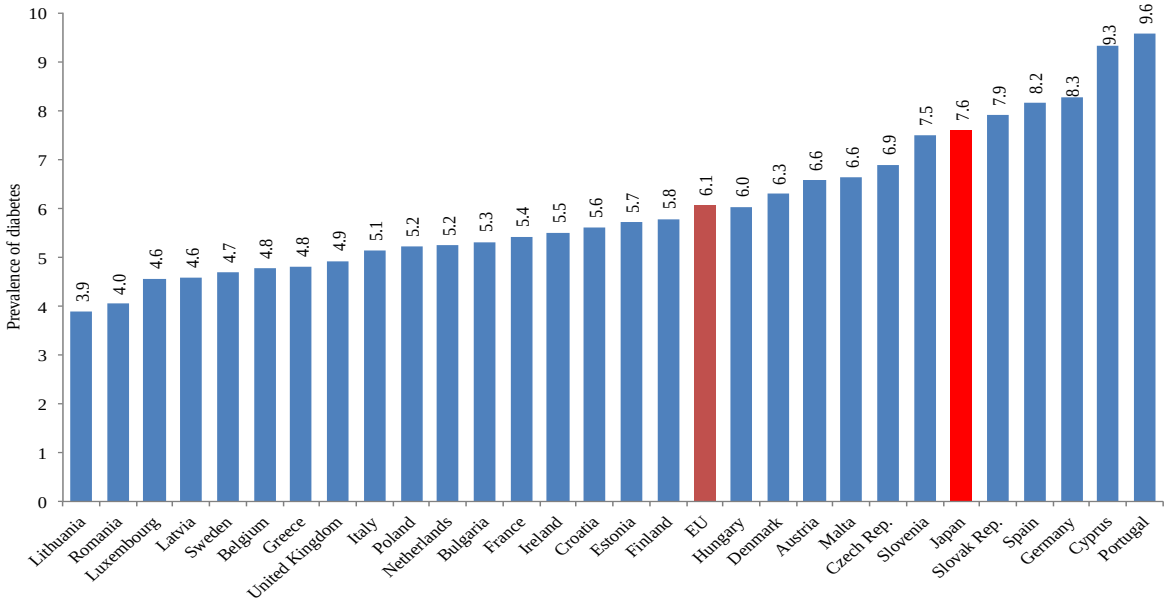
Sources: Charvat *et al.* 2015, MHLW

Figure 4: Age and sex-specific prevalence of hypertension in Japan during 1980-2010



Sources: Miura et al. 2013

Figure 5: Prevalence estimates of diabetes, adults aged 20-79 years, 2013



Sources: OECD 2014; IDF 2014; Note: Used diabetes prevalence for Japan in 2014

Table 1: Trends in demographic indicators, selected years

Indicators	1980	1990	2000	2010	2016
Population (in thousands) [a]	117060	123611	126926	128057	126940
Female (% of total) [a]	50.8	50.9	51.1	51.3	51.4
Population (% of total) [a,b, c]					
0–14 years	23.5	18.2	14.6	13.2	12.6
65 years and older	9.1	12.1	17.4	23.0	27.1
80 years and older	1.4	2.4	3.8	6.4	8.1
Annual population growth rate (%)[a]	0.90	0.42	0.21	0.05	-0.17**
Population density (per sq. km) [a]	314	332	340	343	341
Mean age at first child [a]	26.4	27.0	28.0	29.9	30.4**
Mean age at first marriage [a]					
Male	27.8	28.4	28.8	30.5	30.9**
Female	25.2	25.9	27.0	28.8	29.3**
Total fertility rate (per woman)[a]	1.75	1.54	1.36	1.39	1.46++
Crude birth rate (per 1000 population)[a]	13.6	10.0	9.5	8.5	8.0
Crude death rate (per 1000 population)[a]	6.2	6.7	7.7	9.5	10.4
Age dependency ratio*	48.4	43.5	46.9	56.8	61.1+
Rural population (%) [c]	52.2	51.1	50.5	49.1	48.6++

Sources: [a]MHLW (Ministry of Health, Labour and Welfare), [b]World Bank, [c]MIC (Ministry of Internal Affairs and Communications); *Age-dependency ratio is the ratio of population (0-14 and 65+)/15-64; ** 2013, + 2014, ++ 2015

Table 2: Macroeconomic indicators, selected years

Total population	1980	1990	2000	2010	2015
GDP (¥B)[a]	246465	449392	509860	482676	499211
GDP (2005, US$)[a]	2448	3851	4308	4648	4785
GDP per capita (1000¥)[a]	2,110	3637713	4,026	3,753	3,853**
GDP per capita, PPP (US$)[a]	-	19249	25931	33916	36449
GDP average annual growth rate (%)[a]	2.8	5.6	2.3	4.6	1.6
Health expenditure, total (% of GDP)[b]	-	-	7.6	9.6	10.1
Value added in industry (% of GDP)[a]	39.1	38.0	31.1	27.5	26.2
Value added in agriculture (% of GDP)[a]	3.1	2.1	1.6	1.2	1.1
Value added in services (% of GDP)[a]	57.9	59.8	67.3	71.3	72.7
Labour force (total)[a] (‘000)	-	63776	67589	66421	65546
Unemployment, total (% of labour force)[a]	2.0	2.1	4.8	5.0	3.37
Real interest rate[a]	2.8	4.5	3.4	3.8	1.9
Gini coefficient[c]	0.315	0.358	0.379	0.377	0.33[+]

Source: [a]World Bank, [b]WHO, [c]OECD; Note: The Gini coefficient is a measure of income inequality, higher figures indicate greater inequality among the population (estimated based on gross income); **2014, [+]2012; ¥, yen; ¥B, billion ¥; ppp, purchasing per capita

Table 3: Life expectancy at birth and health indicators by gender, selected years

Indicators	1980	1990	2000	2010	2015
Life expectancy[a]					
Male	73.3	75.9	77.7	79.5	80.5
Female	78.8	81.9	84.6	86.3	86.8
Healthy life expectancy[a,b,c]					
Male	-	66.6	71.0	70.42	71.19*
Female	-	70.0	76.0	73.62	74.21*
Total death rate[a]					
Male	6.8	7.4	8.6	10.3	10.9
Female	5.6	6.0	6.8	8.7	9.7
Age-adjusted death rate[a]					
Male	9.2	7.5	6.3	5.4	5.2
Female	5.8	4.2	3.2	2.7	2.7

Sources: [a]MHLW, [b]Salomon *et al.* 2012, [c]WHO; * 2013; Note: Both death rates presented as per 1000 population

Table 4: Life expectancy (years), selected OECD countries, selected years

Life expectancy (years)	Year				
	1980	1990	2000	2010	2015
Selected OECD countries					
Canada	71.7	74.4	76.3	78.8	82.2
Finland	69.2	71.0	74.2	76.9	81.1
France	70.2	72.8	75.3	78.2	82.4
Germany	69.6	72.0	75.1	78.0	81.0
Greece	73.0	74.7	75.9	78.0	81.0
Italy	70.6	73.8	76.9	79.5	82.7
Japan	73.4	75.9	77.7	79.6	83.7
Korea	61.8	67.3	72.3	77.2	82.3
Mexico	64.1	67.0	70.5	71.1	76.7
United Kingdom	70.2	72.9	75.5	78.6	81.2
United States	70.0	71.8	74.1	76.2	79.3

Source: OECD, WHO

Table 5: Main causes of death, selected years

Causes of death (ICD-10 classification)	Number (rate per 100 000 population)				
	1980	1990	2000	2010	2014
Communicable diseases	-	85902	120085	161162	
		(69.9)	(95.7)	(128.1)	
Tuberculosis [a]	6439	3664	2656	2129	2100
	(5.5)	(3.0)	(2.1)	(1.7)	(1.7)
HIV/AIDS	-	367	167	170	-
		(0.3)	(0.1)	(0.1)	
Non-communicable diseases	-	674492	811944	1024850	-
		(549.2)	(647.1)	(814.5)	
Circulatory diseases	308462	303061	298338	341882	350912
	(265.2)	(246.9)	(237.5)	(270.5)	(278.6)
Malignant neoplasms [a]	161764	217413	295484	353499	368103
	(139.1)	(177.2)	(235.2)	(279.7)	(293.5)
Colon cancer	7932	15509	23637	30040	32177
	(6.8)	(12.6)	(18.8)	(23.8)	(25.5)
Cancer of larynx, trachea, bronchus and	21294	36486	54770	70815	72471
lung	(18.3)	(29.7)	(43.6)	(56.0)	(57.6)
Breast cancer	4141	5848	9171	12455	12529
	(7.0)	(9.4)	(14.3)	(19.2)	(19.4)
Diabetes [a]	8504	9470	12303	14422	13669
	(7.3)	(7.7)	(9.8)	(11.4)	(10.9)
Mental and behavioural disorders	3017	3068	3920	8049	10768
	(2.6)	(2.5)	(3.1)	(6.4)	(8.5)
Ischemic heart diseases [a]	123505	165478	146741	189360	196925
	(17.1)	(20.2)	(15.3)	(15.8)	(15.5)
Cerebrovascular diseases [a]	162317	121944	132529	123461	114207
	(22.5)	(14.9)	(13.8)	(10.3)	(96.5)
Chronic respiratory diseases	48466	84910	134501	187609	201798
	(41.6)	(69.3)	(107.1)	(148.4)	(160.2)
Digestive diseases	29606	27264	38268	45503	47255
	(25.5)	(22.3)	(30.5)	(36.0)	(37.5)
Transport accidents	13302	15828	12857	7222	6414

	(11.4)	(12.9)	(10.2)	(5.7)	(5.1)
Suicide [a]	20542	20088	30251	29554	24417
	(2.8)	(2.4)	(3.1)	(2.5)	(1.9)

Sources: [a]MHLW and GBD database

Table 6: Disability adjusted life years (DALYs) by major diseases categories during 1990 to 2015

Characteristics	All ages DALYs	DALYs per 100,000	% of total DALYs
All diseases or injuries			100
1990	27812800	22647.1	100
2000	29990700	23900.2	100
2015	32149566	25056.9	100
Non-communicable diseases			
1990	22867400	18620.2	82.2
2000	24732800	19710.1	82.5
2015	27106306	21126.2	84.3
Communicable, maternal, neonatal, and nutritional disorders			
1990	2006120	1633.5	7.2
2000	2110450	1681.9	7.0
2015	2268978	1768.4	7.1
Injuries			
1990	2939220	2393.3	10.6
2000	3144150	2505.6	10.5
2015	2774282	2162.2	8.6

Source: GBD database

Table 7: Prevalence of diabetes and hypertension in adults, Japan, selected years

Health conditions	Percentage				
	1980	1990	2000	2010	2015
Standardized diabetes (ages ≥ 20 years)					
Male	3.8	9.3	14.1	16.1	14.2
Female	3.3	6.6	7.4	8.8	7.1
Both sexes	-	7.9	7.8	7.9	-
Hypertension (ages ≥ 35-84 years)					
Male	50.1	51.7	41.4	31.4	26.2
Female	43.3	46.8	31.9	23.4	19.6
Both sexes	48.2	45.5	39.7	48.5	

Sources: Diabetes: Danaei *et al.* 2011[19], Charvat *et al.* 2015[20], MHLW and hypertension: Ikeda *et al.* 2014, Kearney *et al.* 2004, Miura *et al.* 2013,[21] Martiniuk *et al*. 2007[22] and MHLW

Note: Author's estimated prevalence of hypertension for 1990 using meta-analysis from Miura et al. 2013[21] data

Table 8: Body mass index in adult ages 20 years and older, Japan, selected years

High body mass index	Percentage					
	1980	1990	2000	2010	2013	2015
Overweight or obesity						
Male	18.0	21.5	26.1	29.3	28.9	29.8
Female	19.4	18.5	18.0	20.7	17.6	17.4
Obesity						
Male	1.5	1.8	3.0	3.6	4.5	-
Female	2.5	2.4	3.1	3.2	3.3	-

Sources: Ng *et al*. 2014, MHLW; Note: Cut-off point for overweight or obesity≥25 kg/m^2 and obesity≥30 kg/m^2

Table 9: Proportion of Japanese adults who are daily smokers, 1980-2015

Smoking (ages ≥ 15 who are daily smokers)	Percentage				
	1980	1990	2000	2010	2015
Male	70.2	53.1	50.8	32.2	31.4
Female	14.4	9.4	9.0	8.4	8.3

Sources: JT (http://www.health-net.or.jp/tobacco/product/pd090000.html) for 1980, MHLW for 1990-2015

Table 10: Maternal, child and adolescent health indicators, selected years

Selected health indicator	1980	1990	2000	2010	2015
Adolescent fertility rate	4.0	4.0	5.2	4.8	4.0
Neonatal mortality rate [b]	4.9	2.6	1.8	1.1	0.9
Infant mortality rate [b]	7.4	4.6	3.3	2.4	2.0
Under-five mortality rate [b]	9.9	6.3	4.5	3.2	2.7
Maternal mortality ratio [b,d]	19.5	8.2	6.3	4.1	3.4
Measles immunization [b]	69.0	73.0	96.0	94.0	96.0
Low-birth weight babies (% of live births) [c]	5.2	6.3	8.6	9.6	-

Sources: [b] World Bank, [c] MHLW, [d] Kassebaum *et al.* 2014, [e] OECD; Note: Adolescent fertility rate birth per 1000 women ages 15-19; mortality represents per 1000 live births; measles immunization for % of children ages 12-23 months

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Organization and governance of Japan’s health system

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研究要旨

The Ministry of Health Labour and Welfare (MHLW) is the central figure in Japan’s health system. Japan’s health system is characterized by universal insurance scheme through tax and insurance premium, free to chose health care facilities and good quality of care with comparably low price. The country’ population is ageing and with this shift the government’s focus will need to focus on outcomes, quality and efficiency, care and integrated approaches across sectors. The organization of the MHLW is complex that interacts with the private sector, care providers and patient and professional organizations such as the Japan Medical Association and Japan Nursing Association. The government regulates and controls nearly all aspects of the health system at three levels national, prefectural, and municipal. Various other ministries such as the Ministry of Education, Culture, Sports, Science and Technology (MEXT); the Ministry of Agriculture, Forestry and Fisheries (MAFF); and the Ministry of Finance are involved in improving food security, taxation and climate change among other. Government data on health has existed since 1947 but only became available for broader use in 2007. Seven major surveys collect health information including Vital Statistics, Life Tables, Comprehensive Survey of Living Conditions. The cancer-registry system is another example of key health information data.

Ａ．研究目的

The Ministry of Health Labour and Welfare (MHLW) is the central figure in Japan's health system. Japan's health system is characterized by universal insurance scheme through tax and insurance premium, free to chose health care facilities and good quality of care with comparably low price. The country' population is ageing and with this shift the government's focus will need to focus on outcomes, quality and efficiency, care and integrated approaches across sectors.

The organization of the MHLW is complex that interacts with the private sector, care providers and patient and professional organizations such as the Japan Medical Association and Japan Nursing Association. The government regulates and controls nearly all aspects of the health system at three levels national, prefectural, and municipal. Various other ministries such as the Ministry of Education, Culture, Sports, Science and Technology (MEXT); the Ministry of Agriculture, Forestry and Fisheries (MAFF); and the Ministry of Finance are involved in improving food security, taxation and climate change among other. Government data on health has existed since 1947 but only became available for broader use in 2007. Seven major surveys collect health information including Vital Statistics, Life Tables, Comprehensive Survey of Living Conditions. The cancer-registry system is another example of key health information data in Japan. The government recently chose to include cost-effectiveness in health technology assessment in Japan.

This report will describe this organization and governance of the Japanese health system.

Ｂ．研究方法

Using available data from the Ministry of Health, Labor and Welfare, and the published papers, this report summarizes organization and governance of the Japanese health system.

Ｃ．研究結果

C.1. Overview of the health system

Japan's health system is distinctly characterized by universal coverage of health insurance, free health care facilities and good quality of care with comparably low price.

There are two main types of health insurance in Japan—Employee's Health Insurance System and National Health Insurance (NHI). Employee's Health Insurance System is provided to employed workers (company employees) and their dependents, while National Health Insurance is designed for people who are not eligible to be members of Employees' Health Insurance, which is run by municipal governments (villages, towns, and cities). By law, all residents of Japan (including foreign nationals with a residence card) must be enrolled in a health insurance

program.

In Japan, medical expenses must be paid on completion of treatment at clinics and hospitals. The nationally uniform fee schedule (i.e. amount of reimbursement: 70 to 90% of the expenses, depending on age and income of the insured) covers all healthcare procedures and products, including drugs, which is reimbursed by health insurance (insurers); the remaining 30 to 10% (copayment rate) is paid by the insured (i.e. out-of-pocket costs). The copayment rate as of March 2017 was as follows: pre-elementary school (<5 years old) = 20%; elementary school (6 years old) to age 69 = 30%; age 70 to 75 = 20%; and age 75 or above = 10%

C.2. Historical background

In 1922, the Japan's central government first introduced Health Insurance Law for employed workers, covering only 3% of the entire population at the time since participation was voluntary, which was soon made compulsory for employers at certain kinds of large companies. The National Health Insurance Law was then designed and enacted in 1938 for self-employed workers (such as farmers, fishermen, and informal employees), reaching 9.9% insurance coverage of the population in the following year. Again, the participation was voluntary. NHI has been managed by municipal governments with the ultimate responsibility for residents who are not covered by any insurance systems. After several amendments of insurance acts, including an application of the insurance to dependent family members of insured workers, health insurance coverage reached 74.6% of the population by 1943. In the aftermath of World War II that ended in 1945, the growth of democratic movements and a commitment to social solidarity developed the impetus to achieve UHC; after a transition from voluntary to mandatory enrolment in the health insurance system, the universal health insurance system was established in 1961.

C.3. Organization

C.3.1. Central Government

The Ministry of Health, Labour and Welfare (MHLW) plays the central role in health care system in Japan. The administrative structure of the Ministry of Health, Labour and Welfare in Japan is shown in Figure 1. The main bureaus involved in population health and health care are Health Policy, Health Service, Pharmaceutical and Food Safety, Labour Standards, Social Welfare and War Victims' Relief, Health and Welfare for the Elderly, Health Insurance and Pension.

The Health Policy Bureau is responsible for the administrative and strategic management of the health care system, including health economy, research development and information. The Health Services Bureau plans and supervises the prevention of

lifestyle-related diseases, cancer and infectious diseases; it coordinates organ transplantation and also regulates the promotion of environmental health. The Pharmaceutical and Food Safety Bureau directs the safety of pharmaceutical products, foods, chemical substances and medical equipment, promotes the provision of safe blood products and orchestrates the anti-drug abuse campaign. The Labour Standards Bureau is responsible for the safety and sanitation of factories, compensation for labour-related injuries and the life of employees. The Social Welfare and War Victims' Relief Bureau is in charge of welfare services for indigent people, community welfare, welfare for the disabled people and war victims' relief. The Health and Welfare for the Elderly Bureau regulates and supervises long-term care insurance, elderly dementia and the health of the elderly. The Health Insurance Bureau also regulates and supervises health care insurance and provides plans to improve the insurance system. The Pension Bureau is responsible for national and industrial pensions.

C.3.2. Consumer and professional groups

Consumer groups (mainly patient organizations) have strong voice for advocacy. It is estimated that there are more than 3,000 patient organizations in Japan. There are mainly two health professional organizations namely Japan Medical Association (JMA) and Japan Nursing Association (JNA). The JMA is the national voice of Japanese physicians. Founded in 1916 and then re-established in its current form in 1947, the JMA's mission is to provide leadership for physicians and to promote the highest standards of medical ethics and education to protect the health of all Japanese citizens. On behalf of its members and the general public in Japan, the JMA performs a wide variety of functions, such as advocating health promotion and patient safety policies and strategies, advocating access to quality health care in local communities, and providing leadership and guidance to physicians to help them influence, manage and adapt to changes in health care delivery. The JMA's membership is approximately 165,000 or approximately 60% of all licensed physicians in Japan. The Japan Nursing Association or JNA was established for licensed public health nurses, midwives, and assistant nurses in 1946. Its aims and missions are to preserve people's dignity as human beings, to meet people's universal needs to stay in good health and happiness, and to contribute to people's achieving healthy life, improving nursing quality based on nursing expertise rooted in education and self-learning, promoting to create the environment in which nurses are able to continue working peacefully throughout their life and, developing and expanding nursing areas to meet people's needs. Each of the 47 prefectures in Japan has its own nursing association and licensed professionals join each prefecture nursing

association on a voluntary basis.

C.4. Decentralisation and centralisation

Government regulates and controls nearly all aspects of the health system including the insurance system. Japan has three levels of government: national, prefectural, and municipal: the nation is divided into 47 prefectures. Each prefecture consists of total 1,718municipalities, and there are three types of municipalities in Japan: cities, towns, and villages. The central and local (prefectural/municipal) governments are responsible by law to ensure a system that efficiently provides quality health care services. Central government sets the nationally uniform fee schedule for insurance reimbursement; subsidizes and supervises local governments, insurers, and healthcare providers. It also establishes and enforces detailed regulations for insurers and healthcare providers, which are implemented by Japan's 47 prefectures. Prefectural governments are responsible for developing regional healthcare plans and strategies for effective and high-quality healthcare delivery.

Prefectural governments are also in charge of annual reviews and inspections of hospitals to ensure maintained compliance with regulatory standards. If a hospital admits too many patients per nurse—an indication of poor hospital care—the reimbursement rate for the hospital is reduced.

Municipal governments administrate the NHI system and long-term care insurance system, and organize health promotion activities for their residents. They offer health guidance and check-ups for children at various stages of growth; each municipality gives guidance and consultation on childcare, prevention of diseases, etc. by sending public health nurses to individual homes. This visiting service is free of charge and provided either on request from the mother or through reference by the doctor. Municipal governments also provide health check ups for infants, vaccination to children, health consultation fro age over 40 at a risk of occurring life-style related diseases, and cancer screenings and mots of them are free of charge. Each municipal government also offers health check-ups for 3–4, 8–10, and 18 month-old infants, and three year-old children to check their growth, nutritional status, physical and dental health, mental, behaviour and speech development, and sight and hearing. Most vaccines are free for children, as a responsibility of municipal governments, for protection against nine preventable diseases: tuberculosis, neonatal tetanus, diptheria, pertussis, hepatitis B, haemophilus influenza type B, measles, polio and Japanese encephalitis at all public health centres and hospitals. In general, persons eligible for the cancer screenings included women aged ≥20 years for cervical cancer screening, women aged ≥40 years for breast

cancer screening, and both men and women aged ≥40 years for other cancer screenings. Screening strategies (e.g. cancer type of screening, and screening cost, eligibility, and invitation methods) slightly differ by municipality.

C.5. Planning

Today, with increasing longevity as well as declining fertility, the process of population ageing has been accelerated; rising social security costs (such as medical expense, long-term care and pension) now threaten the sustainability of the health care system. In response to the population ageing, the Japanese government created a new financing structure with the introduction of the Long-Term Care Insurance System in 2000, whose beneficiaries (and insurance benefits) are those requiring long-term care or support services (including nursing care, day service, welfare devices leasing at home; and long-term care at social welfare and medical facilities). The insured must be certified as being in the condition requiring such services i.e. bedridden or dementia. This insurance system is run by municipal governments, and primarily funded through compulsory contributions by those aged over 40, general taxation, and copayments by the insured of 10% of the cost of services.

Population ageing changes a nation's disease structure; more chronic and multi-morbidity disease structures are developing. The orientation of health services are shifting towards disease prevention and control, rather than cure/treatment; and towards patient-centered long-term care provision within a community, rather than hospital-centered care, resulting in upward pressure of public spending on health. To address this demographic and epidemiologic transition, Japan is also implementing various health system reforms. These reforms are underway, and going to establish an "Integrated Community Healthcare System (ICCS)" by 2025, which is a comprehensive system in the community that provides appropriate living arrangements and social care, such as daily life support services that supplement long-term health care within a community. This system is managed by municipal governments, using a fund from the Long-Term Care Insurance System. Public health nurses play an important role in ICCS by working in a team alongside social workers and care managers, as well as community volunteers working under the supervision of nurses.

This new system will require a paradigm shift in Japan's health system, as proposed in "Japan Vision: Health Care 2035",—a report for the Health Minister by young Japanese health leaders in June 2015. This report proposes that Japan's health system move from access to outcomes, from equity to

quality and efficiency, from cure to care and from specialization to integrated approaches across sectors.

In response to rapid population ageing with lower fertility and epidemiologic transition (from widely prevalent infectious diseases to chronic lifestyle-related non communicable diseases (NCDs) in the 21st century, the MHLW promoted the 'National Health Promotion Movement in the 21st century', with the shortened name of "Healthy Japan 21" as goal-oriented health promotion measure concerning the prevention of lifestyle-related diseases. The focus is on healthy dietary habits, promotion of physical activity, diagnostic tests and reduction of tobacco use, etc. Healthy Japan 21 aims to decrease the number of deaths among late middle-aged people, increase healthy life expectancy (i.e. expected years of remaining life in good health), and improve quality of life.

Its second term started in 2013 with the primary aim of extending healthy life expectancy and reducing health inequalities. Improvement of individuals' lifestyles and social environment will help achieve the goals of the 2nd Health Japan 21 for 2013–2022. The basic goals include:

1. Extension of healthy life expectancy and reduction of health disparities
2. Prevention of onset and progression of lifestyle-related diseases (prevention of non communicable diseases)
3. Maintenance and improvement of functions necessary for engaging in social life
4. Establishment of a social environment where health of individuals is protected and supported
5. Improvement of social environment and lifestyles such as nutrition and dietary habits, physical activity and exercise, rest, alcohol consumption, tobacco smoking, and oral health
6. *Extension of healthy life expectancy and reduction of health disparities*.
7. *Prevention of onset and progression of lifestyle-related diseases (prevention of non communicable diseases)*.
8. *Maintenance and improvement of functions necessary for engaging in social life*.
9. *Establishment of a social environment where health of individuals is protected and supported*.
10. *Improvement of social environment and lifestyles such as nutrition and dietary habits, physical activity and exercise, rest, alcohol consumption, tobacco smoking, and oral health*

C.6. Intersectorality

In regard to other sectoral issues, such as food and nutrition security; emergency planning;

policies on taxation, marketing and sales regulation of tobacco, alcohol and food; climate change; engagement with non-governmental organizations and civil society, various other ministries are involved, including the Ministry of Education, Culture, Sports, Science and Technology (MEXT); the Ministry of Agriculture, Forestry and Fisheries (MAFF); the Ministry of Justice; and the Ministry of Finance, etc.

For example, Japan is using an intersectoral approach to population health management through food and nutrition education, which encompasses the education sector (MEXT) for school education, agriculture (MAFF) for food production, as well as health (MHLW) for surveillance and dietary guidance. "Healthy Japan 21" was developed as the premier preventive policy of lifestyle related-diseases for 2000–2010 (which was reformed in 2012, emphasizing the extension of healthy life expectancy and reduction in health inequality in the 2nd phase that covers the period from 2013 to 2022). In 2005, the MHLW and MAFF collaboratively developed the "Japanese Food Guide Spinning Top", which is a user-friendly tool to guide people to improve eating habits, and promoted dietary education about the importance of eating proper meals in order to address inappropriate eating habits and nutrition intake, and subsequent increases in lifestyle-related diseases. Simultaneously, MEXT started a program to train people to become "diet and nutrition teachers" in primary school.

C.7. Health information management

C.7.1. Information systems

The Statistics Act was originally introduced in 1947, which asserted that governmental statistics was limited for administration use. In 2007, the act was fully revised. The governmental statistical data is now considered an information infrastructure for society, and allows broader use to enable production and provision of tailor-made tabulation and anonymized data. The Statistics and Information Department of the MHLW implements key statistical surveys on vital events and health characteristics of the population. The department has central role in the policymaking process and statistical services management of the MHLW. This includes configuration and online reporting/publishing of seven fundamental statistics: Vital Statistics, Life Tables, Comprehensive Survey of Living Conditions, Survey of Medical Institutions, Patient Survey, Monthly Labour Survey, Basic Survey on Wage Structure and 23 general statistics for public use (approximately 100 statistical surveys have been conducted by the MHLW). These statistics can facilitate any action for planning and implementing policies, programs, and services that will improve the social and economic conditions that affect health.

The Statistics and Information Department has comprehensive mechanisms/surveillance for the collection of quality data on demographics, healthcare, social welfare, employment, and wages, etc.:

1. *Vital Statistics Survey*: This survey aims to collect vital events in Japan and obtain a basic data source for population and policy making on health, labour and welfare. Each municipal government completes the Vital Statistics Survey Forms based on notifications of live births, deaths, marriages, divorces, and foetal deaths. Results of the survey are monthly released.

2. *Comprehensive Survey of Living Conditions*: This survey aims to obtain basic data on living conditions such as health, medical care, welfare, pension, income. There are two survey types: the large-scale survey conducted every three years, and the small-scale survey performed in every interim year between large-scale surveys. As for the large-scale survey, the survey covers the whole household and members living in the randomly sampled districts (based on the database of the latest national census, which is performed every five years by Ministry of Internal Affairs and Communications, targeting all persons living in Japan). The size (number) of sampled districts highly depends on the survey type (large or small).

3. *Survey of Medical Institutions*: This survey aims to clarify the current improvement and distribution of medical care institutions in Japan, to perceive their clinical functions, and to gain basic grounds for health care policymaking. The manager of the medical care institution fills in questionnaire asking about the number of health care professionals and their working conditions, number of beds permitted, social insurance medical practice, notification of emergency, medical practice and examination, and other related items. The survey is performed every three years.

4. *Patient Survey*: The purpose of this survey is to identify the situation of patients using the medical institutions, including their attribute, condition at time of visit or admission and diagnosis etc. The survey is performed every three years in mid October for visiting/admitted patients, and in September for discharged patients. All hospitals with more than 500 beds and randomly selected small hospitals (with less than 500 beds) are considered.

5. *Monthly Labour Survey*: This survey is conducted monthly by staff and enumerators from the Labor Bureau and Labor Standards Inspection Offices in each prefecture, in order to clarify changes in employment, earnings and number of working hours. Randomly selected companies with five or more employees are considered.

6. *Basic Survey on Wage Structure*: The survey is conducted annually by staff and enumerators from the Labor Bureau and Labor Standards Inspection Offices in each prefecture in July. The survey aims to obtain a clear picture of the wage structure of employees in major companies, i.e., wage distribution by type of employment, type of work, occupation, sex, age, school career, length of service and occupational career, etc. Randomly selected companies with five or more employees are considered.

In addition to the above statistics, administrated by the Statistics and Information Department of the MHLW, Japan has another important mechanism for the collection of health data—that is, cancer. Cancer registration in Japan has a long history spanning over 60 years; the first population-based cancer registry was established and administrated by the prefectural government of Miyagi (situated in the north-western part of Japan, facing the Pacific Ocean) in 1951. After the Law on Health and Medical Services for the Aged was enacted in 1983, population-based cancer registries were initiated promptly in many prefectures. However, there were still weak points regarding local government-oriented cancer registries that remained, e.g., the reporting of cancer cases to the population-based cancer registries was not a mandatory task for medical institutions; as of 2007, there were population-based cancer registries in 35 of Japan's 47 prefectures. In 2013, then, in response to the coming hyper-aging era with two to three million cancer patients, the Act on Promotion of Cancer Registries was finally enacted in Japan. According to that Act, hospital managers must report information on any primary cancer that was first diagnosed in their institutions from January 1, 2016 to the prefectural government.

C.7.2. Health technology assessment

In response to rising demands for healthcare with public financing constraints, there has been a rapid growth of healthcare technology assessment (HTA) activities (that addresses the clinical, economic, organizational, social, legal, and ethical impacts of a health technology, considering its specific healthcare context as

well as available alternatives) among health service researchers, physicians and other health professionals in Japan since the mid-1980s. In 1996, the MHLW organized the Advisory Committee of the Application of HTA. Officially, it was known as the first commitment to HTA by the MHLW. The main aim of this committee was the application of HTA in health policy decision making in order to improve quality of healthcare and provide efficient healthcare.

In 2012, the first Special Committee on Cost-Effectiveness (SCCE) was set up under the Central Social Insurance Medical Council (Chuikyo)—an advisory panel under the MHLW, which makes decisions about the pricing and re-pricing of new drugs reimbursed through the universal health insurance system. Japan began discussions within the government to decide whether to introduce cost-effectiveness assessment into HTA, particularly pricing/reimbursement decisions for health care technologies (including drugs, devices, surgical techniques, medical procedures, healthcare processes). In 2014, a Cabinet decision was made to introduce cost-effectiveness methods for HTA.

The SCCE decided to implement a new HTA program, beginning with an HTA pilot program conducted by the Chuikyo over the last 2 years. In this new HTA program, the launch pricing for a new drug/treatment will be restricted unless they are deemed cost-effective. This pilot program was started to subject seven drugs including Sovaldi (sofosbuvir) and Opdivo (nivolumab) and is now expanded to 13 drugs, with a plan to carry out re-pricing by 2018 based on its first HTA appraisal results. It is anticipated that analysis of data from manufacturers will be conducted by a new independent public organization for proof of concept appraisals. Originally, the formal launch of an HTA process was expected by 2014, which was later postponed and is now scheduled at 2018.

C.8. Regulation

Regulation of the health care system is two dimensional: human and capital resources are regulated by the Medical Care Act and financing is regulated by the Health Insurance Act. Regulatory bodies consist of a three-tier system, in which the central government, prefecture governments and major city governments share different levels of authority. Financing (reimbursement by health insurance) is regulated almost solely by the central government. Human and capital resources are regulated through inspection by the government at the prefecture and major city levels through public health centres.

Since 1985, prefecture governments have set up health care planning pursuant to the Medical Care Act, and national and prefecture plans for health promotion were developed in

2000 pursuant to the Health Promotion Act. These plans eventually evolved to more advanced forms of planning in April 2008. The plans are known as national and prefectural "health care cost- containment plans", effectively integrating health promotion, health care provision and health care cost-containment. A National Plan for Cancer was established in 2006.

C.8.1. Regulation and governance of third-party payers

All insurers are regulated by the Ministry of Health, Labour and Welfare and their latitude is quite limited. In the NHI system, there are 1835 municipal NHI funds (enrolling the self-employed and unemployed) and 166 NHI Society funds (enrolling professionals such as doctors and lawyers). In the SMHI system, there are 1584 health insurance funds (for employees of medium-to-large corporations) and 76 MAS funds (enrolling civil servants). Finally the government itself is by far the largest insurer (the GMHI): the Social Insurance Agency, a subsidy of the Ministry, operates a single insurance system enrolling 35.6 million people who are employees of small-to-medium corporations as well as their dependent family members. However, the GMHI was delegated to JHIA, a new quasi-governmental agency, in October 2008 as part of the abolition of the Social Insurance Agency.

Insurance funds (corporate-based health insurance funds, NHI Society funds for self-employed professionals and MAS funds for civil servants and private school teachers) are tax-exempt non-profit public corporations, independent from their parent corporations. They are governed by an assembly consisting of representatives from both employers and employees. For-profit insurance companies sell VHI, but holding VHI will not exempt an individual from mandatory enrolment in the social health insurance scheme, and the role of VHI remains supplementary to the social health insurance benefit packages

C.8.2. Regulation and governance of providers

The government enacts health laws, which regulate all aspects of the health care system. The laws delegate regulatory authority over the health workforce and over facilities such as hospitals, clinics and pharmacies to prefectures and major city governments, which conduct inspection pursuant to the Medical Care Act. Professional organizations such as the Japan Medical Association have no regulatory authority because they are voluntary organizations. Providers are a mix of public, private for-profit and private not-for-profit organizations.

C.8.3. Regulation and governance of pharmaceuticals

Pharmaceutical products, cosmetics and medical equipment are subject to regulation by

the Pharmaceutical Affairs Act. The Act was amended in April 1993 to allow public subsidies for research and development of orphan drugs as well as accelerated review. New drug applications are subject to preliminary review by a special agency, the Pharmaceutical and Medical Equipment Evaluation Centre and then final review by the Pharmaceutical Affairs Committee. The final decision is left to the discretion of the Minister of Health, Labour and Welfare. Regulations on clinical trials were tightened by the amendment of the Pharmaceutical Affairs Act in June 1996 in response to a series of misconducts exposed in the preceding years.

This tightened regulation coupled with the low interest of doctors in clinical research discouraged doctors from conducting clinical trials. Deregulation to accept foreign research data added to this trend: multinational pharmaceutical companies prefer to conduct clinical trials outside Japan and then obtain a new drug approval later by "importing" data to Japan. As a result, a considerable number of new drugs remain unavailable to Japanese patients even after they are approved elsewhere in the world. Furthermore, allowing foreign research data may not always be appropriate because the same drug may have different effects in different ethnic groups. One example is omeprazole (a proton pump inhibitor), where a higher prevalence of carriers of the genetic type *CYP 2C19*, poor metabolizers, in Japanese people makes the drug more effective at lower dosage.

To revitalize clinical trials, the Pharmaceutical Affairs Act was revised to initiate "doctor-sponsoring" clinical trials, which took effect in July 2003. Until then, only pharmaceutical companies could apply to run clinical trials. Even if doctors wanted certain indications added to existing drugs, they were not authorized to conduct clinical trials by themselves (prescribing drugs to patients for unapproved indications is prohibited as an off-label prescription) and pharmaceutical companies would not be interested in conducting expensive clinical trials without considerable commercial promise.

Another measure taken by the government was to develop a large-scale network of clinical trials to enable participating hospitals and doctors to share resources such as data centres and institutional review boards. A supporting organization, the Japan Clinical Research Assist Centre, was established together with its Data Management Centre in 2001. The Japan Clinical Research Assist Centre is currently assisting seven clinical trials through data management, data analysis, provision of institutional review board and training of clinical research coordinators.

In April 2003, the Ministry published a "3-year plan for vitalizing clinical trials" to facilitate clinical trials in medical

school-affiliated hospitals and in August 2003 reached an agreement with the Japan Medical Association for promoting doctor-sponsoring clinical trials in community hospitals.

Ｄ． 結論

The organization of the MHLW is complex that interacts with the private sector, care providers and patient and professional organizations. The government regulates and controls nearly all aspects of the health system at three levels national, prefectural, and municipal. Various other ministries such MEXT; MAFF; and the Ministry of Finance are involved in improving food security, taxation and climate change among other. Government data on health has existed since 1947 but only became available for broader use in 2007. The cancer-registry system is another example of key health information data in Japan. The government recently chose to include cost-effectiveness in health technology assessment in Japan.

E. 研究発表

1. 論文発表

特になし

2. 学会発表

特になし

F. 知的財産権の出願・登録状況

（予定を含む。）

1. 特許取得

特になし

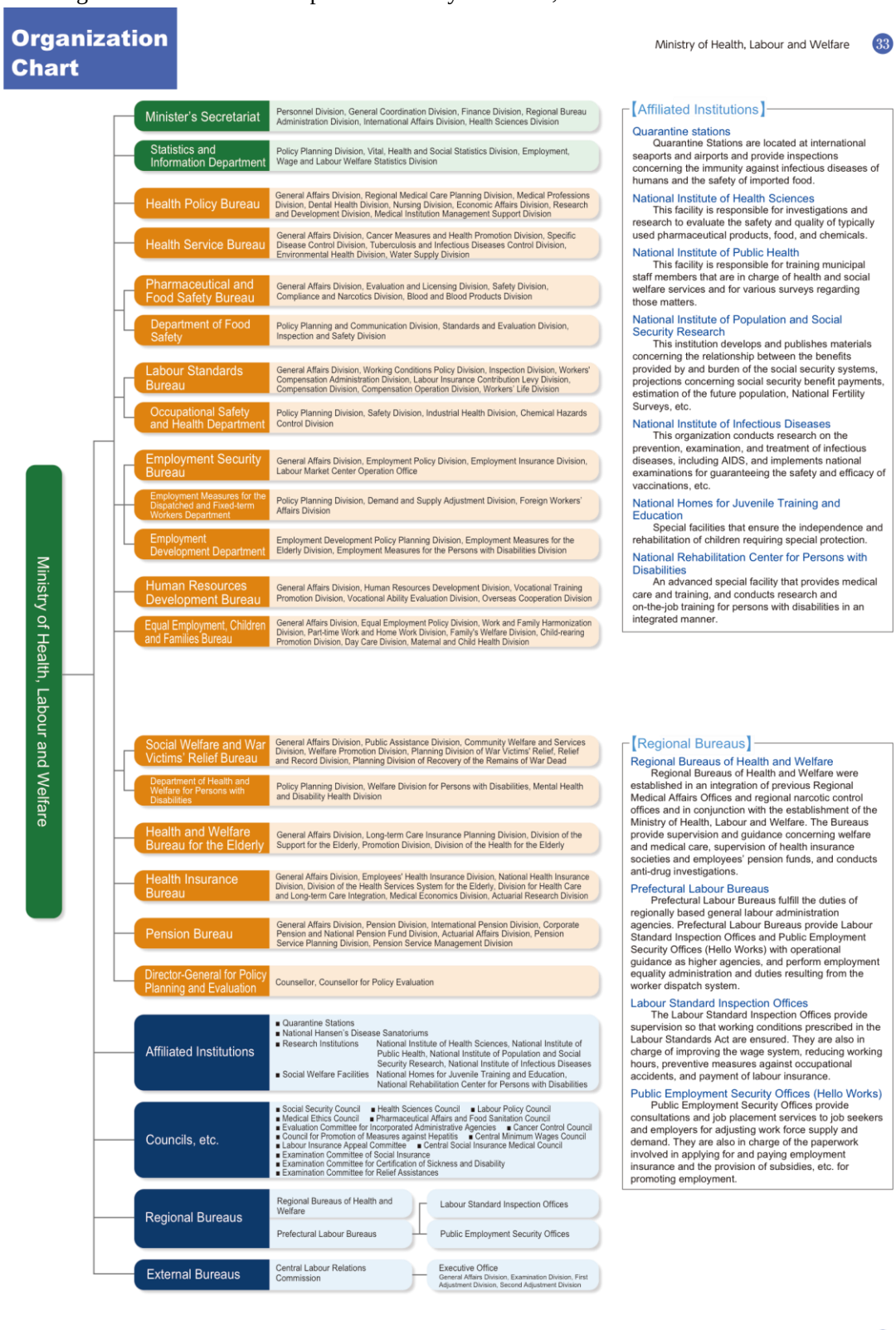
2. 実用新案登録

特になし

3. その他

特になし

Figure 1: Organization chart of the Japanese Ministry of Health, Labour and Welfare



Source: MHLW

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Financing of Japan’s health system

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研究要旨

Total expenditure on health accounted for 11.2% of GDP in Japan in 2015, about two percentage points above the OECD average of 9%. In nearly all OECD countries including Japan, the public sector is the main source of health funding. In 2015, 84.97% of health spending came from public sources in Japan, well above the average of 76% in OECD countries. Direct OOP payments contributed only 11.7% of total health financing. The health insurance coverage rate was nearly 100% in Japan, and the share of household consumption spent on OOP payments was only 2.2%, which is less than the OECD average (2.8%). Despite this success, the key challenges in Japan are population ageing and rapid increases in chronic illness, which see Japan facing a future of contracting public revenues, pressures on the healthcare workforce, and an increasing burden of social care and long-term treatment payments.

Ａ．研究目的

Total expenditure on health accounted for 11.2% of GDP in Japan in 2015, about two percentage points above the OECD average of 9%. In nearly all OECD countries including Japan, the public sector is the main source of health funding. In 2015, 84.97% of health spending came from public sources in Japan, well above the average of 76% in OECD countries. Direct OOP payments contributed only 11.7% of total health financing. The health insurance coverage rate was nearly 100% in Japan, and the share of household consumption spent on OOP payments was only 2.2%, which is less than the OECD average (2.8%). Despite this success, the key challenges in Japan are population ageing and rapid increases in chronic illness, which see Japan facing a future of contracting public revenues, pressures on the healthcare workforce, and an increasing burden of social care and long-term treatment payments.

In 2015, Mr. Yasuhisa Shiozaki, Minister for Health, Labour and Welfare established an advisory group with a focus on health care needs in 2035 and published a report entitled “Health Japan 2015” In this report, the future of Japan’s health system is described as below;

- Because of a rapidly ageing society with low fertility rate, some rural areas may face financial hardship or will not be able to sustain basic infrastructure. Even in urban areas, there will be an urgent need for human resource development in order to support the elderly.
- The elderly especially above 75 years or those who live alone will require diverse medical and long-term care in terms of quality and quantity.
- Advanced technology or introduction of ICT may improve the quality of health care services.
- There will be an increased dependency and complementary relationships with other countries through globalization, that will promote collaboration and exchange of human resources and health care related services.

Bearing in mind these transformations by 2035, reforms to the financing system and greater efficiencies will be necessary to maintain a low-cost, equitable health system in the future.

Ｂ．研究方法

Using available data from the Ministry of Health, Labor and Welfare, and the published papers, this report summarizes the health financing. Data was obtained on health financing for Japan and OECD countries for the period 1995–2015.

Ｃ．研究結果

C.1. Health expenditure

Health care expenditure in Japan has been increasing year by year. Table 1 presents the

trends in health care expenditure in Japan.

Total expenditure on health as a proportion of GDP increased slightly from 8.1% in 2005 to 11.2% in 2015. In 2015, around 82% of expenditure was from public services and 18% from private services. A similar proportion was observed in the United Kingdom (Boyle 2011). Public and private expenditure on health as a proportion of total health expenditure has remained almost consistent since 1995. Government expenditure on health as a proportion of total expenditure increased from 22.2% in 1997 to 32.7% in 2015, with a 1% increase in the rate every year.

When risk pooling mechanisms are not well designed, direct out-of-pocket (OOP) payments may incur financial catastrophe or push non-poor households into poverty. In many developing and developed countries, a high proportion of the population experiences financial hardship due to high OOP payments. I these cases, OOP payments form a majority of total health expenditure. Comparatively, the share of OOP payments in total health expenditure in Japan is relatively low, and has declined from 15% in 2000 to 11.4% in 2015.

The median healthcare expenditure in selected OECD countries as a percentage of GDP was 9% in 2013. Trends in the proportion of GDP committed to health expenditure for all OECD countries are shown in Table 2.

The total healthcare expenditure as a share of GDP has grown in all countries since 1995 and in 2015 healthcare expenditure in most European countries accounted for 9-11% of GDP. A steady increase in health care expenditure was also noticeable in Japan from 6.4% of GDP in 1995 to 11.2% in 2015. Historically Japan has been referred as achieving, high quality of care with low health care expenditure compared with other OECD nations. But more recently health care expenditure as a its share of GDP has risen to be the 3rd largest among OECD countries.

Table 3 shows the trend in per capita health expenditure in all OECD countries between 1995 and 2015. Per capita health expenditures in Japan have increased from $1,469.5 in 1995 to $4,149.8 in 2015.

Given a rapidly aging population, the burden of health care expenditure is expected to grow quickly in Japan. Per capita health expenditure was lower the median OECD per capita expenditure until 2010. But more recently, it has been recorded as US$ 4,194.8, which is higher than the OECD median. All OECD countries have experienced an increase in per capita health expenditure. Especially, USA Switzerland, Norway and Luxemburg all saw an increase in per capita health expenditures to more than $6000.

Government spending on health as a percentage of total national health expenditure across OECD countries since 1995 is shown in Table 4.

The proportion of health expenditure paid by the public sector in Japan in 2015 was comparatively higher than many other high-income countries. Government expenditure as a percentage of total national expenditure ranged from 49.4% (USA) to 85.2% (Norway) in 2015. The OECD average has been around 70-75%, while that of Japan has been around 80-85%, and has been consistently higher than the OECD average.

Japanese national health care expenditure by type of medical care from 1995 to 2014 is presented in Table 5. Almost all categories have slightly increased since 1995. But most significantly, pharmaceutical expenditure has rapidly increased. In 2014, pharmaceutical expenditure increased about six times compared to expenditure in 1995. In recent times, reflecting the rapidly ageing society and the government's strong emphasis on home care, home visit health expenditure also increased substantially compared to the period 1995-2005.

Age-specific health care expenditure by type of health service in 2014 is presented in Table 6. Overall, per capita medical expenditure was 292506 yen (2.627 US$), and little difference was observed between inpatient (152641 yen (1.371 US$)) and outpatient care (139865 yen (1.256 US$)).

Per capita medical expenditure increased rapidly with increased age. The highest medical expenditure for individuals was observed in those aged 65 years or over (176798 million Yen, 60.44%) and the lowest in the age of 14 years or less (17398 million Yen, 5.95%). This trend is the same for in- and outpatient medical expenditure where those aged 65 years or older shares 66.95% and 53.34% of medical expenditure respectively.

Disease-specific medical care expenditure by major types of health services is shown in Table 7. The three main categories of expenditure were the circulatory system (58892 million Yen), neoplasms (39637 million Yen), and respiratory system (21772 million Yen). Inpatient expenditure was substantially higher compared to outpatient care.

C.2. Sources of revenue and financial flows

The Japanese health care system is primarily funded through taxes and insurance premiums (Figure 1). Both the central government and municipalities levy proportional income taxes and insurance premiums on their respective populations. The key sources of financing are an insurance premium (48.7%), followed by public funds (state subsidies (25.8%) and local

subsidies (13.0%)), co-payments (11.7%) and others (0.8%). National medical expenditure was distributed as follows: 37.4% on inpatient care, 34.3% outpatient, 6.8% dental, 17.9% pharmacy dispensing, 2% hospital meals and living expenses, and 1.7% nursing care expenses and others.

Trends in national health expenditure by financing sources since 1985 is shown in Table 8. The total proportion of national health expenditure drawn from taxation increased from 32% in 1995 to 39% in 2014. However, insurance premium contributions declined rapidly during this period, from 56% in 1995 to 49% in 2014. The proportion of OOP payments fluctuated during this period and peaked at 14.4% in 2005. It has been gradually decreasing since, to 11.7% in 2014.

The Japanese government's budget in FY2015 was 96.3 trillion Yen ($800 billion), of which social security (health care, pension, long-term care, welfare) accounts for approximately one third (31.5 trillion Yen). Figure 2 shows the distribution of the annual budget among government activities in 2015.

Of the 31.5 trillion yen, social security budget, health care and pension subsidies accounted for a large share (each 11 trillion yen). The share of government subsidy in the total benefit varied from system to system. Figure 3 shows the distribution of sources of Japanese government revenue. As much as 38.3% of the revenue is raised by debt (issuing Japanese Government Bond, JGB). Traditionally, Japan's taxation system relied on direct tax rather than indirect taxes. But due to stagnation of the direct tax revenue stream, consumption tax is increasingly viewed as the main funding source to support the growing social security budget. An increase in the consumption tax rate was part of an integral reform of social security and tax policies proposed in 2013, with the resulting increased revenues ear-marked for social security. As a result, the consumption tax rate was increased from 5% to 8% in FY2014, and thus increasing consumption tax revenue from 10.8 trillion yen (FY2013) to 17.2 trillion yen (FY2016). The consumption tax rate is scheduled to be further raised to 10% in FY2019.

C.3. Overview of the public financing schemes

C.3.1. Coverage

The proportion of people covered by types of risk of pooling mechanisms from 1980 to 2014 is presented in Table 9. The health insurance coverage rate was almost 100% in Japan and covers more than 4,000 medical procedures, dental care and drugs. Once every two years, the MHLW decides the depth of the coverage by national insurance scheme and decides the price of each service and drug. Each hospital and clinic is required to comply with the price set by the MHLW and cannot set their own

prices for treatments.

There are two major types of risk pooling mechanisms (insurance schemes) in Japan; Employee's health insurance and National Health Insurance (NHI). Employee's health insurance covers those who are public servants and work at companies, while NHI covers the self- and unemployed. Employee's health insurance is further divided into four major categories as follows.: Japan Health Insurance Association Managed health insurance (JHIA), Society-managed health insurance (SMHI), Mutual aid association (MSA), and Seaman's insurance (Table 10).

The largest proportion (58.69%) of the population was covered by employee health insurance. JHIA covered the largest proportion (28.67%), followed by SMHI (22.95%), and MAS (6.96%). National health insurance covered 28.31% of the total population. There was a rapid increase in the proportion of the population covered by NHI in past decades due to an increase in the unemployed (mainly attributed to the elderly after retirement). This caused a significant financial burden on the NHI. In order to solve financial inequity between employee's health insurance and NHI, the government introduced the Late-stage medical care system for the elderly in 2008 (See the details in section 3.3.3 pooling fund).

The health care benefit for the means-tested poor population was 100% financed by government subsidy. The poor population has been increasing since 1995 from 882,299 (0.7% of total population) in 1995 to 2,163,716 (1.7%) in 2014. The amount of health expenditure paid for this population accounts for 4.2% of total health expenditure in 2010.

C.3.2. Collection

The distribution of the social security budget between health and non-health targets, and the distribution of the 16.4% of government subsidies to the JHIA, are shown in Figure 4.

Japan's health insurance system is financed from both governmental subsidy and premium contribution. As mentioned above, there are two types of insurance schemes in Japan; Employee's and NHI.

An Employee's health insurance premium is withheld directly from employee remuneration by employers. Employers are required to withhold premiums on behalf of the local insurance office (The Japan Pension Organization or health insurance societies depending on their type of insurance - see Table 8). The health insurance premium contributions must be shared equally between workers and employers. The premium rate for health insurance varies considerably by insurer, reflecting their health care expenditure and income level (insurers with higher health care

expenditure and lower income levels will have to levy higher rates of premium to raise sufficient revenue). For salaried workers, the average rate is around 8.8% of their income, and is capped at 13%.

For NHI, the local government has the responsibility of determining the premium rate. This largely differs between local governments from a minimum of 636,735 Yen/year (15.9%) to a maximum of 291,720 Yen/year (7.3%) (the premium rate as % of income). Efforts continue at both national and local (prefectural) level to enhance funding for health and social care and improve the sustainability of the system.

C.3.3. Pooling of funds

Japan's health financing system does not have a single payer of all insurance funds, but is instead divided between health insurance funds that collect premiums and disburse payments at the municipality level. However, with urbanization and the ageing of Japanese society, the size of risk pools at the municipality level and the risk profile they cover has changed significantly since 1961, and now many smaller municipalities face a declining funding base and increasing expenses.

Since 1982 the Social Insurance Payment Fund has administered a financial redistribution mechanism that adjusts for differences in the burden of elderly care between municipalities. Many formal sector workers (employed in large companies and government agencies) have employment conditions allowing them to retire before the age of 65, and these employees are often enrolled in relatively small municipal NHIs, which may not be able to manage the financial burden of cohorts of workers retiring at the same time, especially in smaller rural areas with very large elderly populations.

To ensure sustainability, NHI is subsidized through the Social Insurance Payment Fund with subsidies ranging up to as much of 41% of benefit disbursement. The redistribution mechanism transfers funds from insurers in areas with below-average enrolment of over seventy year olds to those in areas where the proportion of enrolled elderly is above the national average.

Despite these subsidies, the maldistribution of the elderly population between NHI and employees' health insurance has always been at the center of Japan's health policy debate, as the available funds suffer greater pressure from an ageing population and increasing cost of health. Total unification of multiple health insurance systems into a single payer system would be an option (as in Korea and Taiwan), but has not been politically feasible.

Figure 5 shows the restructuring of pooling

and subsidies that occurred in 2008. The financial redistribution mechanism of the EHS remains in the present health insurance system in the form of the Financial Redistribution System for the Young-old (FRSYO). The FRSYO applies to the elderly aged 65-74 years old (young-old).

This system has been modified so that health insurance and redistribution for those aged between 65 and 74 years are separated from provision for the very elderly, whose financing needs are now handled by the independent Health Care System. This system was established under the Elderly Health Care Security Act in April 2008. Within this act, two new financial pooling systems were established: Late-stage medical care for elderly and Early-stage medical care for elderly. The term “late-stage” refers to the elderly aged 75 years or older while the elderly aged 65-74 are defined as the “early-stage”. The Late-stage medical care for elderly was established in place of the Elderly Health System (EHS). Given the rapidly ageing population of Japan, the new system was required to raise the age by five years to reduce the number of elderly covered under this financial redistribution system.

The elderly at the late-stage will contribute premiums of approximately 10%, which is deducted from their pensions. The remaining portion of revenue for Late-stage medical care of the elderly is drawn from a government subsidy (50%) and the contribution to the health insurance system from the working population (40%). The share of the subsidy is dictated by law. The beneficiaries (15 million in FY2013) are divided into two categories: high income (earn equivalent to working generation; approximately 1 million) and others (approximately 14 million). The distribution of funds between these beneficiaries is shown in Figure 5. The government subsidy is set at 50% of the benefit and is further shared among national, prefectural and municipal governments in the ratio 4:1:1 for beneficiaries excluding high-income beneficiaries. Also, one quarter of the subsidy from the national government is ear-marked for financial redistribution among 47 prefectures to balance financial disparities between them. Overall, the government subsidy constitutes 47% of the total benefit of the HCSOO.

The number of the late stage elderly population is expected to grow from the current 16 million to 20 million by 2020, while the number of working population will dwindle from 109 million to 100 million during the same period. Consequently, the contribution from the working population for HCSOO is expected to grow from 6 trillion yen (FY2014) to 10 trillion yen by 2020. The contribution levied on the working population as their add-on premium is becoming an

important health policy issue. So far, the contribution is levied on health insurers on a capitation basis (the amount of contribution is determined simply by multiplying the number of enrollees by a fixed "price"). The per-capita "price" for contribution has increased consistently; from 41,587 yen in 2009 to 49,501 yen in FY2013. This is because the share of premium revenue from the elderly has not kept pace with the increasing number of the elderly population. To remedy the situation, further changes to the system are being considered.

C.3.4. Purchasing and purchaser-provider relations

The relationship between purchasers (health insurers) and providers (hospitals, clinics and pharmacies) in Japan is contractual, rather than integrated. Japan's purchaser-provider relationship is characterized by a complete dissociation between them, in which insurers are prohibited from making a direct contracts with purchasers.

According to the Health Insurance Law (Section 63), providers who wish to participate in health insurance practices must apply to the MHLW. There is no competition in regard to contracting with MHLW because any application will automatically be approved. In practice, such procedures (as well as regulatory supervision) are delegated to the Regional Branch Offices (RBOs) of the MHLW. There are eight RBOs in the country, each having sub-branches in every prefecture. These contracts between providers and the MHLW under Japan's Health Insurance Law are considered to be *contracts based on public law*, as opposed to *contracts based on private law*.

The distinction is profound: in contracts based on private law, contracting parties have freedom of deciding the contents of the contracts. For example, purchasers and providers can agree on the prices, scope of benefit, and it is possible for them to set differential pricing over doctors. Internationally, it is common practice that doctors with high performance or credentials can claim higher prices than doctors who otherwise do not, and make contracts with purchasers accordingly.

Under contracts based on public law, however, such freedom of contract is never possible. The contents of the contracts, such as prices and scope of coverage, are dictated by law. And providers can only choose whether they accept them or not, leaving no room for negotiation. The contents of contracts, dictated by law, are expressed in the form of the practice rules (*Ryo-yo Tanto-Kisoku*) and the national uniform Fee Schedule (*Tensu-hyo*) as well as the pharmaceutical price list of Drugs (*Yakka-Kijun*). The national uniform fee schedule has a dual function: 1. Listing the

definitions and scope of services covered by health insurance. And, 2. Setting prices assigned to each service. The prices of both services and drugs are uniform throughout the country and providers are strictly prohibited from balance billing.

Once a provider enters a contract with the MHLW, the provider is required to obey the rules and regulations set forth by the MHLW. Providers submit monthly claims for reimbursement to the Claims Review and Reimbursement Organizations (CRROs) established in all 47 prefectures. All claims submitted by local providers are reviewed by expert committees and the performance and observance of each provider is monitored. Any deviation from the practice rules or the fee schedule may prompt disciplinary action by RBOs of the MHLW.

Disciplinary actions vary from mild (individual guidance) to punishable (on-site inspection and cancellation of contracts). Cancellation of provider contracts is perceived by many as *de facto* ostracism from practice because almost 100% of Japan's health care is under health insurance and it would be difficult for ordinary doctors to continue practice without contracts.

In FY2014, a total of 4,466 cases of individual guidance were provided and 41 providers (hospitals, clinics or pharmacies) and 30 doctors, dentists or pharmacists had their contracts canceled contracts according to the MHLW. By enabling the vetting of providers and setting of standardized fees, this contract allows the central government to exert great influence over the entire healthcare system: controlling costs, distributing human resources more evenly across the country, and maintaining equality in health outcomes at levels higher than many other OECD countries.

C.4. Out-of-pocket payments

The proportion of total health expenditure paid from OOP expenses is an important marker of the sustainability of health financing in a health system. In countries where public funding for health services is inadequate and risk pooling mechanisms in health financing are limited or unavailable, unexpected OOP payments and illness-related production or income loss can trigger asset depletion, indebtedness and reductions in essential consumption, leading sometimes to financial catastrophe. (Chuma et al. 2007; Ezeoke et al. 2012; Huffman et al. 2011; Kabir et al. 2000; Leive and Xu 2008; McIntyre et al. 2006; Russell 2004; Steinhardt et al. 2009) On average 11.7% of health spending was paid directly by patients in Japan in 2014. The burden of OOP payments across OECD countries is presented in Figure 6.

The burden of out-of-pocket health spending can be measured either as a share of total

consumption expenditure or in total household income. On average in OECD countries, the OOP payment as a proportion of total household consumption was around 2.8%. The average share varied substantially across OECD countries in 2013, from its lowest value in Turkey (1.2%) to highest in Korea (4.7%). In Japan, 2.2% of consumption was spent on OOP health services, slightly lower than the OECD average. The low burden of OOP payments in Japan is due to sustainable health insurance polices with low co-payments and caps on maximum OOP payment size which is known as high cost medical expense benefit. (Ministry of Health 2013, 2014). High cost medical expense benefits started in 1973 in order to prevent patients from entering impoverishment because of health care expenditure. Based of their household income, the MHMW set the maximum price, which each household pays per month (See more details in section C.4.1.).

The share of OOP spending on health-related goods and services across selected OECD countries is presented in Figure 7. In most OECD countries, curative care and pharmaceutical goods or services are the two most important spending items for OOP payments and account for more than 70% of total health care expenditure. In Japan, Hungary, Slovenia, Iceland, Poland, Estonia, Canada and the Czech Republic, more than 40% of OOP payments are for pharmaceuticals. However, in Luxembourg, Belgium, Switzerland, Korea and Austria, household payments for curative care account for about 40% or more of total household medical expenditure. OOP payments for pharmaceutical goods or services are substantially higher than curative care in Japan and many other OECD countries. Health expenditure related to dental care also contributes a larger share in household medical spending. On average, OECD counties spend around 20% of OOP payments on dental care. The highest OOP payments related to dental care were in Spain (32%) and the lowest in Hungary, and the Czech Republic (8%) in 2013. Around qe% of OOP payments went to therapy in OECD countries in 2013. In Japan, this figure was only 8%.

C.4.1. Cost-sharing (user charges)

Japan's health insurance has no deductibles and no maximum benefit but has cost-sharing. Cost-sharing is a fixed proportion of the cost paid by the service user (the patient), with the insurers paying the remaining proportion. The proportion of cost-sharing is uniformly dictated by law. It is typically 30% for health insurance which covers the population younger than 69, and 10% for the Late-stage medical care system for the elderly which covers the elderly 75 years or older. Cost-sharing is fixed at 20% for beneficiaries aged between 70-74 as well as pre-school age children (up to six years old). For the very

poor receiving welfare payments under the means-tested Livelihood Protection Law, no cost-sharing is required.

The cost-sharing rate of 30% is relatively high by international standards, but there is a monthly and annual cap on the out-of-pocket payment for individuals and households. This cap is metered to the income of a beneficiary or a household. For beneficiaries younger than 70 years old with no taxable income, the cap is set at 35,400 yen or 30% of 118,000 yen monthly charges.

Beneficiaries have to pay 30% cost-sharing up to the cap in every calendar month, but beyond pay nothing beyond the cap. This cap is further lowered from the 4th month in which the cap is reached during the most recent 12-month period. For example, if a beneficiary reached the cap in February, June and November of a given year, the beneficiary will qualify for the reduced cap starting in December. Once the cap is reduced, it becomes easier for the beneficiaries to fulfill the requirement (reaching the cap in at least three months during the recent 12 months) and they will be able to enjoy the reduced cap longer.

This is advantageous for patients with chronic conditions in minimizing OOP payments. For certain chronic conditions, such as dialysis, the monthly cap is further reduced. The policy of imposing relatively heavy cost-sharing (30%) for all beneficiaries at the point of visit while limiting the cost-sharing metered to one's income is an effective way of protecting households financially while controlling the entire health care expenditure because heavy cost-sharing will prevent abuse of services.

Table 11 shows the structure of the cap according to the number of months of excessive payments and the income of the payee.

C.4.2. Direct payments

Though most of all services are covered with national insurance, some services, especially for non-diseases, cosmetic and luxurious purpose, are not covered by health insurance and patients will have to pay fully. A typical example is vaginal delivery, since childbirth is not considered as a disease. Instead of providers (such as obstetric clinics or midwiferies) claiming reimbursement from health insurance, the government has introduced several types of one-time cash benefits for deliveries which are likely to offset the cost of delivery. The primary benefit is 420,000 yen (approximately $3,500). Although obstetric clinics and midwives can set the price of delivery freely because delivery is not covered under the price list set by the MHLW, in most cases providers will set their prices somewhere within the limit of the cash benefit. Emergency and caesarian section deliveries are treated as diseases and providers

will claim reimbursement from health insurance in the same manner as ordinary treatment.

Other examples of direct payments include cosmetic surgery, orthodontics, abortions and infertility treatment. In Japan, infertility treatment (called assisted reproductive treatment, ART) is proliferating thanks to increasing maternal age. Such infertility treatment is not covered by health insurance, and out-of-pocket payment for couples who wish to have children can be heavy. To alleviate the financial burden of couples suffering from infertility, subsidies commenced in 2004. Couples with combined annual income less than 7.3 million yen (approximately $60000) can receive a subsidy of 150,000 yen for a treatment cycle. However, the subsidy is far smaller than the actual obstetric charges of many clinics, which can be as high as one million yen and have no fixed price schedule. Table 12 shows the growth in subsidies for infertility treatment, and shows that there remains considerable demand for some services that are only covered by direct payments.

Japan's health insurance system prohibits balance-billing for services included in the national uniform fee schedule and the Drug Price List. This prohibits doctors from claimingservices covered by health insurance while at the same time providing services not covered by health insurance. In other words, if a doctor provide services not covered by health insurance, providers cannot claim reimbursement from health insurance entirely, and all aspects of the service are no longer covered by the insurance system.

Ｄ． 結論

Total expenditure on health accounted for 11.2% of GDP in Japan in 2015, about two percentage points above the OECD average of 9%. In nearly all OECD countries including Japan, the public sector is the main source of health funding. In 2015, 84.97% of health spending came from public sources in Japan, well above the average of 76% in OECD countries. Direct OOP payments contributed only 11.7% of total health financing. The health insurance coverage rate was nearly 100% in Japan, and the share of household consumption spent on OOP payments was only 2.2%, which is less than the OECD average (2.8%). Despite this success, the key challenges in Japan are population ageing and rapid increases in chronic illness, which see Japan facing a future of contracting public revenues, pressures on the healthcare workforce, and an increasing burden of social care and long-term treatment payments.

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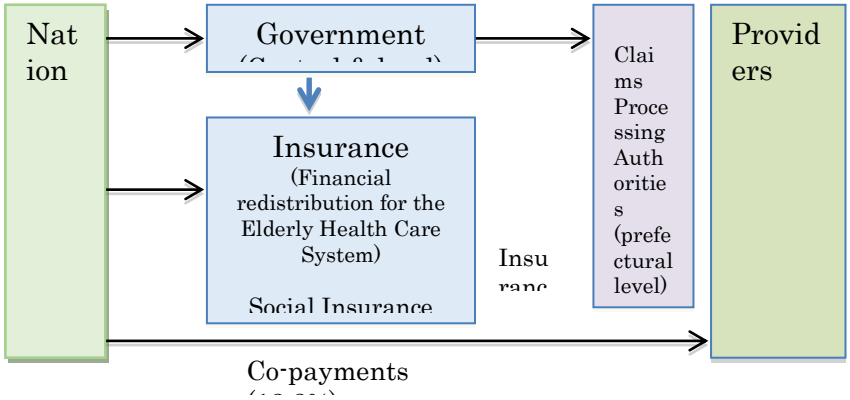
Figure 1: Financial flowchart



Source: MHLW

Figure 2: Distribution of government budget, FY2015

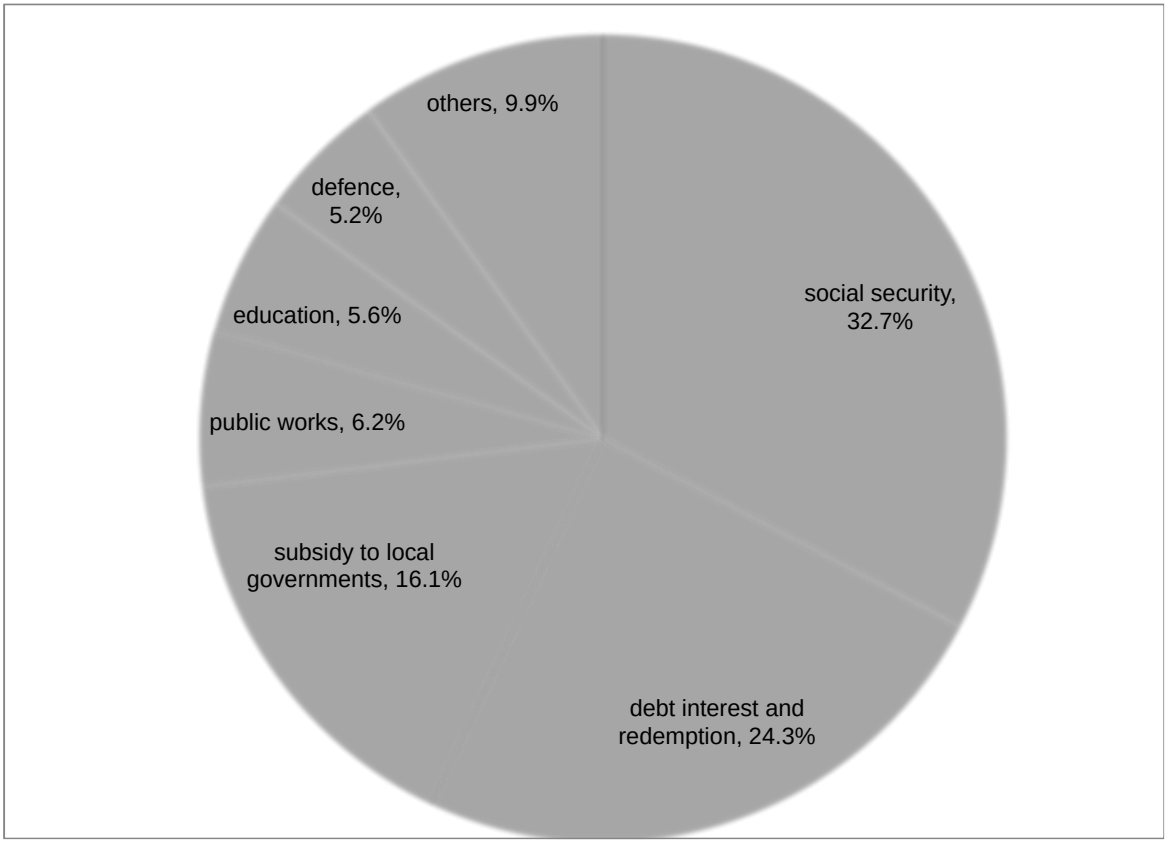


Figure 3: Sources of Japanese government revenue, 2015

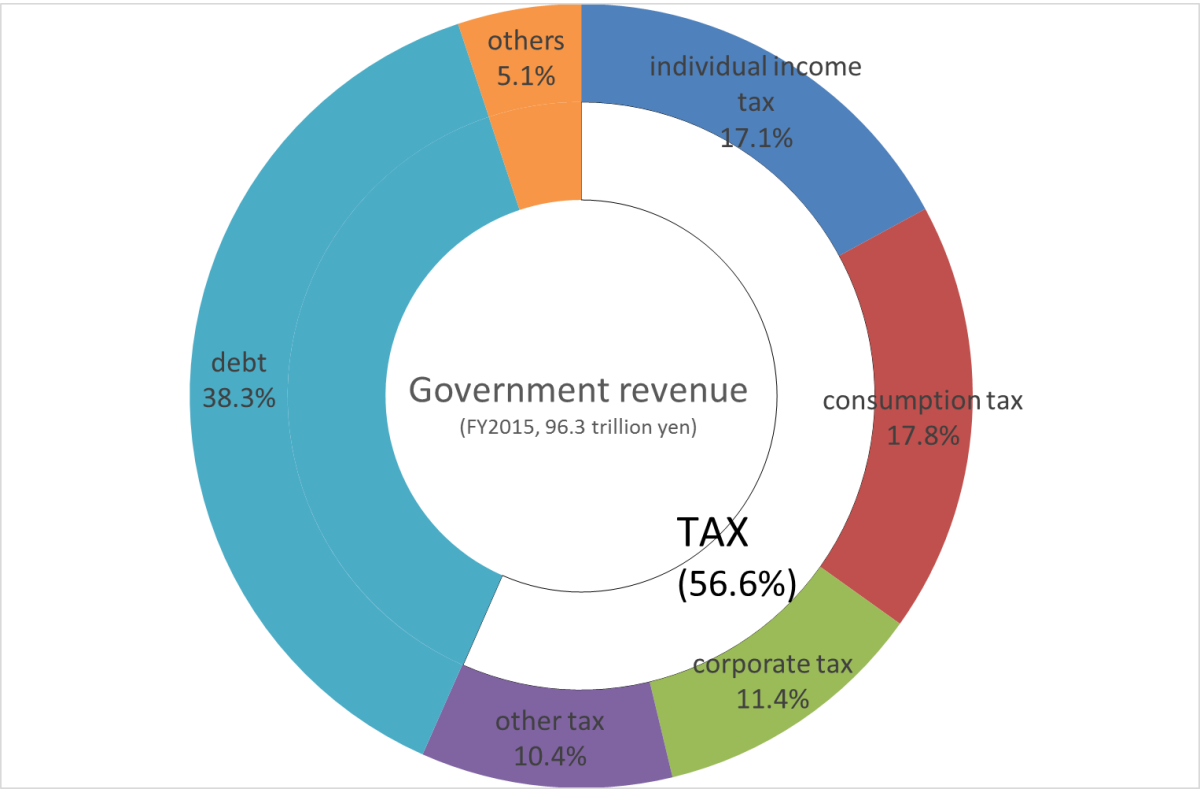
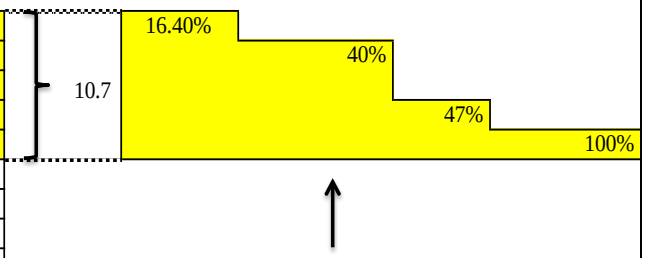


Figure 4: Structure of social security budget, FY2015

Breakdown of social security budget in FY2015 (in trillion yen)

Subsidy to health insurance	JHIA	1.17
	Municipal NHI	3.17
	NHI societies	0.26
	HCSOO	4.76
Welfare benefit for the indigent	Health and LTC	1.41
	Others	1.49
Subsidy to pension		11
Subsidy to LTC insurance		2.63
Other social welfare	Child allowance*	1.46
	Disability assistance**	1.5
	Others	1.9
Public health		0.49
Labour		0.17
Total social security budget		31.5



JHIA: Japan Health Insurance Association, NHI: National Health Insurance, HCSOO: Health Care system for Old-old, LTC: Long-term Care; * Child allowance includes benefits for single parenthood, ** Disability assistance include health care benefit (0.2 trillion yen)

Figure 5: Structure of social security budget, FY2015

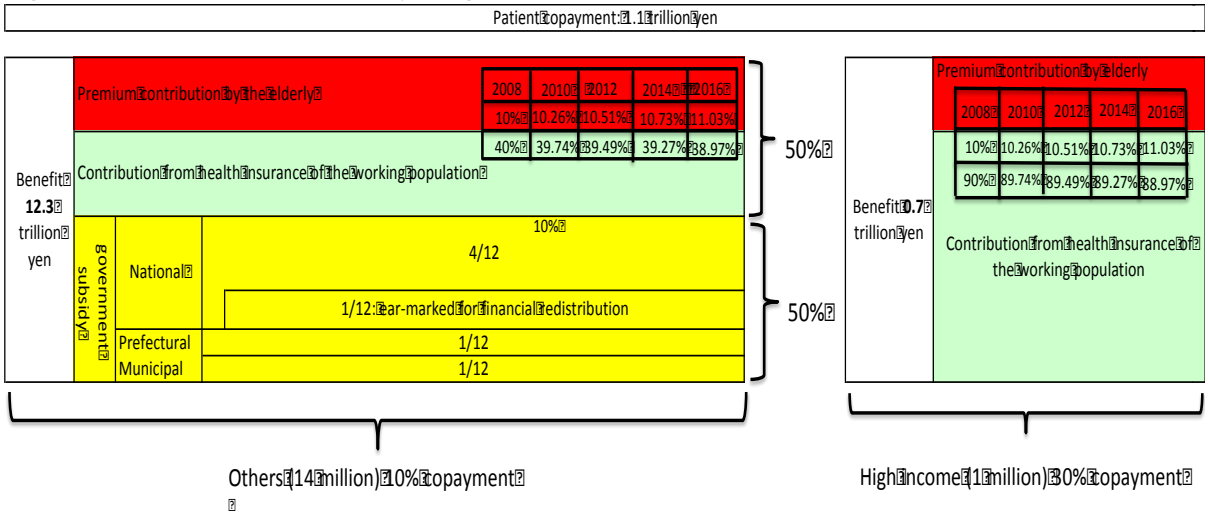
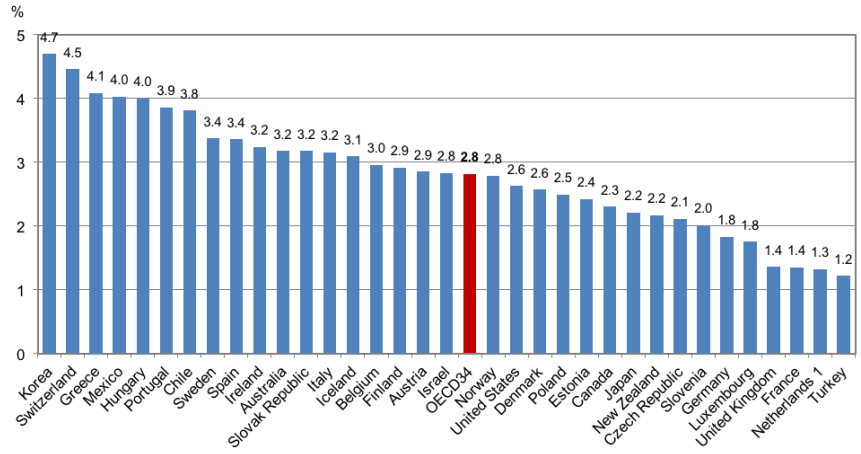
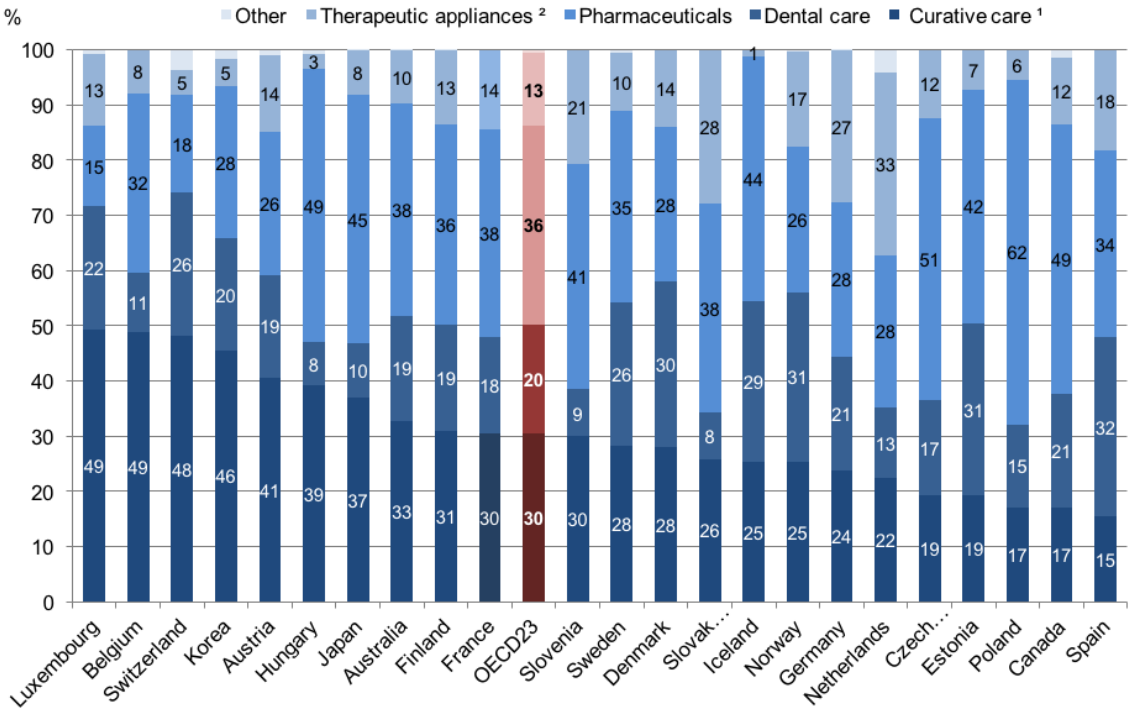


Figure 6: Out-of-pocket medical spending as a share of final household consumption, 2013 (or nearest year)



Source: OECD; Note: This indicator relates to current health spending excluding long-term care (health) expenditure

Figure 7: Share of out-of-pocket medical spending by type of goods and services, 2013 (or nearest year)



Source: OECD; Note: This indicator relates to current health spending excluding long-term care (health) expenditure; [1] Including rehabilitative and ancillary services, [2] Including eye care products, hearing aids, wheelchairs, etc.

Table 1: Trends in health care expenditure in Japan, 1995-2015

Expenditure	1995	2000	2005	2010	2014
Total health expenditure (% GDP)	4.56	5.34	5.90	7.79	8.33
Public expenditure on health as % of THE	82	81	82	82	82
Private expenditure on health (% of THE)	18	19	18	18	18
Government expenditure on health (% of GTE)	15	16	18	19	20
OOP payments (% of PHE)	79	80	84	81	80
OOP payments (% of THE)	14	15	15	14	12.4

Sources: WHO, OECD; GDP, Gross domestic product; THE, total health care expenditure; GTE, government total expenditure; PHE, private health expenditure; OOP, out-of-pocket

Table 2: Health expenditure as a percentage of GDP, OECD countries, selected years

Countries	1995	2000	2005	2010	2015
Australia	6.9	7.6	8.0	8.5	9.3
Austria	8.9	9.2	9.6	10.1	10.4
Belgium	7.5	7.9	9.0	9.9	10.4
Canada	8.6	8.3	9.1	10.6	10.1
Chile	5.2	6.4	6.6	6.7	7.7
Czech Republic	5.8	5.7	6.4	6.9	7.5
Denmark	7.8	8.1	9.1	10.4	10.6
Estonia	-	5.2	5.0	6.3	6.3
Finland	7.4	6.9	8.0	8.9	9.6
France	9.8	9.5	10.2	10.7	11.0
Germany	9.5	9.8	10.2	11.0	11.1
Greece	8.0	7.2	9.0	9.9	8.2
Hungary	6.8	6.8	8.0	7.6	7.0
Iceland	7.8	9.0	9.2	8.8	8.8
Ireland	6.1	5.9	7.7	10.6	9.4
Israel	7.9	6.8	7.1	7.0	7.4
Italy	6.9	7.6	8.4	9.0	9.1
Japan	6.4	7.4	8.1	9.5	11.2
Luxembourg	5.3	5.9	7.3	7.1	7.2
Mexico	5.1	4.9	5.9	6.0	5.8
Netherlands	7.4	7.1	9.4	10.4	10.8
New Zealand	6.9	7.5	8.3	9.7	9.4
Norway	7.3	7.7	8.3	8.9	9.9
Poland	4.9	5.3	5.8	6.4	6.3
Portugal	7.2	8.4	9.4	9.8	8.9
Republic of Korea	3.4	4.0	5.0	6.4	7.2
Slovakia	-	5.3	6.6	7.8	7.0
Slovenia	7.3	8.1	8.0	8.6	8.4
Spain	7.0	6.8	7.7	9.0	9.0
Sweden	7.3	7.4	8.3	8.5	11.1
Switzerland	8.8	9.3	10.3	10.5	11.5
Turkey	2.5	4.7	5.1	5.3	5.2

United Kingdom	6.0	6.3	7.4	8.5	9.8
United States of America	12.5	12.5	14.5	16.4	16.9
OECD median	-	8	8	9	9

Sources: OECD Health Data

Table 3: National health expenditure per capita (US$ PPP, current price), OECD countries, selected years

Countries	1995	2000	2005	2010	2015
Australia	1,554.8	2,156.8	2,842.1	3,607.3	4,420.4
Austria	2,120.5	2,726.4	3,324.1	4,236.3	5,015.6
Belgium	1,710.5	2,245.9	2,985.8	3,901.9	4,611.3
Canada	2,001.2	2,422.1	3,282.5	4,242.3	4,608.5
Chile	386.5	610.4	837.8	1,219.7	1,728.2
Czech Republic	795.1	933.6	1,425.1	1,879.6	2,463.7
Denmark	1,814.6	2,395.5	3,097.0	4,370.3	4,942.8
Estonia	-	501.3	820.7	1,334.2	1,824.5
Finland	1,418.2	1,816.4	2,571.4	3,403.1	3,983.5
France	2,037.6	2,484.2	3,100.9	3,859.5	4,407.2
Germany	2,185.1	2,612.6	3,297.1	4,358.6	5,267.1
Greece	1,224.3	1,396.9	2,284.8	2,855.3	2,245.4
Hungary	615.7	820.0	1,390.8	1,632.9	1,845.4
Iceland	1,851.6	2,673.0	3,294.5	3,406.0	4,012.0
Ireland	1,124.8	1,749.0	3,097.1	4,585.4	5,130.7
Israel	1,364.9	1,694.6	1,769.0	2,025.6	2,532.5
Italy	1,507.7	2,019.4	2,479.3	3,108.2	3,272.3
Japan	1,469.5	1,914.9	2,463.7	3,204.9	4,149.8
Luxembourg	2,282.9	3,466.3	5,090.4	6,401.9	7,764.9
Mexico	374.7	484.4	730.8	911.4	1,052.1
Netherlands	1,691.0	2,224.8	3,510.9	4,671.0	5,342.7
New Zealand	1,243.0	1,607.0	2,214.4	3,020.4	3,590.2
Norway	1,750.9	2,836.1	4,029.4	5,240.4	6,567.0
Poland	373.3	562.0	806.3	1,340.7	1,676.7
Portugal	984.2	1,494.7	2,082.2	2,645.7	2,631.3
Republic of Korea	457.9	724.1	1,220.1	1,951.3	2,487.9
Slovakia	-	592.8	1,093.9	1,917.9	2,063.8
Slovenia	970.7	1,451.2	1,902.7	2,363.7	2,643.8
Spain	1,157.1	1,490.6	2,139.3	2,917.9	3,153.0
Sweden	1,659.0	2,177.5	2,841.8	3,543.6	5,277.8
Switzerland	2,561.9	3,221.8	4,051.3	5,371.5	6,943.7
Turkey	172.8	424.0	585.7	852.7	1,063.6

United Kingdom	1,273.7	1,718.6	2,568.5	3,036.1	4,003.0
USA	3,598.4	4,559.0	6,445.7	7,929.4	9,451.3
OECD median	1,469.5	1,816.4	2,463.7	3,204.9	4,003.0

Sources: OECD Health Data

Table 4: Government health expenditure as a percentage of total national health expenditure, OECD countries, selected years

Countries	1995	2000	2005	2010	2015
Australia	66.4	68.4	68.4	68.6	66.7
Austria	75.3	75.5	75.1	76.1	76.1
Belgium	76.8	74.6	76.3	77.3	77.5
Canada	70.9	70.0	69.9	69.9	70.8
Chile	48.2	52.1	36.8	45.5	60.7
Czech Republic	89.7	89.8	86.8	83.3	84.6
Denmark	82.0	83.1	83.7	84.6	84.2
Estonia	-	77.0	76.6	76.3	75.5
Finland	71.2	71.1	75.7	74.7	75.5
France	79.1	78.9	78.7	78.1	78.6
Germany	82.1	79.6	76.5	83.7	85.0
Greece	52.9	61.6	61.7	70.0	60.6
Hungary	82.9	69.6	70.7	67.1	67.0
Iceland	83.5	80.6	81.4	80.4	81.8
Ireland	74.1	77.5	78.9	76.2	69.2
Israel	68.2	63.1	59.9	62.9	62.5
Italy	71.3	72.6	77.5	78.5	75.5
Japan	81.8	80.4	81.2	81.9	84.9
Luxembourg	92.4	82.0	83.2	84.9	84.0
Mexico	42.1	45.2	42.2	48.6	51.5
Netherlands	75.4	66.4	70.9	87.0	80.7
New Zealand	77.2	78.0	79.7	80.6	79.7
Norway	83.9	81.7	83.1	84.7	85.2
Poland	73.5	68.9	68.7	71.7	71.6
Portugal	61.5	70.5	71.3	69.8	66.0
Republic of Korea	72.0	72.0	71.0	74.0	70.0
Slovakia	-	89.2	75.3	71.9	80.6
Slovenia	77.7	74.0	73.5	73.3	72.2
Spain	72.0	71.4	71.9	74.8	69.9
Sweden	86.6	85.5	81.8	81.9	83.7
Switzerland	53.6	55.4	59.5	64.1	67.9

Turkey	70.3	61.7	67.7	78.0	77.2
United Kingdom	84.1	79.1	81.1	82.9	79.0
United States of America	46.2	44.2	45.4	48.4	49.4
OECD median	73.5	74	74	75	76

Source: OECD Health Data

Table 5: National medical care expenditure and percentage distribution by type of medical care, by year

Type of medical care	Million yen (%)			
	1995	2000	2005	2014
National health expenditure (1+2+3+4+5+6)	**269577 (100)**	**301418 (100)**	**331289 (100)**	**408071 (100)**
1. Medical expenditure	**218683 (81.1)**	**237960 (78.9)**	**249677 (75.4)**	**292506(71.7)**
Medical expenditure by types of health care facility				
Hospitals	148543(67.9)	161670(67.9)	167955(67.3)	205438(70.2)
General clinics	70140(32.1)	76290(32.1)	81722(32.7)	870670(29.8)
Medical expenditure by Impatient/Outpatient				
Inpatient expenditure	99229 (45.4)	113019 (47.5)	121178 (48.5)	152641 (52.2)
Hospitals	94545	108642	116624	148483
General clinics	4684	4376	4555	4158
Outpatient expenditure	119454 (54.6)	124941 (52.5)	128499 (51.5)	139865 (47.8)
Hospitals	53997	53028	51331	56956
General clinics	65456	71913	77167	82909
2. Dental expenditure	**23837 (8.8)**	**25569 (8.5)**	**25766 (7.8)**	**27900 (6.8)**
3. Pharmacy expenditure	**12662 (4.7)**	**27605 (9.2)**	**45608 (13.8)**	**72846 (17.9)**
4. Hospital meals and living expenses	**10801 (4.0)**	**10003 (3.3)**	**9807 (3.0)**	**8021(2.0)**
5. Traditional Medicine [a]	**3385 (1.3)**	**NA**	**NA**	**5543 (1.4)**
6. Expenditure for home-visit nursing care	**210 (0.1)**	**282 (0.1)**	**431 (0.1)**	**1256 (0.3)**

Source: MHLW; [a] Traditional medicine especially Acupuncture and Moxibustion

Table 6: Medical care expenditure of medical care by hospital admission category and age group, 2014

	Medical expenditure (per capita)		
	Overall	Inpatient	Outpatient
All ages	292506	152641	139865
0-14 years	17398 (5.95)	6417 (4.20)	10983 (7.85)
15-44	34223 (11.70)	14160 (9.28)	20064 (14.35)
45-64	64086 (21.91)	29875 (19.57)	34210 (24.46)
65 years or more	176798 (60.44)	102190 (66.95)	74608 (53.34)

Sources: MLHW

Table 7: Medical care expenditure of medical care by inpatient – outpatient and category of disease, 2014

Category of disease (ICD-10)	Medical expenditure (Hundred million Yen)		
	Overall	Inpatient	Outpatient
Infectious and parasitic diseases	6456	2453	3913
Neoplasms	39637	26160	13477
Malignant neoplasms	34488	23126	11362
Mental and behavioral disorders	19 020	13826	5194
Diseases of the nervous system	13140	8913	4228
Alzheimer disease	2819	1946	873
Diseases of the circulatory system	58892	33955	24937
Hypertensive diseases	18513	2129	16384
Heart diseases[1]	18203	13573	4630
Ischemic heart diseases	7430	5290	2140
Cerebrovascular diseases	17821	14858	2964
Diseases of the respiratory system	21772	9414	12358
Pneumonia	3237	3057	180
Chronic obstructive pulmonary disease	1460	717	743
Asthma	3403	536	2867
Diseases of the digestive system	16865	9099	7765
Diseases of stomach and duodenum	4427	891	3536
Liver diseases	1703	849	854
Complications of pregnancy, childbirth and postpartum	2347	2084	263
Perinatal conditions	2091	1755	336
Injury, poisoning and other extrinsic impacts	21667	15829	5838

Sources: MHLW; [1] excluding hypertensive diseases

Table 8: National health expenditure by financial sources (% of total health expenditure)

	1985	1995	2000	2005	2011	2014
Total health expenditure	100.0	100.0	100.0	100.0	100.0	100.0
Tax						
Central government	26.6	24.2	24.7	25.2	25.9	25.8
Local governments	6.8	7.5	8.5	11.4	12.2	13.0
Total	33.4	31.7	33.2	36.6	38.1	38.8
Insurance premiums						
Employee's	23.4	24.5	22.7	20.3	20.1	20.4
NHI (Self-employed and others)	30.9	31.9	30.7	28.7	28.3	28.3
Total	54.3	56.4	53.4	49.0	48.5	48.7
OOP payments	12.3	11.9	13.4	14.4	12.7	11.7

Sources: MHLW

Table 9: Number of persons covered by health care insurance by type of insurance system

System category	1980	1990	2000	2005	2011	2014
Population	117060	124533	126926	127768	127799	126939
Number (thousands)						
Total insured population	117037	124260	126351	127176	126678	126207
Employee's health insurance						
JHIA	31807	36821	36805	35675	34895	36392
SMHI	27502	32009	31677	30119	29504	29131
MAS	12520	11952	10017	9587	9101	8836
Seamen	672	409	228	168	132	125
National Health Insurance	44536	43069	47628	51627	38313	35937
Late-stage medical care system for the elderly (start in 2008)	-	-	-	-	14733	15767
Total Proportion (%)	100.0	100.0	100.0	100.0	100.0	100
Employee's health insurance	61.9	65.2	62.0	59.1	57.6	58.69
JHIA	27.2	29.6	29.0	27.9	27.3	28.67
SMHI	23.5	25.7	25.0	23.6	23.1	22.95
MAS	10.7	9.6	7.9	7.5	7.1	6.96
Seamen	0.6	0.3	0.2	0.1	0.1	0.1
National Health insurance	38.0	34.6	37.5	40.4	30.0	28.31
Late-stage medical care system for the elderly (start in 2008)	-	-	-	-	11.55	12.42

Source: MHLW; Notes: GMHI: Government-managed Health Insurance; SMHI: Society-managed Health Insurance; MAS: Mutual Aid Societies

Table 10 Major insurance schemes in Japan

Name of Insurance Scheme	Target population	Number of Insurers
National Health Insurance (NHI)	Self employed, unemployed, elderly	1,900
Employee's Heath Insurance		
JHIA	Small and medium size companies	1 (Japan Pension Organization)
SMHI	Large size companies	1,400
MAS	Public servants	85
Seaman's insurance	-	-

Table 11: Structure of the cap according to the number of months of excessive payments and the income of the payee in Japan, 2015

OOP cap on cost sharing

<70 years old				>=70 years old			
	Monthly cap		Annual cap		Monthly cap		Annual cap
Annual income	Initial 3 months (During recent 12 months)	4th months and after	apply only to household using BOTH health and LTC insurance (During August-July)	Annual taxable income	Individual outpatient	Household	Apply only to household using BOTH health and LTC insurance
>=9 million yen	252,600 yen	140,100 yen	2,120,000 yen	>=1.45 million yen	44,4000 yen	80,100 yen	670,000 yen
6-9 million yen	167,400 yen	93,000 yen	1,410,000 yen				
2-6 million yen	80,100 yen	44,400 yen	670,000 yen	0-1.45 million yen	12,000 yen	44,400 yen	560,000 yen
<=2 million yen	57,600 yen	44,400 yen	600,000 yen	No taxable income (individual)	8,000 yen	24,600 yen	310,000 yen
No taxable income	35,400 yen	24,600 yen	340,000 yen	No taxable income (household)	8,000 yen	15,000 yen	190,000 yen

Table 12: Trend in subsidies for infertility treatment

Year	2004	2008	2009	2010	2011	2012	2013
Number of Subsidized case	17,657	72,029	84,395	96,458	112,642	134,943	148,659

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平成 28 年度分担研究報告書

Physical and human resources of Japan’s health system

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研究要旨

In Japan, there are about 8,493 hospitals, 100,461 clinics and 68,592 dental clinics in 2014. These are predominantly privately owned. Compared with other OECD countries, inpatient care in Japan is characterized by longer average hospital stays, with a greater number of inpatient beds per head of population. Japanese hospitals are in general well equipped with high-technology devices such as computed tomography (CT) and magnetic resonance imaging (MRI) scanners. Japan has a relatively low number of doctors and an average number of nurses per head of population compared with other OECD countries. The number of female doctors was around 20% in 2012, although the rate has steadily increased over time. The quota for the number of students entering medical schools has increased by roughly 20% over the last eight years. In 2004, mandatory postgraduate clinical training for medical doctors and dentists was introduced. These changes are likely to influence career paths and staffing levels of relevant sections of the health care workforce in the future.

Ａ．研究目的

In Japan, there are about 8,493 hospitals, 100,461 clinics and 68,592 dental clinics in 2014. These are predominantly privately owned. Compared with other OECD countries, inpatient care in Japan is characterized by longer average hospital stays, with a greater number of inpatient beds per head of population. Japanese hospitals are in general well equipped with high-technology devices such as computed tomography (CT) and magnetic resonance imaging (MRI) scanners. Japan has a relatively low number of doctors and an average number of nurses per head of population compared with other OECD countries. The number of female doctors was around 20% in 2012, although the rate has steadily increased over time. The quota for the number of students entering medical schools has increased by roughly 20% over the last eight years. In 2004, mandatory postgraduate clinical training for medical doctors and dentists was introduced. These changes are likely to influence career paths and staffing levels of relevant sections of the health care workforce in the future.

Ｂ．研究方法

This report used information from publicly available reports and datasets to summarize the capital stock, physical resources and personnel situation for the Japanese health system, Available data is summarized and published literature reviewers to obtain information about how these resources are expected to change.

Ｃ．研究結果

C.1. Physical Resources

C.1.1. Current capital stock

The Medical Care Act defines hospitals and clinics as places where physicians or dentists conduct a medical or dental practice serving either the general public or a particular group of people. Hospitals have facilities in which at least 20 patients can be hospitalized, and clinics have fewer than 20 hospital beds, but many have none.

In 2014, there was a total of 177,546 active medical facilities, including 8,493 hospitals, 100,461 general clinics, and 68,592 dental clinics. Hospitals are further divided into 7,426 general hospitals and 1,067 psychiatric hospitals. Of the general clinics, 8,355(8.3%) had hospital beds, and 92,106 (91.7%) did not. Among 8,355 clinics, two thirds (69.9%, 5,841) of the general clinics with beds had 10–19 beds. Among 8,493 hospitals, there were 3,092 facilities with 20–99 beds (36.4%), 2,757 with 100–199 (32.4%), 2,207 (26.0%) with 200–499, and 437 with 500 beds or more (5.2%).

Health facilities are licensed by local governments. Prefectural governors and city mayors or heads of special wards with a health care centre can request reports from the founders or managers of hospitals, clinics, and birth centres, or send staff to inspect the facilities. According to the 2011 report of spot

inspections of medical facilities, the observance rate for compliance with the requirements of the Medical Care Act and related laws, including human resources and equipment, was 96.4% in medical workers, 98.0% in management, 98.3% in ledger sheets/records, 98.9% in subcontracting, 98.2% in fire/disaster prevention systems and 99.7% in radiation management.

The Japan Council for Quality Health Care (JCQHC) was founded in 1995 and started an official accreditation programme for hospitals in 1997. Accreditation is voluntary and hospitals wishing to achieve it must apply and pay the necessary fees. By March 2015, 2,270 hospitals (approximately 26.7%) were accredited and met the required standards. The JCQHC emphasizes that accreditation is intended to help hospitals improve their quality on a voluntary basis, not to close them. Hospitals that fail to meet the standards are encouraged to make the necessary improvements and then reapply.

C.1.2. Investment funding

The main source of funding for private hospitals is borrowing from banks or the Welfare and Medical Service Agency (WAM). The WAM provides low-interest long-term loans for construction, maintenance and operation of facilities to private social welfare institutions such as intensive care homes for older people and support facilities for disabled people, and to private medical institutions, including hospitals, clinics, and long-term care facilities. At the end of 2013, WAM's balance of loan receivables was 1.635 trillion yen (including construction funds, funds for purchasing equipment, and funds for long-term operation) and 173.5 billion yen was provided in loans that year.

As a way of raising money more directly, the issue of medical institute bonds (known as local medical promotion bonds) commenced in February 2004, subject to guidelines announced by the Ministry of Health, Labour and Welfare from October 2004. In June 2006, the Medical Care Act was revised to allow social medical corporations to issue securities called social medical corporation bonds, via the Financial Instruments and Exchange Act. According to a survey of the Ministry of Health, Labour, and Welfare, by 2013, 18 medical corporations had issued a total of 41 medical institute bonds, with a total monetary value of 4.309 billion yen.

C.2. Infrastructure

Japanese hospitals and clinics are predominantly privately owned. In 2014, of the 8,493 hospitals, 329 had been established by national agencies, 1,231 by public organizations (such as prefectures or municipal governments), and 57 by social insurance groups. 6,876were privately owned, with 5,721 of these owned by non-profit medical corporations, 289 solely owned by private organizations, and 866 by others, including non-profit public corporations, non-profit school corporations and private medical schools.. Private-sector medical

corporations are major provider of Japanese health care. In Japan, there are a total 8,480 hospitals, 100,995 clinics and 68,737 dental clinics. 67.7% of hospitals are operated by medical corporations.

Non-profit medical corporations incorporated under the Medical Care Act are similar to profit-making corporations in that they are established by direct investment from private shareholders, but they are prohibited from disbursing their profits to shareholders in the form of dividends. The corporate assets of the corporations are the property of the shareholders, who are entitled to sell them at market value at any time. Non-profit medical corporations are subject to regulation and supervision by prefectural governments. Profit-making corporations are generally assumed to be prohibited from owning and operating hospitals and clinics under the Medical Care Act, although this prohibition is not explicit in the Act. The government has, however, championed the non-profit principle based on this presumption.

The number of hospitals across all categories has declined steadily by more than 1,500 from a peak of 10,096 in 1990, reflecting mergers and acquisitions in recent years, and has been less than 10,000 since 1992. In 2014, there were 100,461 clinics, of which 8,355 had beds, and 68,592 dental clinics, of which 32 had beds. Hospital beds are categorized as general use, long-term care, psychiatric disorders, and tuberculosis.In 2014, there were 1,680,625 inpatient beds in all facilities, of which 1,568,261 were in hospitals. A total of 894,216 hospital beds were general use, 328,144 were for long-term care, 338,174 were for psychiatric disorders, 1,778 were for infectious diseases and 5,949 were specifically for tuberculosis. The total number of beds in clinics was 112,364 and of these, 11,410 were for long-term care. Like the number of hospitals, the number of beds within them has decreased gradually since its 1992 peak of 1,686,696.

Inpatient care in Japan is generally characterized by longer hospital stays than in other OECD countries. The average length of stay was 17.9 days for all hospital beds in 2014. The average across OECD countries for which data were available was 6.6 days. The average length of stay in Japan has, however, been steadily declining because of the rise of care in welfare homes for older people covered by long-term care insurance (Figure 1).

Compared with other OECD countries, Japan also has more inpatient beds per head of population, although the number has declined somewhat from a peak of 1.95 million in 1990. This is chiefly as a result of controls on hospital beds, which were promoted in the area health planning enforced by the Medical Care Act. In 2013, Japan had 13.3 hospital beds per 1 000 population, compared with the OECD average

of 4.8 for countries with available data (Figure 2).

C.4.3. Information technology

Japanese hospitals are in general well equipped with high-technology devices (Matsumoto 2004). Two out of every three hospitals, including psychiatric and tuberculosis hospitals, have whole-body CT scanners. The number of CT scanners per 1,000 population is 0.101, compared with a mean of 0.024 in other OECD countries, 0.051 in Australia, and 0.041 in the United States and Iceland (Table 1). There are 0.047 num MRI scanners per 1,000 population in Japan, significantly higher than the OECD average of 0.014, and higher also than the rates of 0.035 in the United States, 0.025 in Italy and 0.024 in Korea. The proportion of hospitals with MRI, CT and positron emission tomography (PET) scanners in Japan is 70.5%, 59.4% and 74.2% respectively.

Although this high prevalence of high-technology equipment may improve patient access, it may not be efficient. An important challenge facing health policymakers is ensuring that distribution of high-technology equipment is cost-effective but still provides easy access for patients.

Clinics fulfil a general diagnostic function and are usually very well equipped with apparatus for X-rays, electrocardiography and blood and urine tests. Clinics with inpatient beds function effectively as small-sized hospitals, and their beds constituted 9.9% of the total beds in 2004. This comprehensive function of clinics is an important basis for primary healthcare in Japan. People can access very convenient services at affordable prices almost anywhere in the country, and receive treatment at a comparatively early stage in any illness.

The proportion of the Japanese population using the Internet is estimated to be 82.8%, with 100.4 million people and 99.9% of companies using the internet in 2013. The most common methods of access are personal computers at home (58.4%), followed by smartphones (42.4%), and personal computers elsewhere (27.9%). Access from smartphones has recently increased. Broadband is used by 97.4% of households that access the Internet at home, with 59.3% using optical communication lines. Mobile phone lines are used in 50.2% of households.

In healthcare, the Ministry of Health, Labour and Welfare has drawn up two documents to encourage IT use. These are the Grand design for informatization of the healthcare field (2001) and the Grand design for information utilization in medical care, health care, long-term care, and welfare sectors (2007). These were designed to promote online claim systems, development of medical information databases, and exploration of other ways to make use of information and communication technology (ICT) through various demonstration businesses. Based on a

Declaration to be the World's Most Advanced IT Nation from the cabinet in June 2013, the Ministry of Health, Labour and Welfare has encouraged sharing of information among medical and long-term care institutions.

A March 2014 survey of ICT in healthcare by the Ministry of Health, Labour and Welfare in March 2014 found that electronic health records were used in 1,729 facilities (20.4% of the 8,460 respondents). Ordering systems and picture archiving and communication systems were used in 3,147 (37.2%) and 4,590 (54.2%) of all respondent facilities.

C.4.4. Human resources

Table 2 shows the trends in the number of doctors, dentists, pharmacists and nurses in Japan between 1980 and 2012. In December 2012, there were 303,268 doctors (2.38 per 1 000 population), 102,551 dentists (0.80 per 1 000 population), 280,052 pharmacists (2.20 per 1 000 population), 47,279 public health nurses (0.37 per 1 000 population), 31,835 midwives (0.25 per 1 000 population), 1,015,744 nurses (7.97 per 1 000 population) and 357,777 assistant nurses (2.81 per 1 000 population).

C.4.4.1. Physicians

Of the 311,205 licensed physicians in 2014, 296845(95.4%) were working in medical facilities, with 194,961 (62.6%) in hospitals and101,884 (32.7%) in clinics. There were 15,659 female doctors (10.0% of the total) in 1980 and 60,495 (20.4%) in 2014. Of doctors aged under 29 years, 9,165 (34.8%) were female. Compared with other OECD countries, Japan has a relatively low supply of doctors (Figure 3), with an estimated two per 1,000 population in 2013, or the latest available year, compared with an OECD average of 3.2. This partially reflects historical decisions to reduce the number of medical student places, and a lack of easy access to overseas-trained medical staff due to medical and institutional barriers to foreign workers in the Japanese system.

There were 50 medical schools in Japan in 1970, with this number growing to 80 by 1981. The enrolment capacity for medical students per year reached a peak of 8,280 in 1981. In 1986, a special committee of the then Ministry of Health and Welfare recommended that the number of new doctors should be reduced by 10% before 1995, in anticipation of a large increase in the number of graduates. As a result, student enrolment dropped to 7,625 in the 2003 financial year. By 2008, the numbers had been increased again, to address concerns about insufficient numbers of physicians, to 1,509 more students than in the previous year. In the 2015 financial year, there were 9,069 new students. Student enrolment has increased in universities providing scholarships for those engaging in community healthcare or setting selection criteria, co-operating with other universities to provide bases for training research physicians, and decreasing the number

of dental students.

C.4.4.2. Nurses

There were 248,165 practicing nurses in Japan in 1980 (2.12 per 1 000 population), but this number increased rapidly to 1,086,779 (8.55per 1 000 population) by 2014, a four-fold increase in 30 years. The number of public health nurses in total and per 1,000 population was 17,957 and 0.15 in 1980 and 48,452 and 0.38 in 2014. For midwives, the figures were 25,867 and 0.22 in 1980 and 33,956 and 0.27 in 2014. Japan has a similar number of nurses to other OECD countries (Figure 4).

C.4.4.3. Dentists

In 1980 there were 53,602 dentists, a rate of 0.46 per 1,000 population, increasing to 103,972 (0.8 per 1,000) in 2014. Of these, 6,590 (12.3 %) were women in 1980 but this figure rose to 23,428 (22.5%) in 2014. Among dentists at aged under 29 years old, 43.6% were female. Compared with other OECD countries, Japan has a high number of dentists (Figure 5).

C.4.4.4. Pharmacists

In 1980 there were 116,056 pharmacists in total, at a rate of 0.99 per 1,000 population, rising to 217,477 (1.71 per 1,000 population) in 2000, and 288,151 (2.27 per 1,000) in 2014. Of these 175,657 (61.0%) were women in 2014. In 2006, the Ministry of Education and Science introduced a 6-year course for pharmacists, which includes compulsory practical training in pharmacies or hospitals. Compared with other OECD countries, Japan has a high number of pharmacists (Figure 6).

C.4.5. Professional mobility of health workers

Professional mobility is quite limited in Japan. Anyone graduating from medical schools or obtaining a medical license outside Japan is required to take documentary examinations and demonstrate their ability to provide suitable medical care in Japanese if they want to take the national examinations for medical practitioners. They may then be permitted to sit for the national examination, or be required to take a pre-examination and undergo practical training for 1 year or more beforehand.

Based on formal agreements between countries, medical licenses may be given to foreign physicians who have passed the national examinations for medical practitioners in English, provided certain conditions are met. They must be undertaking medical practice at medical facilities approved by the Japanese government and not use Japanese public medical insurance. This agreement is so far limited to doctors from the United Kingdom, the United States, France, and Singapore.

There is also a special system for foreign healthcare professionals coming to Japan to undertake medical training, and who aim to contribute to the development of international interaction with physicians and nurses in

medical fields and to improve medical standards in developing countries, in which they are allowed to conduct medical and nursing services. The system is currently being expanded.

Through a new "Indonesia–Japan collaboration on the enhancement of nursing competency through in-service training", established through the Economic Partnership Agreement, foreign applicants working towards acquiring the national license from Indonesia, Philippines, and Vietnam engage in training at receiving facilities with a view to passing the national examination. Some 2,377 foreign potential nurses and long-term care workers had entered Japan under this scheme by June 2014. The Ministry of Health, Labour and Welfare stated that this scheme was not designed to address the nursing shortages, but had been implemented following strong requests from the other countries, and to reinforce economic cooperation.

C.4.6. Training of health workers

C.4.6.1. Physicians

Medical training in Japan is an undergraduate course, which involves six years at medical school after graduating from senior high school. Those who pass the national examination then proceed to two years of clinical training, after which they are included in the medical register. In 2017, 8,533 students passed the national examinations. Decisions about where to provide clinical training are made by matching physicians and venues using an algorithm.

The quota on the number of students entering medical schools in the 1960s was about 3,000–4,000, and in 1973 the Cabinet endorsed a vision of every prefecture having a medical school. Since then, a number of new medical schools have been established. The peak of 8,280 new students was reached between 1981 and 1984. However, by reflecting a concern about increasing healthcare expenditure due to too many physicians, the cabinet decisions made in 1982 and 1997 resulted in a reduction in the quota of new students entering medical schools to 7,625, although this has since increased again to cope with shortages of medical personnel. In 2008, in response to the needs to deal with rapidly ageing society, the cabinet decided to increase the quote of medical schools again and now reaches at 9,262 in 2016.

Postgraduate clinical training after medical school became mandatory in 2004 and training facilities for doctors in the initial stages have changed greatly. In 2003, 72.5% of new doctors were trained at university hospitals and about 40% were trained in a single specialist department affiliated to a university. Only a few trainees received more general training from a broader rotation. Since then, the number of clinical training hospitals other than university hospitals has grown to provide more than half of the total training places.

In 2015, there were 11,052 clinical training places in 1,023 hospitals (1,410 training programmes), and there were total 8,687 newly-registered physicians were matched to the training programme. The number of training slots is far greater than the number of applicants, and the trainee physicians are likely to be concentrated in urban areas. Therefore, adjustments such as setting an upper limit on the numbers recruited in individual prefectures have been in operation since 2010.

C.4.6.2. Dentists

Dentists follow a 6-year course at dental school after graduating from senior high school. Although most of these schools were private before the Second World War, dental schools were established at three national universities in 1965. The quota on the number of students in 2016 was2,459, at 29 schools in 27 universities. At least one year's clinical postgraduate training has been mandatory since 2006. In 2014, there were 2,428 clinical training facilities with quote of 3,603The number passing the national dental practitioners examination was 2,025 in 2014, which was way lower than training programmes.

C.4.6.3. Pharmacists

The career path for pharmacists used to be a four-year degree course provided by a university pharmaceutical department, followed by a national examination. Students proceeding to graduate school could take two-year master's courses and three-year doctoral courses. However, with increased social concern about pharmaceutical education due to recent advances in medical technologies and the separation of dispensary from medical practice, the course term was extended to six years and doctoral courses to four years. There are still some four-year pharmaceutical courses for those planning to work in research and development at pharmaceutical companies and universities, or wanting to gain a basic knowledge of pharmacy but not wanting to work as a pharmacist. In 2015, 73 universities provide programs with total 13,034 quote (11,455 for six-years and 1,589 for four-years). 11,488 students passed the national pharmacists' examination in 2016.

C.4.6.4. Nurses

There are a variety of different routes leading to a nursing qualification, including both short and longer college courses, some with associated clinical experience. Of the 47,340 nurses who passed the national examination in 2008, 11,170 (23.6%) had graduated from universities or colleges.

C.4.7. Doctors' career paths

Majority of licensed physicians work at In 2014, of the 311,205 licenced physicians, 296,845 were practicing, 142,655 worked in hospitals not attached to medical educational institutions, 52,306 in hospitals attached to medical educational institutions and 101,884 in clinics. There have been more physicians working in

non-teaching hospitals than in clinics since 1986. The largest age group in each setting was those aged 30–39 in hospitals, and those aged 50–59 in clinics. The mean age was 46.2 years in non-teaching hospitals, 38.7 years in teaching hospitals, and 59.2 years in clinics.

The career path for physicians is in transition because of the introduction of mandatory postgraduate clinical training in 2004 and the introduction of a new specialty board certification system starting in 2017. Before 2004, physicians were trained at universities and reported to the medical office of the universities, from which they obtained a graduation diploma. They then acquired experience working at multiple hospitals. The clinical department of the medical schools (ikyoku) strongly controlled the dispatch of physicians and there was very limited choice for individual physicians to choose whichever hospital they work. After the introduction of mandatory post-graduate clinical training in 2004, young physicians shifted to hospitals not attached to medical educational institutions and more freely to choose hospitals they work.

Specialty board certification has been introduced because of past problems in the evaluation or approval of specialists, which was previously conducted by academic societies (not nationally qualified). This independent accreditation process caused some problems, including a lack of uniform standards and gaps in understanding between physicians and citizens about the abilities required for specialists. The Ministry of Health, Labour and Welfare has established a commission to investigate medical specialties and propose revisions. It has recommended establishment of a uniform system for approval of specialists, evaluation/approval of training programs, and a possible two-step system in which physicians acquire qualifications in more basic fields, and then acquire further qualifications in sub-specialties. The commission has also proposed adding general practice/family medicine as an area for general certification, because these physicians provide appropriate primary care and continuous medical care for a wide range of common diseases.

C.4.7.1. Other health workers' career paths

Nurses

The majority of midwives, nurses, and assistant nurses were working in hospitals: 22,055midwives (65.0%), 791,988 nurses (72.9%), and 143,995 assistant nurses (42.3%) in 2014. More than half (56.2%) of all public health nurses, 27,234, were working for local authorities. The number of universities providing nursing education has increased greatly from 11 universities recruiting 558 students in 1991 to 218 universities recruiting 17,878 students in 2013. In 2015, MHLW introduced systems for certified nurse specialists, certified nurses, and certified nurse administrators. In April 2012, certified nurses

were working in 21 fields and certified nurse specialists in 11. A trial nurse practitioner program was introduced in 2008, though a licensing program has not yet been finalized for this position.

Dentists

As of 2012, the number of dentists working in medical facilities was 99,659 (97.2% of the total number of licenced dentists), which was an increase of 0.9% over the previous count. Of those working in medical facilities, 87,112 were working in clinics, 9,656 in teaching hospitals, and 2,891 in other hospitals. The proportion in clinics has tended to increase continuously over the last few years. The biggest age groups in each setting are those aged 29 or younger in teaching hospitals, those aged 30–39 in other hospitals, and aged 50–59 in clinics. The mean age is 35.3 years in teaching hospitals, 42.2 years in other hospitals and 51.6 years in clinics.

Pharmacists

As of 2012, there were 153,012 pharmacists (54.6%) working in pharmacies, 52,704 (18.8%) working in hospitals and clinics, 5,249 (1.9%) working in universities, 45,112 (16.1%) working for pharmaceutical companies, 6,443 (2.3%) working in public health administration, and 17,517 (6.3%) for other employers. Although there were almost equal numbers of pharmacists working in pharmacies and in hospitals/clinics in 1990, the number working in pharmacies has increased, whereas the number working in hospitals and clinics has tended to remain at the same level since 1996.

C.4.8. Dual practice

According to the National Public Service Act and Local Public Service Act, civil officials may not also act as executives or advisers for commercial companies, or run any commercial company. Subsidiary businesses may, however, be allowed if specific permission is sought and approved. If permission is obtained, healthcare practitioners in Japan are permitted to work privately either within or outside their public sector workplace and either outside or within their scheduled public sector hours of work. The standard for permission sets out that the business has no links to the government post and could not cause problems in carrying out official duties. Executives (administrative director, administration officers and supervisors) and heads of hospitals, whose official responsibilities are considered very important, are not permitted to run any commercial companies. This is the entire extent of allowable dual practice in Japan.

Ｄ． 結論

In Japan, there are about 8,493 hospitals, 100,461 clinics and 68,592 dental clinics in 2014. These are predominantly privately owned. Compared with other OECD countries, inpatient care in Japan is characterized by longer average hospital stays, with a greater number of inpatient beds per head of population. Japanese

hospitals are in general well equipped with high-technology devices such as computed tomography (CT) and magnetic resonance imaging (MRI) scanners. Japan has a relatively low number of doctors and an average number of nurses per head of population compared with other OECD countries. The number of female doctors was around 20% in 2012, although the rate has steadily increased over time. The quota for the number of students entering medical schools has increased by roughly 20% over the last eight years. In 2004, mandatory postgraduate clinical training for medical doctors and dentists was introduced. These changes are likely to influence career paths and staffing levels of relevant sections of the health care workforce in the future.

特になし

E. 研究発表

1. 論文発表

特になし

2. 学会発表

特になし

F. 知的財産権の出願・登録状況

（予定を含む。）

1. 特許取得

特になし

2. 実用新案登録

特になし

3. その他

Figure 1: Average length of stay, all causes, 1990 to latest available year

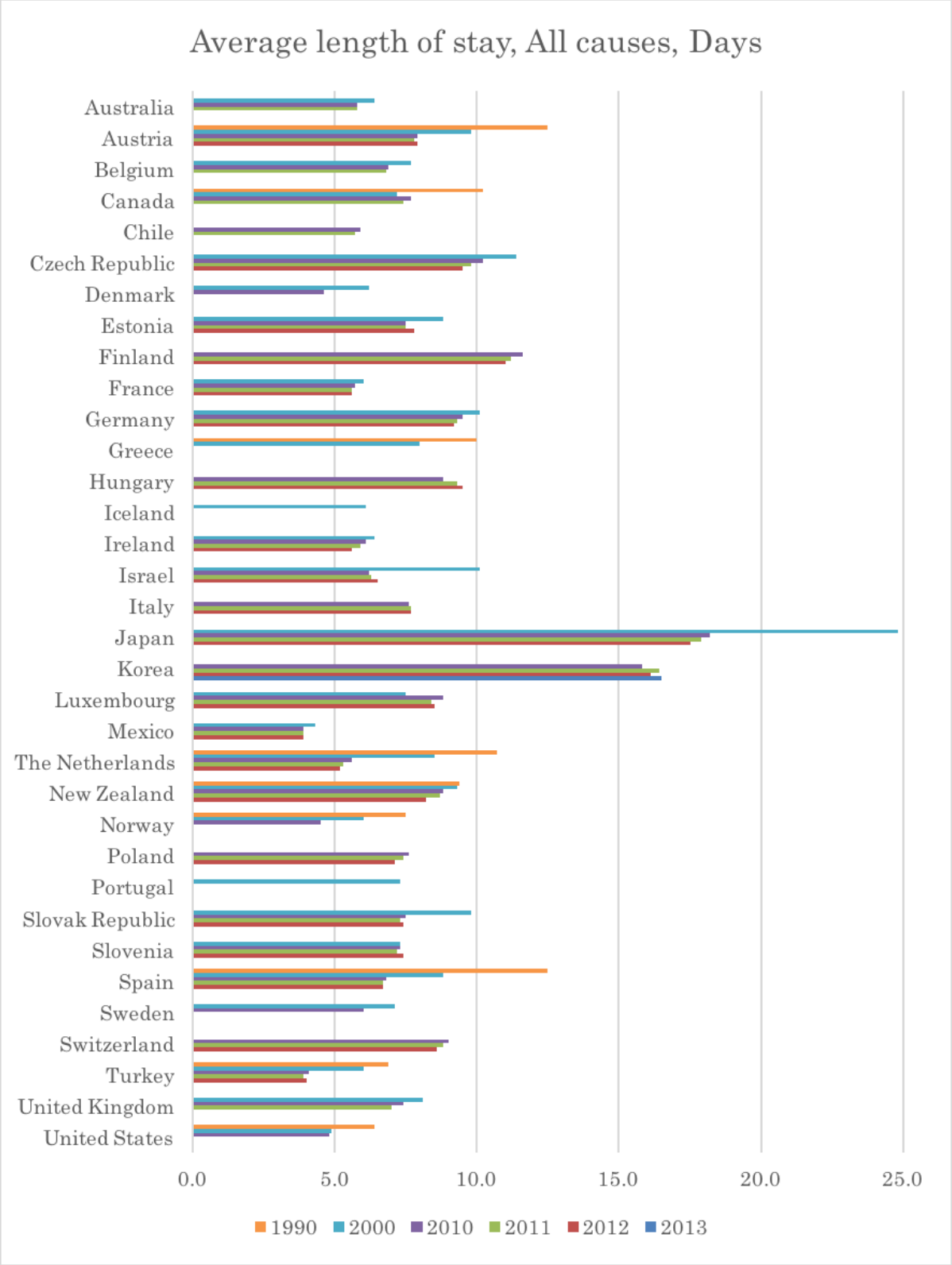


Figure 2: Hospital beds per 1,000 population in selected countries, in 2013

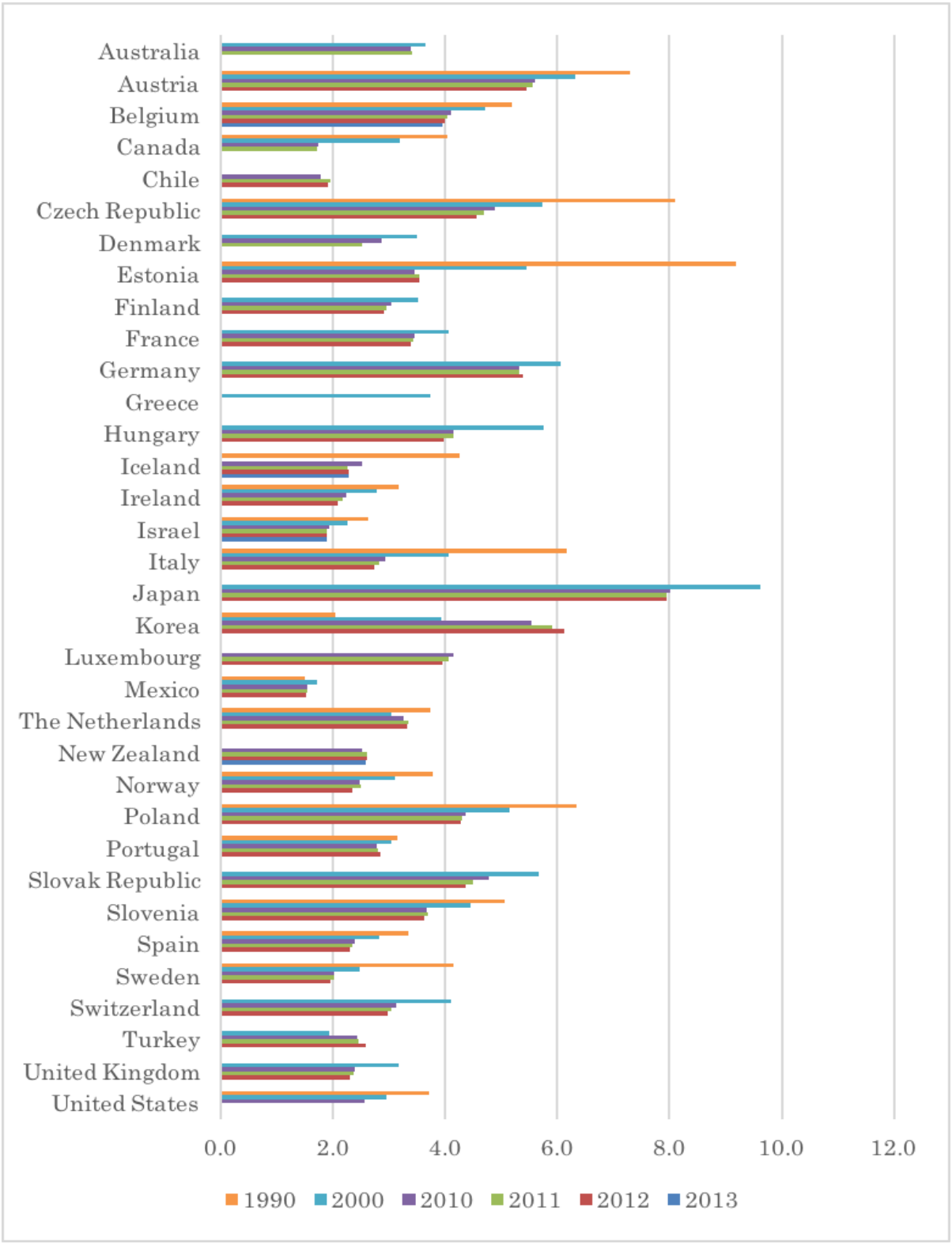


Figure 3: Number of physicians per 1,000 population in different countries, by year

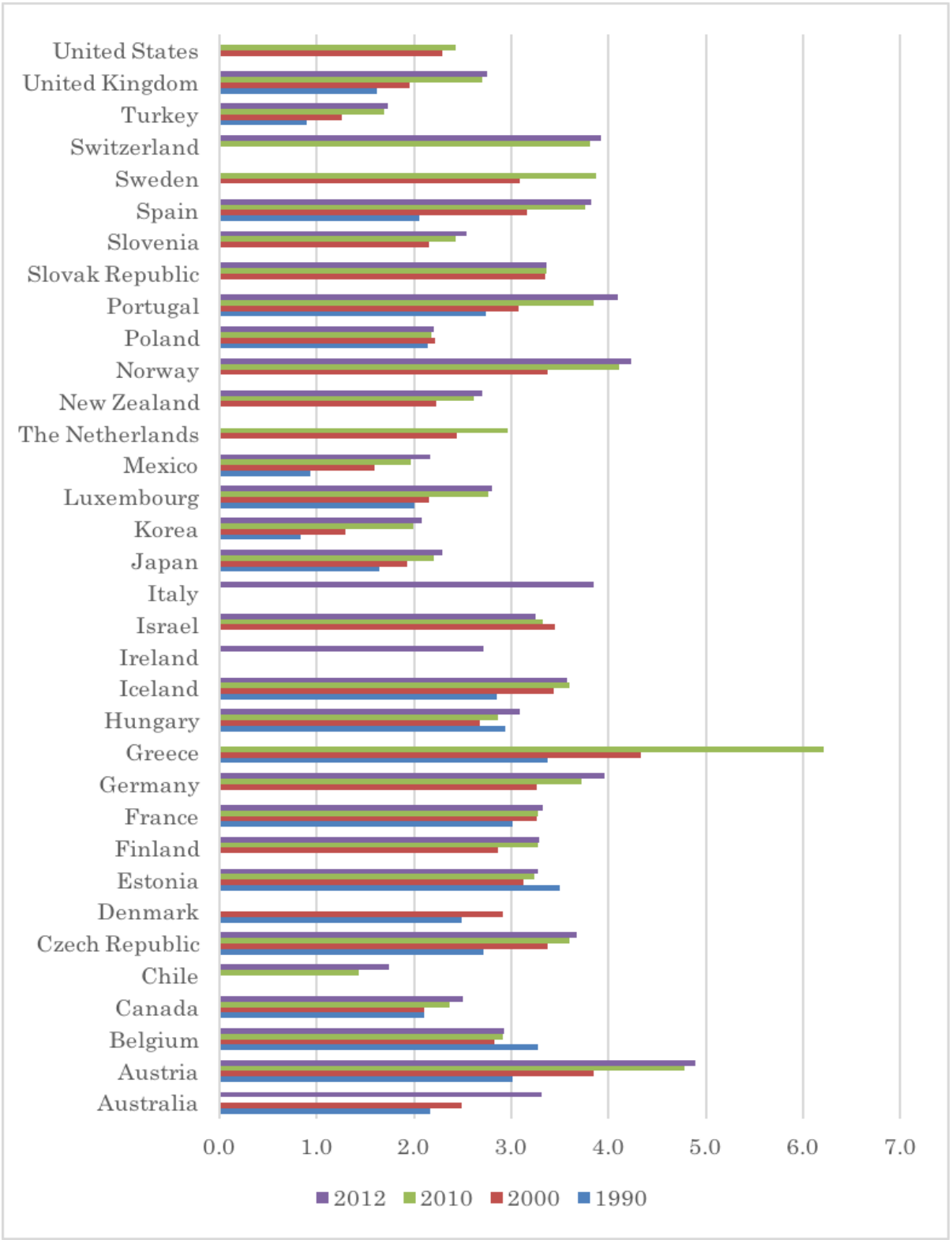


Figure 4: Number of nurses per 1,000 population in selected countries, by year

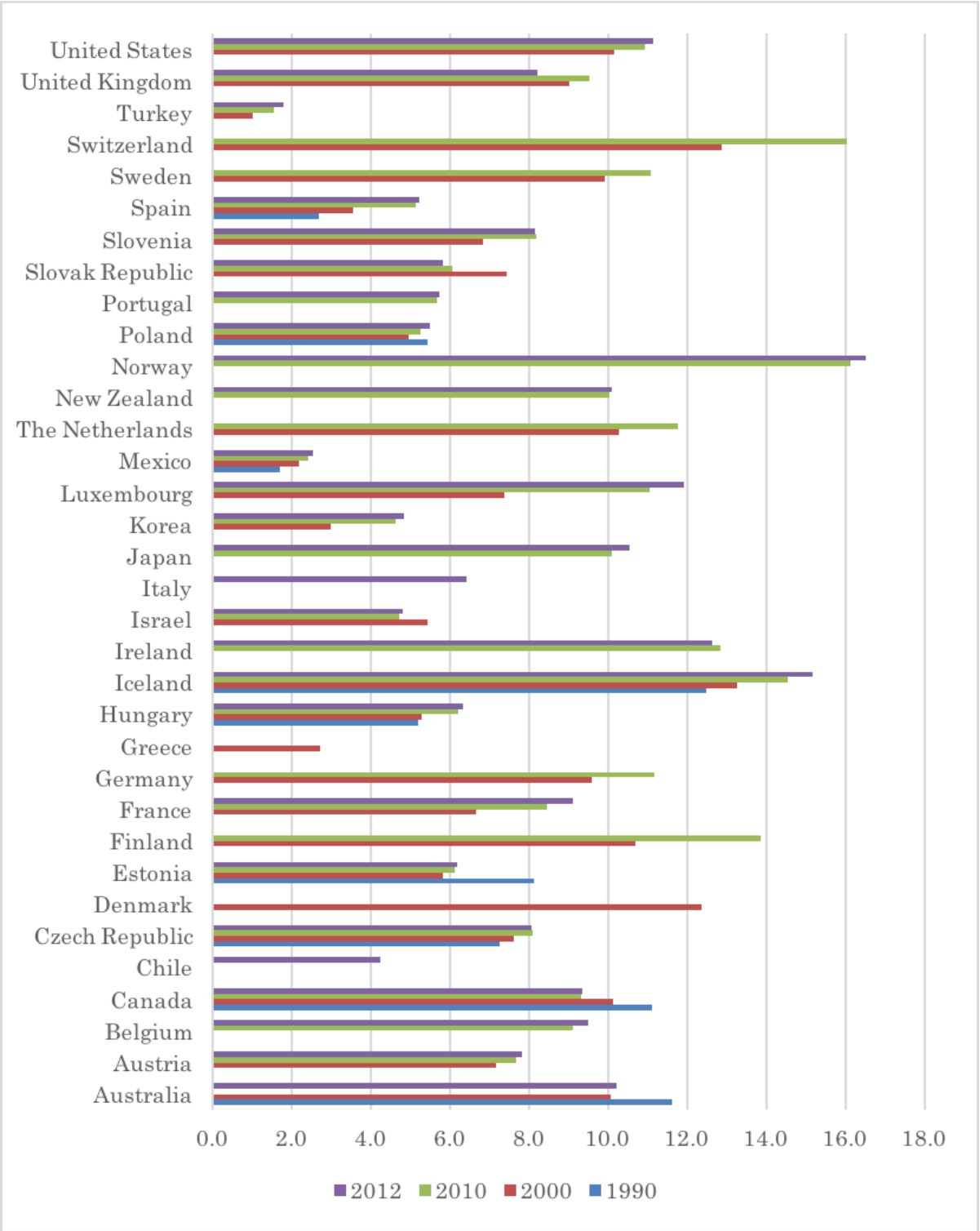
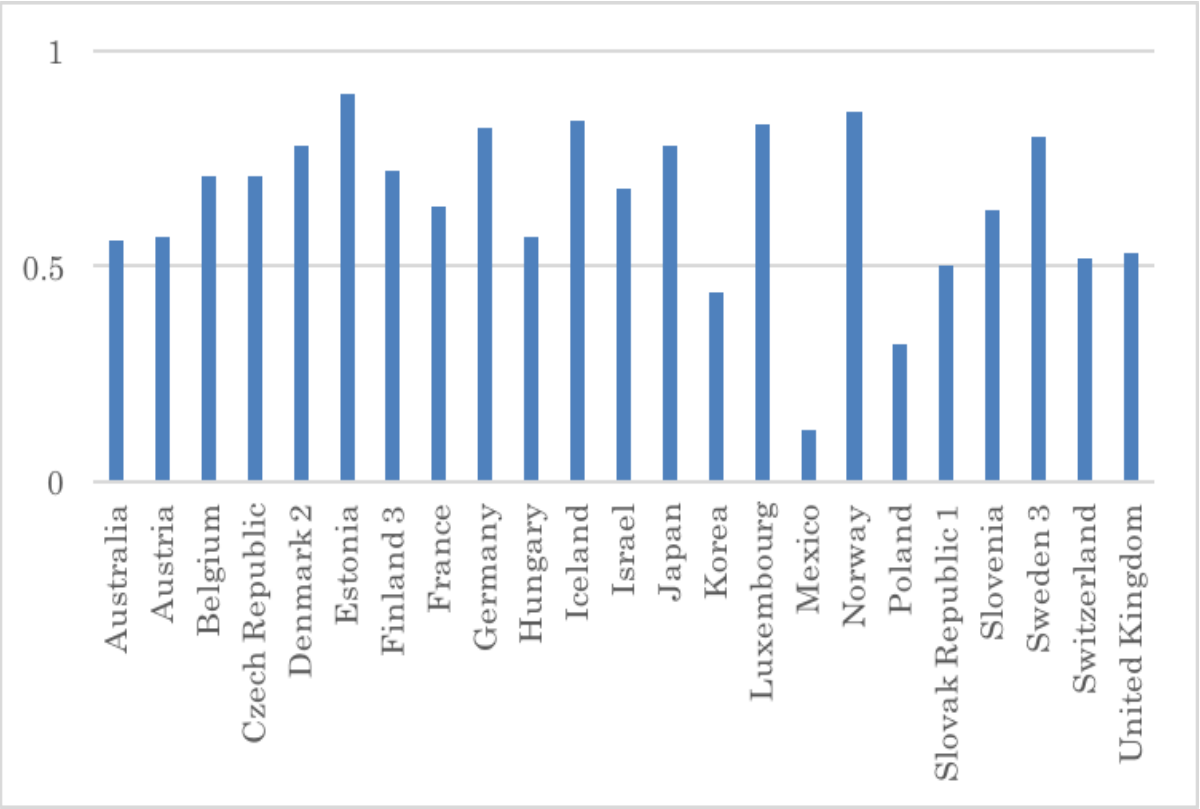
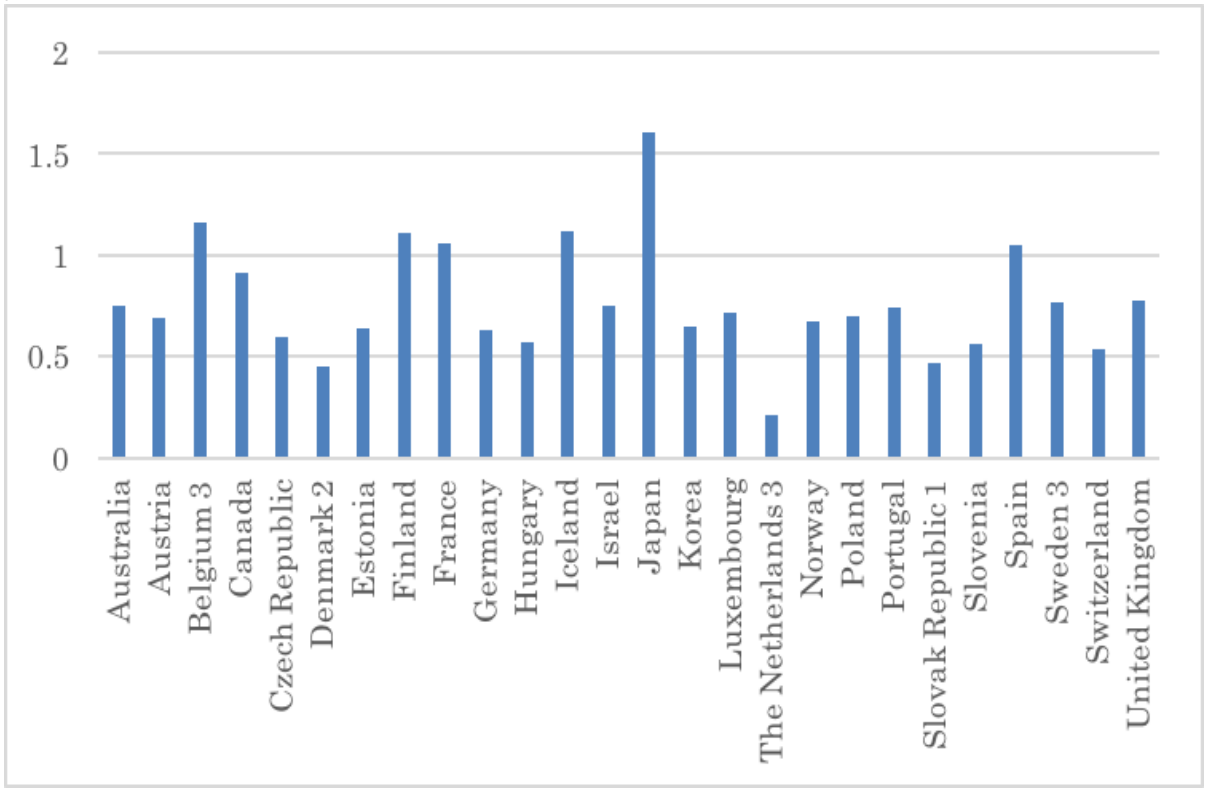


Figure 5: Number of dentists per 1,000 population in selected countries in 2012 (or latest available year)



Source: OECD Health Statistics 2014; 1: 2007 data; 2: 2009 data; 3: 2011 data

Figure 6: Number of pharmacists per 1,000 population in selected countries, in 2012 or latest available year



Source: OECD Health Statistics 2014; 1: 2007 data; 2: 2009 data; 3: 2011 data

Table 1: Number of functioning diagnostic imaging devices (MRI units, CT scanners, PET) per 1,000 population in latest available year (2011)

	Unit			Per 1,000
	Hospital	Clinic	Total	population
MRI	3,461	515	3,461	0.047
≥ 1.5 T	2,946	515	3,461	
< 1.5 T	1,293	1,236	2,529	
CT	7,877	5,066	12,943	0.101
Multi-detector	6,048	2,298	8,346	
Other	1,829	2,768	4,597	
PET	93	24	117	0.001
PET-CT	253	96	349	0.003

Source: MHLW

Table 2: Healthcare workers per 1,000 population, 1995 to 2015

	1980	1990	2000	2010	2015
Physicians	1.33	1.71	2.02	2.30	2.38
Dentists	0.46	0.60	0.72	0.79	0.80
Pharmacists	0.99	1.22	1.71	2.16	2.20
Public Health Nurses	0.15	0.20	0.29	0.35	0.37
Midwives	0.22	0.19	0.19	0.23	0.25
Nurses	2.12	3.27	5.15	7.44	7.97
Assistant Nurses	2.04	2.75	3.06	2.93	2.81

Source: MHLW

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Service provision within Japan’s health system

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研究要旨

Japan's health system is built around a complex set of institutional arrangements operating at nationa, prefectural, and municipal level and covering public health, primary care, asic medical and long-term aged care dimensions. Understanding how these components of the system are funded and operated and how they interact is essential to a proper understanding of the challenges facing the system and proper reforms. This report describes the key service provision modalities of Japan's health system, and the primary challenges that the system faces.

Ａ．研究目的

Japan has experienced rapid improvement in life expectancy over the past 50 years after development of comprehensive universal health coverage (UHC) that ensures equity at low cost. However, the serivece provision mechanisms in the UHC are complex and operate at the national prefectural, and municipal level. They also incorporate both extensive private and public sector elements in service provision, with an element of private out of pocket payment and purchasing split across national and local institutions.

Because Japan faces a growing ageing population and increasing prevalence of NCDs, it is important to understand how the system of service provision operates, in order to analyze the reforms necessary to ensure adequate function of the system as it deals with the full consequences of ageing and the demographic transition. This report gives a comprehensive overview of how services are provided in apan and summarizes the challenges facing Japan's health system.

Ｂ．研究方法

This report used a comprehensive assessment of government reports and published papers describing the structure of Japan's heath system. The information was synthesized and summarized by healthcare area and type of service.

Ｃ．研究結果

C.1. Public health

Public health activities in Japan are governed by the Community Health Act which was passed in 1994. This act sets out the responsibilities of municipalities, prefectures and national government in protecting public health, describes the organizations responsible for delivering public health services, and aims to better manage public health as Japan comes to the end of the demographic transition.

C.1.1. Communicable disease control functions

In 1997, the Infectious Disease Surveillance Center (ICDS) was organized in the National Institute of Infectious Diseases (NIID). The ICDS is responsible for surveillance of all targeted infectious diseases which are divided into five categories. Based on the Infectious Disease Control Law enacted in 1995, the ICDS conducts nationwide surveillance of infectious disease by collecting reports on detection of infectious agents from prefectural public health institutes. The center also collects reports on incidents of infectious diseases from sentinel clinics and hospitals across Japan. This information is publicly reported weekly or monthly.

C.1.1.1 Target diseases of the Infectious Diseases Control Law

The five categories of infectious disease are defined in terms of both urgency of

notification and severity, and are listed below (as of Feb 2017).

1. Category I (all cases to be notified promptly after diagnosis): Crimean-Congo hemorrhagic fever; Ebola hemorrhagic fever; Lassa fever; Marburg disease; Plague; South American hemorrhagic fever; and Smallpox
2. Category II (to be notified promptly after diagnosis): Acute poliomyelitis; Tuberculosis; Diphtheria; Severe Acute Respiratory Syndrome (SARS); Middle East Respiratory Syndrome (MERS); Avian influenza (H5N1, H7N9)
3. Category III (to be notified promptly after diagnosis): Cholera; Shigellosis; Enterohemorrhagic Escherichia coli infection; Typhoid fever; and Paratyphoid fever
4. Category IV (to be notified all the cases promptly after diagnosis): Anthrax; Avian influenza virus infection (except H5N1, H7N9); Botulism; Brucellosis; Chikungunya fever; Coccidioidomycosis; Dengue fever; Echinococcosis; Eastern equine encephalitis; Epidemic typhus; Hantavirus pulmonary syndrome; Hemorrhagic fever with renal syndrome; Glanders (Burkholderia mallei); Handra virus disease; Hepatitis A; Hepatitis E; Herpes B virus infection; Japanese encephalitis; Japanese spotted fever; Kyasanur forest disease; Melioidosis (Burkholderia pseudomallei); Legionellosis; Leptospirosis; Lyme disease; Lyssavirus infection (excluding rabies); Malaria; Monkeypox; Nipah virus infection; Omsk Hemorrhagic Fever; Psittacosis; Q fever; Rabies; Relapsing fever; Rift Valley fever; Rocky Mountain spotter fever; Scrub typhus (Tsutsugamushi disease); Severe Fever with Thrombocytopenia Syndrome (SFTS); Tick-born encephalitis; Tularemia; Venezuelan equine encephalitis; Western equine encephalitis; West Nile fever (including West Nile encephalitis); Yellow fever; Zika virus
5. Category V:

a. Diseases to be notified by all physicians within 7 days after diagnosis (Rubella and Invasive meningococcal disease are exceptions and are required to report promptly after diagnosis)

Acquired immunodeficiency syndrome; Amebiasis; Acute encephalitis (excluding encephalitis listed at category IV); Carbapenem-resistant enterobacteriaceae (CRE); Chickenpox (limited to hospitalized case); Congenital rubella syndrome; Creutzfeldt-Jakob disease; Cryptosporidiosis; Disseminated Cryptococcal Disease; Giardiasis; Invasive Haemophilius influenza disease; Invasive meningococcal disease; Invasive pneumococcal disease (IPD); measles; rubella; Multiple Drug-Resistant Acinetobacter (MDRA); Severe invasive streptococcal infections(Streptococcal toxic

shock-like syndrome); Syphilis; Tetanus; Vancomycin-resistant Enterococcus infection; Vancomycin-resistant Staphylococcus aureus infection; Viral hepatitis(excluding hepatitis A and E)

b. Diseases to be reported by sentinel clinics and hospitals

- Influenza sentinel: Influenza (excluding avian influenza virus infection)
- Pediatric disease sentinel: Chickenpox; Erythema infectiosum; Exanthem subitum; Group A streptococcal pharyngitis; Hand, foot and mouth disease; Herpangina; Infectious gastroenteritis; Mumps; Pertussis; Pharyngoconjunctival fever; Respiratory syncytial virus infection;
- Eye disease sentinel: Acute hemorrhagic conjunctivitis; Epidemic keratoconjunctivitis
- Sexually transmitted disease (STD) sentinel: Condyloma acuminatum; Genital chlamydial infection; Genital herpes; Gonorrhea
- Sentinel hospital: Aseptic meningitis; Bacterial meningitis; Chlamydial pneumonia (excluding psittacosis); Infectious gastroenteritis (limited to rotavirus); Mycoplasmal pneumonia; Methicillin-resistant Staphylococcus aureus infection; Multi-drug-resistant Pseudomonas aeruginosa infection; Penicillin-resistant Streptococcus pneumoniae infection

C.1.2. Environmental disease control functions

In the 1960-70s, Japan experienced several disastrous environmental pollution incidents, including Minamata disease (methyl-mercury poisoning), Itaiitai disease (cadmium poisoning) and Yokkaichi asthma (Table 1). In the process of addressing these environmental diseases, the government of Japan has created several countermeasures for environmental diseases. Noteworthy point was that an establishment of Environmental Agency in 1971, which was later expanded to the Ministry of Environment in 2001. Overall history of pollution countermeasures is listed in Table 2.

C.1.3. Surveillance of the population's health and well-being

MHLW conducts several surveys related to health care and long-term care. Table 3 show the comprehensive list of surveys MHLW does (though MHLW also conducts survey related to labour and welfare, these are not included into this table).

C.1.3.1. The National Health and Nutrition Survey

The National Health and Nutrition Survey is conducted every year, based on the Health Promotion Law. The aim of the survey is to ascertain the actual state of health, food intake, nutritional intake, and lifestyles of Japanese people. The survey provides data on

prevalence of lifestyle-related diseases; physical activity and exercise; dietary habits; smoking habits; obesity and underweight; and energy/ vegetable intake (data as of 2015).

C.1.3.2. Comprehensive Survey of Living Conditions

The comprehensive survey of living conditions is conducted every year. The purpose of this survey is to investigate people's living conditions including health, medical care, welfare, pension, and income (data as of 2013).

(1) Subjective symptoms

The proportion of people with subjective symptoms (complainant ratio) was 312.4 per thousand population. The ratio for women (345.3) was higher than for men (276.8). The ratio was lowest for those aged 10 to 19 (176.4). The number rose with age-group, reaching 537.5 for those aged 80 and over. Among men, lower back pain had the highest complainant ratio, followed by shoulder stiffness and blocked or runny nose. Among women, shoulder stiffness had the highest complainant ratio, followed by lower back pain and joint pain in hands and feet.

(2) Hospital visit

The proportion of people visiting outpatient clinics was 378.3 per thousand population. The figure for women (396.3) was higher than for men (358.8). The figure was lowest for those aged 10 to 19 (133.0). The higher proportion was associated with higher age, reaching 734.1 for those aged 80 and over. Among male respondents, high blood pressure had the highest outpatient ratio, followed by diabetes and dental diseases. Among women, high blood pressure had the highest outpatient ratio, followed by lower back pain and ophthalmologic disease.

(3) Attendance for health checkups and medical checkup

Overall, 67.2% in men and 57.9% in women of respondents aged 20 or over reported attending a health checkup, with the highest proportion of attendances seen in 50 to 59 year old men (76.2%), and 50 to 59 year old women (66.2%).

C.1.3.3. Patient Survey

The patient survey is conducted once in every three years. The purpose of this survey is to obtain basic data for health policy by identifying the situation of patients that use hospitals and clinics including their attribute, condition at time of visit or admission and diagnosis etc., and by estimating the number of patients in Japan by region (data as of 2014)

(1) Estimated Number of Patients (per day)

The estimated per-day number of patients who received medical treatment in Japan was 1,318.8 thousand inpatients and 7,238.4 thousand outpatients. Regarding inpatients, 603.8 thousand inpatients were male and 715.1 thousand inpatients were

female. 937.3 thousand inpatients were 65 years or older and 669.4 thousand inpatients were 75 years or older. Regarding outpatients, 1,641.9thousand patients visited clinics in hospitals, 4,233.0 thousand patients visited general clinics, and 1,363.4 thousand patients visited dental clinics. 3,131.0 thousand patients were male and 4,107.3 thousand patients were female. 3,510.2 thousand patients were 65 years or older and 1,895.1 thousand patients were 75 years or older.

(2) Estimated number of patients (per day) by disease and injury

The major diseases requiring hospitalization included mental and behavioural disorders (240.1 thousand inpatients), diseases of the circulatory system (240.1thousand), and neoplasms (144.9thousand).

The major diseases requiring outpatient care included diseases of the digestive system (1,310.0thousand inpatients), diseases of the circulatory system (933.0 thousand), and diseases of the musculoskeletal system and connective tissue (877.8 thousand).

(3) Home medical care

The estimated number of outpatients who received home medical care on the date of survey was 156.4 thousand. 34.0 thousand received “on-call visit (emergency visit)”, 114.8 thousand received “home visit consultation (scheduled visit)”, and 7.6 thousand received “home visit by person other than physicians or dentists”.

C.1.3.4. Vital statistics

Japan has a comprehensive vital registration system, with 99.9% of deaths recorded in this system. The vital statistics started in 646 AD in Japan as part of family registry history. Under the Family Registration Law in 1898, a modern family registration system was introduced in Japan in 1899. The purpose of vital statistics is to collect vital events and obtain a basic data source for population and policy making on health, larbour and welfare. Mortality due to malignant diseases, cardiac diseases, pneumonia and cerebrovascular diseases were 2901, 1564, 978 and 941 per million population respectively.

Cancer was the most common cause of death in Japan in 2010, followed by ischemic heart disease and cerebrovascular disease, which has shown a rapid decline in mortality since 1980 due to improvements in blood pressure control. Lung cancer was the largest cause of cancer mortality in men, followed by stomach, colon, liver, pancreas and esophagus; in women colon was the commonest cancer, followed by lung, stomach, pancreas, and breast cancer.

Life expectancy in 2010 was 79.64 and 86.39 years for men and women, respectively, whereas in the USA it was 75.4 and 80.4, respectively, in 2007. The reasons for this

discrepancy are multifactorial, but have been attributed to health system and lifestyle factors. Coronary heart disease mortality rates in post-war birth cohorts of Japanese men and Japanese-American men in Hawaii are lower than among Caucasian men in the USA, suggesting that some portion of this difference in life expectancy might also be genetic, but westernization of the Japanese lifestyle may also be influencing future longevity trends. The recent increase in diabetes and CKD are important issues in Japanese health care, as in many other developed countries, and the Japanese health system faces challenges in dealing with a growing burden of non-communicable diseases in an ageing population.

C.1.4. Occupational health

Under the Industrial Safety and Health Act, employers who employ 50 or more workers are required to contract an occupational doctor. Occupational doctors are responsible for health maintenance of all workers and must conduct an on-site inspection of the working conditions to make sure the conditions are safe and healthy. Occupational doctors are charged with offering professional opinions to employers and managers with regard to safety and health maintenance of the workers. From 2015, occupational doctors are required to check mental health conditions of workers.

All employers, regardless of industries, are required to conduct regular health check-ups once a year for their employees. For workers working under special conditions, additional examinations must be carried out with the health check-ups.

There were 972 deaths due to work-related accidents in 2015, and 116,311workers left their work for more than 4 days due to work-related accidents in 2015 According to the Labour Standard Act, employers are held responsible for any financial damage caused by work-related accidents. To guarantee the financial liability, MHLW operates the Workers' Accident Compensation Insurance, with insurance premiums paid wholly by employers. This not only covers the medical costs for treatment of diseases and injuries but also pays monetary damages for lost wages and disabilities plus an annuity for bereaved family members.

Japan is well know as long working hour and annual average working hour in Japan was 2018 hours in 2013. "Karoshi" or death from overwork is now great concern. In 2013, 306 cases of cardiac or cerebrovascular disease and 436 cases of mental disorder were recognized as caused by over work. There were total 27,283 suicide happened in Japan and 2,323 of them were due to working conditions.

C.1.5. Immunization programs

Under the Immunization act, Japan maintains a

childhood vaccination program that is broadly consistent with the WHO recommended vaccination schedule. Key elements of Japan's vaccination schedule are listed below (As of Feb 2017).

(i) Routine immunization

- Live vaccine: BCG, MR, smallpox
- Inactivated vaccine: Hepatitis B, DPT-IPV (Diphtheria, Tetanus, Pertussis and Polio), Japanese encephalitis, Pneumococcal, Haemophilus influenzae type b (Hib), HPV

(ii) Non- routine immunization

- Live vaccine: mumps, rotavirus
- Inactivated vaccine: hepatitis A virus, Influenza (for the elderly), meningococcus

Despite the inclusion of measles vaccination in the routine vaccination schedule, sporadic outbreaks of measles were observed among college students in 2006 due to weakened herd immunity. To strengthen herd immunity, the combined Measles, Mumps and Rubella (MMR) vaccine was introduced in 2006 and five to seven years old children started to receive second booster vaccinations. Efforts have been made to eradicate measles; but 159 patients had measles in 2016. Japan is now also experiencing an ongoing outbreak of rubella due to weakened herd immunity, possibly amongst adult males who were not vaccinated in childhood, and also facing controversy over decision making regarding the HPV vaccine and handling of adverse events. Improvements in management and oversight of the vaccination program are required in order for Japan to properly fight these preventable infectious diseases.

C.1.6. Health promotion and education

Under the Health Promotion Act, the MHLW promoted the National Health Promotion program 2000-2010, "Health Japan 21", which emphasized the prolongation of healthy life without disabilities. Japan faces a growing number of older people with disabilities, and this program aims to ease the burden on care givers and ambulatory services through promoting healthy ageing. The second term of the National Health Promotion program 2013-2022 (Health Japan 21, the second term) is ongoing.

Its basic goals are:

- Improve healthy life expectancy and reduce health inequalities,
- Prevent onset and progression of life-style related diseases (cancers, cardiovascular diseases, diabetes and chronic obstructive pulmonary disease),
- Maintain and improve functions necessary for a healthy social life,
- Establish a social environment where individual health is protected and healthy behaviors are supported, and
- Improve life-style factors affecting

health, such as nutrition, physical activity and other risk factors.

Prefectural governments are required by the Health Promotion Act to set targets within a national framework and ensure these targets are easy for local residents to understand. They should also monitor municipal-level variations in health and lifestyle, while municipal governments should incorporate national and prefectural targets into local policy.

C.1.7. Health Promotion Act

The Health Promotion Act, enacted in 2002, established the Healthy Japan 21 program. This act requires prefectural and municipal governments to develop health promotional plans, mandates the National Health and Nutritional Survey and requires governments at all levels to monitor lifestyle-related diseases for effective health promotion. The Act also sets out anti-smoking activities, including efforts to fight second-hand smoke exposure.

C.1.8. Tobacco control

The smoking rate has been steadily declining in Japan. According to the National Health and Nutritional Survey, the smoking rate for men decreased from 47.4% in 2000 to 30.1% in 2015, and that for women from 11.5% in 2000 to 7.9% in 2012. The smoking rate for women is lower than that in most developed countries. This decline has been achieved through increases in taxation, implementation of smoking bans in public spaces and public buildings, and the gradual expansion of the use of non-smoking areas in private businesses. However, Japan remains behind other developed nations in the quality of implementation of the measures demanded by the Framework Convention on Tobacco Control, to which it is a signatory.

According to the survey of junior and senior high school students conducted by the government, the rates of smoking in the last one month were 21.7% in male and 9.7% in female students of the 12th grade in 2004. These rates have been decreasing; they were 4.6% in male and 1.5% in female students in 2014.

C.1.9. National screening programmes for the whole or part of the population

There are three types of health check ups targeting to general population in Japan; General Health Checkup, Specific Health checkups and Specific Health Guidance (SHCSHG) and Cancer screening.

C.1.9.1. General Heath Checkup

All employers are required by Industry Safety and Health Act to provide health checkup to all employees at the time of contract as well as once every year. General health checkup includes 1. past medical history and occupation, 2. subjective symptoms and

objective symptoms, 3. height, weight, vision and hearing, 4. Chest X-ray and sputum check, 5. Blood pressure, 6. anemia, 7. Liver function, 8. Cholesterol, 9. Diabetes Mellitus, 10. Urine analysis, 11. ECG. Also in 2015, mental heath checkup is also included as mandatory. All cost is paid by employers and individuals do not need to pay for checkups.

C.1.9.2. Specific Health Checkups and Specific Health Guidance (SHCSHG)

To tackle an increase of NCDs, the MHLW introduced a nation-wide screening program called the "Specific Health Checkups and Specific Health Guidance" (SHCSHG) in 2008. Under this program all insurers are mandated by law called "Act on assurance of medical care for the elderly" and "National Health Insurance Act", to conduct SHCSHG for enrollees aged 40-74 years. The aim of SHGSHC is to prevent "metabolic syndrome", a pre-clinical condition that leads to NCDs including DM. This program expanded on general health checkup programs so as to include wider range of items, and based on results, Specific Health Guideline is offered to SHC participants identified as having risk factors for lifestyle related diseases. All cots is covered by insurer and individuals do not need to pay for checkups.

C.1.9.3. Cancer screening

The national government subsidizing screening for stomach and uterine cancer began in Japan in 1983, followed by screening for lung, colon, and breast cancer screening. At that time, no other countries provided publicly funded cancer screening. However, screening rates have been low in Japan, although they have begun to increase since 2013, with screening rates rising to 45.8%, 41.4%, and 47.5% in stomach, colon, and lung cancer screening for men in 2013 (Figure 1).

C.1.9.4. Maternal and child health

The Maternal and Child Health Act was enacted in 1965. This Act is the basis for maternal and child health services in Japan. Infant mortality in Japan used to be as high as 150–160 per 1000 live births until the early 20th century, but declined sharply to below 10 per 1000 live births in 1975. The infant mortality rate of 2.0 in 2015 is one of the lowest even among developed countries. Maternal mortality rate is also the lowest in the world which was 5 per 100,000 in 2015.

The Maternal and Child Health Act entitles babies to free publicly-funded preventive health services, including access to the Maternal and Child Health Handbook for parents before birth, and continued guidance and consultation with public health nurses after birth., and publicly-funded mass screening for congenital metabolic diseases. Babies born to mothers living with hepatitis B virus are given free immunoglobulin and vaccination. Additionally, newborns are

entitled well-baby check-ups twice within the first 3 years of life, provided free by municipal government. The first of these examinations checks growth, nutritional status, oral health, possible physical and mental development problems, and vaccination history. At 3 years, ophthalmic and ear, nose and throat examinations are included in the checkup.

C.2. Patient pathways

In contrast to some health systems in the OECD, such as the UK, the Japanese medical care system does not maintain a gatekeeping system through general practitioners. Instead, patients can choose either a clinic or a hospital as their first point of contact. Most hospitals have outpatient departments where patients regularly consult with their physicians.

Example of a patient pathway in Japan

A man with diabetes might be diagnosed through any of the following mechanisms:

- Being asymptomatic, he is diagnosed either through general health check-up or Specific health checkup.
- He is identified as diabetic whilst being treated for another condition in a hospital or a clinic.
- Owing to symptoms or a complication, he consults a doctor, either by presenting himself to a private clinic-based physician or visiting a specialist of his choice at a hospital without referral.

When he is diagnosed with diabetes mellitus, he will be referred for management by a specialist. After initial management and stabilisation of his condition by the specialist, he will be referred back to his local clinic for follow-up. Follow-up may continue in the tertiary hospital specialist clinic, as the tertiary care hospital often functions as the first contact health care provider for its area, or if he has complications that require specialist care. He can also be referred back to the specialist clinic at any point from his local clinic if he develops a complication or he requires specialist opinion.

Clinic-based physicians will prescribe all necessary medications and order any necessary tests that are covered by public health insurance. If his diabetes worsens, and he develops an acute complication such as ketoacidosis, and he is in need of inpatient care, he will be admitted to any hospital at which he presents himself or he will be transferred after stabilization to a tertiary care hospital from a smaller hospital.

C.3. Primary/ambulatory care

In Japan, health care planning by the prefectures was chiefly intended for controlling the number of hospital beds and not necessarily intended for achieving good quality of care. Twenty years after its inception,

the Health Care Structural Reform Act was passed in June 2006 and introduced detailed descriptions called “Medical Care Plan.” It ams to secure medical services for people living there, where necessary healthcare will be provided seamlessly from acute phase to long-term phase, including in-home care, by promoting differentiation and collaboration of medical institutions. It also aims to control quantity of health care facilities (number of beds) and evaluate quality of health care.

In this “Medical Care Plan”, prefectures are required to create five-year plan which include:

- Disease and services specific plan including goal, collaborative methods among health care facilities. In particular, for 5 diseases (cancer, stroke, acute myocardial infraction, diabetes and mental disorders) and 6 services (emergency care, disaster management, care for remote areas, perinatal care, and pediatric care)
- Measures to secure adequate number of health care professionals
- Measures to secure patient safety
- Setup of secondary and tertiary health care areas within a prefecture
- Calculation of the number of beds

All of the health care provided in Japan is in accordance with this Medical Care Plan.

C.3.1. Primary care

The Japanese healthcare system does not distinguish between primary and secondary care. Instead, health care services are divided directly into specialties such as internal medicine, surgery, pediatrics, ophthalmology, otolaryngology and gynecology. These services are accessed directly at an affordable cost without the need for referral from a gatekeeper. These specialist services can be provided locally at small clinics or treatment centres, or at outpatient departments of larger hospitals that would be considered tertiary care centers in a gatekeeper-based system.

Use of outpatient departments of larger hospitals has declined since the 1990s, and health service utilization has shifted to smaller community-based clinics, which have increased in number. These clinics often have access to advanced equipment such as magnetic resonance imaging machines, enabling provision of hospital-level services at local centres.

Hospital outpatient services are available without a referral, although he government has attempted to introduce a referral system for the use of hospital services through clinic services. However, this referral-promotion has not been successful, because private hospitals have financial incentives to focus on outpatients who attend without referrals, and the bulk of hospital services in Japan are provided by

private hospitals. Those hospitals that require a referral letter are primarily large public sector hospitals, such as university hospitals or national centers, and patients attending them must pay an extra fee if they do not have a referral letter.

C.3.2. Health care utilization for children in Japan

In a previous study using a nationally representative panel of households, among 1000 children per month, 872 had at least 1 symptom, 335 visited a physician's office, 82 a hospital-based outpatient clinic, and 21 a hospital emergency department. Two were hospitalized, and 4 received professional health care in their home. Compared with data from the United States, children in Japan more frequently visit both community physicians and hospital-based outpatient clinics. Pediatric health care utilization is influenced significantly by age but not affected by income or residence location in Japan. Japanese parents restrict use of over-the-counter medications for younger children, especially those younger than 2 years of age. Of note, living with grandparents was associated with significantly reduced over-the-counter medicine use.

C.4. Inpatient care

C.4.1. Survey of Medical Institutions

In 2015, there are total 8,480 hospitals and 100,995 clinics. Among hospitals, approximately 70% of Japan's hospitals are provided by the private sector (medical corporations and individuals). Hospitals owned by medical corporations and individuals are independent of direct government management, and subject to only limited investment regulation. Payment for medical services is organized and strictly controlled by the government, however.

C.4.2. Diagnosis- Procedure Combination

Japan utilizes a case-mix system called the Diagnosis-Procedure Combination (DPC) to pay health-care providers. Diagnostic Related Group (DGR) is calculated based on disease category, while DPC is calculated based on per hospital admission. This patient classification system was launched in 2002 by the MHLW, and it was linked with a lump-sum payment system from 2003. The number of participating hospitals is 1,677 facilities with 495,227 beds in 2016, which includes 82 university hospitals that were obliged to adopt the DPC system. Approximately 55% of all acute care inpatient admissions in Japan were covered by this system.

DPC databases contain not only administrative data, but also detailed patient demographic, diagnostic and procedure data that are collected for all inpatient discharges. Japan uses the International Statistical Classification of Diseases, 10th Revision (ICD-10) codes, and procedures are coded with the Japanese

original codes in their records. Hospital staff record the dates of all procedures, examinations and drug or device utilization. Submission of accurate data from this system is a condition of payment reimbursement.

C.4.3. Cost containment

The Japanese healthcare system has retained universal health coverage under public health insurance for over 50 years. This insurance system covers most inhabitants and healthcare services, and patients are free to choose any hospital with little regard to their socioeconomic circumstances. In preserving this universal coverage and free access, Japan had been partly successful in containing increases in national healthcare expenditures. Indeed, Japan's public healthcare spending as a share of GDP kept below the average of the Organization for Economic Co-operation and Development (OECD) member countries through high co-payment rates and reductions in medical fees by 2010. However, in recent years, because of aging society and rapidly increasing price of new medicines, total health expenditure of Japan has been increasing and is now 3rd largest among OECD countries. Other characteristics of the Japanese healthcare system include factors such as relatively long hospital stays, a low number of physicians, and high drug consumption. In addition, the lack of a general practitioner system has been also recognized as characteristic of the Japanese medical system, although there is still a differentiation of functions between clinics (primary care) and hospitals (inpatient services).

C.4.4. Physician shortages

Japan's physician-to-population ratio has been lower than that of most other OECD countries for the past decade. Against this background, policies to regulate physician distribution by area have not been introduced in Japan. Moreover, there are little restrictions on the specialties that physicians can select after their graduation from university. The distribution of physicians among specialties is also not well controlled. Between 1980 and 2005, Japan and the US experienced a 55% and 47% increase in the number of physicians per unit population, respectively. The Gini coefficients against population were at similar values between Japan and the US, and have been almost unchanged in the past 25 years in both countries. In spite of constant growth of physician numbers, physicians do not diffuse according to population distribution in either country, and greater policy effort is needed to ensure that physician numbers are distributed equitably throughout the country.

C.4.5. Regulation of the number of beds

Under Medical Care Plan, the Japanese government has instituted the concept of Healthcare Service Areas, geographical units that provide and manage most healthcare services (Ministry of Health, Labour

andWelfare, 2005). As of 2013, Primary Healthcare Service Areas consisted of approximately 1700 districts (including cities, towns and villages); Secondary Healthcare Service Areas included 344 jurisdictions; and total 52 Tertiary Healthcare Service Areas (all 47 prefectures and 6 areas in Hokkaido area). In order to balance health care provision among prefectures, the number of beds has been regulated for different Secondary Healthcare Service Areas under the Medical Service Law and related legislation. More than 200 Secondary Healthcare Service Areas had more hospital beds than the objectively assessed number of necessary beds and so were subject to restrictions on new construction that increased bed numbers.

C.4.5. Emergency care

Ministry of Internal Affaires and Communications (MIC) is in charge of prehospital care, while Ministry of Health, Labour and Welfare is in charge of providing care at health care facilities. Major challenges of emergency care in Japan are increasing demand of emergency care because of aging and overutilization of ambulance, quality of prehospital emergency care and still low rate survival rate of out of hospital cardiac arrest.

C.4.5.1. Definition of emergency medicine

Emergency medicine was defined by the International Federation for Emergency Medicine in 1991 as: “A field of practice based on the knowledge and skills required for the prevention, diagnosis and management of acute and urgent aspects of illness and injury affecting patients of all age groups with a full spectrum of undifferentiated physical and behavioral disorders. It further encompasses an understanding of the development of pre-hospital and in-hospital emergency medical systems and the skills necessary for this development." This definition is generally accepted worldwide as well as in Japan.

C.4.5.2.The organization and provision of emergency care

Prehospital emergency medical service

In 2010, there were total 123,095 out of hospital cardiac arrest (OHCA) happened in Japan. The survival rate after one month was only 11.4% and 6.9% could come back to their daily life. Besides, EMS personnel in Japan are legally prohibited from withholding or terminating resuscitation out of hospital, similar to the case in many countries. Most OHCA patients undergo CPR by EMS providers and are transported to hospitals, except in cases where fatality is clear (e.g. rigor mortis, incineration or decomposition). Therefore, to improve the quality of prehospital emergency care has been one of the major concern and MIC has been providing a series of countermeasures focusing on both emergency life-saving technicians as well as physicians.

1) Dispatch system

In Japan, the fire prevention headquarters of local governments - which comprised 752 fire stations with dispatch centers as of 2014 - provide standardized prehospital emergency medical service (EMS). (Yasunaga 2010a; Yasunaga 2011a) Under MIC, the Fire and Disaster Management Agency of Japan (FDMA) supervises the EMS system throughout the nation. The designated universal emergency call number is 119. This number is directly connected to the neighboring dispatch center with a computerized dispatch system. On receipt of an emergency call, the nearest available ambulance is sent to the incident location. All expenses for EMS are covered by taxes, and patients are not charged. The number of emergency dispatch has increased from 5.28 million times in 2010 to 6.05 million in 2015. In particular, the increase in patients with mild to moderate symptoms has increased, which accounts for about half of all patients. They were able to return home without hospital admission, and some of their emergency requests were nonessential. This causes a lack of ambulance and delayed transportation of patients. Average time required to arrive patients' place has been increasing from 6.2 min in 2001 to 8.6 minutes in 2014, while total times required from emergency call to hospitalization has been also increasing from 28.5 min in 2001 to 39.4 minutes in 2014.

2) Emergency life-saving technician

Generally, an ambulance crew is organized with three EMS staff members in a local center, including at least one emergency life-saving technician (ELST) who has undergone extensive training for providing prehospital EMS (Tanigawa 2006). As of 2014, there are total 31,012 EMS staffs who have ELST license. ELSTs perform cardiopulmonary resuscitation (CPR) according to the Japanese CPR guidelines, which are based on the guidelines of the American Heart Association and the International Liaison Committee on Resuscitation (ECC Committee, Subcommittees and Task Forces of the American Heart Association, 2005; International Liaison Committee on Resuscitation, 2005).

However, ELSTs can provide limited prehospital EMS procedures such as semiautomated external defibrillator, insertion of an adjunct airway (esophageal obturator airway or laryngeal mask airway), cannulation of a peripheral intravenous line and infusion of lactate Ringer solution and epinephrine. Only specially trained ELSTs are permitted to insert tracheal tubes (Tanigawa 2006). Because of increasing demand for enhancing prehospital care, the degree of medical services to which ELSTs can do have been expanding year by year, and there has been new concern how to secure the quality of care provided by ELSTs.

In 2006, the Medical Control System (MC system) for paramedics was established to secure quality of prehospital care. This system ensures the quality of EMS providers' medical procedures during the transportation of patients from the emergency site to medical facility by physician's instruction and monitoring.

3) Prehospital care by physicians

In parallel with emergency care provided by ELSTs, physicians are also required more to participate prehospital care and there are mainly two types of prehospital care by physicians: "doctor car" and "doctor Helicopter." Doctor car refers to physician-operated ambulances which enabled physicians directly go to patient and can carry out any emergency treatment according to their diagnoses and judgments, and can select many treatment options including use of a semiautomated external defibrillator, tracheal tube insertion, central venous catheterization, and infusion of catecholamines, lidocaine, atropine, anesthetic drugs and thrombolytic agents. Total number of dispatched doctor cars was estimated to be 22,793 cases in 2012. With regard to doctor helicopter, as of 2015, 46 helicopters were introduced in 38 prefectures and were dispatched 22,643 times in 2014.

7) Automated external defibrillators (AED)

Nationwide dissemination of public-access AEDs in Japan resulted in earlier administration of shocks by laypersons and in an increase in the 1-month rate of survival with minimal neurologic impairment after an out-of-hospital cardiac arrest.

Emergency Medical Care

Provision system of emergency care: from primary to tertiary

For primary emergency care, as of 2013, there were 556 weekend and nighttime emergency rooms available for patients with non-severe illness who can visit emergency rooms on foot. A holiday on-duty doctor system is also available in 630 districts. The total number of users of these systems was 6.2 million in 2013. Secondary and tertiary emergency care are provided in line with each prefectures' Medical Care Plan. The number of emergency care units are determined based on population at each Secondary Healthcare Services Areas. As of 2013, there were 3,259 secondary emergency medical centers, which have a role in performing first aid for emergency patients and, if needed, inpatient care.

With regard to tertiary emergency care, tertiary emergency medical centers and advanced critical care and emergency centers play central role. As of 2013, there were a total of 258 Tertiary Emergency Medical Centers located in the 47 prefectures, and the number is increasing year by year. However, there was a large difference between the centers in the

number of full-time doctors or the number of severe patients received. Some facilities do not fulfill the function of accepting all severe patients 24 hours a day. The number of patients with severe trauma has declined, while the number of Tertiary Emergency Medical Centers is increasing, resulting in a decline in the number of patients per hospital . Centralization may be necessary to maintain a high quality of trauma care.

Advanced Critical Care and Emergency Centers have a specific role to play in treating patients with several illnesses requiring special care including severe burns, drug poisoning and traumatic digital amputation in addition to the same role as tertiary emergency medical centers. As of 2013, there were 28 advanced critical care and emergency centers across Japan (Table 4).

4) Secondary in-hospital triage

In-hospital triage in receiving hospitals is defined as the use of assessment for prioritizing patients for treatment according to their severity of illness and injury. The purpose of in-hospital triage is to efficiently use human resources in hospital through assessment of patients' severity. The fee for the assessment of inhospital triage was added to the tariff of medical procedures in the public insurance system in 2010.

Emergency care for children

As prehospital care service, a public pediatric emergency telephone consultation service was established in 2010. Services are provided on holidays or at night to support a judgment on children's acute illness or injury. The number of telephone consultations is increasing year by year; in 2011, it reached about 53 million case, of which one quarter were considered to require emergency room visits.

An Advanced Perinatal Center is defined as a center with six or more beds in a Maternal-Fetal Intensive Care Unit (MFICU) and 9 or more beds in Neonatal Intensive Care Unit (NICU). MHLW required all prefecture to have at least one advanced perinatal center in each Tertiary Healthcare Services Areas. Under Advanced Perinatal Center, each prefecture also set Regional Perinatal Centers and encourage to strengthen collaboration between Advanced Perinatal Center and Regional Perinatal Centers. As of 2014, there were 100 Advanced Perinatal Centers and 292 Regional Perinatal Centers. The MHLW reported in 2011 that approximately half of cardiac arrest cases in pregnant mothers were caused by non-obstetric diseases including stroke and cardiovascular diseases. In some cases, first aid for such case was delayed due to failure of cooperation between Perinatal Centers and Emergency Medical Center.

Example of patient pathway for emergency care in Japan

55 year-old male, a taxi driver, residing in Tokyo, felt a sudden severe headache when he got up early in the morning on Feb 10, 2015. He told his wife that his headache was a “thunderclap headache”, which was the "worst headache ever". Several symptoms appeared immediately after the headache, including nausea, vomiting, confusion and irritability. His wife called 119, and an ambulance car arrived at his home 7 minutes after the call. He was transported by the ambulance car to the nearest secondary-care hospital located 10 km distant from his home. On arrival at the hospital, he showed decreased consciousness and alertness. The first-aid physician quickly did physical exams, and he found stiff neck and focal neurologic deficit. The doctor strongly suspected a subarachnoid hemorrhage, and made a prompt decision to transfer the patient to a tertiary-care hospital with a Stroke Care Unit. The patient was then transferred by the same ambulance car to the tertiary-care hospital located 20 km distant from the secondary-care hospital. Soon after the hospital arrival, a head CT followed by cerebral angiography was performed, which showed a ruptured intracranial aneurysm. Open craniotomy and clipping of aneurysm were performed by a neurosurgical specialist on the day of admission. Postoperative intensive care included medication for controlling blood pressure, calcium blockers to prevent artery spams and phenytoin to prevent seizures. After two-week intensive care, his condition became stable and he was moved from the Stroke Care Unit to a general ward. He continued rehabilitation for his postoperative mild neurological deficits, and was discharged to home on March 10, 2015. The fees for surgery and hospitalization were mostly paid from a public insurance fund for high cost illness, except for his out-of-pocket payment amount of approximately 160,000 yen. Now he is happy to receive a rehabilitation program from long-term health insurance, and wishes to be back to work in the near future.

C.6. Pharmaceutical care

C.6.1. Pharmaceutical sector’s production capabilities

C.6.1.1. Pharmaceutical markets in Japan

The global pharmaceutical trade accounts for 980.1 billion dollars in 2013, and Japan shares approximately 9.6% of this. Japanese pharmaceutical companies sold 9,311 billion yen of pharmaceuticals annually, including 8,662 billion yen for prescribed medicine and 650 billion yen for over-the-counter (OTC) drugs in 2011. Imported and exported medicine in 2011 accounted for 1725 billion yen and 359 billion yen, respectively. The export value of medicine has been stable in this past ten years at around 360-370 billion yen, while the total import has been dramatically increasing from 906 billion yen in 2005 to 1725 billion yen in 2011.

C.6.1.2. Pharmaceutical companies

Of all, the market share of US companies was 36.2%, followed by Japan (11.7%), Germany (4.7%), France (4.3%), Italy (3.0%) and UK (2.3%) in 2011. The number of Japanese pharmaceutical companies decreased from 1123 in 2000 to 349 in 2012, due to mergers and acquisitions, and sales from the five leading companies accounted for 36.1% of all prescribed medicine in 2012. The proportion of research costs in total sales was 11.7% in 2013. The accumulative success rate of developing new drugs was 1:29,140 between 2009 and 2013.

The pharmaceutical industry employed 167,514 workers in 2012. There are approximately 73,817 (44.1% of total employed) medical representatives (MR) in Japan. They visit physicians to provide information on efficacy and safety and to collect information on adverse effects.

C.6.1.3. Wholesalers

As of 2016, 79 wholesale companies are affiliated with Japan Pharmaceutical Wholesalers Association, and there were 53875 people working in the wholesale industry. In 2013, 20.7% was sold at large sized hospitals, while 6.5% at small and medium sized hospitals, 18.4% at clinics and 57.3% at pharmacies and drug stores.

C.6.1.4. Health care expenditure for medicines

Drug costs accounted for 21.7% of all health expenditures in 20113 Though total expenditure for drugs has been increasing year by year, its increasing rate is almost same as the increasing rate of total health expenditure. A total of about 800 million prescriptions were written, and about 7200 billion yen disbursed for prescribed medicines from public health insurance.

C.6.1.5. Generic drugs

The percentage of all pharmaceuticals purchased that were generic drugs was 33.5% by volume and 12.4% by sales in 2015, which is substantially lower than in other developed countries, including the United States, the United Kingdom (75.0%), and Germany of 91.9%, 75.0% and 84.8% by volume respectively.

Brand-name pharmaceuticals received market protection for a long time in Japan, and generics were not widely used after patent expiration. Recent government policies have been developed to improve rates of generic substitution, and promotion of generic drugs has formed one of the centerpieces of the medical expenditure reduction effort. In 2007, the Cabinet Office's Council on Economic and Fiscal Policy created "Action program on promoting safe use of generics" and set a target to increase the quantity-based share of generic pharmaceuticals to 30% by fiscal year

2012. However, the actual share of generics had so far not kept pace with the high expectations and then in 2013, MHLW newly introduced “Roadmap for further promotion of generics” with a target to increase share of generic pharmaceuticals to 70% by volume by fiscal year 2017. This new roadmap consists of 6 pillars of action; 1. stable supply of generics, 2. secure quality of generics, 3. sharing information and communication, 4. create enable environment for further use of generics, 5. modification of national health insurance, 6. monitoring and evaluation of the roadmap.

C.6.2. Pharmaceutical reimbursement price-setting

The government sets the price of all drugs reimbursed by the health insurance system. The list of reimbursable drugs includes nearly 14 000 items for oral, parenteral and topical administration. For new drugs, reimbursement prices are determined with reference to prices of similar drugs that were already approved. If there is no similar drug, the prices are determined based on accounting costs for materials and other costs. The profit rate is set as 19%.

This reimbursement price used to be revised every two years. The revised price is determined according to market prices during the past two years. To calculate the price, the government is authorized by the Pharmaceutical Affairs Act to conduct a market survey every year. This survey is conducted in close cooperation with wholesalers, who submit their transaction records with health care providers. The official reimbursement price will be set at the weighted average of the transaction price plus a reasonable margin, which is usually set at 2%. This system reduces the reimbursement prices of all the drugs and approximately 500 billion yen of pharmaceutical costs are cut at every revision.

C.6.3. Antibiotic resistance

At the 69th World Health Assembly in 2015, the member states unanimously adopted the Global Action Plan on Antimicrobial resistance as well as the resolution which urged all member states to create their own national action plan on antimicrobial resistance. Responding to this resolution, Japan newly launched the National Action plan on AMR in April in 2016. In the action plan, Japan decides six important areas as follows: 1. Public awareness and education, 2. surveillance and monitoring, 3. Infection prevention and control, 4. Appropriate use of antibiotics, 5. Research and development, 6. International cooperation. In 2014, rate of PRSP (penicillin-resistant Streptococcus pneumoniae) was 48% and the rate of MRSA (Methicillin-resistant Staphylococcus aureus) was 51%, which were higher than other OECD countries.

C.6.4. Pharmaceutical monitoring and surveillance

A new standard for post-marketing surveillance for pharmaceutical companies was established in 1993. However, it failed to prevent the sorivudine tragedy, in which 16 patients died within a month of this new drug being put into the market. In July 2003, adverse drug reaction reporting became mandatory for all doctors and pharmacists. All reported cases are evaluated by a subcommittee of the Central Pharmaceutical Affairs Committee. The Ministry publishes Pharmaceutical Safety Information every other month and issues Emergency Safety Information in an ad hoc manner.

Blood products

Consumption of blood products per capita in Japan is higher than in most industrialized countries. All blood products consumed domestically should be supplied by donated blood. However, donated blood alone is not sufficient to fulfill domestic demand, and much of the blood necessary for production of plasma fraction products is imported. As of 2012, 95.7% of globulin was supplied by domestic blood donation; however, only 59.6% of albumin and 16.7% of factor VIII were supplied by domestic blood donation.

C.7. Rehabilitation/intermediate care

In Japan, with an aim to provide seamless rehabilitation services, the government provide rehabilitation care for at impatient, out patient and in home settings. Inpatient medical services are categorized into three types of medical facilities according to the health conditions they treated and the procedures they offered. These three categories of hospital were acute care, restorative rehabilitation, and chronic care. In order to strengthen rehabilitation services, healthcare insurance started to cover restorative rehabilitations facilities since 2000. The number of restorative rehabilitation facilities has been increasing and now reaches at 71,890 facilities as a whole in Japan in 2014 (4.6% of all healthcare related facilities).

Rehabilitation at acute care and restorative facilities is covered with national health insurance, while rehabilitation at chronic care facilities is covered with long-term care insurance. Services covered and coverage duration are decided by the government (Table 5). The government set different level of reimburse rate based on disease; cancer, dementia, cardiovascular disease, cerebrovascular disease, physical malfunction (mainly due to injuries), respiratory diseases, person with disabilities and rare diseases.

C.7.1. Rehabilitation under healthcare insurance

National healthcare insurance covers inpatient rehabilitations at acute care and restorative facilities. In acute care hospitals a medical

rehabilitation team, which includes rehabilitation specialists, physical therapists, and occupational and speech therapists, is used to deliver rehabilitation services. Some patients who need long-term intensive care after severe traumatic injuries, receive long-term rehabilitation in acute care hospitals, but where possible rehabilitation is better provided in other settings, especially rehabilitation care or chronic care hospitals.

C.8. Long-term care

C.8.1. Population aging

Recently, as the total population started to decline while the older population kept increasing, the rate of older people (age 65 or older) is 26.7% in 2015, and it is expected that the rate of older people will reach 39.4% in 2055. In Japan, as a result of the baby boom, the population of older people over 75 years of age will reach its peak in 2025.

In every country, the ageing of the population implies drastic transformations at the political, economic and societal level. The ageing of the population and the decline in birthrates has been particularly brutal in Japan and became a major obstacle to the establishment of a sustainable social security system. Health expenditures for older people over 65 are 4.3 times higher than for other age groups and the majority of costs are covered by the working-class through the payment of taxes and medical insurance premiums.

Community-based integrated care system

In response to Japan's rapid ageing the Japanese government has promoted, a community-based integrated care system since 2006. This system aims to provide appropriate living arrangements and appropriate social care and daily life support services within the community, in addition to long-term medical care. The ideal size of each community is defined by the approximate range of a 30-minute walk, which is consistent with the scale of most Japanese school districts. The National Assembly report on Social Security also confirmed the necessity of building a system to provide social care and lifestyle support services in addition to long-term care and appropriate health care, seamlessly within the community. However, implementation of this care system has not been without challenges.

From a broader social services perspective, the best method to improve collaboration between social care providers and health care providers is not well understood. Considering the rapid ageing of the Japanese population, the community-based integrated care system rapidly drew attention but one of the major obstacles to its implementation was the lack of coordination between various providers and the lack of clarity concerning the assignment of responsibilities. Also, even though health care services play an important role, the

Long-Term Care Insurance System still relies on the contribution from families. However, along with societal changes such as the increase in numbers of unmarried people, urbanization and the growth of single-person households or parent–child separated households, the number of elderly persons living alone has increased.

To respond to these changes, Japan is attempting to build a community-based integrated care system that supports the delivery not only of family care but also community care through the coordination of non-profit organisations, volunteer's organisations and private businesses in the community. This system carries great expectations, as one major challenge faced by Japan is the sustainability of the funding system.

C.8.2. Long-term care insurance

The Japanese Government started the national long-term care insurance (LTCI) system in 2000 based on the Long-Term Care Insurance Act. This system aims to certify the care-level needs of the elderly and to provide care services suitable to this level. Care levels are divided into 7 levels, including two requiring support (levels 1 and 2) and five requiring long-term care (levels 1–5). The total number of elderly certified with one of these care levels was reported to be 5.69 million in 2013.

C.8.3. Beneficiaries

Municipalities act as insurers at this LTCI scheme, as they are responsible for implementing the Long-Term Care Plan and for determining insurance premiums by looking at the balance between the needs of the population and the quantity of services provided in the area. In the Long-Term Care Insurance System, prefectures support the municipalities, while the national government decides the overall direction of the system.

Municipal governments starts to collect insurance premium at the age 40. Half of the finance comes from tax (25% from central government, 12.5% from prefectures and 12.5% from municipalities) and half comes from premium contributions. The beneficiaries are divided into two categories. Category I beneficiaries are the elderly aged 65 or over, and category II beneficiaries are people aged 40 to 64 years with disabilities. For the category I beneficiaries, most of whom are pensioners, the premium is withheld from their pension payment. For the category II beneficiaries (aged 40–64), most of whom are employed, health insurers levy the premium by adding it to the health insurance premium. Beneficiaries can use LTCI services by paying 10% of the costs.

C.8.4. Needs assessment

When people wish to receive LTC, they must apply to the municipal government for needs

assessment. The municipal government dispatches a surveyor, who must be a qualified care manager, to the applicant. An on-site survey is conducted using a uniform assessment tool, which consists of 73 survey items to measure activities of daily living and behaviors. Depending on the surveyor's findings, a computer-assisted evaluation is conducted for preliminary assessment of care levels. Municipal governments also seek medical opinion from attending doctors. The Needs Assessment Review Committee, consisting of around five health and welfare professionals, review the surveyor's findings and the doctor's opinion to decide whether the preliminary assessment should be altered.

C.8.5. Benefits

The benefits provided by the system include both institutional and domiciliary services. Domiciliary services include health care such as visiting nursing, visiting rehabilitation and ambulatory rehabilitation and welfare services such as home help services, catering, bathing and day services. Though for-profit corporations are not allowed to participate in health care services, for-profit corporations are permitted to provide welfare services. The proportion of for profit corporation has been increasing and reaches 40.9% in 2011.

C.8.6. Care management

Licensed care managers coordinate different services provided by different providers to accommodate geographically dispersed home settings within the limits of an allocated budget. They are expected to serve as neutral agents representing clients' interests rather than as sales agents for providers.

Currently, the number of insured people (4,550,000 beneficiaries) in the Long-Term Care Insurance System is twice the number when the system was implemented in 2000 (2,180,000 beneficiaries). Because of this the sustainability of the system remains an issue.

C.8.7. Care Market

The traditional family system in Japan placed primary responsibility for support of older people on families, and nearly 55% of people aged 65 years and over lived with their children in 1995. However, the proportion of one-person households among this older population more than doubled between 1975 and 1995. With rapid demographic change and the dissolution of traditional family structures, the government took a number of measures to promote the 'socialization of care' for frail older people from the mid-1990s, and in response to the expected shift from traditional family care to social care, the LTCI was implemented in 2000 to alleviate the burden on family caregivers. One of the most radical changes that followed the launch of LTCI has been the creation of the care market. In the conventional system, local government decided who needed care services and who

was admitted to nursing homes, and service users had no right to choose the type or provider of services. Under LTCI, service users can contract with any long-term provider and choose the type and frequency of services, within benefit limits that vary by individual eligibility status and are determined by a nationally-standardized needs certification system.

A central purpose of the reform was to encourage new providers to operate in aged care services to increase the volume of services and to attain efficient and quality care services via user choice. A wide range of providers, including for-profit providers, were allowed to enter the market in community-based care and compete with traditional public and quasi-public social welfare providers (Shakai Fukushi Hojin). These non-governmental, nonprofit organizations provide public services for children, people with disabilities and the older people under governmental contracts.

The care market created by LTCI has been well accepted in Japan and usage of LTCI services has increased, especially in home-based care: the monthly average number of home-care visits increased 82%, from 355 000 in 1999 to 650 000 in 2001. The overall cost of the LTCI system also increased by 78%, from about ¥3.6 trillion in 2000 to about ¥6.4 trillion by 2005. The market created by LTCI is not a pure market and is perhaps better understood as a ‘quasi-market’ in which some factors are controlled by the government and 90% of care service purchasing is covered by premium revenue and taxes. Unlike the quasi-market system introduced into the UK, there is no predetermined level of supply, and there is free entry and exit of providers. There is strong competition between providers for clients, so the more the market expands, the more public expenditure increases, and government is faced with the need to control costs to sustain the system.

Care providers seek to cut labor costs under market competition, but under poor working conditions, the turnover rate of care workers is high, with potentially negative effects on quality of care. The market under long-term care insurance was successful in terms of the volume of services, but most providers were skeptical as to whether competition in the market could facilitate quality care services.

According to the Ministry of Health, Labour and Welfare, care workers who are about 40 years old and working under open-ended contracts receive ¥197 700 a month, while the average salary for similar workers across all occupations is ¥330 600. Wages were set too low even though demand for care workers was very high, and evidence that workers were discouraged from choosing a career in aged care is seen in reports that, in late 2005, only

about 57% of the total of about 470 000 certified care workers ‘Kaigo Fukushishi’ specified by the Social Welfare Worker and Certified Care Worker Act in Japan were working in care services.

Shortages of care workers were more pronounced in Tokyo than in Other Areas because there is also high demand in other service industries, and providers have to compete with those industries as well as with other providers. Additionally, wage differences between care workers and other occupations were more marked in Tokyo because the premium added to the stable base benefit for care services was not enough to cover the difference in wages in other service industries. This shortfall is a main cause of the more serious shortage of care workers in Tokyo than in Other Areas. Low wages resulting from competition within the care market mean poorer working conditions compared to other industries, and higher turnover. Turnover among home-based care workers is approximately 15% per annum, and as many as 40% of those who leave do so after less than a year in the job. As a result, a large number of care workers tend to have low skills.

Efforts to ensure a supply of trained workers appear to be failing. Training institutes for certified care workers have not met their student quotas because of a shortage of applicants for several years. In April 2007, there were 16 696 applicants for 26 095 places available in 419 training institutes, only 64% of the quota, and a growing number of institutes have decided to close. Potential workers have clearly started to give up on care service as a career due to the poor working conditions.

Failures in schemes for qualification and career programs are related to fixed-term contracts and low wages. Although 80% of care workers were employed under fixed-term contracts on low wages, they are required to undertake extensive pre-employment training, at their own expense.

Providers are also required to encourage employees to undertake further training. While setting higher training requirements to become care workers could be expected to enhance the status of care work, such requirements have not been linked to good working conditions. Under these circumstances, professionalization through enriched training and higher qualifications has not improved the supply of care workers, and may have made shortages worse [Suzuki, 2010]. Providers have faced the difficulty of pursuing the almost contradictory goals of attempting to expand the workforce while keeping wages low and certification requirements high. The challenge that must be tackled in the near future is how to design a market for aged care that can

ensure both the quantity and quality of services.

C.8.8. Where people die

Most Japanese currently die in hospitals, home or health care facilities. Historically, people died at their home and very few die at health care facilities: 82.5% at home and 9.1% at health care facilities in 1951. However in 2009, 78.4% die at hospitals, while only 12.4% die at their home, which the proportion of people dying at their home is very low compared to other countries.

C.9. Palliative care

Under the Basic Plan to Promote Cancer Control Programs endorsed in 2012, MHLW set palliative care as one of the important area in cancer control and set series of counter measures. The overall goals of palliative care policy are 1. Every physician involved in cancer treatment has basic knowledge and skills of palliative care, 2. Create an environment where patient can receive adequate level of provide palliative care, 3. Create supportive environment both in home and in community so as to patients and their family can have option to continue their palliative care treatment in their familiar setting. Major policy options are as follows:

1. To provide basic palliative care training for physicians who see cancer patients.
2. To create an environment at cancer specialized hospitals where they are required to have palliative care center, palliative care unit, outpatient clinic for palliative care.
3. Capacity development of health care professionals related to palliative care.
4. To promote in-home palliative care
5. Raising awareness of palliative care among general public including patients themselves and health care professionals.

C.10. Mental health care

An official approved mental health policy named “Reform vision for mental health and welfare” was approved in 2004 and several countermeasures have been conducted since then.

C.10.1. Patient statistics

The number of patients under treatment for mental disorders was estimated at 3.92 million in 2014, with 0.31 million inpatients and 3.61 million outpatients. Schizophrenia was the most common mental disorder among inpatients with mental disorders; mood disorder, schizophrenia, and neurotic disorders are common among outpatients. The proportion of people with mental disorders who are in treatment has been reported to be lower in Japan than other high-income countries.

C.10.2. Mental health care

The characteristics of mental health care in Japan are long duration of hospitalization,

large number of hospitals and beds related to mental health, and increasing number of dementia because of ageing. In 2014 the average duration of hospitalization was 281 days, which is far higher than that of other OECD countries (Table 6). Following the 2004 Japan government policy to shift the mental health service from inpatient care to community care, the number of beds in psychiatric hospitals has started decreasing from 354, 000 beds in 2004 to 338,000 beds in 2014, while it remains large compared to other high-income countries. Outpatient and inpatient treatment of any mental disorder is covered by the national health insurance system.

C.10.3. Special inpatient care

There are mainly three types of hospitalization: voluntary, hospitalization for medical care and protection (only need consent from family), emergency hospitalization (without consent either from patient or family), compulsory hospitalization (without any consent, limited to patient who have higher risk of harming themselves of others). In 2012, while about 53.9% of inpatients are voluntary hospitalized, most of the remaining are hospitalization for medical care and protection(44.9%); and a small proportion (0.6%) were compulsory hospitalization. Also a special inpatient care is provided for people who commit a severe crime under a mentally incompetent condition.

C.10.4. Welfare and rehabilitation service

Welfare services for people with chronic mental illness are provided under the Services and Support for Persons with Disability Act, which includes care payment, payment for training etc., and community life support. Medical cost for outpatient care for persons with chronic mental illness was also supported by this welfare system, with about 10% of payments coming from direct patient contributions. Medical institutes also provide several rehabilitation programs, such as psychiatric day-care, night care, day/night-care, and short care.

C.10.5. Systems for community mental health

The Law Related to Mental Health and Welfare of the Person with Mental Disorder provides a basis for community mental health in Japan. Public health centers of prefectures and major cities are the first-line service provider; cities and municipalities provide direct service for persons with chronic mental illness; and prefectural mental health and welfare centers provide technical and advanced support. Prefectural government is responsible for planning mental health services.

C.10.6. Suicide prevention

Suicide The Cabinet Office reported 24,035 suicides in 2015. Although it has been decreasing, Japan still has one of the 10

highest suicide rates in the world. Suicide rate of older people are gradually decreasing, however that of younger population and middle age men, especially those who are unemployed and divorced are higher rate than other age groups. In order to tackle this trend, the government passed the Basic Act for Suicide Prevention in 2006 and established General Principles for Suicide Prevention (GPSP) policy in 2007. In parallel with GPSP, the government established Special Fund program for local government in order them to comprehensive and community-based approach in their community. IN 2015, Takeshima et al analyzed the overall suicide prevention policy in Japan. They concluded that suicide rate has been steadily decreasing in Japan and these initiatives were effective.

C.11. Dental care

Today, dental care is covered by health insurance although some restrictions apply to the materials which can be used. Dental health care costs of 2,678 billion yen made up 6.9% of national health expenditure in 2012. People can use the dental health care services provided by the health insurance system and dentists are paid using a fee for service system. However, orthodontics are not covered by health insurance and all costs must be paid out of pocket by patients.

There were 108,123 dental hygienists and 34,613 dental technicians who assist practice for 102,551 dentists in 2012. The Ministry conducts a nationwide sampling survey on oral health every six years.

C.12. Complementary and Alternative Medicine (CAM) and Traditional Medicine

C.12.1. CAM providers

Japan has a national certification program for CAM providers. Japan's health law system dictates that curative health care must be provided by doctors or dentists supplemented by co-medical professionals such as nurses, therapists or dental hygienists. However there are government-certified professionals who practice "quasi-health care services" independently. The most typical are massage therapists, acupuncturists, moxacauterists and osteopaths. They are authorized to open their clinics and to obtain reimbursement from health insurance through prescriptions from doctors. As of 2012, there were 87,052 osteopathists, 188,680 massage therapists, 162,996 acupuncturists, and 161,595 moxacauterists.

C.12.2. Kampo medicine

Japan has a tradition of herbal medicines called kampo, that are based on ancient Chinese medicine but are classified as pharmaceutical products. Although based on Chinese formulae, these medicines have evolved to a native Japanese style over time and may differ from Chinese medicine. Kampo medicines are prescribed by physicians

under the National Health Insurance reimbursement system in the same way as normal medicines, and can be obtained either from specialist kampo suppliers or often from standard pharmacies.

According to the Ministry of Health, Labour and Welfare (MHLW) Annual Report on Statistics of Production by Pharmaceutical Industry in 2012, Japan produced 6,976.7 billion yen worth of pharmaceutical products. Of this, only 2.2% was traditional medicine. Some kampo medicines can be purchased for self-medication, and kampo medicines are commonly used in the Japanese healthcare system despite their small share of production value. In total 294 Kampo formulae are listed in the traditional medicine standards.

The prevalence of complementary and alternative medicines (CAM) has not been well documented until recently. The Ministry of Health, Labour and Welfare funded research in 2005 which found that a considerable proportion of patients with cancer used CAM. According to a questionnaire survey of patients treated at 16 cancer centers and 40 palliative care units, 44.6% of patients with cancer and 25.5% of those with benign tumours who replied to the questionnaire used some form of CAM. For patients with cancer, 96.2% used products such as mushrooms, herbs and shark cartilage, a much higher prevalence than qigong (3.8%), moxibustion (3.7%) and acupuncture (3.6%). Positive effects were experienced by 24.3% of CAM users with cancer, although all of them received conventional cancer therapy concurrently. However, CAM products were used without sufficient information by 57.3% of users with cancer and without consulting a doctor by 60.7% of users.

C.13. Health services for specific populations

Though the Japanese government provide national health care insurance for all people living in Japan, the government provide health care for specific populations with different schemes: people living under poverty line, intractable diseases and specific diseases.

Table 7 shows the list of diseases covered with both central and local government. Its service coverage is different among prefectures and some local government add further diseases on their list.

C.13.1. People living under poverty line

Those how are living under poverty line are covered with social welfare system and they are provided secured access for healthcare for free at the same level of care provided by national healthcare insurance. The number of people living under poverty line has been increasing at 2,163,716 people in 2014 (1.70% of total population).

The budget for these population was 3.7

trillion yen (equivalent to 33.3 billion USD) as a whole including healthcare, housing and living expense (75% comes from central government and 15% comes from local government), and almost 50% of this budget was paid for healthcare.

C.13.2. Public subsidies programs for certain diseases (intractable disease)

Japan has disease-specific research and public subsidy programs for specific diseases that are intractable and 306 diseases are listed as of 2016(started 45 diseases in 2005 and was expanded to 306 in 2015). Programs aimed to promote research for these intractable diseases as well as to encourage patient to live with dignity and to promote social participation.

C.13.3. Public assistance for victims of the atomic bombs

In recognition of the unique situation of the atomic bombing of Hiroshima and Nagasaki in August 1945, the survivors of these bombings are entitled to special public assistance not available for other war casualties. These victims include those who received intra-uterine exposure at the time of the bomb blast and those who entered into the bombed area within two weeks of the incident. The number of listed victims has declined somewhat through ageing and was 174,000 as of March 2014 The benefits of this special assistance include public subsidies to waive cost-sharing for health insurance. Among them, based on their health conditions, they can receive cash benefits of 33 800 yen (approximately US$300) per month (146,000 people) or 139,460 yen (approximately US$1230) per month (8,511 people). This wide eligibility criterion means that approximately 88.8% of those eligible are receiving this cash benefit.

C.13.4. Hemodialysis

Under Services and supports for Persons with disabilities Act, dialysis patients are recognized as patient with disabilities and have get healthcare for free even symptoms are not related to kidney diseases (e.g. cough). Japan had 4,321 dialysis facilities with 133,538 dialysis units and 342,986 patients receiving dialysis at the end of 2015, which accounts for approximately 0.2% of the entire population and approximately one fifth of the world's dialysis patients (Fig. 6.5). This reflects the small number of kidney transplants that occur (1661in 2016, of which only 167 were cadaver transplants) and the generous coverage under the health insurance system for renal dialysis, which caps the patient's copayment at 10,000 yen (approximately US$90) per month. Renal failure used to be considered fatal until December 1962, when dialysis was included in the health insurance benefits. At that time, the health insurance system required a 20–30% co-payment, which would accumulate to a considerable sum for a long-term treatment such as dialysis. In

October 1972, a public subsidy was introduced to help ease the financial burden of dialysis and in October 1984, the Health Insurance Act was amended to cap the monthly co-payment for long-term treatment such as dialysis and for hemophilia at 10 000 yen. Worldwide on a population basis, Japan is ranked top in terms of the number of patients undergoing dialysis and bottom in terms of kidney transplants. Dialysis (costing 5 million yen per patient annually) costs approximately 1.3 trillion yen or 4% of total health care expenditure in Japan., and this increasing trend does not show signs of easing. The increase is mainly attributable to diabetic nephropathy, suggesting that there is an urgent need for controlling diabetic complications.

C.14. Organ transplantation

Cadaveric transplantation and brain dead transplantation

Kidney transplantation was included in health insurance benefit in 1978, but cadaver transplantation was not available in the absence of a law that authorizes removal of organs from corpses. The Cornea and Kidney Transplantation Act was enacted in 1980 to authorize removal of cornea and kidneys from corpses on certain conditions. Although after this Act was endorsed, 150-250 kidney transplantation and 1,600-2,500 cornea transplantation were conducted annually , the dissemination of cadaver transplantation was still hampered by prohibition of organ removal from brain-dead bodies. Surgeons had to wait until the heart beat completely stopped before they could remove the donated organs, which compromised the success rate of transplantation, although cadaver transplantation was somewhat enhanced by establishing the organ-sharing information network in 1983. In October 1997, the long-awaited Organ Transplantation Act was enacted to authorize removal of donated organs from brain-dead bodies and also prohibits buying and selling of organs for commercial purposes. In a peculiar twist of legal reasoning, the law authorizes brain death only for those who expressed their wish to donate organs of their choice and consent to acknowledge brain death as their time of death. Moreover, the declaration of brain death may only be made after following strict guidelines set out in the law. Some patients therefore resorted to travelling abroad to receive transplants, provoking public protest in some countries and commercial organ transactions in others. Even corneal transplants relied on as much as 40% of corneas to be imported from abroad.

Responding to these concerns, the revised Organ Transplant Act was enforced in 2010 which enabled organ donation after brain death even when an individual’s intention is unclear (still require donor’s family consent). Donation of organs after brain death by children under the age of 15 has also become

possible. In 2016, 32 cadaveric transplantations and 64 brain dead transplantations were conducted.

Living donor organ transplantation

Living donor kidney transplantation was conducted first time in 1964 and living donor partial liver transplantation was conducted first time in 1989. The number of both kidney and liver transplantation has been increasing and reaches at 1494 cases and 391 cases respectively in 2015.

A bone marrow bank and umbilical cord blood bank started in early 1990, which are database of HLA (human leukocyte antigen) typing of potential bone marrow donors and umbilical cord blood. The database contained 691,532 (bone) and 11,246 (umbilical) donors by March 2017. The bank was able to match the cumulative number of 20,309 (bone) and 14,280 (umbilical) patients who underwent transplants by January 2017.

Ｄ． 結論

Services within Japan's health system are provided by a network of private and public sector providers, and purchased primarily by government through general taxation and specific insurance premiums, administered at national, prefectural and municipal levels. The system has seen growth in pharmaceutical costs and rapid expansion of long-term care needs, with potential future cost pressures that have not yer been resolved through policy action.

While Japan's health system has historically been able to ensure equity of access and quality of care through this system, careful attention to incentives and policy changes will be necessary to ensure the system continues to function effectively in the future as non-communicable diseases and ageing increase the pressure on many pats of the system, especially its long-term care components.

E. 研究発表

1. 論文発表

特になし

2. 学会発表

特になし

F. 知的財産権の出願・登録状況

（予定を含む。）

1. 特許取得

特になし

2. 実用新案登録

特になし

3. その他

特になし

Figure 1: Cancer screening rate (National Cancer Center)

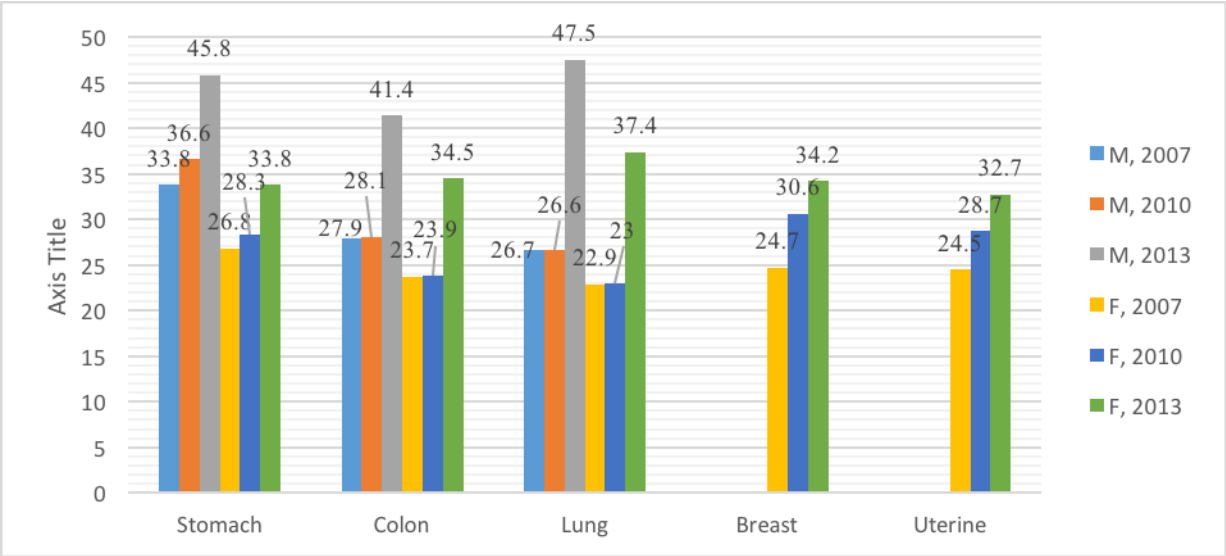

Table 1: List of major environmental disease in Japan

Name of disease	Cause of disease	Health and economic consequences
Yokkaichi Asthma	Industrial pollution	- estimate 2,000 patients
Itai Itai disease	Cadmium	- 200 persons are legally designated as victims
		- Around 50 billion yen of economic loss
Minamata Disease	Methylmercury	- estimate 3,000 patients
		- Around 378.9 billion yen of economic loss

Table 2: History of Pollution Countermeasures

1960s	- Basic Law for Environmental Pollution Control (1967) - Air Pollution Control Law (1968)
1970s	- Water Pollution Control Law (1970) - Establishment of Environmental Agency (1971)
1980s - 1990s	- Law Concerning Special Measures for the Conservation of Lake Water Quality (1984) - Automobile NOx Law (1992) - Environment Basic Law (1993)
2000s -	- Inauguration of the Ministry of the Environment (2001) - Automobile NOx PM Control Law (2001) - Amendment of Air Pollution Control Law and Water Pollution Control Law (2010)

Table 3: List of statistics conducted by MHLW

Responsible Division	Title of Statistical Survey
Director-General for Statistical and Information Policy	
Examination and Analysis Office	Survey on Input-Output Structure
Vital, Health and Social Statistics Office	Vital Statistics
	Report of Vital Statistics; Occupational and Industrial Aspects
	Life Tables
	Specified Report of Vital Statistics
	Report on Public Health Administration and Services
	Report on Regional Public Health Services and Health Promotion Services
	Report on Social Welfare Administration and Services
Health Statistics Office	Patient Survey
	Patient's Behavior Survey
	Survey of Medical Institutions
	Hospital Report
	Survey of Physicians, Dentists and Pharmacists
	Estimates of National Medical Care Expenditure
Social Statistics Office	Survey of Social Welfare Institutions
	Survey of Institutions and Establishments for Long-term Care
	Statistics of Medical Care Activities in Public Health Insurance
	Survey of Long-term Care Benefit Expenditures
Household Statistics Office	Longitudinal Survey of Newborns in the 21st Century (2001 Cohort)
	Longitudinal Survey of Newborns in the 21st Century (2010 Cohort)
	Longitudinal Survey of Adults in the 21st Century (2002 Cohort)
	Longitudinal Survey of Adults in the 21st Century (2012 Cohort)
	Special Report on the Longitudinal Survey of Newborns in the 21st Century and the Longitudinal Survey of Adults in the 21st Century: Ten-Year Follow-up, 2001-2011

		Longitudinal Survey of Middle aged and Elderly Persons
		Comprehensive Survey of Living Conditions
Health Policy Bureau		
	Regional Medical Care Planning Division	Survey on No-doctors districts
		Japan Nosocomial Infections Surveillance
	Dental Health Division	Survey of Dental Diseases
		Survey on No-Dentist Districts
	Nursing Division	Survey on Admissions into Nurse Schools and Work Statuses of Graduates
	Economic Affairs Division	Statistics of Production by Pharmaceutical Industry
		Statistics on Pharmaceutical and Medical Device Industry
		Drug Price Survey
		Price Survey on Special Treatment Materials
Health Service Bureau		
	General Affairs Division	Fact-findings Survey on Atomic Bomb Victims
	Health Service Division	National Health and Nutrition Survey
		Survey on Public Health Nurses' Activity
Pharmaceutical Safety and Environmental Health Bureau		
	Inspection and Safety Division	Meat Inspection and Other Information Return Survey
Equal Employment, Children and Families Bureau		
	General Affairs Division	Survey on Children in Children's nursing home's
		Nationwide Survey on Fatherless Families
		Nationwide Survey on Families and Children
		National nutrition survey on preschool children
		National growth survey on preschool children
		Survey of Regional Child Welfare Services
Social Welfare and War Victims' Relief Bureau		
	General Affairs Division	Current Status Survey on Welfare Offices
	Public Assistance Division	Survey on Living by Social Security
		National Survey on Public Assistance Recipients
		Fact-finding Survey on Medical Assistance
		Survey on Mother-children households that receive public assistance
		Survey of lifestyle value and actual living conditions

	Community Welfare and services division	Survey on the actual status of consumers' cooperative societies
		National survey on the actual conditions of the homeless
	Policy planning division, department of health and welfare for persons with disabilities	Survey on persons with physical disability
		Survey on persons with intellectual disability
	Welfare Division for Persons with Disabilities	Fact-finding Survey on economic conditions of welfare services for persons with disability
		Survey on working conditions of social worker for persons with disability
		Report on benefits project of independence support for persons with disability
	Mental health and disability health division	Survey on the situation of certification for classification of degree of disability
Health and Welfare Bureau for the Elderly		
	Division of the Health for the elderly	Fact-finding Survey on economic conditions in long-term care (LTC)
		Briefing survey on economic conditions in LTC
		Fact finding survey on LTC for the elderly
		Survey on working conditions of LTC workers
		Fact-finding survey on project of LTC
Health Insurance Bureau		
	Medical economics division, actual research division	Survey on economic conditions in health care (survey on health care facilities)
	Medical economics division	Survey on charge for dental technique
		Survey on usage of insurance-covered medical materials
		Survey on home-visit nursing care-expenses
		Survey for evaluation of dentistry medical fee
		Survey for evaluation of dentistry medical fee for dentistry repair technique
	Actual research division	Survey on the trend of medical care expenditures
Director-General for General Policy and Evaluation		
	Counsellor Office for policy evaluation	Survey on the redistribution of income
		Survey for planning social insurance system

The National Institute of Population and Social Security Research
The National survey on migration
The National fertility survey
The national survey on Family
The National survey on household changes
The National survey on Social security and people’s life

Table 4: Category of emergency care facilities

Tertiary emergency care		
Tertiary Emergency Medical Centers	258	Accept any type of patient in 24 hours
Advanced Critical Care and Emergency Centers	28	
Secondary emergency care (Patient need to be hospitalized)		
Emergency medical center	3,259	Rotation basis among the Secondary Healthcare Services Areas
Collaborative emergency center	10	Designated hospital with assistance from neighborhood clinics
Primary emergency care		
Weekend and nighttime emergency	630	Managed by Japan Medical Association
Holiday on-duty doctor system	556	Managed by local government

Table 5: Type of rehabilitation facility

Type of facility	Aim of rehabilitation	Hours/day
Acute	- Priority goes to treatment of disease and the propose of rehabilitation is to prevent disuse syndrome.	120 min/day
Restorative	- After stabilization of disease, intense rehabilitation is provided in order to prevent malfunction as well as strengthen physical activity (Priority is rehabilitation).	180 min/day
Chronic	- Maintain physical functions which is acquired during restorative rehabilitation period)	Less than 10 min/day

Table 6: Hospital average length of stay for mental and behavioural disorders

	2000	2005	2010	2013
Australia	15.6	14.9	14.6	14.5
Austria	23.3	18.9	22	21.5
Belgium	11.5	11	10.3	10.1
Canada	15.5	15.4	17.3	24.5
Chile	-	34.5	44.1	27.9
Czech Republic	56.5	55.5	52.7	40.9
Denmark	-	25.7	20.8	18
Estonia	20.7	14.6	16.7	16.6
Finland	-	43.5	39.9	36.6
France	6.8	6.5	5.9	5.8
Germany	25	24.4	24.2	24.2
Greece	113	111	80	-
Hungary	-	22.6	27.6	27.3
Iceland	16.2	12.8	-	11.9
Ireland	14.4	11.1	11.1	10.9
Israel	208.4	79.8	53.3	50.9
Italy	-	14.7	14	13.9
Korea	-	95.4	111.8	124.9
Latvia	-	-	-	19.6
Luxembourg	13.8	25.9	26.1	26.8
Mexico	46.7	28.2	25.3	28.2
Netherlands	29.4	22.6	19	-
New Zealand	64.6	55.5	49.7	43
Norway	4.5	4.1	3.2	20
Poland	-	27.8	36.2	29.1
Portugal	16.5	16.9	16.6	16.6
Slovak Republic	35.1	31.5	28.7	-
Slovenia	8.0	40.4	36.7	35
Spain	52.9	25.2	26.3	25.3
Sweden	19.5	18.1	15.6	14.7
Switzerland	-	43.4	32.7	29.4
Turkey	-	-	15.7	18.4

United Kingdom	64.2	58.2	47.9	42.3
United States	7.3	6.9	6.4	-

Table 7: List of diseases covered with both central and local government

Name of Law	Target population
Act on Special Aid to the Wounded and Sick Retired Solders	Solders during World War 2 (WW2)
	General public having disabilities from WW2
Atomic Bomb Survivors' Assistance Act	Atomic bomb victims
Act on prevention of infectious diseases and medical care for patients of infectious diseases	Emerging infectious diseases
	Tuberculosis
	1st and 2nd category infections
Child welfare Act	Children with chronic diseases (e.g. Asthma, type 1 diabetes, connective tissue diseases)
	Children with tuberculosis
Services and supports for Persons with disabilities Act	Children with disabilities
	People with disabilities
	People with mental illness
Maternal and Child health Act	Children with low birth weight
Act on compensation, etc. of Pollution-related health damage	Patient with designated diseases caused environmental reason

厚生労働科学研究費補助金（地球規模保健課題推進研究事業）
「エビデンスに基づく日本の保健医療制度の実証的分析」（H26-地球規模-一般-001）
平成 28 年度分担研究報告書

Principal health reforms

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研究要旨

The last HIT Japan report in 2009 covered major reforms since the introduction of universal health insurance coverage in 1961 and until 2006 when the Healthcare Structural Reform Package Plan was passed in the Diet. This report will mainly cover policy discussion and reform implementation afterwards. Since after endorsement of the Health Care Structural Reform Package Plan in 2006, several reforms have been conducted including Medical Care System for the Elderly in their Later Stage of Life (2008), Comprehensive Reform of Taxation and Social Security (2010), Social Security Reform Promotion Act (2012), Act for Securing Comprehensive Medical and Long-term Care in the Community (2014) and Integrated Community Healthcare System (ICHS) mainly due to responding rapidly ageing society. Throughout these reform processes, the core policy focus remains taking the financial balance between increasing demand by population ageing and financial sustainability under limited economic growth. The new healthcare system requires each Japanese citizen a serious reflection on what value to be achieved in the Japanese society through social security system. As proposed in *"Japan Vision: Health Care 2035",* a report for the Health Minister by young Japanese health policy leaders in June 2015, the new health system should be based on the social value of fairness and solidarity while building on individual autonomy and active engagement in community organization.

Ａ．研究目的

The last HIT Japan report in 2009 covered major reforms since the introduction of universal health insurance coverage in 1961 and until 2006 when the Healthcare Structural Reform Package Plan was passed in the Diet. This report will mainly cover policy discussion and reform implementation afterwards.

Since 1961 when the Japanese Universal Insurance Coverage was achieved nationwide until today, expansion and equalization of financial protection between employee health plans and community health plans was the first reform project until early 1970s. For supply side, expansion of supply volume through increasing capacity of hospitals and physicians was carried out in the same period. In late 1970s when Japan first faced economic stagnation since post-war economic boom, then Ministry of Health had turned their policy to cost containment ones through volume and price control.

Even under such tight price control, however, population ageing lead to constant increase in expenditure, while a decade-long economic stagnation decreased premium and tax revenue for public health insurance scheme, resulted in a skyrocketing rate of health expenditure per GDP. The government realized uncontrolled healthcare expenditure as threatening to nation's financial sustainability, and concluded that conventional price and volume control was not enough to secure healthcare financing. That motivated the 2006 Healthcare Structural Reform Package Act.

Ｂ．研究方法

This report used information from publicly available reports and datasets to summarize the capital stock, physical resources and personnel situation for the Japanese health system, Available data is summarized and published literature reviewers to obtain information about how these resources are expected to change.

Ｃ．研究結果

C.1. Healthcare Structural Reform Package Act (2006)

Since 2006, the government's strategy to struggle for healthcare financial sustainability began to change. The epoch turn could be observed in Healthcare Structural Reform Act in 2006, where for the first time, reform of provisional system and that of insurance system were jointly treated as a policy package. The 2006 Reform Act aimed at regaining financial sustainability of healthcare systems through improved efficiency of provisional system and improved accountability of public health insurers. More specifically;

- Medical and Health Services for the Elderly Act (老人保健法, enacted since 1982) was amended with "partial amendment of Health Insurance Act (健康保険法), and was renamed to

"Securing Medical Care for the Elderly Act ("高齢者の医療の確保に関する法律"). The amendment mandated public insurers to improve cost control through prevention service for screening and following health education programs. It also stipulated a newly established national claim information database ("National Receipt Database; NRD) in the Ministry of Health Welfare and Labour to closely monitor expenditure and find policy leverage for cost control. Finally, the amendment required newly establish independent insurance scheme for the older-old (age 75+) ("Medical Care System for Elderly in their Later Stage of Life" (後期高齢者医療制度)) to release existing public insurers from financial pressure incurred by financial transfer to support older people.

- Fifth amendment of Medical Care Act mandated prefectural governments to collect and disseminate information on hospital functions to better support beneficiary citizens' rational choice for care utilization, and to prepare specified goals/indices for the performance evaluation of regional healthcare plan, and finally mandated hospitals (esp. private sector) to improve management transparency and organizational governance.

C.2. Medical Care System for the Elderly in their Later Stage of Life (2008)

As was scheduled by Healthcare Structural Reform Act, "Medical Care System for Elderly in their Later Stage of Life" was introduced since 2008. Before the new system, the Medical and Health Services for the Elderly Act (老人保健法) in 1983 required those retired and aged over 65 to join Medical Care System for the Elderly but with reduced premium and copayment rate, of which fund has been basically supported by transfer from National Health Insurance and Employee's Health Insurance (EHI) with risk structure adjustment roughly by age component of each plan. The burden of transfer gradually became to threaten some EHI insurers of business sectors into bankrupt. The new elderly system since 2008 mandated that 50% of the system budget should be supported by government's tax transfer, 10% by beneficiaries' contribution, and the rest by transfer from existing health plans. The new scheme suffered political backrush by then opponent party (Democratic Party) disseminating a campaign that the system was plagued by ageism, and discriminatively burdened elderly households. Although the campaign was regarded as false accusation, and has been waned over time, the discussion over the scheme revealed that a current form of the system in favor of older population at the cost of younger generation is not financially sustainable.

C.3. Comprehensive Reform of Taxation and Social Security (2010-)

In the same year of 2008, a government task force called “National Council for Social Security (社会保障国民会議)” released a future map of healthcare demand and expected cost in 2025 when the population of those aged 65 and over is to reach its peak. According to the map, even under the tight price and volume control, increased demand for long-term care will exceed nation’s financial and medical capacity that needs drastic reform in provisional systems and financing scheme. The report accelerated policy debate in the government/ruling party as well as in the opponent parties. The debate was continued even after the change of the ruling party in 2010 general election. Under the Democratic Party ruling cabinet, Social Security Reform Task Force concluded the report on “Comprehensive Reform of Tax and Social Security (税と社会保障の一体改革)”, and was passed by the Cabinet decision in December 2010. In the Cabinet agreement, 5 principals for social security reform were confirmed; social inclusion, universalism for all generations, decentralization, integrated service provision, and regaining financial sustainability without future debt (or regaining primary balance)

Although Mega earthquake in March 2011 delayed policy schedule, the policy guideline finally reached Cabinet decision in February 2012.

C.4. Social Security Reform Promotion Act (2012)

The “Comprehensive Reform of Tax and Social Security (税と社会保障の一体改革)” finally reached bipartisan agreement between then ruling Democratic party and then opponent Liberal Democratic Party in June 2012, and “Social Security Reform Promotion Act （社会保障制度改革推進法）” was passed in the Diet in August 2012. The Act stipulated reform visions for pension, healthcare, long-term care, and child policy. As for healthcare, the Act required maintenance of universal insurance coverage, stabilization of healthcare financing, equalization of public insurance premium across plans, and re-evaluation of benefit coverage.

Since LDP came back to a ruling position after December 2012 General Election, the implementation of the Act was by the new LDP ruling cabinet. The consumption tax rate was raised from 5% to 8% in April 2014, and was originally planned to go up to 10% in October 2015 to make financial space for the “reform”. Marginal revenue increase was specifically earmarked to social security expenditure including pension, medical care, long-term care, child welfare and welfare for poverty household. About 14 trillion JPY (113 billion USD) equivalent was estimated brought

by a full rate increase by five percent. Among them, approximately 10 %, 1.5 trillion JPY (12 billion USD), was to be invested to regional healthcare system (medical and LTC).

C.5. Social Security Reform Program Act (2013)

Following the vision set by the Promotion Act, Social Security Reform Program Act (社会保障改革プログラム法) was enacted in December 2013. The Program Act translated the visions into strategies to be implemented and required due legislation and amendment of related laws by the deadline of 2017.

The Act acknowledged that reform in provisional system would face several challenges, namely the dominance of private sector, a lack of system accountability without shared visions, and closed decision processes in local politics. To overcome these challenges, the Act concluded that the local government should be responsible in submitting a vision for local delivery system reform discussion with clear goals grounded by reliable statistics of system performance (Regional Healthcare Vision; 地域医療ビジョン). To improve local system efficiency, the Act also urged that local healthcare institutions should form an effective network for optimal allocation of resource and functional capacity to better meet local needs. The Act also required municipal-level National Health Insurers to consolidate at prefectural levels so that they could obtain more stable risk pools and equalize premium rates within the prefecture.

C.6. Act for Securing Comprehensive Medical and Long-term Care in the Community (医療介護総合確保推進法) (2014)

In June 2014, a reform plan of healthcare and long-term care was finalized by the enactment of “Act for Securing Comprehensive Medical and Long-term Care in the Community”(医療介護総合確保推進法), or a package of amendment in 19 related laws, mainly in Medical Care Act (医療法), National Health Insurance Act (国民健康保険法), and Long-Term Care Insurance Act (介護保険法). Amendment was implemented since 2014 Oct for medical care related legislation, 2015 for health insurance, and 2016 April for long-term care, each of which will be presented in details shortly.

C.7. Integrated Community Healthcare System (ICHS) by 2025

The Integrated Community Healthcare System (ICHS) has been proposed as a strategy to meet social needs emerging the community with population ageing that expectedly enables people to continue to live in their home environments with a sense of security for their lifetime regardless of functional capacity. The Ministry of Health Welfare and Labour depicts the ICHS as a system that provides (1) medical care, (2) long-term care, (3) long-term care prevention, (4) living support and (5) housing

services in an integrated manner in the local community. For this purpose, a new fund for integration of medical and long-term care services was to be prepared in each prefectural government by using an expected additional revenue from consumption tax raise.

C.8. Regional Healthcare Vision and new local governance for efficient resource allocation

"Publicly funded, privately provided" was the long-time situation of Japanese healthcare systems. This new Act is the first governmental action to directly regulate the provisional system in local regions, emphasizing the governance of local health care system by strengthening regulatory power of local prefecture governors, enhancement of active and coordinated contribution of private/public hospitals to the governance of local systems, and establishment of functional differentiation of hospitals and effective referral network between them by introduction of hospital performance report. The Act also requires every hospital to report the own medical service function (highly-acute, acute, recovery, and chronic) to the prefectural governor office for benchmarking local resource and performance. Based on the collected information, every local stakeholder are to be invited for discussion table to decide efficient resource allocation to appropriately meet estimated service needs.

C.9. LTCI reform and efficient use of public-private mix

Concurrently, Long-Term Care Insurance Act also had considerable amendment. Japanese LTCI used to be generous to include non-professional services (such as housekeeping service) and preventive services for mildly disabled beneficiaries. The amendment intended to focus on financing professional services for the disabled in needs, and to leave non-professional and preventive service to local choice to be replaced with welfare program or private service provision by local private sectors, both for for-profit and non-profit.

C.10. Amendment of National Health Insurance Act to consolidate municipal public insurers to prefecture authority

Another output from the Program Act was the drastic amendment of National Health Insurance (NHI) Act. Since its origin in 1958, municipal (or city) government was a local insurer of the system who set municipality-specific premium rate under nationwide standardized benefit package. Beneficiaries of NHI, or community-based health plans, are households of small business or retirees, who have higher risk and lower income. With small pool size, financial status of NIH public insurers have been chronically in deficit and unstable, imperatively subsidized by transfer from the central government and prefectural government. Besides, premium rates were unequal across

municipalities depending on their financial status. The Amendment 2015 aimed to improve financial stability of local insurers and equality in premium contribution by newly assigning insurer management center to the prefectural government.

Prefecture governments are mandated to coordinate financial management, set prefecture-specific standard premium rate, and provide re-insurance to municipalities with higher financial risk. The new scheme may reduce inequality in premium contribution across municipalities, though it is not a perfect solution because it still leaves adjustment up to municipality insurers.

C.11. Political analysis of recent reform by the central government

The key characteristics of a recent series of major reform are three folds. First, the Cabinet directly leads the reform debate to break through political inertia and bureaucratic silos that used to deter major reform. Second, the central theme of healthcare reform is clearly linked to regaining nation's primary balance in front of population ageing and subsequent economic difficulties. Third, for these purposes, Program Act were used to set agenda of the reform, time deadline, and due budget source (e.g. consumption tax rate raise) to facilitate the reform debate forward before specific amendment of individual related laws were discussed.

Although the time period between 2008-2012 were politically dynamic (4 times change in prime ministers, 2 times shift between a conservative liberal party (Liberal Democratic Party, current ruling party) and a radical liberal party (Democratic Party)), the core agenda for regaining primary balance has been consistently treated as bipartisan agenda, which also gave political readiness for reform debate in the Diet.

The bright side of the new approach can be seen in powerful leadership exercised by the then Cabinet that has made a considerable move forward to reform goals. However, the drastic change in the political process left behind administration processes. Despite of vision presentation by the Program Act, it is inconsistently translated into tactics by different bureaus in the Ministry of Health, Welfare and Labour, because the inter-sectoral governance in the Ministry remains weak.

The response of local government to the new scheme is also slow and heterogeneous because the local prefectural government is diverse in terms of size, financial capacity, demographic structure, and political governance. Consequently, it needs careful monitoring whether the new reform scheme is successfully translated into local implementation, or it turns out to widening inequality across regions in the performance of

healthcare system, contrary to the conventional policy of “equal benefit for all” since UHC implementation.

Finally, major challenge is the provision of financial resource for due reforms. Raise of consumption tax is the only source expectedly to support the reforms. However, the current Abe Cabinet postponed the schedule of raising consumption tax rate to 10% from the original schedule of October 2015 to April 2017, and most recently decided to extend further to October 2019 with political and economic concerns with weak consumption economy growth since the last raise of tax rate.

C.12. Future developments

As is presented in the previous section, due legislation has been enacted, and implementation of each acts is now on the process. The core policy focus remains taking the financial balance between increasing demand by population ageing and financial sustainability under limited economic growth. Fiscal System Council in the Ministry of Finance has tentatively set the upper limit of social security expenditure growth by 500 bil JPY (or 5 bil USD) per year as “natural growth due to population ageing”. A major fee schedule amendment for medical and long-term care services is expected in 2018 April, without financial provision to cover the growth. Current Abe Cabinet has announced in July 2016 that under expected budget restriction, the priority is rather put to welfare program to enhance child development and women’s labor participation.

Besides financial projection, tactical design to implement ICHS remains unclear; how to design incentives to invite local stakeholders on community discussion table, who and how to coordinate diverse interests into local consensus on efficient resource allocation, etc. Each of public and private sectors in local provisional system in medical and long-term care has its own sunk cost for current operation. If the local community face “over supply” which is most likely, “compensation rules” between winners and losers are unlikely to reach. The Ministry itself still suffers bureaucratic silos, and their definition of “ICHS” is not unanimously shared and standardized across bureaus. A new style governance to realize inter-sectoral coordination is required.

Despite of expected challenges ahead, the concept of ICHS is regarded as promising to overcome traditional medical institutional model of healthcare to realize community-based system that covers patient’s value chain in the community, from family practice, acute care, rehabilitation, long-term care, and palliative care. ICHS is also promising to meet expanding needs of community elderly who are more likely to live alone, with limited social and economic

capacity than ever who needs non-medical support to maintain social participation in the community.

Traditionally, public health nurses have played a central role in community building and public health practice in Japan. In the ICHS, whether public health nurses could be a local coordinator to link medical professionals with welfare program workers and/or community volunteers remains to be tested.

Ｄ． 結論

The new healthcare system requires each Japanese citizen a serious reflection on what value to be achieved in the Japanese society through social security system. As proposed in “Japan Vision: Health Care 2035”, a report for the Health Minister by young Japanese health policy leaders in June 2015, the new health system should be based on the social value of fairness and solidarity while building on individual autonomy and active engagement in community organization.

E. 研究発表

1. 論文発表

特になし

2. 学会発表

特になし

F. 知的財産権の出願・登録状況

（予定を含む。）

1. 特許取得

特になし

2. 実用新案登録

特になし

3. その他

特になし

厚生労働科学研究費補助金（地球規模保健課題推進研究事業）

「エビデンスに基づく日本の保健医療制度の実証的分析」（H26-地球規模-一般-001）

平成 28 年度分担研究報告書

Assessment of the health system

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研究要旨

Since the late 1970s when Japanese economy faced low economic growth and increasing demand of healthcare by population ageing, cost control has become a significant policy theme until today to maintain the sustainability of the universal public healthcare system. Strict price control has been taken for the supply side while free access policy has been maintained for the demand side in principle until today. Even under the current reform vision where regaining financial primary balance is set as the nation’s top priority, reform visions still emphasize maintenance of universal insurance coverage and equalization of public insurance premium contribution across plans. Since after 2006, the government of Japan has conducted several health care reforms, and most of all resulted into preferable health outcomes in terms of equity, allocation efficiency and technical efficiency.

Ａ．研究目的

As the last HIT Japan report 2009 correctly described, Article 25 of the Constitution has provided the pivotal basis for social security and health policy in post-war Japan. The Article states “All people shall have the right to maintain the minimum standards of wholesome and cultured living”, and its Item 2 further stipulates that “In all sphere of life, the State shall use its endeavors for the promotion and extension of social welfare and security, and of public health.”

Although the launch of public health insurance system for formal sector workers enacted in 1927 was originally of militarism purpose, post-war policy debate in 1950’s sought for welfare state and equality across the citizens under the spirit of Article 25, resulting in the establishment of universal health insurance coverage in 1961 by the amendment of National Health Insurance Act. Since then, the equal access and fair contribution have been a central tenet of Japanese health policy.

However, since the late 1970s when Japanese economy faced low economic growth and increasing demand of healthcare by population ageing, cost control has also become a significant policy theme until today to maintain the sustainability of the universal public healthcare system. As was detailed in the previous chapter, strict price control has been taken for the supply side while free access policy has been maintained for the demand side in principle until today. Even under the current reform vision where regaining financial primary balance is set as the nation’s top priority, reform visions still emphasize maintenance of universal insurance coverage and equalization of public insurance premium contribution across plans. Some criticize that the priority to equity had to pay the cost of quality/efficiency left behind. The most recent policy vision for 2035 by the Minister of Health maintains universal coverage as the key health policy, while it also emphasizes citizen’s autonomy and solidarity for rational choices to achieve quality healthcare with financial sustainability. This purpose of this paper is to analyze the effectiveness of health care policies and reforms.

Ｂ．研究方法

This report used information from publicly available reports and datasets to summarize the capital stock, physical resources and personnel situation for the Japanese health system, Available data is summarized and published literature reviewers to obtain information about how these resources are expected to change.

Ｃ．研究結果

C.1. Financial protection

The proportion of public fund coverage of total health expenditure was 84.9% in Japan as of 2015, ranking as third highest among OECD countries following Norway and Germany (Figure 1). Since 2003, copayment rate has been

set to 30% for all beneficiaries under 75, with monthly upper ceiling according to the levels of household income to protect households from catastrophic payment. Besides, premium exemption for low income households, lower copayment rate (10-20%) set for the elderly population, copayment subsidy for children, and subsidy policies for patients with selective conditions (chronic and intractable) are also expected to exercise protective function against catastrophic healthcare payment to the household with healthcare needs.

Survey of Social Security Status 2007 conducted by National Institute of Population and Social Security Research reported that 0.76% of surveyed households reported that they withheld healthcare visit due to economic concerns in the previous year despite of felt needs. Simple comparison was difficult with 2012 survey because questionnaire items were different, but the proportion of withheld healthcare visit due to economic concerns went up to 2.9% in adults aged 20-65, and 1.1% in 65+.

Impoverishment impact on households' economy by out-of-pocket payment could be quantitatively measured using the FCSU approach originally proposed by Citro and Michael (1995), and adopted in U.S. Census Bureau. There are four components of household expenditure including food (F), clothing(C), shelter (S) and utility (U) are estimated using the microdata of the National Survey of Family Income and Expenditure. Median of FCSU was obtained as a poverty threshold for the typical household composed of two adults. OECD-modified equivalence scale was applied to derive poverty threshold per equivalent adult to adjust for family component. The poverty rate was then computed by dividing the sum of the number of households (for each household composition) whose household income falling below poverty threshold by total number of households. The impoverishment impact was assessed as the difference in household poverty rate before and after inclusion of healthcare expenditure. The preliminary results have shown that both Taiwan and Japan reported less than 1% of impoverished household headcount due to out-of-pocket health spending, compared to Korea and Hong-Kong where the larger impact was revealed. For Japan, we re-estimated the impact by use of micro data of the National Survey of Family Income and Expenditure. The impoverishment impact was observed among 0.65% of total households as of 2004, and 0.76% as of 2009.

In spite of relative excellence in financial protection, recent time trend analysis suggests that the function is weakening over time due to decreasing household income in real and nominal terms under economic stagnation since late 1990s. As the graph below shows, the share of health care expenditure per household

non-food expenditure is rising over time. Whether the trend is further exaggerated after April 2014 when consumption tax rate was increased from 5% to 8% should be confirmed with the latest 2014 survey data when it becomes available (Figure 2).

We also should acknowledge that the subsidy to protect financial burden of the household may lead to moral hazard and related overuse of healthcare services in middle-high income households rather than effectively protecting low-income households from catastrophic out-of-pocket payment, because the policy is basically universal only with rough classification of income levels. Due to limited data availability, we have very limited empirical assessment on this issue.

Another emerging issue is that even under universal health insurance coverage policy, we may face an increasing proportion of population without effective public health insurance coverage. Since Japanese public insurance is divided into formal and informal sectors, recent increase in non-fulltime workers without production assets may lead to a higher risk of no-insurance status. Although we have no official statistics on non-insured, one estimation indicated about 1.3% of the population were without effective health insurance coverage as of 2007. If we adopt the same working definition, the number went up to 3.2% as of 2013.

C.2. Equity in financing

As Oshio, et al. clearly described in World Bank Study report 2014, Japanese public health insurance system has been financed by the hybrid of social insurance premium and government's tax transfer to allow financially weak health plans for equal benefit. The re-distributional function to equalize household income was strengthened mainly through inter-generational mechanism through tax transfer and benefit provision of pay-as-you-go based social security for the elder population, rather than by intra-generational mechanism of taxation per se. Indeed, the re-distributional function of social security has been extended since 1980s in parallel with population ageing.

By use of microdata of the National Survey of Family Income and Expenditure, again, we evaluated the progressivity of healthcare contribution, following the method proposed by O'Donnell, et al. (2008). By taking monthly expense and tax contribution as household's ability to pay, Kakwani index represents whether the contribution is fair across households with different levels of ability to pay (Figure 3). Positive numbers indicate the richer households pay relatively larger contribution, while negative ones vice versa. Contribution through indirect taxes, social insurance premium, and out-of-pocket payments shows negative indices, suggesting a regressive function in that relatively poorer households contribute more.

To the contrary, direct tax shows strong and positive values due to progressivity of taxation. Finally weighted total effects was nearly zero, indicating that the regressivity of indirect taxes, social insurance premium, and out-of-pocket payments was canceled out by direct tax contribution to achieve contributional fairness. An exception was found in the direct tax in 2009 that shows strong negative values. The year of 2009 was marked by global economy shock, resulting in sharp decline in household income, pension benefit, and government's tax revenue (Figure 4). Whether this became a trend or one-time shock should be confirmed by the latest 2014 survey data when it becomes available. Another concern is that consumption tax rate was increased from 5% to 8% in April 2014, and how it affected the consumption behavior of poorer households deserves close monitoring.

C.3. User experience and equity of access to health care

C.3.1. User experience

Despite of high performance in access equality and financial protection so far, some cross-country surveys on consumer satisfaction contradictorily revealed that Japanese customers/patients are less satisfied with current healthcare system compared to those in other countries. However, comparison of user experience in cross-country setting suffers a methodological flaw because it should highly depend on consumer's expectation to the system embedded in the politico-historical process of healthcare system development unique in each country that precludes fair evaluation on quality of processes and outcomes of service provision.

Within a country, a time trend analysis of consumer perception about the performance of healthcare system would better prove any trend change in system's "responsiveness" to patients' needs. The Patient's Behavior Survey conducted every 3 year by the MHLW revealed that patient satisfaction is prevalent and improving over time, though low quality remains problematic in smaller and chronic care hospitals in Japan. Besides, the survey results indicated that information provision by health professionals to effectively help patient's choice and decision to seek for quality service needs further improvement. Especially, the Bureau of Health Service in the Ministry currently prepares information platform to better inform patients who suffers from cancer after enactment of Act for Advancing Measurement of Cancer Treatment in 2006.

Thanks to free access policy and high density of clinics/hospitals in the community, waiting time for specialty services is hardly complained of. However, some claimed less availability of specialty services in rural regions compared to urban settings because of biased distribution of specialty services and specialists between urban and rural settings. Tanihara, et al. (2011) indicated that biased geographical distribution

of physicians did not change since late 1980s despite of increase in physician numbers per population in the same period.

C.3.2. Equity of access to health care

Horizontal equity in health care access

Equity of access to health care could be assessed from several visions. In this section, we referred to the concept of equal treatment for equal needs (ETEN) following Wagstaff, et al. (1991). Horizontal equality in healthcare access was assessed as was described in Watanabe and Hashimoto (2013). Briefly, we calculated concentration index for actual healthcare visit over household's income level and that for estimated healthcare needs solely based on demographic and clinical conditions, and took the difference between the two as the index of "horizontal inequality (HI)".

By used of a cross-sectional repeated nationally representative household surveys (the Comprehensive Survey of People's Living Conditions) in 1986-2007, Watanabe and Hashimoto (2013) revealed that the HI was relatively small in Japan, though the degree of HI was increasing over time for people aged under 65, while the HI was minimum and constant for aged 65+.

We obtained additional two waves of the Survey for this HIT report, and replicated the HI assessment. We intended to see the impact of the global economic shock in 2008, and subsequent decrease in household income in real terms on the horizontal inequality of healthcare access. During this period, despite of a sharp decline in GDP growth, the Japanese government did not take strong austerity policy to cut down healthcare expenditure, but controlled fee schedules to allow marginal growth due to population ageing. For demand side, elderly with high income was newly asked for 20% copayment instead of 10% since 2003, and 30% since 2006. Otherwise, the copayment rate was amended to 20% for the elderly over 70, though it was postponed until 2014 by political decision of the then government. The Ministry estimated that about 6-7% of elderly households will belong to the high income group.

The results were presented in Figure 5. The concentration indices for actual healthcare service use among age 20+ was constant and negative, suggesting that actual access has been rather distributed in lower income households. This is because the utilization has been high among elderly population with less income, due to larger healthcare demands and reduced copayment rate compared to younger households. The gap between the actual utilization and estimated health, or the horizontal inequality, was negative suggesting that people with lower household income were likely to withdraw healthcare use despite of needs. The inequality against low income household was the strongest in 2001, then recovered upto around -0.05. The change in the

horizontal inequality was mainly attributed to the change in estimated healthcare needs, which hit the bottom at -0.12 in the year of 1998 just after IMF currency shock in 1997, then slowly recovered to -0.08 as of 2013.

Stratified analysis by age strata provides further implication (Figure 6). Those under age 65 showed that concentration indices for actual utilization was constantly around zero, suggesting that actual use is equally distributed across household income levels. However, there is a large gap in estimated healthcare needs largely distributed to low-income households. Since early 1990s when bubble economy collapsed in Japan, healthcare needs were larger among people in lower income households, as negative values of the concentration index suggest. The gap between actual utilization and estimated needs suggests that low income households were more likely to withdraw healthcare use, and the magnitude was the largest in the year of 2004, and slightly recovering, though it still fell short of what it used to be before economic crisis in early 1990s.

Finally, the horizontal inequality has been small among people aged over 65, presumably due to favored copayment reduction in the elderly population that had been successful in equalizing healthcare utilization regardless of income levels (Figure 7). The introduction of copayment rate rise specifically for high-income elderly in 2010 seemed to result in improved horizontal equality as of 2010. However, a sharp decline in 2013 may require careful monitoring, since it may be an early sign of declined household capacity to pay for healthcare due to economic stagnation. Further monitoring is also worthy after 2014 when the copayment rate for the elderly went up to 20%, and consumption tax rate was simultaneously increased from 5% to 8%, when the latest data of 2016 becomes available. For cross-country comparison purpose, we also refer to Japanese Study of Ageing and Retirement (JSTAR), and its sister survey in Europe (Study of Health and Retirement in Europe: SHARE) , both of which are a part of global harmonization of elderly panel survey led by U.S. Health and Retirement Study. Since JSTAR did not take a probabilistic sample of the whole Japanese population, but instead took a random sample from selective municipalities, we should be careful for the interpretation of the results.

Figure 8 tells that the proportion of those who claimed any forgone healthcare due to financial concerns in the previous year is relatively small in Japan compared to European countries, especially among those aged 65+, presumably due to copayment rate reduction favored for the elderly. Nishi, et al. also reported by using a nationally representative household survey that reduced copayment rate was significantly associated with better health status among those 70+, especially in mental health. However,

Shigeoka (2014) did not identify any health benefit in terms of reduced mortality despite of increased utilization induced by copayment rate reduction.

Access equity in terms of resource distribution and cultural gap

As mentioned earlier, the number of physicians and subspecialties are biasedly distributed towards urban setting, and Tanihara, et al. (2011) indicated the biased distribution of physicians did not change in the past three decades despite of increase in physician numbers per population. Sakata, et al. conducted a time trend analysis of reginal distribution of certified nurses between 2002-2011, and concluded that despite of increase in nurses per population, the nurse distribution was biasedly influenced by a reimbursement policy that motivated acute care hospitals in urban setting to increase nurse per bed ratios for better payment.

Finally, we must mention that ignored in system responsiveness in Japan is an issue of cultural gap and language barriers to meet healthcare needs of ethnical minorities in Japan. Systematic and empirical evidence is scarce to identify the magnitude and severity of this specific theme. There are some case reports describing poor accessibility due to economic and language barrier among minority population that in the worst case lead to fatal consequences.

C.4. Health outcomes, health service outcomes and quality of care

C.4.1. Population health

As is mentioned in Chapter 1, drastic change in population health in Japan since 1970 was attributed to rapid decrease in stroke death, which was likely to result from prevalent health education on the risk of hypertension by community health practitioners, subsequently improved control of the conditions endorsed by availability of comfortable housing, protein-rich foods, and antihypertensive medication in the community. For descriptive statistics and trends of population health, refer to Chapter 1.

Domestic disparity in life expectancy

Although the life expectancy has a marginal gain even for today, prefectural difference in life expectancy remains substantial; the difference between the longest (Nagano Prefecture) and the shortest one (Aomori Prefecture) was 3.5 year even in 2010. What determines persistent difference across prefectures remains to be studied; at least there is a substantial and systematic difference across prefectures in the prevalence of known risk factors such as smoking as well as socioeconomic indicators such as mean household income, educational attainment, industrial structures, and subsequent unemployment rates.

Most worthy to be noted is a drastic decline in life expectancy in Okinawa prefecture, once known as the island of centenarians. In 2000

census, life expectancy of males in Okinawa was ranked sharply down to 26th out of 47 prefectures. Longevity of Okinawa has long been known as "Okinawa paradox," because Okinawa had the longest life expectancy in the nation despite of its socioeconomic disadvantages such as the lowest mean income, the highest unemployment rate, the highest mortality of young males as reflected in the largest Potential Years Life Lost, and industrial structure heavily dependent on the U.S. military bases in Okinawa. What caused the sharp decline of male's population health remains to be articulated. Some studies indicated changes into high-fat containing western life style among the youth and subsequent increase in obesity and cardiovascular morbidity were culprit, though it does not fully explain why the decline was so sharp. Another possibility is that the Okinawan paradox was an artifact caused by massive civilian casualties in the last War (about 100,000 deaths out of total population 600,000), which would result in selective survivorship and "healthy population effect" afterwards among affected older birth cohorts.

Traditional risk factors

According to the National Survey of Health and Nutrition by the Ministry, the smoking prevalence trend decreased to 32.3% among male in the latest survey, but the prevalence among women remains around 10% for the past three decades (Figure 9). Several studies indicated that the smoking prevalence is higher among those with lower educational attainment and/or low household income even in Japan (e.g. Fukuda, et al. 2005). Existing publication has not determined whether the socio-economic disparity in smoking prevalence is changing over time.

For obesity, Funatogawa, et al. (2009) conducted an age-cohort-period analysis of the National Survey of Nutrition and Health, and revealed that obesity became more prevalent among male in younger birth cohorts, while there was a negative trend among female born after 1970s. Obesity is also known to be associated with lower socioeconomic status especially among women. Most recently, Ueda, et al. (2015) found that obesity among school-aged children was more prevalent in the household who faced income decline after 2008 global economic shock, using the National Longitudinal Survey of Children 2001.

Health disparity across socioeconomic conditions

Since Japanese vital statistics does not include information regarding socioeconomic status in terms of educational background and household income, a limited information is available on socioeconomic disparity in disease incidence, survival rate, and mortality in nationally representative scheme.

Mortality difference across educational attainment was presented by Fujino, et al.

(2005) in a large epidemiological cohort (The Japan Collaborative Cohort Study for Evaluation of Cancer Risk; JACC). The study revealed a significant association between all cause mortality and educational attainment among adults aged over 40 who participated in community health checkup.

C.4.2. Health service outcomes and quality of care

Free access policy, universal insurance coverage, and several measures of subsidy to support healthcare access for those with larger needs (e.g. children, elderly, and with disability) should theoretically result in excellence in health outcomes of Japanese population. Some, indeed, attribute Japan's excellence in population health (e.g. longevity) to high quality health care and secured accessibility. However, there is very limited evidence so far on effective coverage of healthcare services in Japan.

Preventive care

Free immunization program for children is scheduled for Hib, HV-B, BCG, measles, rubella, DPT-IPV (or DT), Varicella, Pneumococcus, and Japan Encephalitis. Vaccination out of schedule must be paid by out-of-pocket payment. Otherwise, vaccination for Rotavirus, mumps, HV-A, and influenza are voluntary and for out-of-pocket payment with various subsidies across municipalities. Pneumococcal vaccine for older people (aged 65+) recently becomes available with copayment that also varies across municipalities.

Surprisingly, there is no official statistics on effective coverage of vaccination in Japan. For child vaccination the Ministry of Health published information on the number of targeted population and the number of vaccine provision reported from healthcare institutions. However, whether the vaccination successfully reached targeted population as scheduled is not validated by these published numbers. According to studies based on household surveys, the rate stays only around 90%, and barely exceeds 95%.

Although provided for free, whether the coverage of routine vaccination program is equally distributed or not is another health policy question to be answered. In metropolitan and urban settings, Ueda et al. reported that children of younger mothers less than 25, less educated, and at work status without childcare leave were more likely to miss timely vaccination for measles and DPT. The combination and multiple vaccinations are limited in Japanese vaccination policy because the government takes defensive positions against side-effects of vaccine products to defend against civil activists' law suit to the government for its "failed regulation." Consequently, Japanese vaccination schedule is very busy and complex, which pressures parental time and cost. Cultural and language

barriers further curtail the coverage rate of children of foreign origins. For voluntary-based vaccination with out-of-pocket payment, the coverage rate is substantially lower, and household income and the amount of municipality subsidy are known to be influential to vaccination coverage.

Health checkup and screening

Japanese government introduced "health checkup for all" policy since 2008 aiming at controlling health expenditures by screening and early intervention towards chronic conditions such as metabolic syndrome. Since the introduction of the policy, check-up participation rate has been significantly increased on average. However, there remains substantial discrepancy in checkup rates across public health plans tightly linked to work status. Fulltime-based workers covered by company-based plans have the highest checkup rate around 90%, while workers in informal sectors, part-time based, and non-workers such as home-makers had substantially lower rates. The introduction of "checkup for all" policy facilitated the rate of fulltime workers more, resulting in significantly widening disparity across work status (Figure 10). Screening program against cancer (stomach, colon/rectum, cervical, and breast) is provided by municipalities and some worksites in voluntary base with varying copayment. Overall the screening rate is lower compared to other OECD countries. The latest national strategy for measurement against cancer in 2012 stipulates to set a policy goal to exceed 50% of screening coverage in 5 years. Again, there is a substantial gender discrepancy in cancer screening that may also be related to accessibility determined by time, cost, and regional resource accessibility of the screening program (Figure 11).

Primary care service

There are only limited empirical evidences regarding the performance of primary care services in Japan. Primary care service is provided mainly by clinic physicians who have little background in general/family medicine, but with specialist certification in some subspecialty. Hashimoto, et al. showed that compared to the U.S. where primary care system is not established, effective coverage in the control of hypertension and hyperlipidemia is poorer in Japan. Using administrative data with clinical process indicators, Tanaka, et al. reported that the practice in diabetes control, especially in screening of microvascular complications, is far suboptimal. The Ministry currently prepares to introduce certification in general medicine practice.

Acute care services

Since the introduction of casemix management in acute care hospitals since 2003, the performance of acute care inhospital services has been rigorously evaluated in Japan. Table 1 showed post-operative inhospital mortality in major surgery is comparable between US and

Japan in some area, and better in Japan for liver and gastric surgery, mainly due to lower complication rate thanks to preferable patient risk profiles (e.g. less obesity). OECD Health Statistics 2015 has provided a cross-country comparison data on mortality within 30days of admission in several services including acute myocardial infarction, haemorrhagic stroke and ischemic stroke. According to the report, Japanese hospitals exercised poorer performance in acute myocardial infarction with a death rate about 12%, compared to OECD average of 8.0%. The data source is reportedly the national Patient Survey 2011, conducted in every 3 years by the Ministry for weighted sample of hospitals including chronic care hospitals. The Survey provides information on cases discharged in a designated one month, which may be biased. According to the casemix database that covers around 90% of acute care hospitals throughout a year period, the inhospital mortality showed 7.2%, suggesting that comparison of acute care performance across countries still needs further improvement in comparability of data quality and sources.

The National Institute of Cancer recently published a data on five-year cancer survival rates for breast, cervical and colorectal cancers that shows substantial improvement in the survival in several cancer conditions (Table 2). Whether the improvement is due to early screening program or technical innovation in treatment remains to be empirically studied.

C.4.3. Equity of outcomes

Although Japanese people relatively enjoy excellent population health, there remains a persistent discrepancy across the nation. As Figure 12 and 13 shows, the disparity in life expectancy across prefectures was once narrowed during 1990s, and seemed to begin widening since 2000. As mentioned earlier, striking was the sharp decline of Okinawa prefecture both in men and women. Another noteworthy is that relatively persistency was observed in prefectural ranking; upper ranked prefectures (e.g. Nagano) and lower ranked prefectures (e.g. Aomori), suggesting some structural mechanism (e.g. economic and social) may exist to cause the discrepancy.

Wada, Kondo, et al. (2012) reported that occupational class was significantly associated with mortality risk. Contrary to findings in European and US cases, however, time trend analysis showed that economic downturn had a negative impact to raise mortality in manager class, rather than blue-collar worker class in Japan. The trend was most significantly observed in suicide, but also visible in cancer death. Otherwise, due to lack of socioeconomic information in Japanese vital statistics records, we have no empirical data regarding socioeconomic disparity in mortality across income levels or educational attainment levels in nationally representative sample.

Income related disparity was reported by Kachi, et al. (2013) regarding self-reported health status, with the use of nationally representative household surveys between 1986-2007. In this report, we added data of 2010 and 2013 to see the trend after the global economic shock 2008 (Figure 14 and 15).

As was already reported, the discrepancy in subjective health status across income quintiles was once narrowed until 2004, then began re-widening. Most notable was a sharp health decline among the lowest quintile relative to other strata, suggesting that economic hardship affected selectively people with lowest household income.

Since socioeconomic data was barely linked with healthcare utilization records, there is virtually no empirical data regarding the socioeconomic disparity in clinical outcomes at this stage. A large cohort study (Japan Public Health Center-based prospective study; JPHC) recently published a study that failed to identify disparity in cancer incidence, mortality, and survival across regional deprivation index. They also did not find any association between cancer outcomes and individual educational attainment in subsample, though details were not provided in the published text. The authors attributed the findings to equal access to treatment under Japanese universal health coverage. To the contrary, Ito, et al. used a population-based cancer registry in Osaka area, and reported that there consistently was found a gap in cancer survival across regional deprivation index, and that the disparity remained during the period of 1993-2004, despite of improved survivorship in overall.

C.5. Health system efficiency

C.5.1. Allocative efficiency

Policy regarding healthcare resource allocation has been decided in political processes between provider (mainly Japanese Medical Association), payers (public insurers), and the government until very recently. A new scheme was proposed after the enactment of "Act for Securing Comprehensive Medical and Long-term Care in the Community" in 2014 where national database on claim bills and other utilization information was fully analyzed to estimate optimal allocation of hospital beds and other resources in the local setting. The estimated data on local resource demand will be put on a policy discussion table in the local party. How this new scheme improves allocative efficiency should await for empirical evaluation in near future. The amendment also requires the introduction of health technology assessment based on cost-effectiveness analysis for the decision of technology approval for public insurance coverage expectedly starting from 2017 spring.

C.5.2. Technical efficiency

Since the introduction of casemix-based reimbursement system with performance reporting started in 2003, average length of

inpatient stay and its variance among participating hospitals were dramatically decreased in the past decade, suggesting standardized case-mix evaluation was successful in standardizing the process of care across hospital. Noguchi et al. empirically showed that the introduction of new scheme improved technical efficiency in several surgical conditions. However, there remains a large room for Japanese healthcare system to improve technical efficiency. The government currently intends to enhance efficiency by introducing cost-effectiveness analysis in the decision of pharmaceutical coverage, encouraging the use of generic medications, and setting penalty copayment to patients for use of higher function service without referral. The impact of these policies is still limited, and awaits further evaluation.

Another debate goes around productive improvement of physicians performance by introducing new board certification system and eligible assistant staff (e.g. nurse practitioners and physician assistants), though political inertia prevents from the discussion as of 2016 autumn.

C.6. Transparency and accountability

Since the introduction of case-mix based reimbursement system with standardized discharge data submission, transparency and accountability of participating acute-care hospitals are improving. The system introduction further facilitates voluntary performance index publication in some hospital groups, e.g. National Hospital Organization (the management body of national hospitals), and Quality Improvement Project organized by Department of Health Economics and Quality Management in Kyoto University, among others.

Another leadership has been taken by the National Clinical Database affiliated with specialty surgery boards to register all surgical cases for quality monitoring and improvement.

The government further intends to extend the performance report system in the latest amendment of Hospital Service Act that requires every hospital to report their functions to the prefectural authority for the public decision on local resource allocation under Regional Healthcare Vision scheme. However, there is no clear blue print on how the discussion table should be prepared. Whether the discussion table is opened to local community citizens remains unclear. To facilitate data-driven open discussion, the Cabinet office recently disseminated estimation of local healthcare needs and future projection. Again what the policy reform brings about is open for empirical evaluation.

Compared to acute-care inhospital services, performance evaluation is still limited in outpatient services and chronic-care inpatient services. Lack of due empirical evidence on

cost-effectiveness analysis prevents transparent discussion on resource allocation and pricing in public domains.

For data-driven evidence-based policy making, the government slowly and steadily turns their policy to open available governmental data including administrative records for analysis in the purpose of policy planning and evaluation. However, organizational infrastructure to prepare quality of data and to support wider use is still missing

D. 研究発表

1. 論文発表

特になし

2. 学会発表

特になし

E. 知的財産権の出願・登録状況

（予定を含む。）

1. 特許取得

特になし

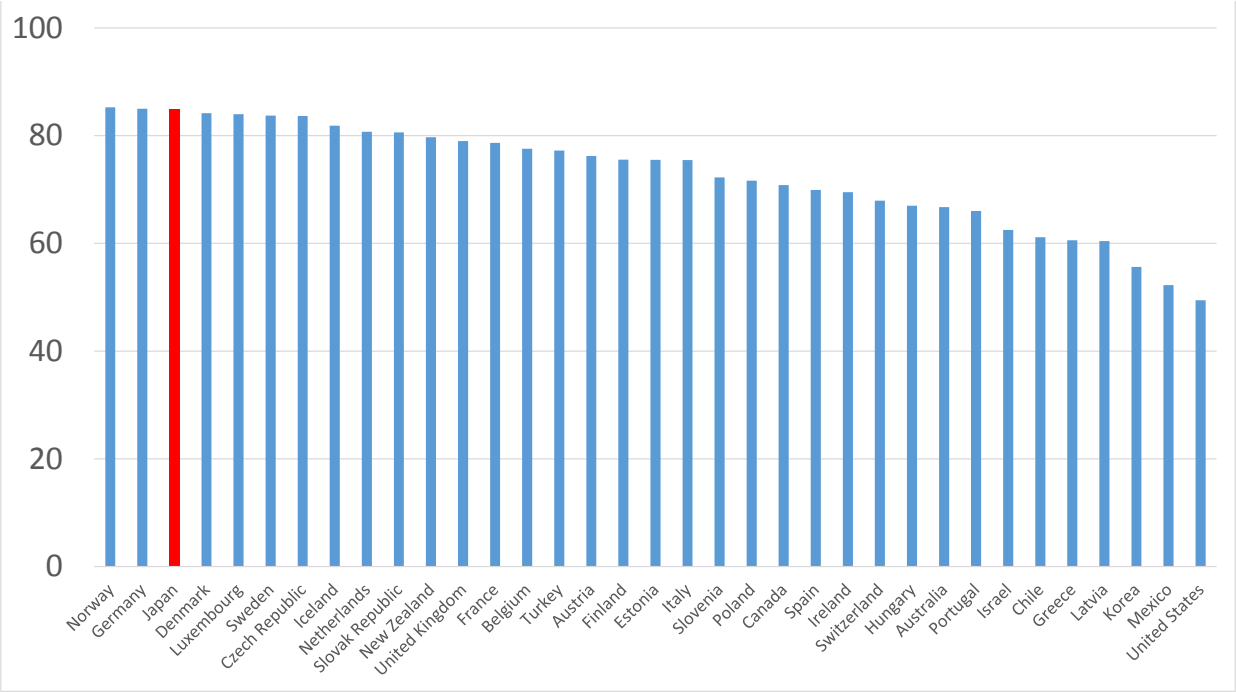
2. 実用新案登録

特になし

3. その他

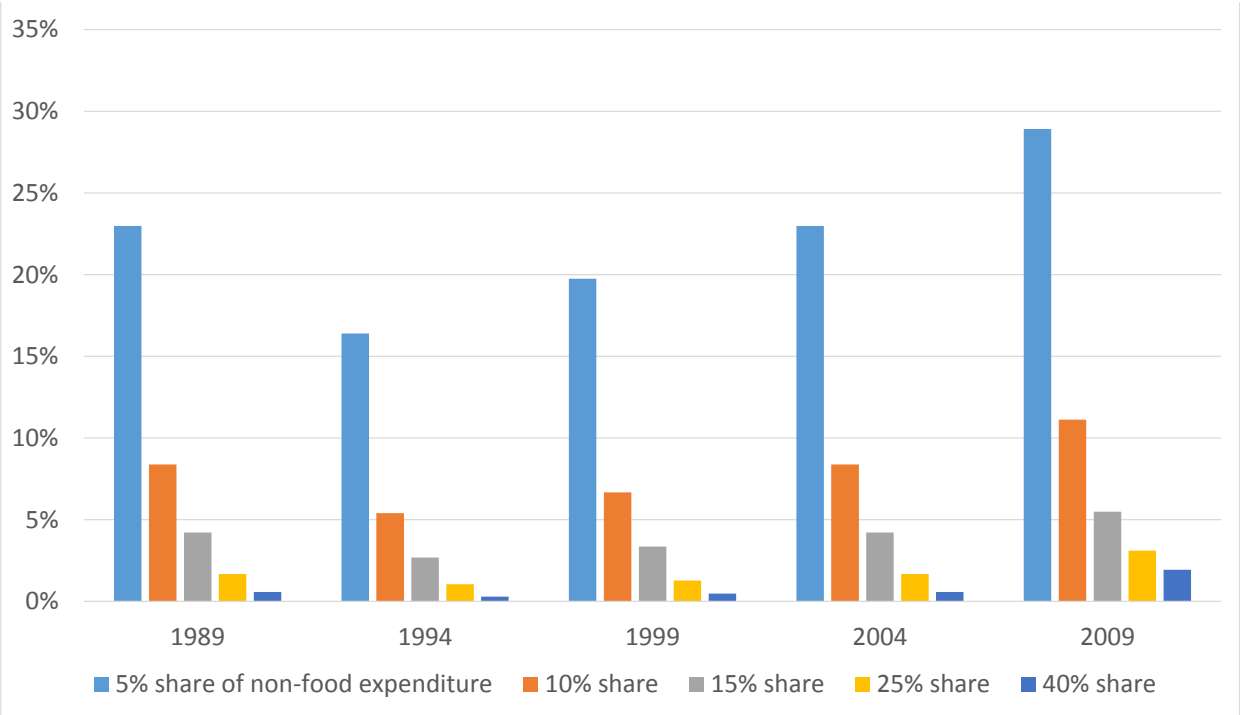
特になし

Figure 1: Percentage share of government transfer and compulsory contribution per total health expenditure



Source: OECD.Stat

Figure 2: Proportion of household who had shares of monthly household expenditure (non-food) by healthcare expenditure



Source: National Survey of Family Income and Expenditure 1989-2009; Healthcare expenditure includes out-of-pocket payment for outpatient, inpatient services (medical as well as dental care), and prescribed medication

Figure 3: Measure of progressivity in healthcare financial contribution by households

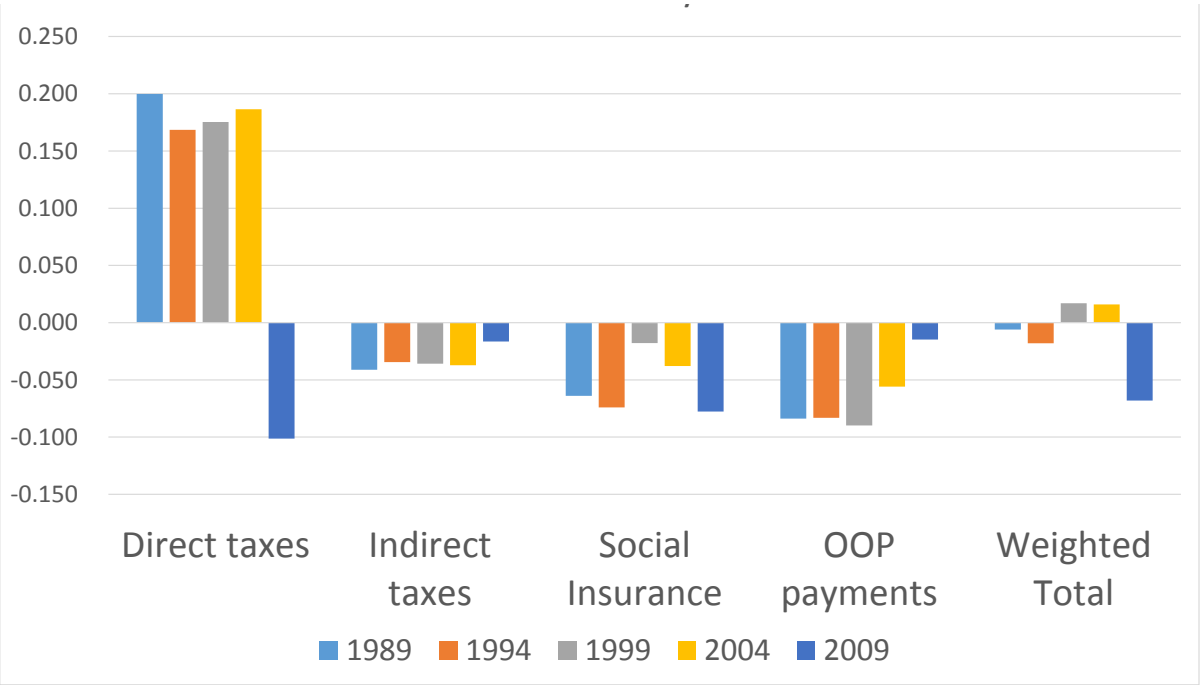
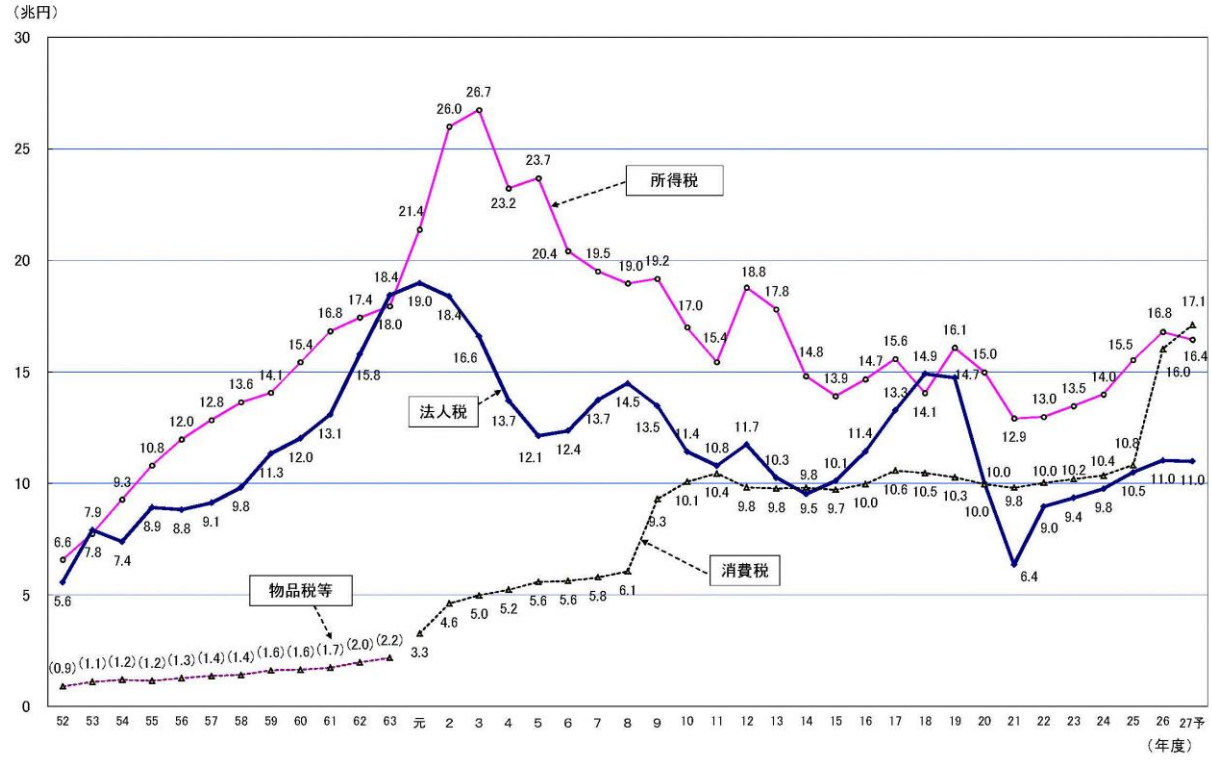


Figure 4: Time trend of tax revenue (general tax)



Source: http://www.mof.go.jp/tax_policy/summary/condition/011.htm

Figure 5: Horizontal equity in access to healthcare (concentration indices over household income), all age 20+

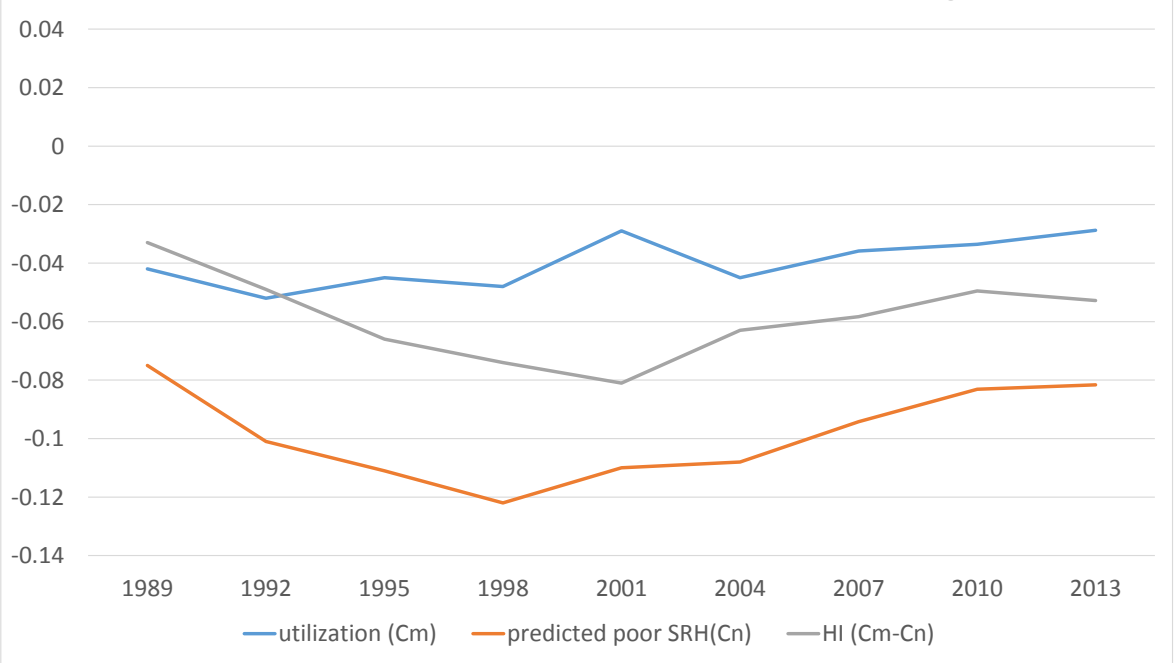


Figure 6: Horizontal equity in access to healthcare (concentration indices over household income), age 20-64

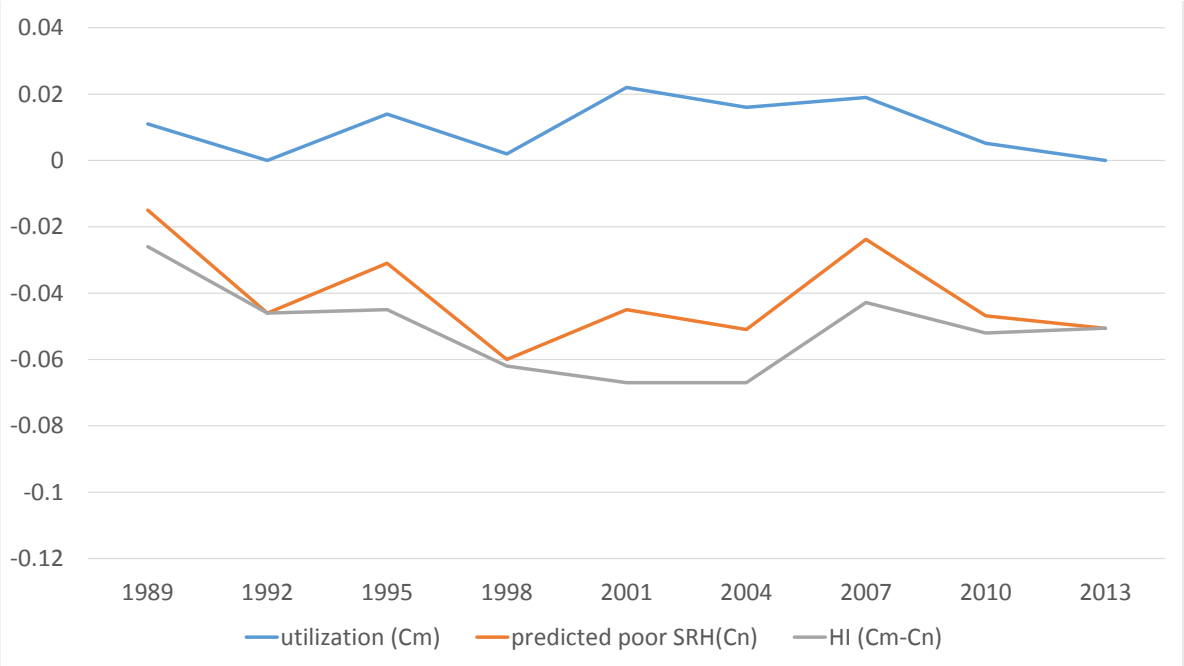


Figure 7: Horizontal equity in access to healthcare (concentration indices over household income), age 65+

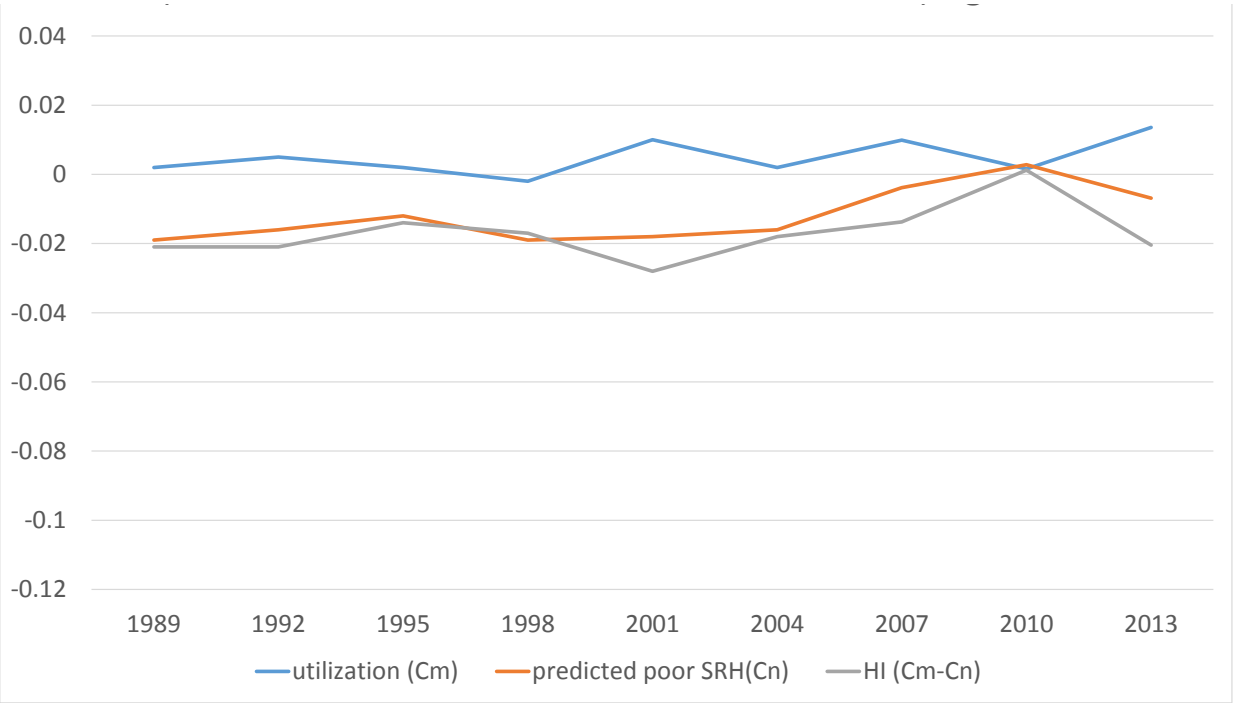
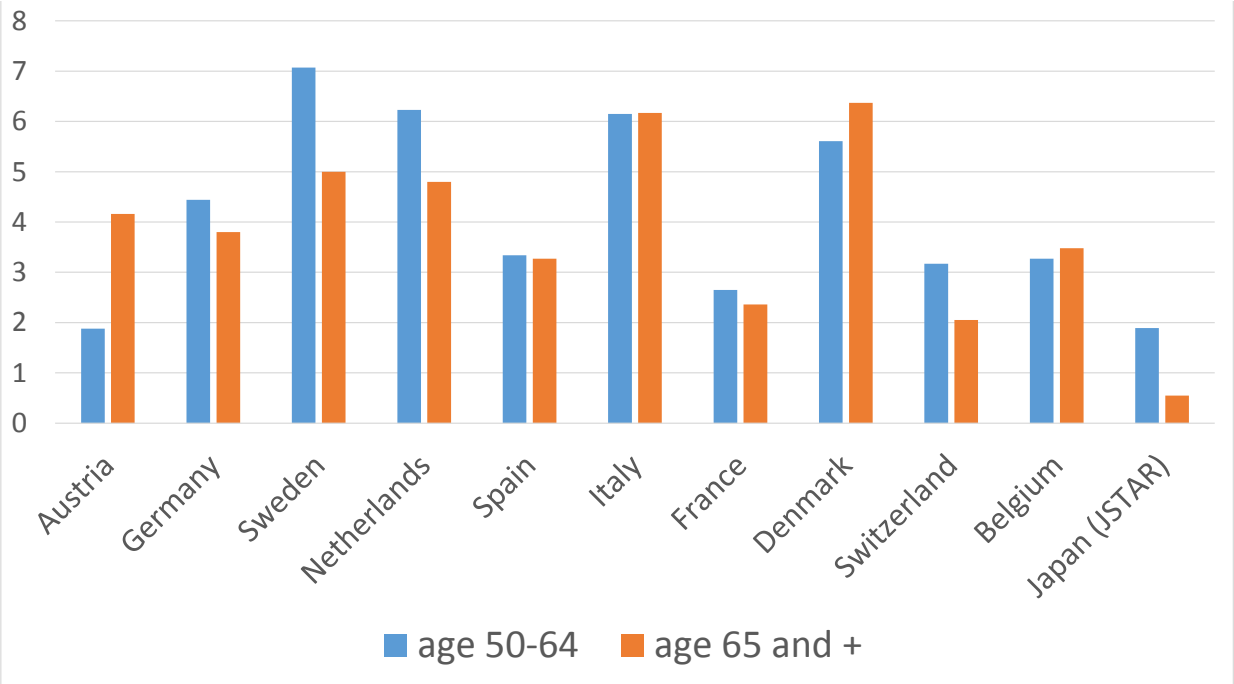
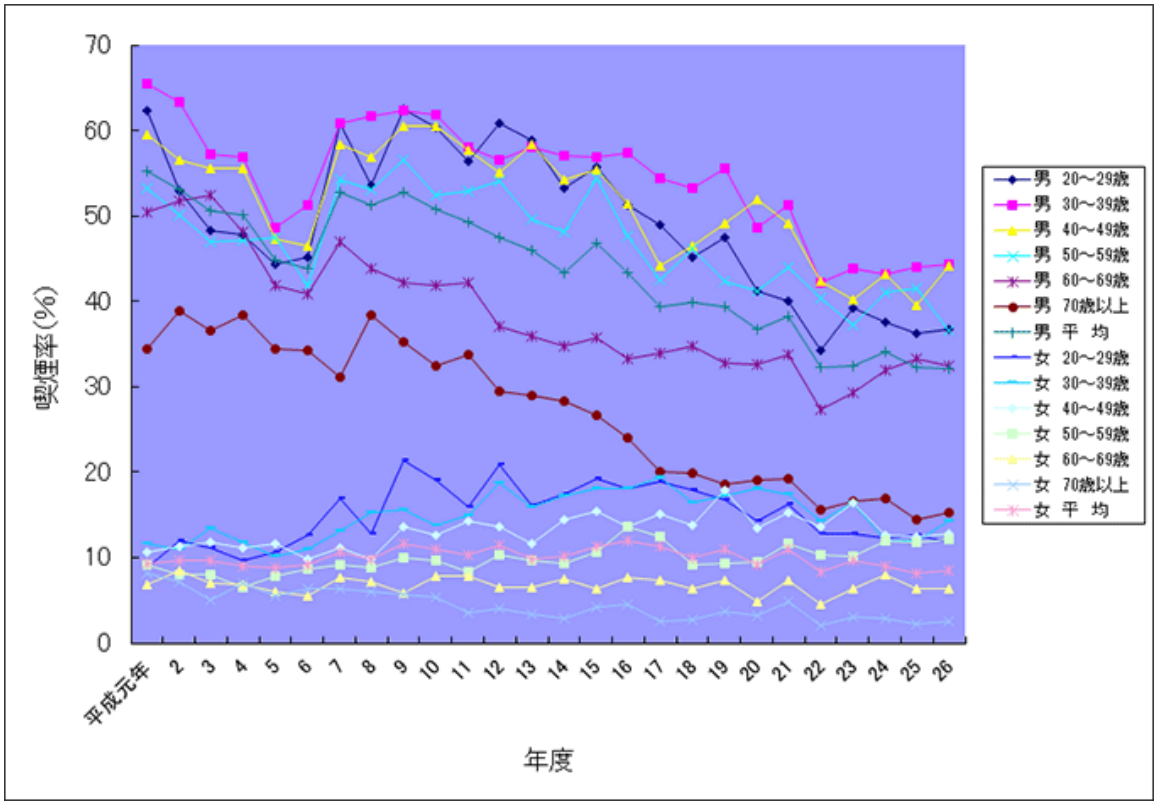


Figure 8: Percentage of people that experienced any forgone care for financial reasons in the previous year



Source; SHARE Wave1 (2004-2005) and JSTAR Wave2 (2009)

Figure 9: Smoking prevalence



Source: http://www.health-net.or.jp/tobacco/product/images/pd100000.gif

Figure 10: Check-up coverage before and after policy introduction (%)

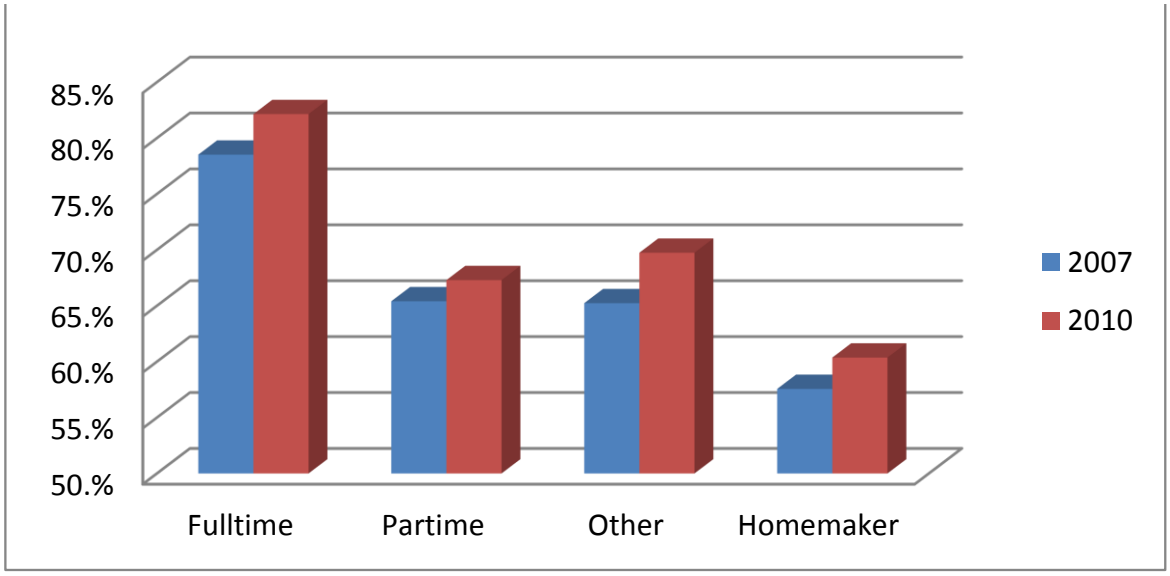
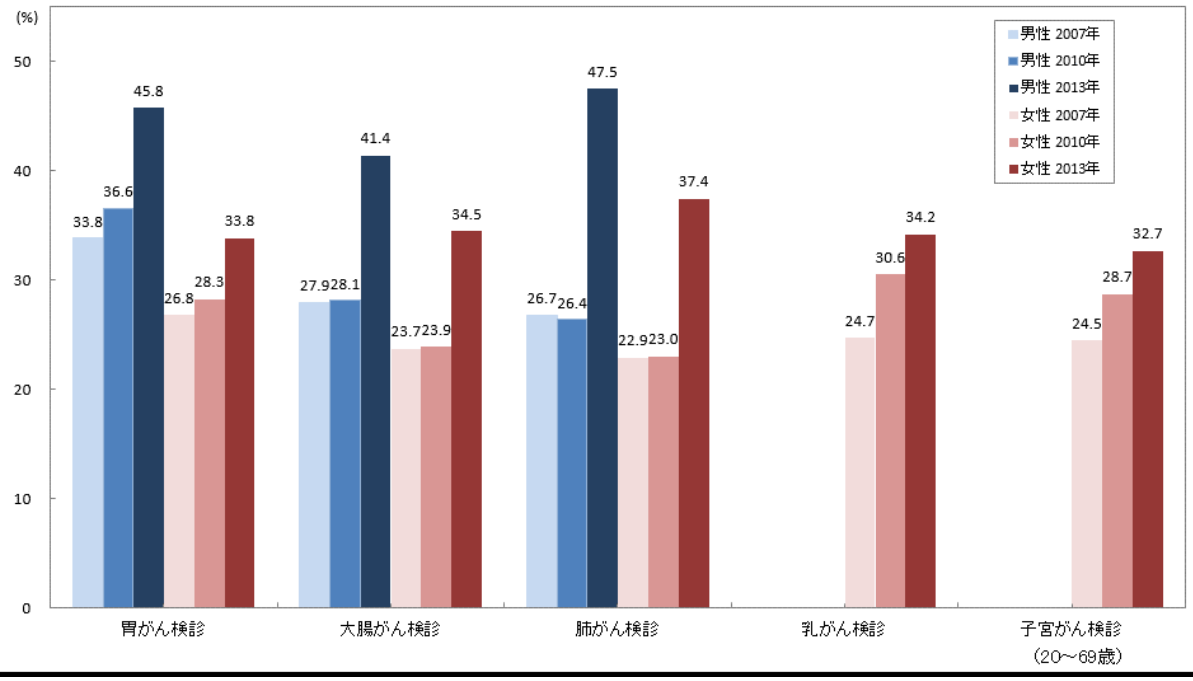
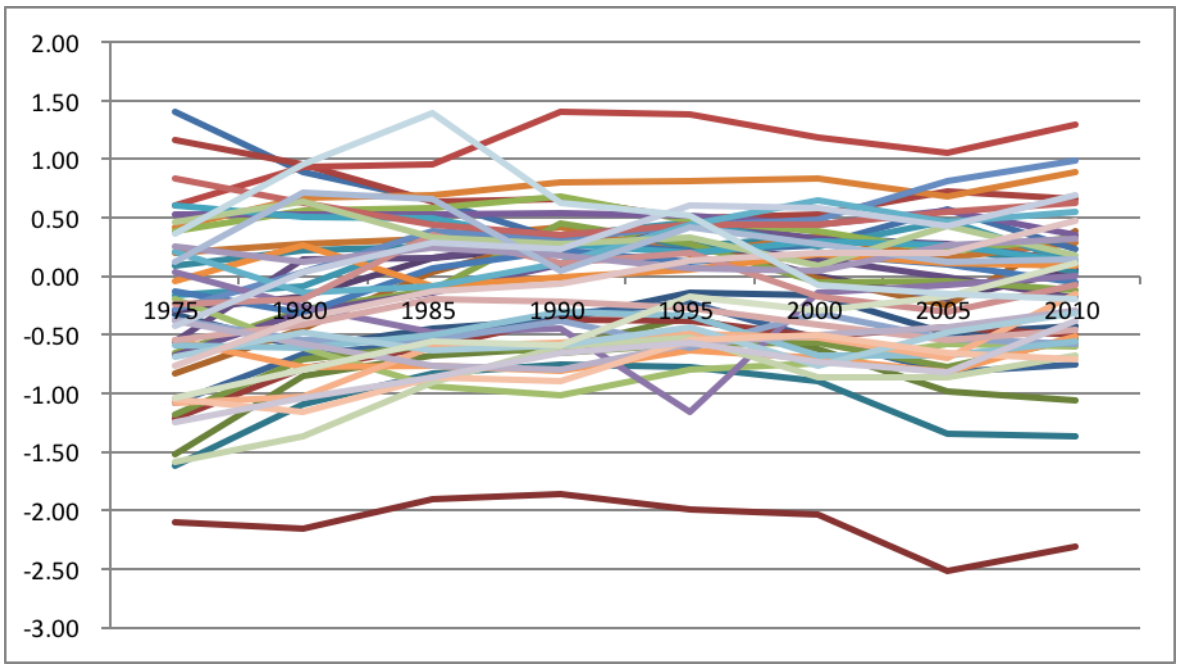


Figure 11: Cancer screening rate for male and female, age 40-69



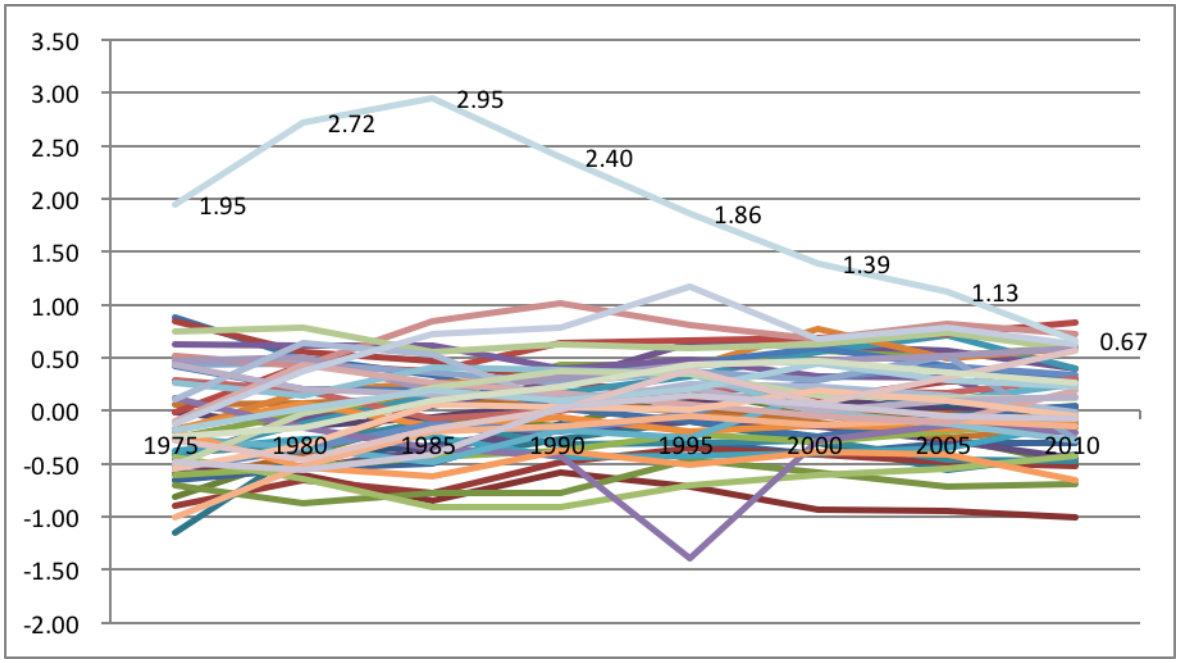
Source: http://ganjoho.jp/reg_stat/statistics/stat/screening_p01.html

Figure 12: Time trend of life expectancy (difference from national average) by prefectures 1975-2010, Japan for male



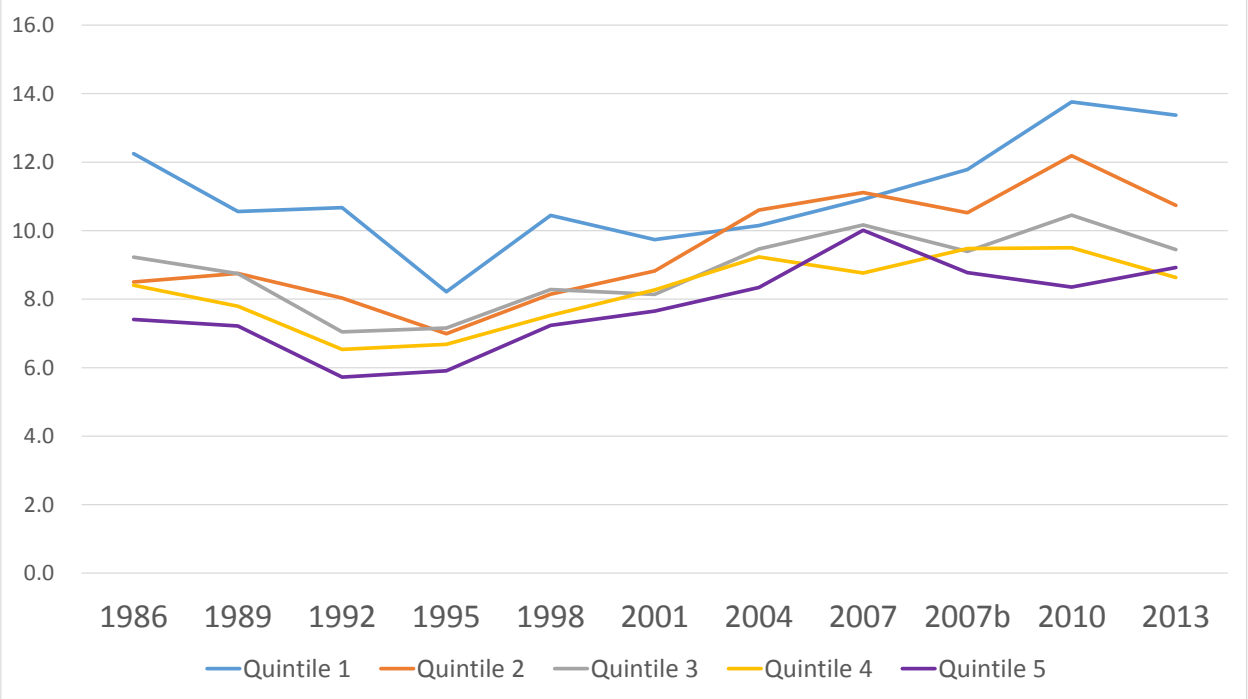
Source: http://www.mhlw.go.jp/toukei/saikin/hw/life/tdfk10/

Figure 12: Time trend of life expectancy (difference from national average) by prefectures 1975-2010, Japan for female



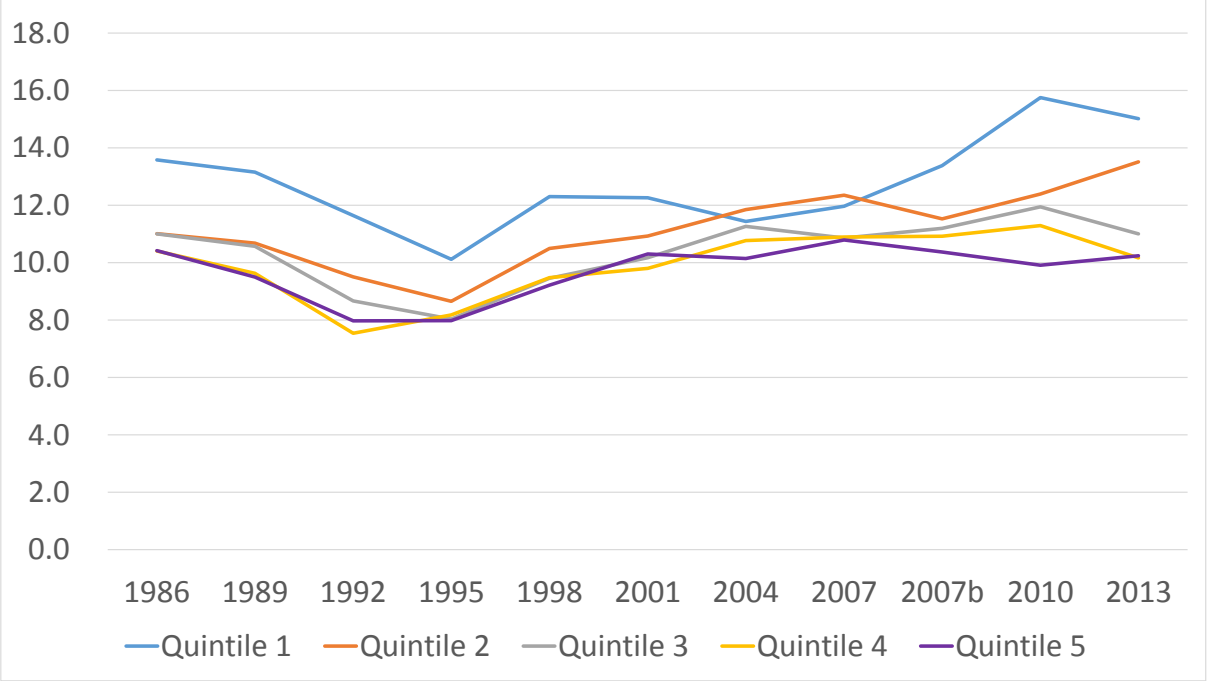
Source: http://www.mhlw.go.jp/toukei/saikin/hw/life/tdfk10/

Figure 13: Self-report poor health, prevalence by income quantile for male



Source; Comprehensive survey of people's living conditions, Ministry of Health, Welfare, and Labour 1986-2013. Estimated data for 1986-2007 derived from Kachi, et al. 2013 by courtesy of Dr. Yuko Kachi. Estimation for 2007b, 2010, and 2013 by the authors, following the published estimation method

Figure 14: Self-report poor health, prevalence by income quantile for female



Source; Comprehensive survey of people's living conditions, Ministry of Health, Welfare, and Labour 1986-2013. Estimated data for 1986-2007 derived from Kachi, et al. 2013 by courtesy of Dr. Yuko Kachi. Estimation for 2007b, 2010, and 2013 by the authors, following the published estimation method

Table 1: Surgical mortality in Japan and U.S.

	Japan (Diagnostic Procedure Combination 2006-8)					U.S. (Nationwide Inpatient Sample 2008)				
	n	Age >= 75 (%)	Comorbidity index (Charlson Index>2) (%)	Inhospital death	Crude mortality (%)	n	Age >= 75 (%)	Comorbidity index (Charlson Index>2) (%)	Inhospital death	Crude mortality (%)
All major surgeries	1,794,268	19.6	9.2	23,049	1.28	11,902,905	16.1	13.9	146,350	1.23
CABG	13,382	28.5	21.3	404	3.02	222,250	21.5	26.6	4,924	2.22
Valvular surgery	11,669	26.3	7.2	437	3.74	107,939	33.2	23.1	5,757	5.33
Breast cancer surgery	51,755	13.8	14.8	22	0.04	37,353	20.2	50.0	33	0.09
Lung cancer surgery	28,096	27.0	45.0	271	0.96	38,399	25.4	72.6	959	2.50
Esophagectomy	5,398	15.1	33.9	236	4.37	2,024	17.0	56.7	157	7.76
Gastrectomy	49,787	31.1	33.0	781	1.57	8,869	33.3	70.3	453	5.11
Hepatectomy	16,502	22.6	74.4	437	2.65	3,676	16.1	76.8	191	5.20
Pancreatic cancer surgery	10,143	24.1	39.6	301	2.97	8,007	22.6	69.7	352	4.40
Colorectal cancer surgery	70,678	33.8	35.1	1,458	2.06	341,666	26.4	30.9	14,861	4.35
Nephrectomy	13,571	25.8	10.3	107	0.79	72,371	14.5	37.2	814	1.12
Hysterectomy for uterine cancer	12,072	7.4	17.3	29	0.24	40,474	15.0	43.3	178	0.44
Total hip or knee arthroplasty	52,938	38.0	1.8	69	0.13	901,022	25.4	4.3	1,124	0.12

All surgeries under general, spiral or epidural anesthesia performed at DPC hospitals between July and December, 2006-2008

Table 2: Dive-year cancer survival rates

診断年	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
胃	70.6	72.3	71.2	73.4	72.0	70.0	73.4	72.7	71.2	73.4	74.4
大腸	67.1	74.8	72.3	77.1	74.9	71.0	74.8	74.9	76.3	76.3	75.6
肝臓	28.1	29.5	33.5	35.9	36.7	32.0	34.4	34.7	32.2	37.0	35.2
肺	35.3	35.1	38.6	42.0	39.5	39.2	42.3	42.4	42.7	46.9	44.2
乳房	85.2	86.9	87.3	89.6	91.2	90.8	91.2	92.3	93.0	92.9	93.2
子宮	79.1	77.6	78.9	74.4	79.7	79.9	81.0	79.3	78.3	81.0	79.5
前立腺	70.6	90.8	82.1	94.6	93.7	92.4	100.0	100.0	98.9	100.0	100.0
全部位	62.0	64.0	63.0	66.7	66.6	66.5	66.9	67.7	68.7	69.6	68.9

単位(%)

Source: http://www.ncc.go.jp/jp/information/press_release_20160120.html

厚生労働科学研究費補助金（地球規模保健課題推進研究事業）
「エビデンスに基づく日本の保健医療制度の実証的分析」（H26-地球規模-一般-001）
平成 28 年度分担研究報告書

医療・介護需要の将来推計、社会経済的健康格差の検討

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研究要旨

Health in Transition レポートの日本版最新レポートの作成に最終的に寄与することを目的に、本分担研究では、昨年度研究を進展させ、各種政府統計個票について統計法 33 条に基づく利用申請を行い以下の 3 点を実施した。1) 高齢社会における将来の医療介護需要推計を行う基礎データとして、国民生活基礎調査個票から偽パネルデータを構築し、これを人口動態死亡票情報と結合させ、心臓病・脳卒中・糖尿病・がんなど 11 種類の慢性疾患の併存状態を考慮しつつ、それぞれの発症・有病状況ならびに死亡移行の遷移確率の推計を実施した。既存統計・疫学情報などと比較して、ほぼ実際の死亡や有病率、発生率の動向を再現することに成功した。2) 国勢調査個票と人口動態死亡票個票の確率論的リンケージを図り、学歴群（中卒、高卒、専門・短大、大卒以上）による死亡率の差をポワソン回帰分析で検討したところ、高卒未満に比べ大卒では死亡率が25%ほど低いことが推計された。死因により学歴格差にはばらつきがあり、特に男性では自殺・アルコール障害・外傷などで格差がみられた。女性では海外で報告されているように予防・早期発見などにより回避できる病態として子宮頸がんで 50%近い違いがみられた。3) 国勢調査個票データを利用し、Townsend 係数を模倣し、地域ごとの大卒割合・ひとりあたり居住面積、専門職従事者割合を年齢階層ごとに求め、地域居住者の社会経済的地位に関する情報が得られない場合の代理指数となる情報を集計した。

Ａ．研究目的

本分担研究では、世界保健機関（WHO）の Health in Transition（以下 HIT レポート）の最新日本版作成を目標生産物とし、日本の医療介護保健制度の現状把握、制度改正の動向とその影響評価、そして 2035 以降を射程において人口減少・高齢社会における医療・介護需要の将来推計を実施することを目的としている。昨年度研究で経過途中となっていた 3 つの研究テーマについて本年度事業で検討を進めた。

Ｂ．研究方法

厚生労働省統計情報部に対し、以下の各種統計の個票利用申請を行い、2015 年 3 月に許可を得、2016 年 5 月に利用延長申請を行った。

- 21 世紀中高齢者縦断調査（第 1～8 回）
- 国民生活基礎調査各票（大調査分、平成 10～25 年）
- 介護給付費実態調査（平成 18 年度～24 年年度）
- 人口動態調査及び人口動態職業・産業別調査（平成 12 年～25 年）

また併せて総務省統計局に全国消費実態調査（1994 年以降 2009 年までの各調査年）の個票利用申請を行い、2015 年 7 月に許可を得た。2014 年調査については 2016 年 9 月に許可が得られた。

1) 医療介護需要の将来推計に向けた慢性疾患の同時確率推計に向けた検討

昨年度事業として動的な機能・健康の推移状況を加味した、より精緻かつ個別的な将来推計モデルとして Future Elderly Model（FEM）にならって、日本版の FEM を構築した。昨年度は 21 世紀中高年縦断調査ならびに既存の高齢者パネル調査を用いた検討を行ったが、75 歳以上のデータが欠損していたために、高齢者コホートの推計値が不安定となる現象が見られた。そこで本年度はアプローチを変更し、パネルデータではなく、時系列繰り返し、横断調査である国民生活基礎調査を偽パネルデータとして用いて、健康・機能の遷移確率や、さまざまな慢性疾患・状態の併存確率について先行研究に従った推計を行い、これを過去の有病率ならびに人口動態統計から得られた疾患別死亡率の動向と比較することで推計の妥当性を検証した。また昨年度は 6 つの疾病状態に限定していたが、今年度はこれを 11 種類＋自覚的健康状態を含む、軽１２種類の併存状態を加味したモデルに拡張した。手法の詳細は添付の論文を参照されたい。

2) 国勢調査を用いた社会経済的地位による死亡率比較の試み

昨年同様、国勢調査個票情報と人口動態統計死亡票個票について、生年月・地域（市区町村）・性別・婚姻状況などについて情報を突合し、確率論的にリンクを図ることで、国勢調査情報として含まれる職種や学歴などの社会経済的地位に関する情報と死亡との関連を検討した。

3) 国勢調査個票を用いた町丁字レベルの地域社会経済指標の作成

昨年度同様、Townsend index の小地域別推計

を実施した。具体的には町丁字レベル、市町村レベル、都道府県レベルの各層で、年齢階層（30－39、40－64、65 以上）・性別ごとに学歴（大卒以上の割合）、職種（専門職割合）、そして居住面積を居住人数で補正した等価居住面積の 3 種類について集計し、これらを組み合わせた地域指標を作成する素地を用意した。

C．研究結果

1) 医療介護需要の将来推計に向けた慢性疾患の同時確率推計に向けた基礎検討

図 1 に示すように、糖尿病・心臓病・脳卒中・がんなどの発生率について、推計した。これを国立がんセンター発表のがん統計や、国内の地域疫学データ（久山町データなど）から得られている脳卒中発生率などと比較したところ、おおむね妥当と思われる推計結果が得られた。現在 ADL レベルの移行を加味した拡張モデルを作成しており、これと介護給付実態調査からえられる介護費用とを掛け合わせることで将来の介護需要推計を用意している。

2) 国勢調査を用いた社会経済的地位による死亡率比較の試み

表 1 に示すように、高卒未満に比べ大卒では死亡率が 25%ほど低いことが推計された。死因により学歴格差にはばらつきがあり、特に男性では自殺・アルコール障害・外傷などで格差がみられた。女性では海外で報告されているように予防・早期発見などにより回避できる病態として子宮頸がんで 50%近い違いがみられた。

3) 国勢調査を用いた地域社会経済指標の作成の試み

2000 年、2005 年、2010 年データについて、町丁字、市区町村、都道府県レベルでの集計を行った。各年、町丁字レベルで 98000 地点について集計した（表 2）。今後結果をホームページなどで公表する予定である。

D．結論

本年度の研究を通じて、疾病負担の将来推計については、死亡遷移の条件を再度見直すことで、より再現性・妥当性の高い推計モジュールを得るための修正作業をほぼ完了し、今後医療費データについて、NDB が入手可能になり次第、これまで得られた推計結果と突合し、医療介護合わせた将来需要推計に展開することが期待される。

最後に学歴による死亡率格差の統計推計は、国内で全国規模のもとしては初めてであるが、既存のコホート研究で見られているように、特に外因死因において、学歴差が男性で大きいことが確認された。今回、女性において予防可能ながん（子宮頸がん）で格差が大きく見られたことは、今後がん対策などを健康格差縮小に向けて改善していくうえで示唆に富んでいる。地域社会経済指標は今後ホームページなどで公表し、広く地域経済要因の健康影響などの検討に資することが期待される。

E. 研究発表

1. 論文発表

Tokunaga M, Hashimoto H. The socioeconomic within-gender gap in informalcaregiving among middle-aged women: Evidence from a Japanese nationwide survey. Soc Sci Med. 2017 Jan;173:48-53. doi: 10.1016/j.socscimed.2016.11.037.

2. 学会発表

特になし

H．知的財産権の出願・登録状況

（予定を含む。）

1. 特許取得

特になし

2. 実用新案登録

特になし

3. その他

特になし

図 1: 年齢・生まれコホート別、疾病別発生率（per year）の推計結果

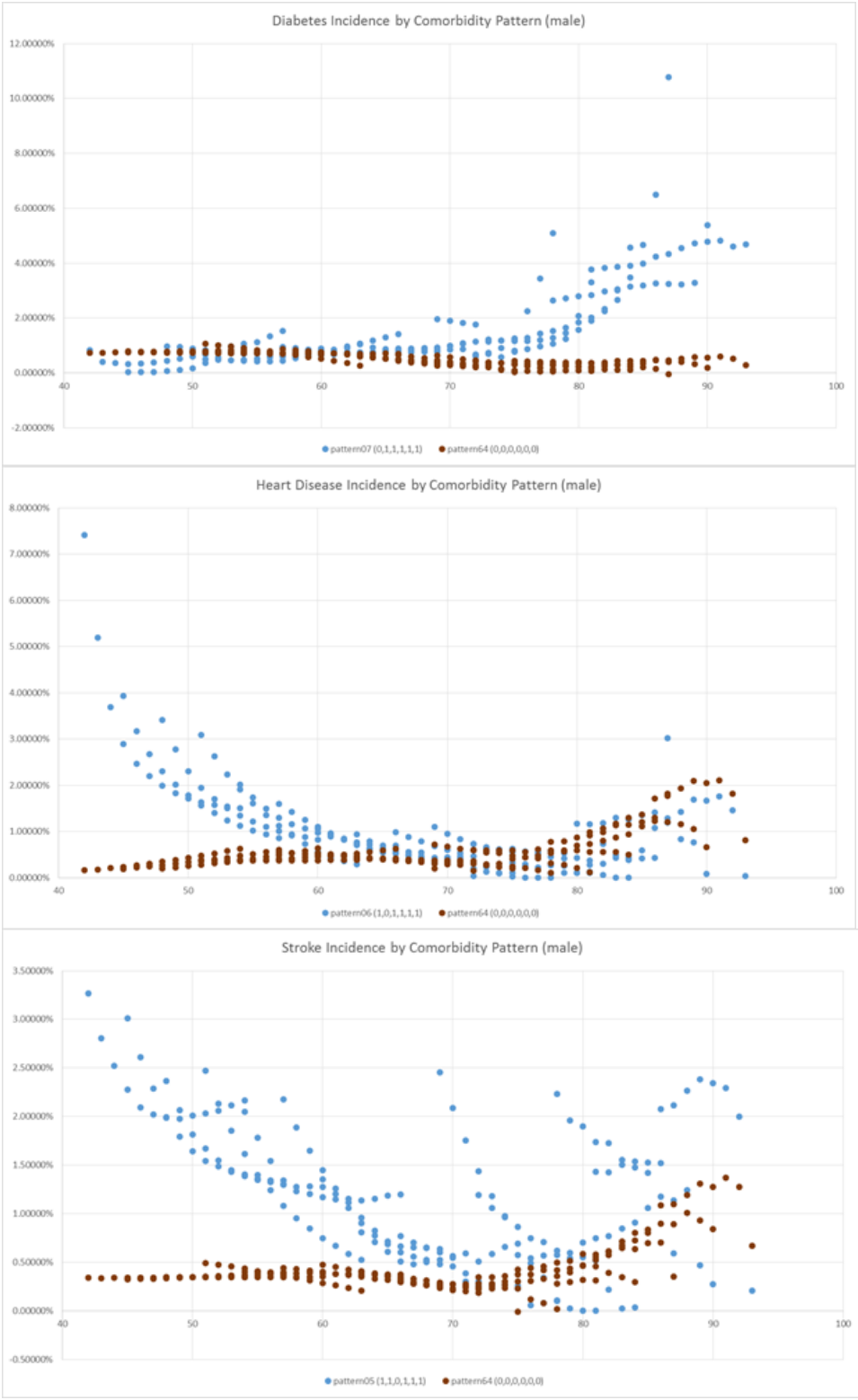

表 1: 生まれ世代別・男女別・死因別、学歴影響の推計（高卒未満を reference とした incidence rate ratio）

	1897–1990年生まれ				1971–1990年生まれ				1936–1970年生まれ				1897–1935年生まれ			
男性	高校・旧中	短大・高専	大学・大学	その他	高校・旧中	短大・高専	大学・大学	その他	高校・旧中	短大・高専	大学・大学	その他	高校・旧中	短大・高専	大学・大学	その他
total	0.943 ***	0.904 ***	0.856 ***	1.037 ***	0.921	0.834 ***	0.796 ***	0.943	0.884 ***	0.821 ***	0.775 ***	1.061 ***	0.972 ***	0.942 ***	0.927 ***	1.009
Cancer of buccal cavity, pharynx, and oesophagus	0.975	0.780 ***	0.934 *	1.035	14000000.0	3179301.0	7573661.0	6017823.0	0.956	0.676 ***	0.907 **	1.046	0.996	0.940	0.987	1.013
Cancer of stomach	0.986	0.915 **	0.911 ***	0.987	7227821.0	2086320.0	5181069.0	5072957.0	0.960	0.846 **	0.885 ***	0.989	0.999	0.971	0.931 *	0.976
Cancer of colorectum	0.970	0.881 **	0.916 ***	1.025	3.885	0.874	2.710	1.286	0.941 *	0.793 ***	0.884 ***	1.041	0.993	0.973	0.952	1.005
Cancer of liver	0.982	0.826 ***	0.903 ***	1.035	27600000.0	0.462	101000000	13000000.0	0.947	0.762 ***	0.862 ***	1.032	1.001	0.885	0.954	1.023
Cancer of pancreas	1.011	0.834 **	1.007	0.962	430670.20	134157.30	271697.80	85609.280	1.013	0.753 ***	1.003	0.974	1.002	0.927	1.011	0.951
Cancer larynx	0.886	0.126 ***	0.474 ***	0.744	NA	NA	NA	NA	0.935	0.000	0.477 **	0.716	0.861	0.197 **	0.482 **	0.779
Cancer of trachea, bronchus and lung	0.963 **	0.923 **	0.920 ***	1.002	3.350	0.895	2.076	2.349	0.939 ***	0.880 **	0.900 ***	1.018	0.981	0.958	0.940 **	0.984
Cancer of breast	0.622	0.000	0.307	0.704	NA	NA	NA	NA	0.764	0.000	0.413	0.000	0.538	0.000	0.248	0.890
Cancer of cervix	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cancer of prostate	1.009	0.859 *	0.981	1.020	67.057	0.000	38.944	0.000	0.985	0.496 ***	0.965	0.926	1.015	0.935	0.979	1.050
Cancer of kidney and bladder	1.007	0.778 ***	0.948	1.002	16000000.0	0.471	29700000.0	0.715	0.982	0.468 ***	0.923	0.989	1.013	0.922	0.954	1.003
Hodgkin's disease and leukemia	1.007	0.526 ***	0.911	0.882 *	3.482	0.811	3.243	1.876	1.045	0.400 ***	0.942	0.905	0.964	0.685 **	0.854	0.877
Diabetes mellitus	0.920 **	0.613 ***	0.726 ***	1.051	2.362	0.457	1.321	1.306	0.840 ***	0.438 ***	0.632 ***	1.056	0.978	0.777 **	0.845 **	1.020
Hypertensive disease	0.995	0.625 ***	0.671 ***	1.003	9.738	0.000	4.843	0.000	0.818	0.135 ***	0.482 ***	1.090	1.074	0.795	0.790 *	0.950
Ischemic heart disease	0.938 ***	0.871 ***	0.822 ***	1.066 ***	1.733	1.327	1.349	1.364	0.856 ***	0.724 ***	0.713 ***	1.106 ***	0.980	0.949	0.930 **	1.013
Cerebrovascular disease	0.921 ***	0.889 ***	0.812 ***	1.029	1.169	1.002	0.986	0.872	0.836 ***	0.777 ***	0.708 ***	1.031	0.958 ***	0.934 *	0.888 ***	1.015
Pneumonia / influenza	0.946 ***	0.867 ***	0.859 ***	1.046 ***	5.879 *	0.928	3.569	3.855	0.806 ***	0.605 ***	0.662 ***	1.065	0.971 **	0.912 ***	0.920 ***	1.033 *
Chronic Obstructive Pulmonary Disease	0.943 **	0.807 ***	0.843 ***	0.960	808.414	0.000	666.019	926.789	0.924	0.380 ***	0.724 ***	0.950	0.944 *	0.864 **	0.876 ***	0.960
Appendicitis, hernia and peptic ulcer	0.933	0.674 ***	0.687 ***	1.013	0.850	0.000	0.000	0.000	0.855 *	0.300 ***	0.522 ***	0.999	0.957	0.836	0.828 **	1.005
Other liver and gall bladder diseases	0.885 ***	0.509 ***	0.676 ***	0.989	1.078	0.302	0.360	0.709	0.837 ***	0.505 ***	0.637 ***	1.028	0.958	0.525 ***	0.795 **	0.913
Alcohol abuse	0.882 **	0.440 ***	0.660 ***	1.038	3.834	1.318	2.956	2.671	0.847 ***	0.449 ***	0.651 ***	1.076	1.012	0.387 **	0.635 **	0.839
Road traffic accidents *	0.899 *	0.408 ***	0.671 ***	0.766 ***	2.106 **	1.413	1.624	1.550	0.927	0.327 ***	0.700 ***	0.849	0.848 *	0.144 ***	0.525 ***	0.677 ***
Accidental falls	0.934	0.522 ***	0.726 ***	0.870 *	16500000.0	3784483.0	9648175.0	5309337.0	0.950	0.062 ***	0.693 ***	0.872	0.885 *	0.775 *	0.742 ***	0.871
Suicide	0.861 ***	0.753 ***	0.739 ***	0.958	1.024	0.931	0.916	1.032	0.847 ***	0.734 ***	0.709 ***	1.012	0.861 *	0.453 ***	0.730 **	0.767 **
	1897–1990年生まれ				1971–1990年生まれ				1936–1970年生まれ				1897–1935年生まれ			
女性	高校・旧中	短大・高専	大学・大学	その他	高校・旧中	短大・高専	大学・大学	その他	高校・旧中	短大・高専	大学・大学	その他	高校・旧中	短大・高専	大学・大学	その他
total	0.958 ***	0.924 ***	0.918 ***	1.001	1.009	0.939	0.954	1.022	0.933 ***	0.899 ***	0.888 ***	1.024	0.964 ***	0.938 ***	0.938 ***	0.997
Cancer of buccal cavity, pharynx, and oesophagus	1.044	0.720 ***	0.514 ***	0.969	1488613.0	554655.90	0.000	0.000	1.039	0.773	0.538 ***	0.957	1.061	0.622 **	0.473 *	0.984
Cancer of stomach	0.981	0.922	0.737 ***	0.954	5620295.0	4701952.0	4196091.0	3132166.0	0.988	0.920	0.767 ***	0.927	0.979	0.921	0.654 ***	0.970
Cancer of colorectum	0.995	0.941	0.828 ***	1.012	5389310.0	3746843.0	3167032.0	2530209.0	1.003	0.973	0.831 **	1.023	0.997	0.898	0.832	1.015
Cancer of liver	1.006	0.824 ***	0.725 ***	1.004	8327.901	0.000	3010.196	0.000	0.970	0.806 **	0.647 ***	0.972	1.020	0.837 *	0.815	1.016
Cancer of pancreas	0.987	0.888 **	0.730 ***	0.957	76.384	48.836	0.000	0.000	1.008	0.920	0.799 **	0.993	0.982	0.860	0.619 ***	0.945
Cancer larynx	0.978	0.000	0.000	0.867	NA	NA	NA	NA	2.771	0.000	0.000	0.000	0.755	0.000	0.000	0.968
Cancer of trachea, bronchus and lung	0.982	0.923 *	0.779 ***	1.017	6985798.0	6256344.0	4575344.0	1492733.0	0.970	0.932	0.781 ***	0.994	0.988	0.890	0.751 **	1.028
Cancer of breast	1.024	0.987	0.903	1.030	NA	NA	NA	NA	1.005	1.003	0.921	1.029	1.026	0.784 *	0.754	1.031
Cancer of cervix	0.987	0.774 **	0.534 ***	0.820 *	6048079.0	5035371.0	3712118.0	2463135.0	1.107	0.867	0.562 ***	0.911	0.865	0.439 **	0.310	0.831
Cancer of prostate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cancer of kidney and bladder	1.028	0.658 ***	0.437 ***	0.922	NA	NA	NA	NA	1.075	0.667 **	0.452 ***	0.799	1.012	0.655 **	0.409 ***	0.965
Hodgkin's disease and leukemia	0.988	0.615 ***	0.464 ***	0.767 ***	986932.20	619319.10	661648.60	438749.50	1.027	0.681 **	0.434 ***	0.705 **	0.952	0.484 ***	0.397 **	0.817 *
Diabetes mellitus	0.929 *	0.574 ***	0.516 ***	0.953	506.736	202.749	143.714	154.574	0.923	0.483 ***	0.501 ***	0.909	0.928 *	0.638 ***	0.521 ***	0.964
Hypertensive disease	0.968	0.547 ***	0.373 ***	0.967	17.305	0.000	0.000	0.000	0.927	0.080 **	0.156 *	0.920	0.968	0.633 ***	0.422 ***	0.970
Ischemic heart disease	0.958 **	0.916 **	0.784 ***	0.987	2489124.0	1385473.0	1844771.0	1058984.0	0.900 **	0.837 **	0.630 ***	0.980	0.968 *	0.945	0.875 *	0.987
Cerebrovascular disease	0.944 ***	0.915 ***	0.803 ***	0.988	4.558	3.924	1.979	1.971	0.918 **	0.887 **	0.733 ***	0.963	0.947 ***	0.915 **	0.859 **	0.992
Pneumonia / influenza	0.959 ***	0.883 ***	0.793 ***	1.013	4188534.0	2477154.0	1860473.0	1879614.0	0.910 *	0.747 ***	0.501 ***	0.986	0.960 ***	0.904 ***	0.870 **	1.014
Chronic Obstructive Pulmonary Disease	0.978	0.573 ***	0.331 ***	0.935	3.572	2.847	0.000	0.000	1.008	0.415 **	0.404 *	0.838	0.972	0.608 ***	0.307 ***	0.945
Appendicitis, hernia and peptic ulcer	0.955	0.521 ***	0.299 ***	0.964	20.876	0.000	0.000	0.000	0.879	0.401 ***	0.260 ***	0.665 *	0.958	0.558 ***	0.306 ***	0.995
Other liver and gall bladder diseases	0.941	0.690 ***	0.528 ***	0.915	553.556	401.193	320.002	171.093	0.965	0.705 **	0.544 ***	0.877	0.935	0.672 **	0.483 **	0.943
Alcohol abuse	0.881	0.461 ***	0.325 ***	0.618 ***	4151521.0	3339521.0	1388196.0	1746100.0	1.097	0.569 **	0.431 **	0.741	0.811	0.242 **	0.000	0.607 **
Road traffic accidents *	0.879 *	0.405 ***	0.354 ***	0.678 ***	5583939.0	4481293.0	6465755.0	1871579.0	0.958	0.471 ***	0.077 ***	0.743	0.857	0.059 ***	0.000	0.697 **
Accidental falls	0.981	0.500 ***	0.462 ***	0.861 *	887315.00	330429.20	1445867.0	478596.30	1.099	0.171 ***	0.000	0.592	0.948	0.647 **	0.444 **	0.879
Suicide	0.904 **	0.855 ***	0.795 ***	0.887 *	2.266 ***	2.181 ***	2.176 ***	2.265 ***	0.909	0.872 *	0.729 ***	0.930	0.897	0.461 ***	0.344 **	0.724 **

表 2: 地域社会経済指標の要約統計(2010) 地点数 98946

	Mean	Standard deviation	Min	Max
等価居住面積（平米メートル）	74.5627	18.27284	10	250
大卒割合	0.1593847	0.168051	0	1
専門職割合	0.0845612	.0873692	0	1
地点あたり人口数	1259.543	2365.628	1	59780