II 章
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平成２６年度分担研究報告書

Context and future challenges in Japan's health system

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研究要旨

Japan has experienced remarkable improvements in health over the past 50 years, which occurred in the context of the introduction of a universal health coverage system based on affordability, equity and high coverage. However, in the past 30 years, as Japan passes through the epidemiological transition, new challenges have arisen that require changes to the organization, governance and perspective of the health system. At the same time, Japan has undergone major demographic changes leading to an aging society with growing elderly population, and economic stagnation have restricted the fiscal space available for UHC as well as created new economic strains. This report describes the challenges Japan's health system faces in the context of these changes, and outlines some of the future policy reform problems that the Japanese government will face.

A. 研究目的

Japan is the world's third largest economy, with a correspondingly high standard of living, levels of development, safety, and stability. Japan is a constitutional monarchy with a parliamentary system of government and is split into 47 prefectures spanning four main islands with many small archipelagoes. Tokyo, the capital, is one of the largest cities in the world and the country as a whole is highly urbanized. Japan's population of 126 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.

Healthcare in Japan is centered around the National Health Insurance system which since its founding in 1958 has provided comprehensive coverage to all Japanese citizens. Thanks to its overall effectiveness and advances in technology, Japan has for many years enjoyed increases in life expectancy along with decreases in maternal and infant mortality. However, in recent decades incidence of lifestyle -elated diseases such as obesity and diabetes has increased significantly. This rise, along with population ageing, is placing strain upon 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.

Understanding the economic and sociodemographic context for health in Japan is important to understand the policy challenges Japan faces and reforms that will be needed to maintain and improve its universal health coverage system. 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, the cabinet office and 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 – 2012. 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 2010. Finally, health behavior and risk factor prevalence data were obtained from published sources, and trends in risk factors analyzed for the Japanese population.

C. 研究成績及び考察

C-1 Sociodemography

Because of the sharp decline in Japan's birth rate, the shape of the population pyramid is no longer like an original pyramid (Figure 1). The two bulges of the pyramid represent two baby booms, with the first one occurring shortly after the Second World War (1947-1950) and the second one in the early 1970's. Japan has a large ageing population and will face an unprecedented ageing society when the first baby boomers (now over 55 years old) retire.

As shown in Table 1, the population in Japan has increased steadily from 117 million in 1980 to 128 million in 2010, followed by a declining trend 2013 (127 million). The proportion of the population aged 65 years and over was almost double the proportion of 0-14 years olds in 2013. The proportion of the population aged 65 years and older increased from 9% in 1980 to 25% in 2013, while the proportion of the population aged 0-14 years fell from 23.5% to 12.9%. The total fertility rate was below the replacement level (2.0 children per women) for all years from 1980 to 2013. Thus, the annual population growth rate has decreased steadily and became negative in 2013. The crude birth rate shows a decreasing trend over time (from 13.6 per 1000 population in 1980 to 8.2 in 2013), while there has been a consistent increase in life expectancy. Among the OECD countries, Japan had the lowest fertility rate along with highest mean maternal age at first birth (Sleebos 2003).

There are several reasons for the population decline in high-income countries like Japan: delayed marriage, an increasingly large unmarried population, changes in the housing environment and social customs, increasing numbers of women in the workforce, maternity and childcare leave, and rising costs of childbirth and

child-raising (Jones 2007; Morgan and Taylor 2006; Sleebos 2003). The age-dependency ratio, the number of people who are too young or too old to be in the labour force divided by the working-age population, increased from 48.4 in 1980 to 61.1 in 2013. Urbanization is also taking place quite rapidly. In 1980, 23.8% of the population was rural but by 2013 this had declined to 7.5%.

C-2 Economic context

Japan is the world's third largest economy by gross domestic product (GDP) and is a member of the G8. 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 industry was 71.3% of GDP in 2010, representing a 4.0% rise from 2000 levels. However, the value added by industry fell by 3.6% to 27.5% of GDP in the same period, as did agriculture by 0.4% to 1.2% of GDP.

Historically Japan has had low levels of unemployment. However, since the 1990s the percentage of the labour force out of work has grown from 2.0% in 1990 to 5.0% by 2010 due to changing patterns of employment. This has been accompanied by a gradual shrinking of the total labor force population between 2000 and 2013 by 3.0%. The proportion of part-time and contingent workers has continued to grow in recent years and has increasingly been seen as a labour problem with serious social implications.

Gini coefficients quantifying income inequality declined (meaning income was distributed more equally) continuously from 1962 to 1981. In the 1980s and 1990s Japan's Gini coefficient increased (showing higher income disparity) before reaching a peak in the 2000s. By 2010 the coefficient was 0.377, a slight decrease from the 2000 level of 0.379. Worries about the impact of increasing inequality on access and quality of healthcare are common.

C-3 Health status

Table 3 presents trends in life expectancy at birth and death rates from 1980 to 2012. Life expectancy has

increased rapidly over the past 50 years in Japan. The life expectancy at birth increased between 1980 and 2008 by 6.59 years for men and 7.65 years for women, reaching 79.9 years and 86.4 years, respectively. Healthy life expectancy, the expected years of life in self-perceived good health, was 72 years for men and 77 years for women in 2012. 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 population ageing.

There have been rapid gains 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 86.4 years in 2012 and Japan also has the world's longest life expectancy. This relatively long life expectancy position compared to other OECD countries has been sustained over time. Among the other OECD countries, France has the second position followed by Italy and Korea. On the other hand, the lowest life expectancy among OECD countries was observed in Mexico, at 77 years. Maintaining healthy lifestyles, regular medical checkups, proper medical and long-term care, and healthy diets may contribute to long healthy life expectancy in Japan.(Horiuchi 2011; Ikeda et al. 2011)

C-4 Burden of diseases

Like many high-income countries, non-communicable diseases (NCDs) are now the leading causes of morbidity and mortality in Japan while the communicable diseases burden decreased substantially in the past five decades. The major diseases of cause death, disability, and burden during 1980 to 2010 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 2010 compared to

communicable diseases.(Ikeda et al. 2011) Circulatory diseases, cancer, cerebrovascular and ischaemic heart diseases and chronic respiratory diseases have remained the leading killers during the past five decades in Japan. This trend has been increasing since 1980. However, transport accident-related death rates decreased almost 50% in the past five decades (11.4 deaths in 1980 and 5.1 deaths in 2012) and suicide deaths rates decreased slightly since 2000 (24.1 deaths in 2000, 23.4 in 2010 and 21.0 in 2012). Similar to Europe and other Western countries, breast cancer deaths tripled since 1980, making it becoming the second leading cause of death among cancer patients. Infectious disease death rates, particularly tuberculosis, decreased sharply over this period.

Disability-adjusted life years (DALYs) are a health metric used for assessing the disease burden, which is defined as years of healthy life lost to both fatal and non-fatal disease (Murray et al. 2012). 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 categories. 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 infectious diseases deaths. Conversely, overall an increase in DALY burden across many conditions is primarily associated with an increasing disability.

In 2010, NCDs contributed 26 million (or 83%) of total DALYs, while communicable including maternal, neonatal and nutritional disorders contributed two million (7%) and injuries three million DALYs (10%). A slight increasing trend of DALYs was observed for all categories of diseases over the past 20 years. Population ageing, high prevalence of hypertension, increasing risk from NCDs, and lower levels of physical activity may be responsible for this increase in DALYs in Japan (Tanaka 2012).

Another measure of disease burden is years of life lost (YLLs), which are 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.(Murray et al. 2012) Figure 2 presents the change in the top 15 leading causes of YLLs due to premature death from 1990 (left panel graph) and 2010 (right panel graph) in Japan. The top five leading causes of YLLs in Japan are dietary risks, high blood pressure, tobacco smoking, ambient particulate matter pollution, and alcohol consumption from 1990 to 2010. 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-5 Risk factors

Diabetes and hypertension are two major chronic diseases in Japan and have become a major public health concern among all OECD countries. The age-standardized prevalence of diabetes was 9.7% for men and 6.1% for women in 2010. Between 1980 and 2010, the prevalence of diabetes increased nearly three-fold in men and twice in women. Japan is among the top 10 countries for the largest number of adults living with diabetes in the world (International Diabetes Federation 2015). The reason for this striking increase in diabetes among Japanese is not clear (Ministry of Health 2007), but low dietary fiber intake and high glycemic index could associated with this increase, in view of the preference of Japanese people for highly refined rice and bread as their main staples (Sasaki 1964).

Hypertension 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 prevalences of hypertension in the OECD, at 57.6% for men and 42.2% for women in 2010. Lowering sodium intake is strongly recommended and salt intake has been identified as a strong risk factor for hypertension in Japan (Miura et al. 2013a). Public health programmes established to promote salt reduction and primary

care management of high blood pressure with antihypertensives have been credited with large reductions in hypertension in Japan.

Age and sex-specific prevalence of diabetes and hypertension are shown in Figures 3 and Figure 4, respectively and show Japan's achievements in hypertension control. 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 whom a sharp increasing trend in diabetes prevalence can be seen. Age-specific prevalence of hypertension appeared to remain unchanged or showed a decreasing trend over time. However, further monitoring is needed of men aged 50 years or older, because of increasing prevalence of hypertension between 2000 and 2010 amongst some older age groups.

According to the recent report of the International Diabetes Federation (IDF) (International Diabetes Federation 2015) Japan is among the top ten countries with the largest number of adults with diabetes. Figure 1.6 shows prevalence of diabetes among OECD countries. Among OECD countries, Japan ranked 6th position with a prevalence of 7.6%. The highest prevalence of diabetes, 9.6%, was in Portugal and lowest prevalence, 3.9%, was in Lithuania.

In 2013 the prevalence of obesity with a body mass index of 30 kg/m^2 or greater was only 4.5 % for men and 3.3% for women. While the prevalence of obesity was constant among women over time, it increased between 1980 and 2013 from 1.5% to 4.5% in men. Prevalence of overweight or obesity with a body mass index of 25 kg/m^2 or greater is much higher in men than women. In 2013, the prevalence of overweight or obesity was 28.9% for men and 17.6% for women. While the proportion of overweight or obese women was constant, it increased rapidly in men from 18.0 % to 28.9 % between 1980 and 2013. Although, prevalence of obesity is still much below that other developed countries,(Ng et al. 2014) an increasing trend has been observed in both men and women since 1990.

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 early 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 (Joossens and Raw 2006; Schumann et al. 2006).

The prevalence of smoking dropped almost 50% in Japan since 1980. Around 21% of adults in Japan now smoke daily, down from over 42% in 1980. Japanese men smoke more than four times as much daily compared to women. Effective policies for tobacco control are needed in Japan in the light of tobacco control ordinances consistent with the Framework Convention on Tobacco Control (Shibuya et al. 2003).

There were approximately 1,000,000 births in Japan in 2010. Of these 9.6% were 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 2013 with 2.1 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 2013.

Table 10 summarizes maternal, child and adolescent health indicators in Japan. Adolescent fertility rates have risen slowly over recent decades and have increased from four births per 1000 women to 5.4 per 1000, which is 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 2013, 95% of children aged 12 to 23 months were immunized.

D 結論

In the past five decades, Japan has

achieved many noticeable successes including the full implementation of sustainable universal health coverage, gaining the highest healthy life expectancy in the world and the eradication or control of common infectious diseases. In addition, tobacco and alcohol consumption and transport accident deaths decreased substantially in the past 50 years. Because of 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 people who do not smoke, abstain from or are moderate alcohol drinkers, are physically active, eat a healthy diet, and who are not overweight or obese are less likely to die or encounter disability in early life compared to those who have unhealthy habits. Therefore, further attention to implementing effective policies on the health agenda is needed 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 universal health coverage system and reorient its health system towards managing the health problems that have arisen from its demographic transition.

E. 健康危険情報

なし

F. 研究発表

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G. 知的所有権の取得状況の出願・登録状況

1.特許取得

なし

2.実用新案登録

なし

3.その他

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表 1 Trends in population/demographic indicators, selected years

Indicators	**1980**	**1990**	**2000**	**2010**	**2013**
Population (in thousands) [a]	117060	123611	126926	128057	127298
Female (% of total) [a]	50.8	50.9	51.1	51.3	51.4
Population (% of total) [a,b]					
0–14 years	23.5	18.2	14.6	13.2	12.9
65 years and older	9.1	12.1	17.4	23.0	25.1
80 years and older	0.5	0.9	1.7	3.0	3.6
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	25.5	25.9	27.0	28.8	29.3
Total fertility rate (per woman)[a]	1.75	1.54	1.36	1.39	1.43
Crude birth rate (per 1000 population)[a]	13.6	10.0	9.5	8.5	8.2
Crude death rate (per 1000 population)[a]	6.2	6.7	7.7	9.5	10.1
Age dependency ratio[*]	48.4	43.5	46.9	56.8	61.1
Rural population (%) [b]	23.8	22.7	21.3	9.5	7.5

Sources: [a]MHLW(Ministry of Health 2015b), [b]World Bank(The World Bank)

[*]Age-dependency ratio is the ratio of population (0-14 and 65+)/15-64

表 2 Macroeconomic indicators, selected years

Total population	1980	1990	2000	2010	2013
GDP (¥B)[a]	246465	449392	509860	482384	480128
GDP (2005, US$)[a]	2448	3851	4308	4648	4785
GDP per capita (¥)[a]	2110467	3637713	4018759	3784878	3770482
GDP per capita, PPP (US$)[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	-
Value added in agriculture (% of GDP)[a]	3.1	2.1	1.6	1.2	-
Value added in services (% of GDP)[a]	57.9	59.8	67.3	71.3	-
Labour force (total)[a]	-	63776260	67589249	66420609	65545688
Unemployment, total (% of labour force)[a]	2.0	2.1	4.8	5.0	-
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	-

Source: [a]World Bank,(The World Bank) [b]WHO,(World Health Organization (WHO) 2015) [c]OECD(OECD 2014)

Note: [*]The Gini coefficient is a measure of income inequality, higher figures indicate greater inequality among the population (estimated based on gross income).

¥, yen; ¥B, billion ¥; ppp, purchasing per capita

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

Indicators	**1980**	**1990**	**2000**	**2010**	**2012**
Life expectancy at birth[a]					
Male	73.3	75.9	77.7	79.5	79.9
Female	78.8	81.9	84.6	86.3	86.4
Healthy life expectancy at birth[b,c]					
Male	-	66.6	71.0	68.8	72.0
Female	-	70.0	76.0	71.7	77.0
Total death rate[a]					
Male	6.8	7.4	8.6	10.3	10.7
Female	5.6	6.0	6.8	8.7	9.3
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,(Ministry of Health 2015a) [b]Salomon *et al.* 2012,(Salomon et al. 2012) [c]WHO(World Health Organization (WHO) 2014). Note: Both death rates presented as per 1000 population

表４　Life expectancy (years), selected OECD countries, selected years

Life expectancy (years)	**Year**				
	1980	**1990**	**2000**	**2010**	**2012**
Selected OECD countries					
Canada	75.3	77.6	81.7	83.4	-
Finland	73.6	75	81.2	83.5	83.7
France	74.3	76.9	83	85.3	85.4
Germany	72.9	75.3	81.2	83.0	83.3
Greece	74.5	77.1	80.9	83.3	83.4
Italy	74.0	77.1	82.8	84.7	84.8
Japan	**76.1**	**78.9**	**84.6**	**86.3**	**86.4**
Korea	65.9	71.4	79.6	84.1	84.6
Mexico	-	-	76.1	77.0	77.3
United Kingdom	73.2	75.7	80.3	82.6	82.8
United States	73.7	75.3	79.3	81.0	-

Source: OECD(OECD 2014)

表 5 Main causes of death, selected years

Causes of death (ICD-10 classification)	**Number (rate per 100 000 population)**				
	1980	**1990**	**2000**	**2010**	**2012**
Communicable diseases	-	85902 (69.9)	120085 (95.7)	161162 (128.1)	
Tuberculosis	6439 (5.5)	3664 (3.0)	2656 (2.1)	2129 (1.7)	2714 (2.2)
HIV/AIDS	-	367 (0.3)	167 (0.1)	170 (0.1)	-
Non-communicable diseases	-	674492 (549.2)	811944 (647.1)	1024850 (814.5)	-
Circulatory diseases	308462 (265.2)	303061 (246.9)	298338 (237.5)	341882 (270.5)	350912 (278.6)
Malignant neoplasms	161764 (139.1)	217413 (177.2)	295484 (235.2)	353499 (279.7)	360963 (286.6)
Colon cancer	7932 (6.8)	15509 (12.6)	23637 (18.8)	30040 (23.8)	32177 (25.5)
Cancer of larynx, trachea, bronchus and lung	21294 (18.3)	36486 (29.7)	54770 (43.6)	70815 (56.0)	72471 (57.6)
Breast cancer	4141 (7.0)	5848 (9.4)	9171 (14.3)	12455 (19.2)	12529 (19.4)
Cervical cancer	1745 (3.0)	1875 (3.0)	2393 (3.7)	2664 (4.1)	2712 (4.2)
Diabetes	8504 (7.3)	9470 (7.7)	12303 (9.8)	14422 (11.4)	14486 (11.5)
Mental and behavioural disorders	3017 (2.6)	3068 (2.5)	3920 (3.1)	8049 (6.4)	10768 (8.5)
Ischaemic heart diseases	48347 (41.6)	48804 (41.9)	70183 (55.8)	77217 (61.1)	77579 (61.6)
Cerebrovascular diseases	162317 (139.5)	121944 (99.4)	132529 (105.5)	123461 (97.7)	121602 (96.5)
Chronic respiratory diseases	48466 (41.6)	84910 (69.3)	134501 (107.1)	187609 (148.4)	201798 (160.2)
Digestive diseases	29606 (25.5)	27264 (22.3)	38268 (30.5)	45503 (36.0)	47255 (37.5)
Transport accidents	13302 (11.4)	15828 (12.9)	12857 (10.2)	7222 (5.7)	6414 (5.1)
Suicide	20542 (17.7)	20088 (16.4)	30251 (24.1)	29554 (23.4)	26433 (21.0)

Sources: MHLW(Ministry of Health 2015a) and GBD database

表 6 Disability adjusted life years (DALYs) by major diseases categories during 1990 to 2010

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
2010	31231200	24821.3	100
Non-communicable diseases			
1990	22867400	18620.2	82.2
2000	24732800	19710.1	82.5
2010	26071600	20720.8	83.5
Communicable, maternal, neonatal, and nutritional disorders			
1990	2006120	1633.5	7.2
2000	2110450	1681.9	7.0
2010	2143830	1703.8	6.9
Injuries			
1990	2939220	2393.3	10.6
2000	3144150	2505.6	10.5
2010	3015670	2396.7	9.7

Sources: GBD database

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

Health conditions	**Percentage**			
	1980	**1990**	**2000**	**2010**
Standardized diabetes (ages ≥ 20 years)				
Male	3.8	9.3	9.5	9.7
Female	3.3	6.6	6.3	6.1
Both sexes	-	7.9	7.8	7.9
Hypertension (ages ≥ 35-84 years)				
Male	50.1	51.7	41.4	57.6
Female	43.3	46.8	31.9	42.2
Age-standardized (both sexes)	48.2	45.5	39.7	48.5

Sources: Diabetes: Danaei *et al.* 2011(Danaei et al. 2011), Charvat *et al.* 2015(Charvat et al. 2015) and hypertension: Ikeda *et al.* 2014, Kearney *et al.* 2004, Miura *et al.* 2013,(Miura et al. 2013b) Martiniuk *et al*. 2007(Martiniuk et al. 2007) Note: Author's estimated prevalence of hypertension for 1990 using meta-analysis from Miura et al. 2013(Miura et al. 2013b) data

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

High body mass index	Percentage				
	1980	1990	2000	2010	2013
Overweight or obesity					
Male	18.0	21.5	26.1	29.3	28.9
Female	19.4	18.5	18.0	20.7	17.6
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(Ng et al. 2014)**.** Note: Cut-off point for overweight or obesity≥25 kg/m^2 and obesity≥30 kg/m^2.

表９　Proportion of Japanese adults who are daily smokers, 1980-2010

Risk factors	Percentage			
	1980	1990	2000	2010
Smoking (ages ≥ 15 who are daily smokers)				
Male	70.2	53.1	47.4	32.2
Female	14.3	9.7	11.5	8.4
Both sexes	42.3	28.5	27.0	21.5

Sources: OECD(OECD/WHO and DOI: 2014)

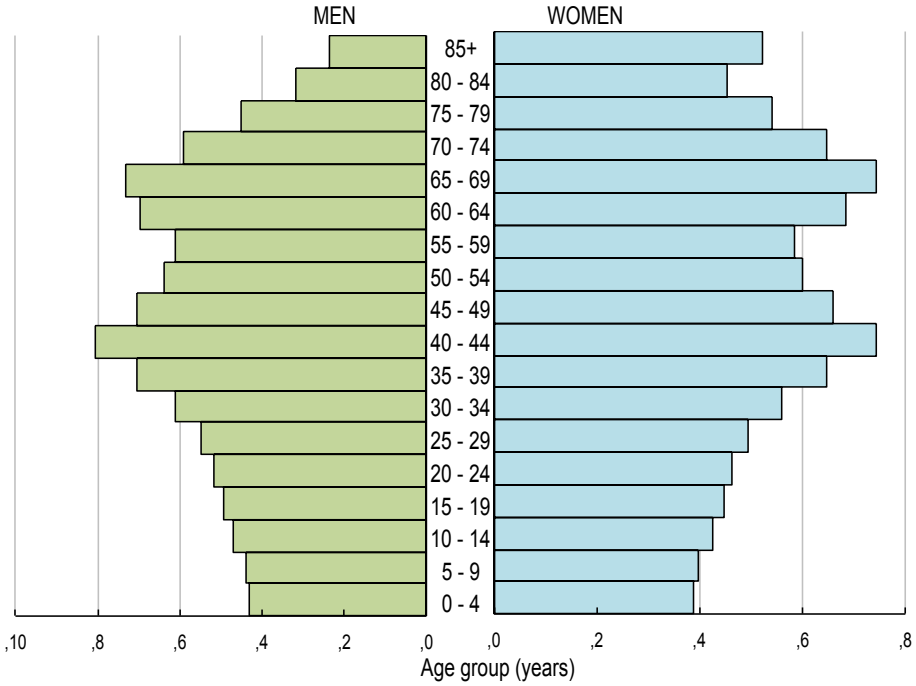
表１０ Maternal, child and adolescent health indicators, selected years

Selected health indicator	1980	1990	2000	2010	2012	2013
Adolescent fertility rate	4.0	4.0	5.2	5.3	5.4	-
Perinatal mortality[b]	11.7	5.7	3.8	2.9	2.7	-
Neonatal mortality rate[b]	-	2.5	1.7	1.2	1.1	1.0
Infant mortality rate[c]	7.5	4.6	3.2	2.3	2.2	2.1
Under-five mortality rate[b]	9.9	6.3	4.5	3.2	3.0	2.9
Maternal mortality ratio[bd]	-	14.2	10.0	6.0	-	6.1
Measles immunization[b]	69.0	73.0	96.0	94.0	96.0	95.0
Low-birth weight babies (% of live births)	5.2	6.3	8.6	9.6	-	-

Sources: [b]World Bank; [b,c]MHLW(Ministry of Health 2015a, b); [d]Kassebaum *et al.* 2014; [e]OECD(OECD/WHO and DOI: 2014)

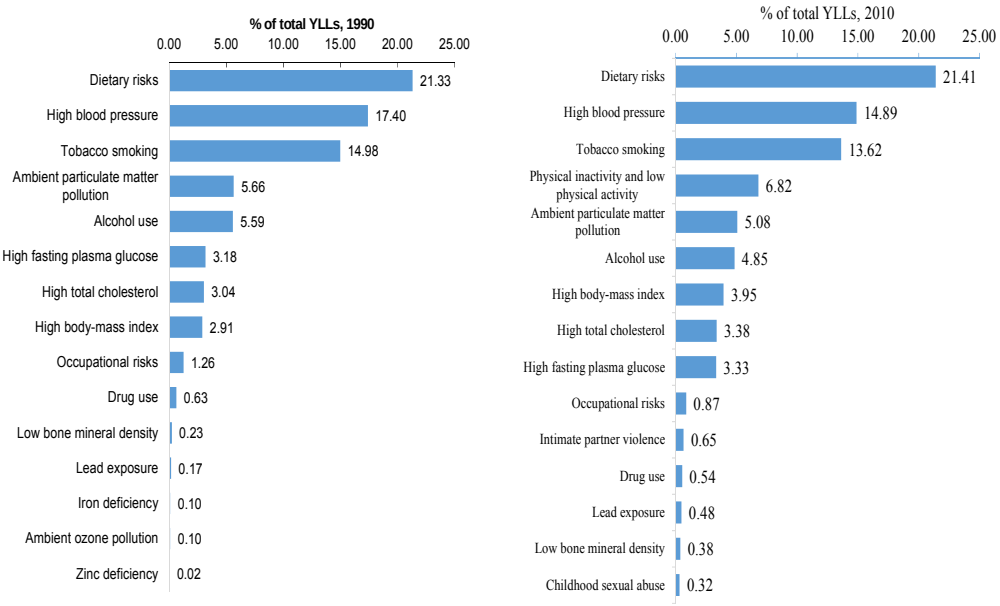
Note: Adolescent fertility rate birth per 1000 women ages 15-19; mortality represents per 1000 live births; measles immunization for % of children ages 12-23 months

図 1 Population pyramid in Japan



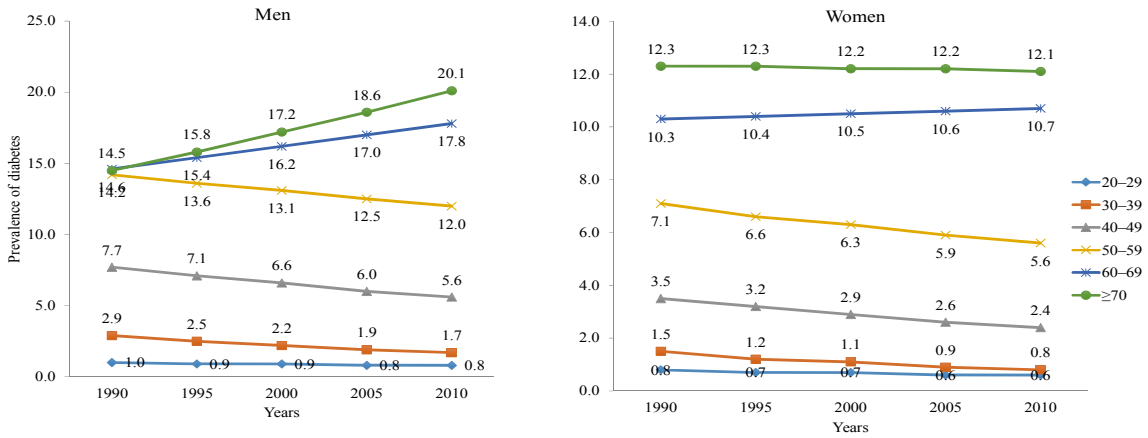
Sources: Ministry of Health, Labour and Welfare(MHLW) (Ministry of Health 2015b)

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



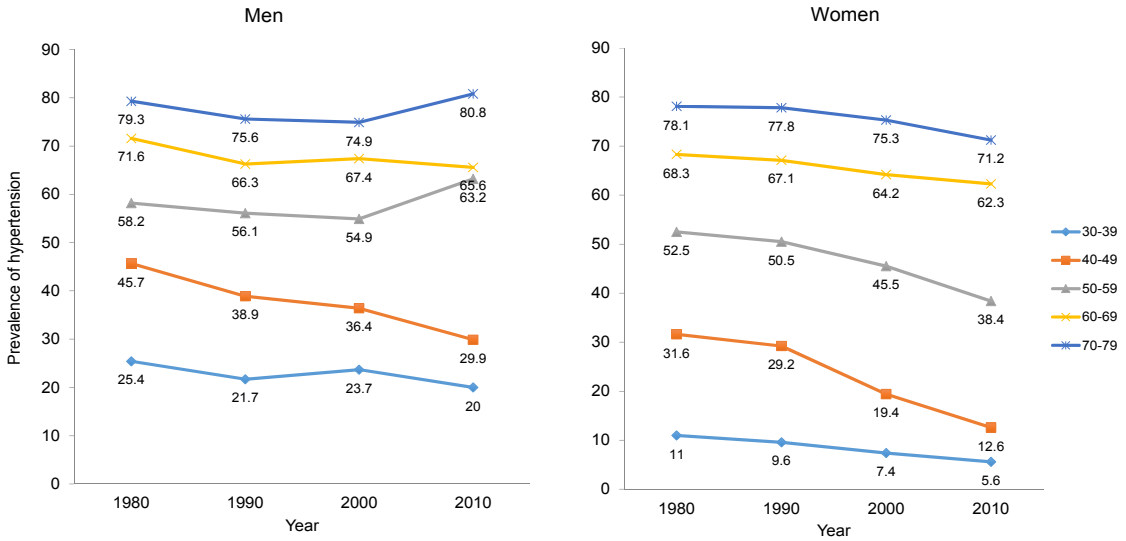
Sources: GBD database

図 3　Age and sex-specific prevalence of diabetes in Japan during 1990-2010



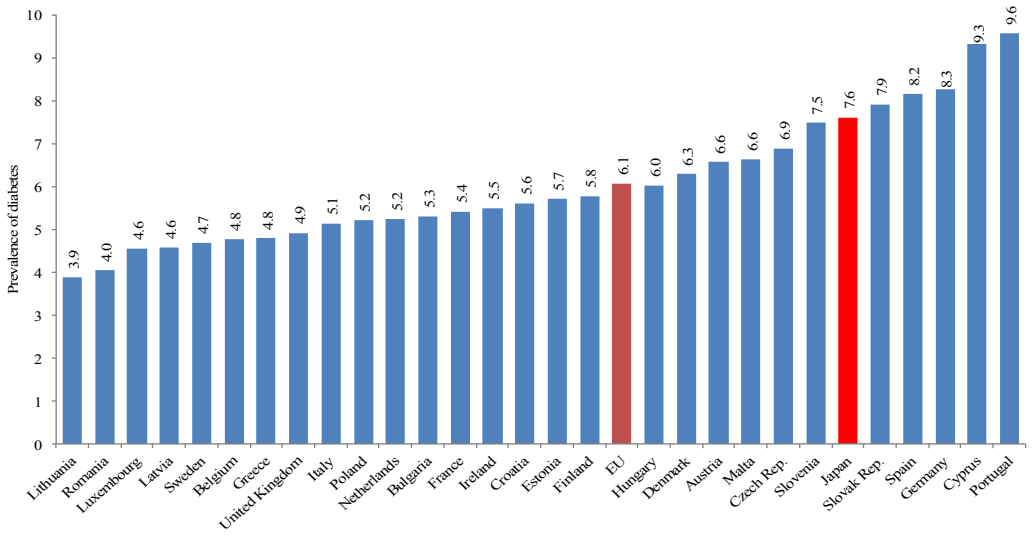
Sources: Charvat *et al.* 2015(Charvat et al. 2015)

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



Sources: Miura *et al.* 2013(Miura et al. 2013b)

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



Sources: OECD 2014(OECD/WHO and DOI: 2014); IDF 2014; Note: Used diabetes prevalence for Japan in 2014

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Japan health system financing: a systematic assessment

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研究要旨
Health financing is a core component of health system function and can have significant effects on health care utilization decisions. Understanding the effect of health financing and the different kinds of financing system available during the implementation of health system reforms is essential to effective and sustainable UHC. Total expenditure on health accounted for 10% of GDP in Japan in 2013, one percentage point above the OECD average of 9%. The health insurance coverage rate was nearly 100% in Japan, and the share of household consumption spent on OOP payments was only 2%, which is less than the OECD average (3%). Reforms to the financing system and greater efficiencies will be necessary to maintain a low-cost, equitable health system in the future.

A. 研究目的

Health financing is a core component of health system function and can have significant effects on health care utilization decisions. As national health systems move to universal health coverage (UHC), decisions about financing mechanisms can exert considerable influence on the structure of the overall health system and its ability to ensure UHC goals such as equity, access, coverage and quality. Understanding the effect of health financing and the different kinds of financing system available during the implementation of health system reforms is essential to effective and sustainable UHC. This report describes Japan's health financing system, how it has changed over time, and the future challenges it faces.

B. 研究方法

We used published national and international data sources to assess health financing in Japan. The available literature includes published papers, health financing-related reports and databases published by the Ministry of Health, Labour and Welfare (MHLW). International data sources mainly include World Health Organization (WHO) and OECD libraries. Using this data we conducted a short analysis of health expenditure patterns since 1995 and then presented sources of health care expenditure. We also describe how decisions are made on the allocation of resources between types of health care, the relationship between purchasing and purchaser and payment mechanisms.

C. 研究成績及び考察

C-1 Sources of financing

The Japanese health care system is primarily funded through taxes (Figure 1). Both the central government and municipalities levy proportional income taxes on their respective population. The key sources of financing are an insurance premium (20.2% business operators and 28.4% insured persons), followed by public funds (26% state subsidies and 12.4% local subsidies), co-payments (12%) and others (0.7%). The national subsidy rate for the Japan Health Insurance Association was 16.4% from July 2010 to fiscal year

2014.(Ministry of Health 2014) National medical expenditure was distributed as follows: 37% on inpatient care, 35% outpatient, 7% dental, 17% pharmacy dispensing, 2% hospital meals and living expenses, and 1.5% medical care expenses and others.(Ministry of Health 2013, 2014)

Health care expenditure in Japan was almost stable over the last two decades. Table 1 presents the trend of health care expenditure in Japan.

Total expenditure on health as a proportion of GDP slightly increased from 8% in 2005 to 10% in 2013. However, health spending was stable from 1995 to 2005 and 2010 to 2013. In 2013, around 82% of expenditure was from public services and 18% from private services. A similar proportion was observed in the United Kingdom.(Boyle) Public and private expenditure on health as a proportion of total health expenditure have been almost stable since 1995. Government expenditure on health as a proportion of total expenditure increased from 15% in 1995 to 20% in 2013 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. Many developing and developed countries are facing financial hardship due to high OOP payments. However, the share of OOP payments in total health expenditure in Japan declined from 15% in 2000 to 14% in 2013.

Government spending on health as a percentage of total national health expenditure across OECD countries since 1995 is shown in Table 3.2. The proportion of health expenditure paid by the public sector in Japan in 2013 was comparatively higher than many other high-income countries. Government expenditure as a percentage of total national expenditure ranged from 47% (Canada and Austria) to 85% (Estonia and Netherlands) in 2013. The 2013 OECD median was 76%, relatively lower than Japan.

Table 3 shows healthcare expenditure as a proportion of GDP in selected OECD countries. The 2013 median healthcare expenditure in selected OECD countries as a percentage of

GDP was 9%. The total healthcare expending as a share of GDP has grown in all countries except Denmark, Finland, and Italy since 1995. In 2013 healthcare expenditure in most European countries accounted for 9-11% of GDP and only a handful of OECD countries like Canada, Germany, and Mexico exceeded 11%. A steady increase in health care expenditure was also noticeable in Japan from 7% of the GDP in 1995 to 9% in 2013.

Given the rapidly aging population, the burden of health care expenditure is expected to grow fast in Japan. Per capita health expenditures in Japan have increased from $1762.9 in 2000 to $2356.6 in 2013 (Table 4). Recent per capita health expenditure is below the median OECD countries per capita of $34045.2. In contrast, in the United Kingdom and the United States of America, per capita expenditure shows decreasing trends from 2010 to 2013. In 2013, the per capita expenditures in these two countries were $1061.1 and $1677.6, below Japan`s. Among European countries, the per capita health expenditures increased very rapidly in Turkey from $3810.3 in 1995 to $9145.8 in 2013. The other OECD countries, which saw an increase in per capita health expenditures more than $6000 were Israel, Iceland, and Denmark.

C2 Patterns of health care expenditure

National health care expenditure by types of medical care from 1995 to 2011 is presented in Table 5. Hospital expenditure was substantially higher in inpatient care; however, general clinic expenditure was higher for outpatient health services. The proportion of medical, outpatient, and dental care expenditure has been slightly deceasing since 1995, while pharmaceutical expenditure rapidly increased. In 2011, pharmaceutical expenditure increased more than four times compared to 1995. In recent times, home visit health expenditure also increased substantially compared to 1995-2005.

Age-specific health care expenditure by type of health service is presented in Table 6. Overall, per capita expenditure on health was 278129 million yen, and little difference was

observed between inpatient (143754 million yen) and outpatient care (134376 million yen). Per capita medical expenditure increased rapidly with increased age. The highest medical expenditure for individuals was observed in those aged 65 years or over (159738 million yen) and the lowest in the age of 14 years or less (17544 million yen).

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 (57926 million yen), neoplasms (36381 million yen), and respiratory system (21707 million yen). Inpatient expenditure was substantially higher compared to outpatient care.

The proportion of people covered by types of risk of pooling mechanisms from 1980 to 2011 is presented in Table 8. The health insurance coverage rate was 100% in Japan. The largest proportion (58%) of the population was covered by employee health insurance, including government-managed health insurance, society-managed health insurance and mutual aid societies. Government-managed health insurance covered a larger proportion of the population (27%), followed by society-managed health insurance (23%), and mutual Aid Societies (7%). National health insurance covered 30% of the total population.

The trend in national health expenditure by financing sources since 1985 is shown in Table 9. The total proportion of national health expenditure drawn from taxation increased from 32% in 1995 to 38% in 2011; however, insurance premium contributions declined rapidly in this period, from 56% in 1995 to 48% in 2011. The proportion of payment drawn from patient cost sharing fluctuated during this period. The patient cost sharing amount was almost stable from 1985 (12.3%) to 1995 (11.9%), and increased from 2000 (13.4%) to 2005 (14.4%) before returning to levels similar to those seen in 1985. In developing and developed countries where public funding for health services is inadequate and risk pooling mechanisms in health financing are limited or unavailable, unexpected out-of-pocket (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 14% of health spending is paid directly by patients in Japan in 2011. The burden of OOP payments across OECD countries is presented in Figure 2. The burden of out-of-pocket health spending can be measured either by as ashare 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 3%. The average share varied substantially across OECD countries in 2011, from its lowest value in France, the UK, Turkey, and the Netherlands (1.5%) to its highest in Chile, Mexico and Korea (4.6%). 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.(Ministry of Health 2013, 2014)

The share of OOP spending on different health-related goods and services across selected OECD countries is presented in Figure 3. 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, Iceland, Poland, Estonia, Canada and the Czech Republic, more than 40% of OOP payments are for pharmaceuticals. However, in Belgium, Switzerland, New Zealand, Korea, household payments for curative care account for about 50% 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 OECDs countries including Hungary, France, Australia, Finland, Iceland, Netherlands, Poland, Estonia, Canada and the Czech Republic. Health expenditure related to dental care also

contributes a larger share in household medical spending. On average, OECD counties spend around 19% of OOP payments on dental care. The highest OOP payments related to dental care were in Spain (30%) and the lowest in Belgium, Hungary, and the Slovak Republic (8%) 2011. Around 12% of OOP payments went to therapy in OECD countries in 2011. In Japan this figure was only 8%

C-3: Payment mechanisms

Reimbursement under Japan's national health insurance (NHI) system uses a contract-based purchaser/provider system. Under this system, providers contract with the government to follow NHI directives on billing and provision of services, in return for payment from the national insurance pool. Practitioners agree to follow best practice rules set by the government in order to be paid under this system, and as a result very few practitioners operate independently from the national scheme. Selective contracting between insurers and providers is strictly regulated and therefore remains uncommon, though legislation was relaxed in May 2003.

All claims made by providers are vetted and monitored by the government. In instances of fraud or abuse of the system, contracts with medical facilities are voided and individual practitioners may have their licenses revoked. For instance, in 2004 a total of 27 hospitals and clinics, 19 dental clinics and 2 pharmacies had their contracts terminated. (Pinilla et al. 2015)

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.

In 2003 a new system of reimbursement was introduced: Diagnosis Procedure Combination (DPC). In contrast with the traditional fee-for-service system, DPC introduced a scaled per diem payment dependent diagnosis and procedures given.

Hospitalization is divided into three stages, with the first being reimbursed at a 15% higher rate which then decreases as length of stay increases up until a cutoff point after which hospitals may revert to pay-for-service. Another unique feature of DPC is that pricing can vary according to hospital, partly in order to maintain historic levels of reimbursement.

However, the system is limited to hospital charges alone (e.g. accommodation charges, nursing and laboratory costs) whilst doctors' fees, including surgery, consultation, and rehabilitation, are reimbursed under the old retrospective payment model. In recent years the expansion and operation of the system has been limited by shortcomings in hospital information systems.

Despite these issues the DPC system has grown over the years. 360 hospitals were using the system in 2006, whilst in 2005 over 974, 163 inpatients were billed using DPC. Furthermore, hospitals using DPC have shown reductions in average length of stay amongst patients. Okamoto (2005)(WHO) reports that in the three months after the initiation of DPC, 80 out of 82 hospitals experienced shorter average lengths of stay, with reductions increasing the longer the initial pre-DPC average length of stay was.

Reimbursement for medical staff and services is revised every two years through negotiations between state administrators, professional and hospital organizations, insurers, pharmaceutical companies, consumer rights groups, and other related parties. This regular review allows the government to control costs as well as promote specific health policy through the price incentivization of certain treatments. The next review is due to be held in 2016.

To facilitate this process the Central Social Insurance Medical Care Committee conducts economic surveys to provide data for the revision of fees. Findings from June 2005 showed that out of 550 privately owned clinics (run by a practicing doctor as dictated by law) the average turnover in the survey month was 2.27 million yen (approximately US$20 000 at that time). Dentists were relatively less well reimbursed, with the average monthly

salary of 642 dentists being 1.35 million yen.

Payment of staff is set at a uniform rate across Japan, with no distinction made as to whether someone works in a hospital or a clinic. The incorporation of some hospitals means that many doctors and other staff are paid a salary (and bonus) rather than the direct rate set by the government. Combined with the aforementioned uniform payment systems, there is often a disparity in pay between workers at clinics and hospitals due to higher overheads at the latter.

According to figures for April 2004 from the National Personnel Authority the average monthly salary for hospital doctors was 910,558 yen (derived from 2175 doctors, average age 37.9 years), 338 859 yen for nurses (9813 nurses, average age 34.3 years, and 1.56 million yen for hospital presidents (124 doctors, average age 58.4 years). The difference between nurses' and doctors' pay however is to an extent lessened by end of year bonuses which nurses, but not always doctors, receive.

Total expenditure on health accounted for 10% of GDP in Japan in 2013, one percentage point above the OECD average of 9%. In nearly all OECD countries including Japan, the public sector is the main source of health funding. In 2013, 82% of health spending came from public sources, well above the average of 76% in OECD countries. Direct OOP payments contribute only 12% 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%, which is less than the OECD average (3%). 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. Reforms to the financing system and greater efficiencies will be necessary to maintain a low-cost, equitable health system in the future.

D　結論

E. 健康危険情報

なし

F. 研究発表

1.論文発表

2.学会発表

なし

G. 知的所有権の取得状況の出願・登録状況

1.特許取得

なし

2.実用新案登録

なし

3.その他

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表 1　Trends in health care expenditure in Japan, 1995-2013

Expenditure	1995	2000	2001	2005	2010	2013
Total health expenditure　(% GDP)	7	8	8	8	10	10
Public expenditure on health as % of THE	82	81	81	82	82	82
Private expenditure on health (% of THE)	18	19	19	18	18	18
Government expenditure on health (% of GTE)	15	16	17	18	19	20
OOP payments (% of PHE)	79	80	81	84	81	80
OOP payments (% of THE)	14	15	15	15	14	14

Sources: WHO, 2014(WHO)

Note: GDP, Gross domestic product; THE, total health care expenditure; GTE, Government total expenditure; PHE, private health expenditure

表 2　Government health expenditure as a percentage of total national health expenditure, OECD countries, selected years

Countries	1995	1996	2000	2005	2010	2013
Australia	71	71	70	70	71	70
Austria	33	32	36	38	47	47
Belgium	42	41	47	45	49	52
Canada	45	45	43	44	47	47
Chile	74	73	76	75	75	76
Czech Republic	77	78	75	74	75	76
Denmark	91	91	90	87	84	83
Estonia	83	82	84	84	85	85
Finland	90	88	77	77	79	78
France	72	72	71	74	74	75
Germany	80	80	79	78	78	78
Greece	81	82	80	77	77	77
Hungary	52	53	60	60	67	70
Iceland	84	82	71	70	65	64
Ireland	84	83	81	81	80	80
Israel	73	72	74	76	70	68
Italy	67	69	NA	NA	NA	NA
Japan	73	73	74	78	79	78
Luxembourg	92	93	85	85	86	84
Mexico	71	66	63	65	79	80
Netherlands	84	84	82	84	85	85
New Zealand	73	73	70	69	71	70
Norway	63	65	67	68	69	65
Poland	89	89	89	74	68	70
Portugal	78	76	74	73	74	72
Republic of Korea	72	72	72	71	74	70
Slovakia	87	87	85	81	82	81
Slovenia	54	54	55	59	65	66
Spain	70	69	63	68	79	77
Sweden	84	83	79	81	84	84
Switzerland	66	65	67	67	68	67
Turkey	82	82	81	82	82	82
United Kingdom	77	77	78	80	83	83
United States of America	38	40	49	53	57	53
OECD median	73.5	73	74	74	75	76

Source: WHO, 2014(WHO)

表 3　Health expenditure as a percentage of GDP, OECD countries, selected years

Countries	1995	2000	2005	2010	2013
Australia	9	9	10	11	11
Austria	6	7	7	7	8
Belgium	5	5	6	6	6
Canada	13	13	15	17	17
Chile	10	10	10	11	11
Czech Republic	8	8	10	11	11
Denmark	7	6	7	7	7
Estonia	8	9	10	11	11
Finland	6	5	5	6	6
France	8	7	8	9	9
Germany	10	10	11	12	12
Greece	10	10	11	12	11
Hungary	10	8	10	9	10
Iceland	7	7	8	8	8
Ireland	8	9	9	9	9
Israel	7	6	8	9	9
Italy	7	7	7	7	7
Japan	7	8	9	9	9
Luxembourg	6	7	8	8	7
Mexico	8	8	11	12	13
Netherlands	8	8	9	9	10
New Zealand	5	6	6	7	7
Norway	8	9	10	11	10
Poland	6	5	7	9	8
Portugal	7	8	8	9	9
Republic of Korea	7	7	8	10	9
Slovakia	8	8	9	9	10
Slovenia	9	10	11	11	11
Spain	3	5	5	6	6
Sweden	7	7	8	9	9
Switzerland	7	8	8	9	9
Turkey	7	8	8	10	10
United Kingdom	7	8	8	10	10
United States of America	4	4	6	7	7
OECD median	7	8	8	9	9

Sources: WHO, 2014(WHO)

表４　National health expenditure per capita (US$ PPP), OECD countries, selected years

Countries	1995	2000	2005	2010	2013
Australia	492.9	765.1	1288.7	2069.0	2398.4
Austria	1251.1	1613.9	2134.7	3033.6	3405.2
Belgium	1625.3	2255.3	2961.3	3761.3	4191.1
Canada	30.5	28.9	45.8	73.7	95.3
Chile	1347.1	1832.6	2710.7	3223.5	3310.7
Czech Republic	174.2	436.5	594.4	903.8	1053.5
Denmark	2567.8	3233.9	4027.3	5319.1	6186.7
Estonia	1741.7	2291.9	2969.5	3762.0	4243.8
Finland	1190.4	1547.6	2275.7	3025.5	2845.7
France	970.4	1453.9	1997.9	2452.3	2595.2
Germany	504.2	604.9	1142.7	2039.2	2146.6
Greece	1015.4	1652.4	2224.1	2810.4	2507.8
Hungary	406.1	584.1	856.3	1432.2	1550.7
Iceland	1861.1	3055.1	4317.0	5475.4	6307.8
Ireland	1796.9	2351.9	3823.6	5063.1	5601.1
Israel	2184.6	4046.9	5475.1	6520.6	6518.2
Italy	1495.9	2031.0	2504.0	3161.6	3126.0
Japan	NA	1762.9	1822.7	2078.0	2356.6
Luxembourg	1190.3	1800.1	2974.2	3796.2	3867.1
Mexico	1913.1	2764.6	3336.5	3415.2	3645.8
Netherlands	657.3	852.9	1432.2	1700.8	1839.0
New Zealand	1264.1	1454.4	2359.1	2685.0	2512.7
Norway	2275.8	2682.2	3361.9	4426.1	4811.8
Poland	2098.3	2556.5	3240.7	4039.5	4333.6
Portugal	1477.2	1857.2	2593.5	3296.8	3604.1
Republic of Korea	396.2	511.4	823.9	1300.2	1452.6
Slovakia	1871.5	2514.4	3248.0	4545.3	4552.4
Slovenia	895.8	982.2	1479.9	1930.1	1981.8
Spain	1710.3	2250.7	3115.4	4057.8	4526.1
Sweden	2070.0	2534.1	3469.0	4468.0	4759.3
Switzerland	2253.3	2904.4	3514.9	4516.8	4884.6
Turkey	3810.3	4817.9	6775.9	8298.5	9145.8
United Kingdom	387.9	509.2	731.6	1002.6	1061.1
United States of America	460.4	688.2	855.7	1308.9	1677.6
OECD median	1412.2	1832.6	2504.0	3223.5	3405.2

Sources: WHO, 2014(WHO)

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

Type of medical care	Million yen (%)			
	1995	2000	2005	2011
National health expenditure	269577 (100)	301418 (100)	331289 (100)	385850 (100)
Medical expenditure	218683 (81.1)	237960 (78.9)	249677 (75.4)	278129 (72.1)
Hospitals	148543 (55.1)	161670 (53.6)	167955 (50.7)	192816 (50.0)
General clinics	70140 (26.0)	76290 (25.3)	81722 (24.7)	85314 (22.1)
Inpatient expenditure	99229 (36.8)	113019 (37.5)	121178 (36.6)	143754 (37.3)
Hospitals	94545 (35.1)	108642 (36.0)	116624 (35.2)	139394 (36.1)
General clinics	4684 (1.7)	4376 (1.5)	4555 (1.4)	4359 (1.1)
Outpatient expenditure	119454 (44.3)	124941 (41.5)	128499 (38.8)	134376 (34.8)
Hospitals	53997 (20.0)	53028 (17.6)	51331 (15.5)	53421 (13.8)
General clinics	65456 (24.3)	71913 (23.9)	77167 (23.3)	80954 (21.0)
Dental expenditure	23837 (8.8)	25569 (8.5)	25766 (7.8)	26757 (6.9)
Pharmacy expenditure	12662 (4.7)	27605 (9.2)	45608 (13.8)	66288 (17.2)
Hospital meals and living expenses	10801 (4.0)	10003 (3.3)	9807 (3.0)	8231 (2.1)
Medical treatment fee at health service facilities for the elderly	3385 (1.3)	NA	NA	808 (0.2)
Expenditure for home-visit nursing care	210 (0.1)	282 (0.1)	431 (0.1)	5637 (1.5)

Source: MHLW, 2014(Ministry of Health 2013, 2014)

表６ Medical care expenditure of medical care by inpatient – outpatient, age group, 2011

	Medical expenditure (hundred million yen)		
	Overall	Inpatient	Outpatient
All ages	278129	143754	134376
0-14 years	17544	6294	11251
15-44	33788	13739	20049
45-64	67059	31292	35767
65 years or more	159738	92429	67309

Sources: MLHW, 2014(Ministry of Health 2013, 2014)

表7 Medical care expenditure of medical care by inpatient – outpatient and category of disease, 2011

Category of disease (ICD-10)	Medical expenditure (Hundred million yen)		
	Overall	Inpatient	Outpatient
Infectious and parasitic diseases	6 518	2 575	3 944
Neoplasms	36 381	24 359	12 023
Malignant neoplasms	31 831	21 708	10 124
Mental and behavioral disorders	19 050	13 943	5 108
Diseases of the nervous system	11 973	8 208	3 765
Alzheimer disease	2 196	1 548	648
Diseases of the circulatory system	57 926	32 481	25 445
Hypertensive diseases	19 082	2 327	16 755
Heart diseases[1]	17 020	12 409	4 611
Ischemic heart diseases	7 553	5 273	2 279
Cerebrovascular diseases	17 894	14 825	3 068
Diseases of the respiratory system	21 707	9 000	12 707
Pneumonia	3 506	3 301	205
Chronic obstructive pulmonary disease	1 441	725	715
Asthma	3 557	586	2 971
Diseases of the digestive system	16 505	8 725	7 780
Diseases of stomach and duodenum	4 784	1 018	3 766
Liver diseases	1 810	865	946
Complications of pregnancy, childbirth and postpartum	2 122	1 867	255
Perinatal conditions	1 876	1 595	281
Injury, poisoning and other external impacts	18 898	13 544	5 354

Sources: MHLW, 2014(Ministry of Health 2013)

[1]excluding hypertensive diseases

表８　Number of persons covered by health care insurance by type of insurance system

System category	1980	1990	2000	2005	2011
Number (thousands)					
Population	117060	124533	126926	127768	127799
Total insured population	117037	124260	126351	127176	126678
Employee's health insurance					
GMHI	31807	36821	36805	35675	34895
SMHI	27502	32009	31677	30119	29504
MAS	12520	11952	10017	9587	9101
Seamen	672	409	228	168	132
National Health Insurance	44536	43069	47628	51627	38313
Proportion (%)					
Proportion	100.0	100.0	100.0	100.0	100.0
Employee's health insurance	61.9	65.2	62.0	59.1	57.6
GMHI	27.2	29.6	29.0	27.9	27.3
SMHI	23.5	25.7	25.0	23.6	23.1
MAS	10.7	9.6	7.9	7.5	7.1
Seamen	0.6	0.3	0.2	0.1	0.1
National Health insurance	38.0	34.6	37.5	40.4	30.0

Source: MHLW, 2014(Ministry of Health 2013)

Notes: GMHI: Government-managed Health Insurance; SMHI: Society-managed Health

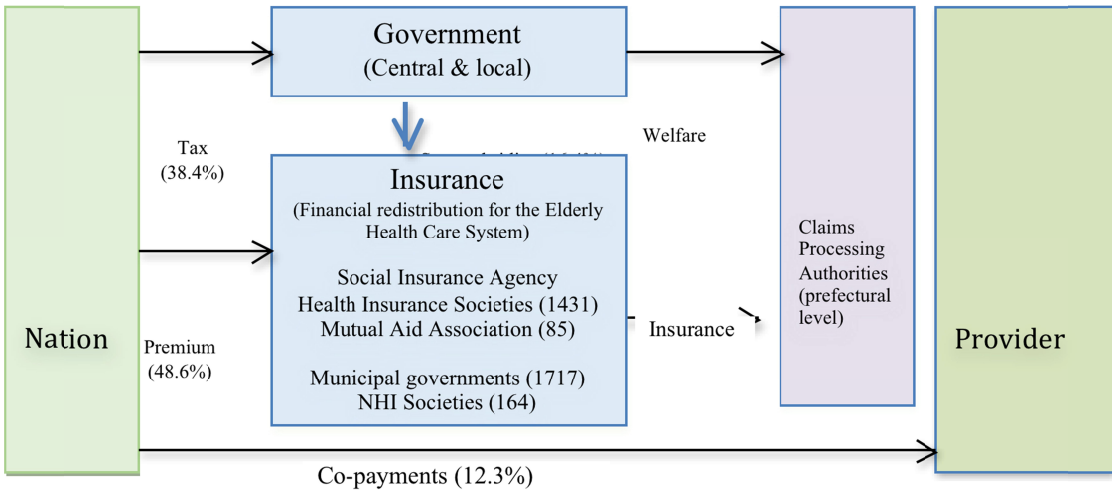
Insurance; MAS: Mutual Aid Societies

表９　National health expenditure by financial sources, 1985 - 2011

	1985	1995	2000	2005	2011
Total health expenditure	100.0	100.0	100.0	100.0	100.0
Tax					
Central government	26.6	24.2	24.7	25.2	26.0
Local governments	6.8	7.5	8.5	11.4	12.4
Total	33.4	31.7	33.2	36.6	38.4
Insurance premiums					
Employers	23.4	24.5	22.7	20.3	20.2
Employees	30.9	31.9	30.7	28.7	28.4
Total	54.3	56.4	53.4	49.0	48.6
OOP payments	12.3	11.9	13.4	14.4	12.3

Sources: MHLW, 2006, 2014 (Ministry of Health 2013, 2014)

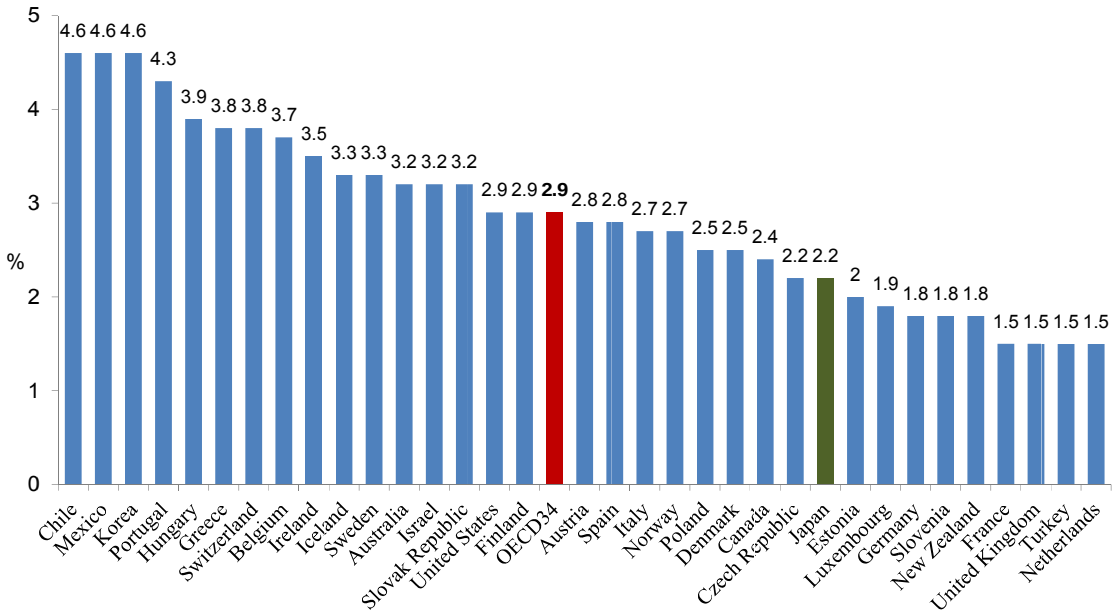
図 1　Health financing framework



Sources: MHLW, 2014(Ministry of Health 2013, 2014)

Note: Tax and premium, co-payments based on 2011, and insurance number based on 2013

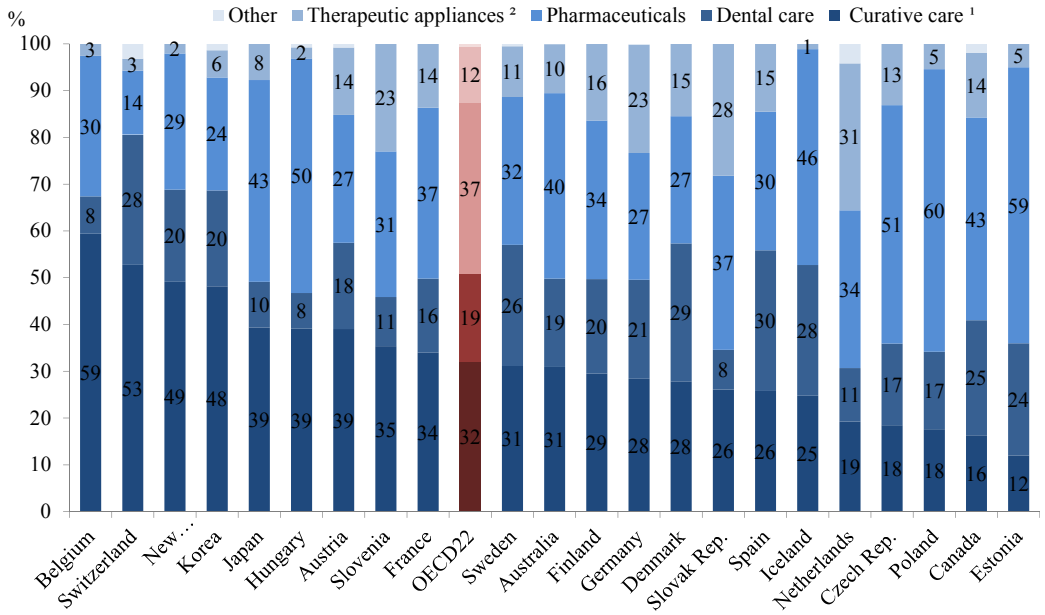
図 2　Out-of-pocket medical spending as a share of final household consumption, OECD, 2011



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

Source: OECD Health Statistics 2013(OECD 2013)

図 3　Share of out-of-pocket medical spending by service type, OECD, 2011



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.

Source: OECD Health Statistics 2013(OECD 2013)

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平成２６年度分担研究報告書

Physical and human resources of the Japanese health system

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研究要旨
Understanding health system resources is essential to understand the factors affecting quality and equity of care and the challenges that the health system faces in implementing reform. This report describes the current state of physical and human resources in the Japanese health system, and trends in these resources.
In Japan, there are about 8 500 hospitals, 100 000 clinics and 70 000 dental clinics. 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. Japan is in a transitional period of healthcare human resource supply and education policy. The quota on 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 path and staffing levels of relevant sections of the health care workforce in the future.

A. 研究目的

Understanding the physical and human resources available to a health system is essential to understand the factors affecting quality and equity of care, and also the challenges that the health system faces in implementing reform to meet new challenges and implement programs to reform current levels of care.

In Japan, hospital structure and the available resources for provision of healthcare is defined by the Medical Care Act. 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 may have none. Because Japan does not maintain a system of family doctors or a gatekeeper system based on general practice, as is the case in many developed nations, understanding the way that the hospital system is established, and the resources available to it, is essential to understanding what reform processes are necessary and what challenges exist to the provision of high quality care.

This report assesses the structure of the Japanese health system and describes the physical and human resources available to it, as well as the future reforms and policy changes necessary to reconfigure the health system to face the changing landscape of healthcare in Japan, and the challenges posed by the ageing society.

B. 研究方法

This report uses 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 reviewed to obtain information about how these resources are expected to change. Where policy reforms have been discussed in either Japanese government documents or published academic literature, these policy discussions are summarized in this report. Finally, recommendations for key changes to the physical and

human resources of the Japanese universal health coverage system are made.

C. 研究成績及び考察

C-1 Capital Stock and investments

In October 2011, the total number of active medical facilities was 196 308, including 8 605 hospitals, 99 547 general clinics, and 68 156 dental clinics. There were 7 528 general hospitals, one tuberculosis hospital, and 1 076 psychiatric hospitals. Of the general clinics, 9 934 (10.0%) had hospital beds, and 89 613 (90.0%) did not. Two thirds (67.0%, 6 651) of the general clinics with beds had 10–19 of them. There were 3 182 facilities with 20–99 beds (37.0%), 2 769 with 100–199 (32.2%), 2 198 (12.7%) with 200–499, and 426 with 500 beds or more (0.7%).

The licensing of health facilities is undertaken 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 for 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 (MHLW, 2013a).

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 (JCQHC 2014). 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 (WAM 2014).

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 in 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 (MHLW 2013b).

C-2 Infrastructure

Japanese hospitals and clinics are predominantly privately owned. In 2011, of the 8 605 hospitals, 274 had been established by national agencies, 1 258 by public organizations (such as prefectures or municipal governments), and 121 by social insurance groups. Private ownership accounted for more than 6 000, with 5 712 owned by non-profit medical corporations, 373 sole proprietorships owned by individual doctors, and 867 by others, including non-profit public corporations,

non-profit school corporations and private medical schools. Because national and public hospitals tend to be larger, however, the public sector accounts for approximately 45% of hospital beds.

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 are different from profit-making corporations in that they are prohibited from disbursing their profits to shareholders in the form of dividends. There are two kinds of medical corporations: associations and foundations. For many association-type medical corporations, the corporate assets of the corporations are the property of the shareholders, who are entitled to sell them at market value when certain conditions are met (such as inheritance). To emphasize the non-profit principle of Japan's health care system, such association-type medical corporations are no longer established and the government encourages the present association-type medical corporations to change to foundations by donating the assets owned by share holders. The government even advertises the financial advantages of such a transfer, such as waiver of inheritance tax when the current owners die (MHLW 2015). 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.

In 2014, there were a total of 49,889 medical corporations, of which 391 were foundations and 49,448 were associations.

The number of hospitals across all categories has declined steadily by more than 1 500 since a peak of 10 096 in 1990, reflecting mergers and acquisitions in recent years, and has been less than 10 000 since 1992. In 2011, there were 99 547 clinics, of which 9 934 had beds, and the number of dental clinics was 68 156, of which 38

had beds.

In 2011, the total number of inpatient beds in all facilities was 1 712 539, of which 1 583 073 were in hospitals. A total of 899 385 hospital beds were general, 330 167 were for long-term care, 344 047 were for psychiatric disorders, 1 793 were for infectious diseases and 7 681 were specifically for tuberculosis. The total number of beds in clinics was 129 366 and of these, 14 150 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 (MHLW 2011). Inpatient care in Japan is generally characterized by longer hospital stays than in other OECD countries. The average length of stay was 17.5 days for all hospital beds in 2012. The average across OECD countries for which data were available was 7.4 days. The average length of stay in Japan has, however, been steadily declining because of the rise of care in healthcare or welfare homes for older people covered by long-term care insurance (Figure 1) (OECD, 2014). 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 2012, Japan had 7.9 acute hospital beds per 1 000 population, compared with the OECD average of 3.3 for countries with available data (Figure 2) (OECD, 2014).

C-3 Medical equipment

Japanese hospitals are in general well equipped with high-technology devices (Matsumoto 2004). Available equipment is summarized in Table 1. Two out of every three hospitals, including psychiatric and tuberculosis hospitals, have whole-body CT scanners. The number of CT scanners per 1 000 people 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. The number of MRI scanners per 1,000 population is 0.047 in Japan, significantly higher than the OECD's average of 0.014, 0.035 in the United States, 0.025 in Italy and 0.024

in Korea. The proportion of hospitals having MRI, CT and positron emission tomography (PET) scanners in Japan is 70.5%, 59.4% and 74.2% (OECD 2014).

So much high-technology equipment may be beneficial to patients in terms of easy access, but may not be efficient. An important challenge facing health policymakers is how to ensure that distribution of high-technology equipment is cost-effective but still provides easy access for patients.

Clinics fulfil a general diagnosis 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.

C-4 Information technology

The rate of Internet use in Japan is estimated to be 82.8%, with 100.4 million people using the internet in 2013. The rate of use in companies is 99.9%. 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 family units to access the Internet at home, with 59.3% of families using optical communication lines. Mobile phone lines are used in 50.2% of households (MIC 2014).

In healthcare, the Ministry of Health, Labour and Welfare has drawn up two documents to encourage IT use. These are *Grand design for informatization of the healthcare field* (2001) and *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 databases of medical information, 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.

Surveys about 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%).

C-5 Health workforce trends

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).

Of the 303 268 licensed physicians in 2012, 288 850 (95.2%) were working in medical facilities, with 188 306 (62.1%) in hospitals and 100 544 (33.2%) in clinics. A total of 3 549 (1.2%) were in offices for public health, 3 189 (1.0%) in healthcare homes for older people, 8 625 (2.8%) in institutions for education and research, and 2 602 (0.9%) elsewhere.

There were 50 medical schools in Japan in 1970 and 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 are 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.

The number of female doctors was 15 659 (10.0% of the total) in 1980 and 59 641 (19.7%) in 2012. Of those aged under 29 years, 9 406 (35.5%) 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 2012, or the latest available year, compared with an OECD average of 3.2.

There were 248 165 practicing nurses in Japan in 1980 (2.12 per 1 000 population), which had risen to 1 015 744 (7.97 per 1 000 population) by 2012, 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 47 279 and 0.37 in 2012. For midwives, the figures were 25 867 and 0.22 in 1980 and 31 835 and 0.25 in 2012. Japan has a similar number of nurses to other OECD countries (Figure 4).

The number of dentists in total and per 1 000 population was 53 602 and 0.46 in 1980, 60 857 and 0.72 in 2000, and 102 551 and 0.80 in 2012. The number of female dentists was 6 590 (12.3 %) in 1980 but up to 22 295 (21.7%) in 2012. Of those under 29 years old, 3 202 (42.1 %) were female. Compared with other OECD countries, Japan has a high number of dentists (Figure 5).

The number of pharmacists in total and per 1 000 population was 116 056 and 0.99 in 1980, 217 477 and 1.71 in 2000, and 280 052 and 2.20 in 2012. There were 170 788 (61.0%) female pharmacists in 2012. 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-6 Professional mobility and training of health workers

Professional mobility, measured as the proportion of medical professionals trained abroad and practising domestically, 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 (MHLW 2013c).

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. However, there are certain conditions such as within 2 years for physicians or 1 year for nurses. The system is currently being expanded.

Through a new "Indonesia–Japan collaboration on the enhancement of nursing competency through in-service training" (Siyam 2013), 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 (MHLW 2014).

Medical training in Japan involves 6 years at medical school after graduating from senior high school. Those who pass the national examination then go on to 2 years of clinical training, after which they are included in the medical register. In 2015, 8 258 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, but 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. 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.

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% 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, the quota for initial clinical training is 11 004 in 1 015 hospitals (1 396 training programmes), and the number of new registered physicians is 8 767, of whom 8 399 will be matched to the training programme (95.8%). The number of training slots is far more than the number of applicants, and the trainee physicians are likely to be concentrated in urban areas. Therefore, adjustments such as setting the upper limit of the numbers recruited in

individual prefectures have been in operation since 2010.

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 2014 was 2 720, at 29 schools in 27 universities. At least 1 year's clinical postgraduate training has been mandatory since 2006. In 2014, there were 2 428 clinical training facilities and 3 603 trainees. The number passing the national examination for dental practitioners in 2015 was 2 003.

The career path for pharmacists used to be a 4-year degree course provided by the pharmaceutical department of a university, followed by a national examination. In case of going on to graduate school, two-year master's courses and three-year doctoral courses were available. 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 6 years and doctoral courses to 4 years. There are still some 4-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, 9 044 students passed the national pharmacists' examination.

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 who passed the national examination in 2008, 23.6% (11 170) had graduated from universities or colleges (MEXT 2009).

In 2012, of the 303 288 licenced physicians, 288 850 were practicing, 137 902 worked in "hospitals not attached to medical educational institutions," 50 404 in "hospitals attached to medical educational institutions" and 100 544 in clinics. There have been more physicians working in "hospitals not attached to medical educational institutions" 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 45.6 years in "hospitals not attached to medical educational institutions," 38.5 years in "hospitals attached to medical educational institutions," and 58.7 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, with the work managed by the clinical department (*ikyoku*) of the medical school (Otaki 1998). After the introduction of mandatory post-graduate clinical training, young physicians shifted to hospitals not attached to medical educational institutions and their future career path is expected to be affected. Specialty board certification has been introduced because of past problems in the evaluation or approval of specialists, which was previously conducted by academic societies. This independent accreditation process caused some problems, including a lack of uniform standards and gap in understanding about the abilities required for specialists between physicians and citizens. 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. (MHLW 2013d) The introduction of general practice/family

medicine does not signify the introduction of “gate keeper” or “capitation” reimbursement because such reform will contradict the national principle of “free access”. However, some advocate a “weak gate keeper” role for this new specialty.

The majority of midwives, nurses, and assistant nurses were working in hospitals: 20 784 (65.3%), 747 528 (73.6%), and 158 315 (44.2%), respectively. More than half (56.1%) of all public health nurses, 26 538, were working for local authorities. The number of universities providing nursing education has increased greatly from 11 universities recruiting 558 students in 1991 to 188 universities recruiting 15 394 students in 2010. In 2010, there were 127 graduate schools providing master’s courses to 2 067 students per year, and 61 providing doctoral courses to 511 students. The Japanese Nursing Association also has 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.

D **結論**

Japan’s health system has physical resources that are broadly consistent with levels across the OECD, and although the number of physicians is below the OECD average Japan continues to maintain levels of health outcomes that exceed OECD standards. Although historically the training of new doctors has not been consistent with estimated future needs, there is little evidence of a severe future shortage. However, medical training and certification processes need to be updated to better prepare medical staff for the challenges of a more interconnected health and social welfare system and to prepare them for the new caring systems that will be required in an aging population with high prevalence of NCDs.

E. 健康危険情報

なし

F. 研究発表

1.論文発表

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Asia Forum. 22nd February 2014.

2.学会発表

なし

G. 知的所有権の取得状況の出願・登録状況

1.特許取得

なし

2.実用新案登録

なし

3.その他

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表1 Number of items of functioning diagnostic imaging technologies (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 CT	6 048	2 298	8 346	
Other CT	1 829	2 768	4 597	
PET	93	24	117	0.001
PET-CT	253	96	349	0.003

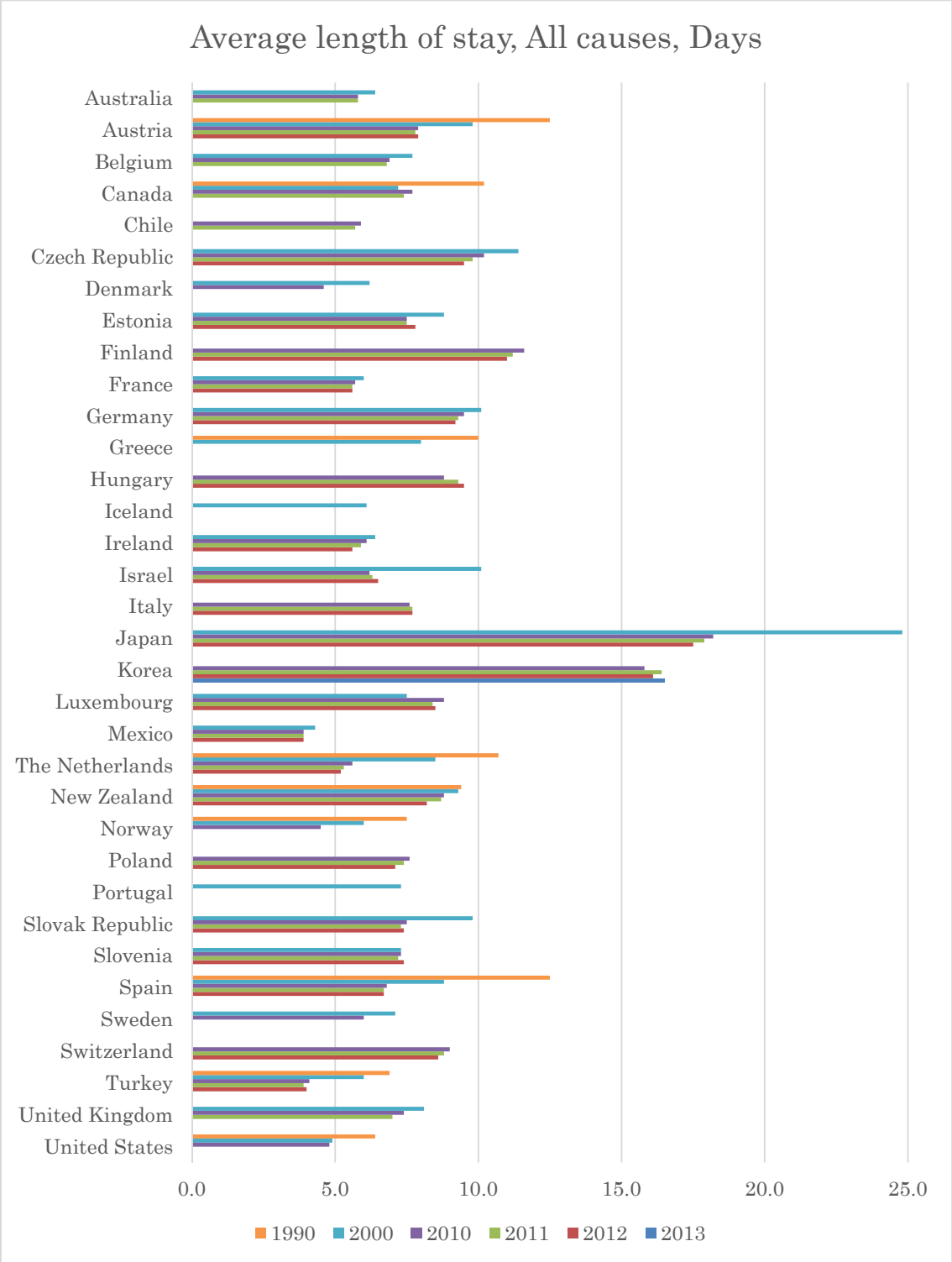
Source: 2011 Survey of Medical Institutions, Ministry of Health, Labour and Welfare, Japan.

表2 Healthcare workers per 1 000 population, 1995 to 2012 (latest available year)

	1980	1990	2000	2010	2012
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

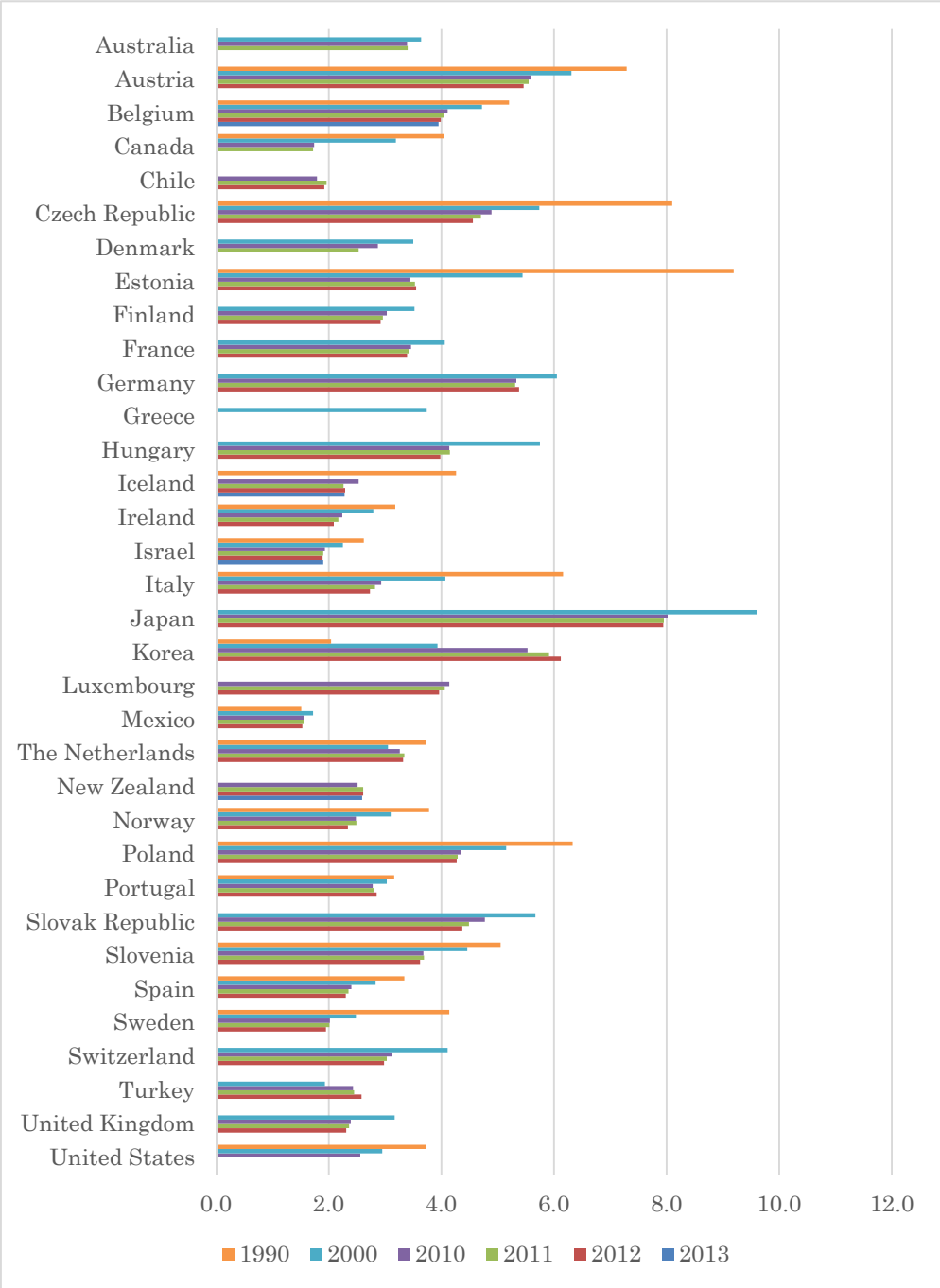
Sources: Physicians, Dentists, Pharmacists: Survey of Physicians, Dentists and Pharmacists, Ministry of Health, Labour and Welfare
Public Health Nurses, Midwives, Nurses, Assistant Nurses: Report on Public Health Administration and Services, Ministry of Health, Labour and Welfare

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



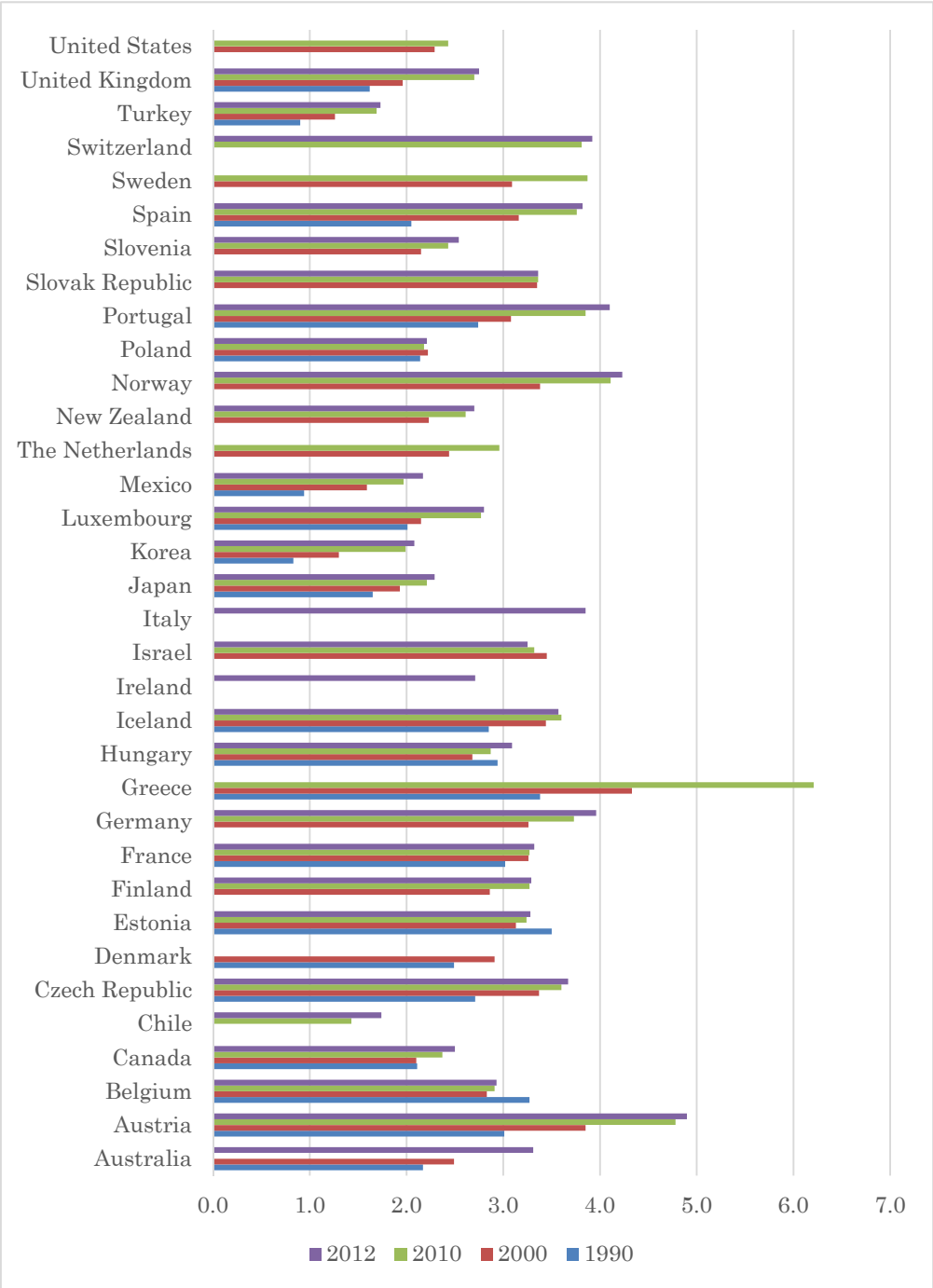
Japan: Data refer to average length of stay for acute care (excluding long-term care beds in hospitals). *Source*: OECD Health Statistics 2014

図 2 Beds in acute hospitals per 1 000 population in selected countries, 1990 to latest available year



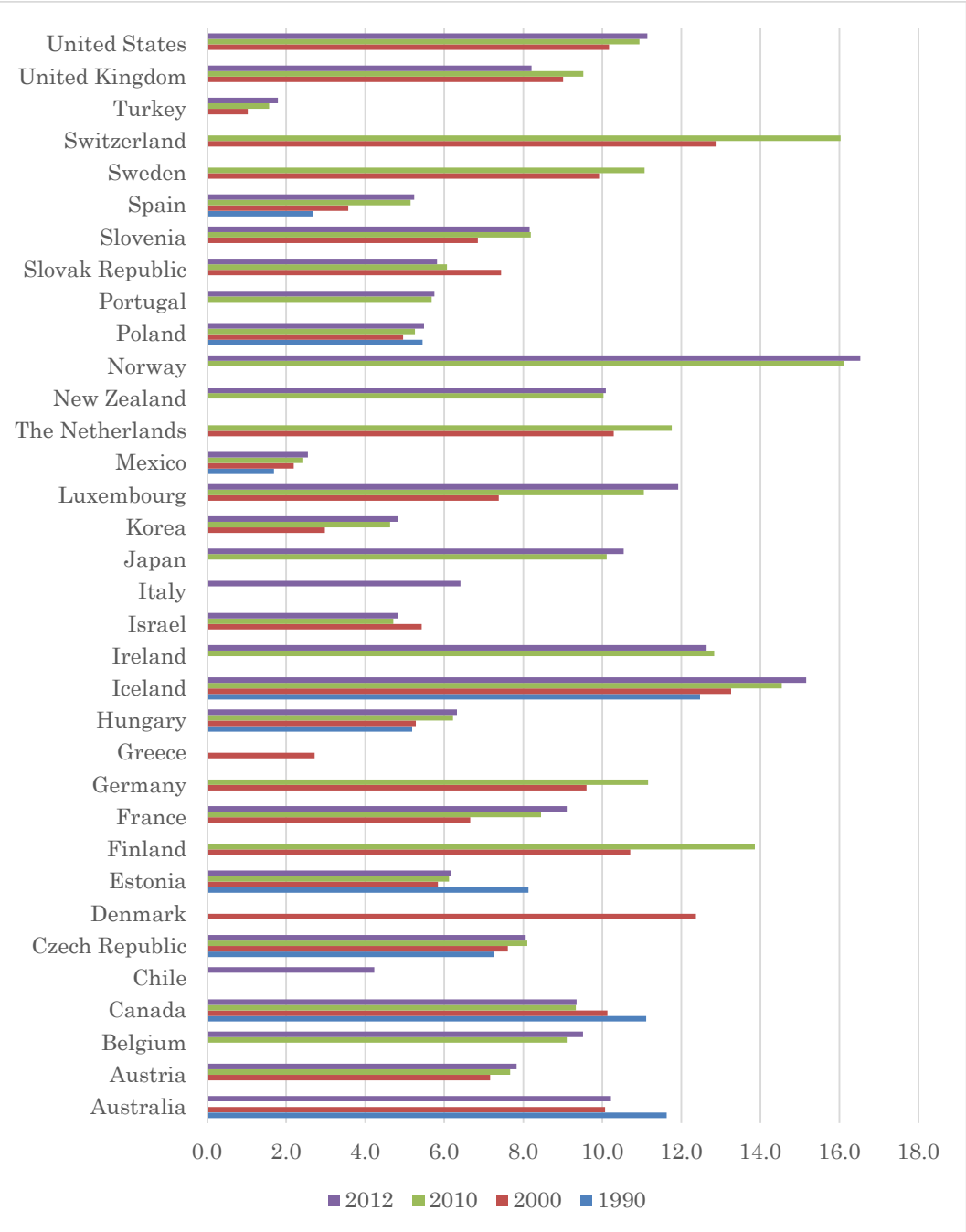
Source: OECD Health Statistics 2014

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



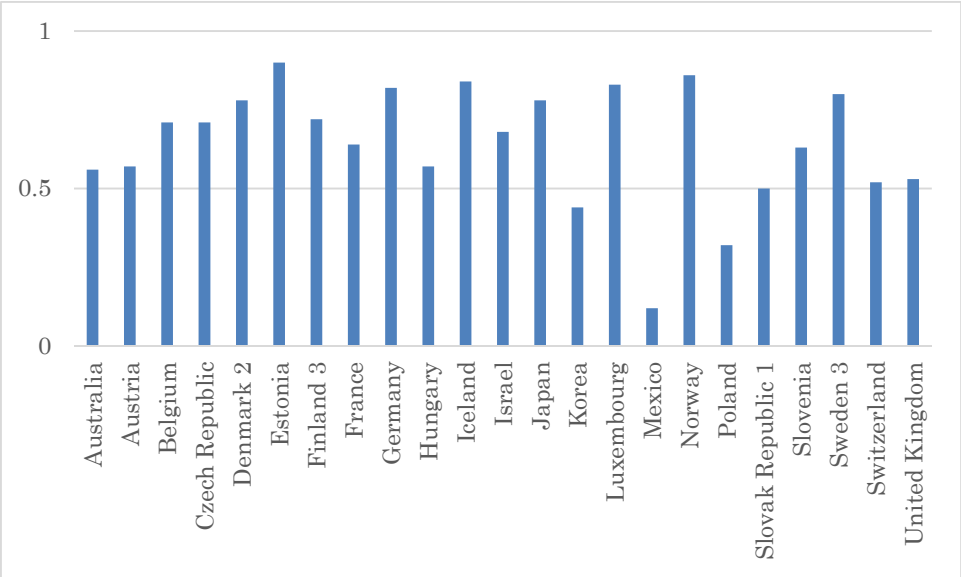
Source: OECD Health Statistics 2014

図 4　Number of nurses per 1 000 population in various countries, by year



Source: OECD Health Statistics 2014

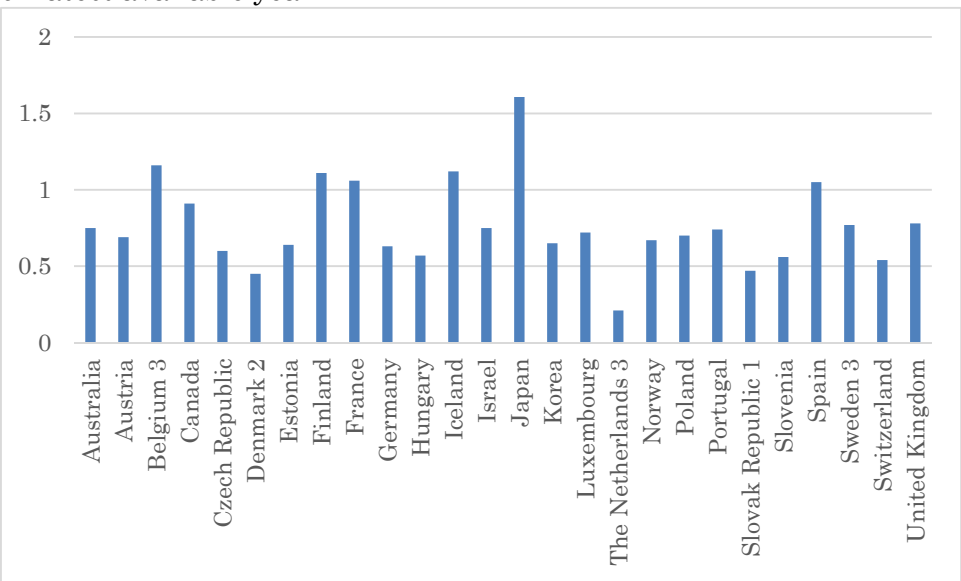
図 5 Number of dentists per 1 000 population in selected countries in 2012 (or latest available year)



1: 2007 data; 2: 2009 data; 3: 2011 data

Source: OECD Health Statistics 2014

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



1: 2007 data; 2: 2009 data; 3: 2011 data

Source: OECD Health Statistics 2014

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平成２６年度分担研究報告書

Assessment of service provision within the Japanese 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 national, prefectural and municipal level and covering public health, primary care, basic 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 the Japanese 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 a comprehensive universal health coverage (UHC) system that ensures equity at low cost (Ikegami, 2011). However, the service provision mechanisms in this system 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 aging and the demographic transition. This report gives a comprehensive overview of how services are provided in Japan 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 material describing the structure of the Japanese health system. Reports were access on the Ministry of Health, Labour and Welfare website, through published literature in Japanese- and English-language peer-reviewed journals, and through key reports. The information was synthesized and summarized by healthcare area and type of service provided.

C. 研究成績及び考察

C-1 Vital statistics

Japan has a comprehensive vital registration system, with 99.9% of deaths recorded in this system. Mortality due to cancer, 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 (Ikeda, 2011). 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 (Murray 2011). 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. (Gilmour 2014)

C-2 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.

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, 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.

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.

- *Routine immunization*: BCG, MR, rubella, smallpox, polio, DPT/DT, DPT-IPV, Japanese encephalitis, Influenza (for the elderly), Pneumococcal, Haemophilus influenzae type b, HPV
- *Non- routine immunization*: mumps, yellow fever, rotavirus, tetanus toxoid, hepatitis B virus, hepatitis A virus, rabies

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 283 patients had measles in 2012. 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 (Gilmour 2013). Improvements in management and oversight of the vaccination program are required in order for Japan to properly fight these preventable infectious diseases.

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 carers 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.(MHLW, 2012b)

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 must 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.

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.

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 34.1% in 2012, and that for women from 11.5% in 2000 to 9.0% 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 (Yorifuji 2010).

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 5.6% in male and 2.5% in female students in 2012.

C-3 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 2.2 in 2012 is one of the lowest even among developed countries.

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-4 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.

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 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.

For example, a man with diabetes might be diagnosed through any of the following mechanisms:

- Being asymptomatic, he is diagnosed either through screening or as part of a health check.
- 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-4 Inpatient care

Approximately 70% of Japan's hospitals and 55% of hospital beds are provided by the private sector. 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.

Japan utilizes a case-mix system called the Diagnosis-Procedure Combination (DPC) to pay health-care providers. 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 1391, which includes 82 university hospitals that were obliged to adopt the DPC system. Approximately 50% 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-5 Emergency medical 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.

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.

As of 2013, there were a total of 265 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 (FDMA 2013). 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 23 advanced critical care and emergency centers across Japan.

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.

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). Regional Perinatal Centers do not meet the criteria for nomination as an Advanced Perinatal Center. 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 caes was delayed due to failure of cooperation between Perinatal Centers and Emergency Medical Center.

C-6 Pharmaceutical care

The global pharmaceutical trade accounts for 953 billion dollars in 2013, and Japan shares approximately 11.7% of this. (Japan Pharmaceutical Manufacturers Association, 2013) Japanese pharmaceutical companies sold 6,894 billion yen of pharmaceuticals annually, including 6,194 billion yen for prescribed medicine and 700 billion yen for over-the-counter (OTC) drugs in 2013. (MHLW 2013b). Imported and exported medicine in 2012 accounted for 1941 billion yen and 320 billion yen, respectively.

Among the top 30 pharmaceutical companies in the world, the market share of US companies was 41.8%, followed by Switzerland (14.8%), Japan (12.3%), the UK (11.8%), France (8.0%), Germany (6.2%) and others (5.0%). The number of Japanese pharmaceutical companies decreased from 1123 in 2000 to 341 in 2011, due to mergers and acquisitions, and sales from the five leading companies accounted for 43.3% of all prescribed medicine.

The proportion of research costs in total sales was 12.0% in 2011. The success rate of developing new drugs was 1:27,000 between 2007 and 2011.

The pharmaceutical industry employed 192000 workers in 2011 (0.3% of all workers). There are approximately 60000 medical representatives (MR) in Japan. They visit physicians to provide information on efficacy and safety and to collect information on adverse effects.

As of 2015, 83 wholesale companies are

affiliated with Japan Pharmaceutical Wholesalers Association, and there were 45000 people working in the wholesale industry (0.1% of all workers).

More than 10000 different prescribed medicines are sold; most of these are supplied to approximately 160000 hospitals and clinics by the wholesale companies. OTC drugs are sold at about 70000 drug stores.

Medicine costs accounted for 21.9% of all health expenditures in 2011. A total of 794.3 million prescriptions were written, and 7038 billion yen disbursed for prescribed medicines from public health insurance.

The percentage of all pharmaceuticals purchased that were generic drugs was 21.7% by volume and 8.5% by sales in 2011, which is substantially lower than in other developed countries, including the United States, Canada, the United Kingdom, and Germany, whose generic market shares were above 60% as of 2009. (National Federation of Health Insurance Societies 2013)

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 set a target to increase the quantity-based share of generic pharmaceuticals to 30% by fiscal year 2012. This amounts to a two-thirds increase of the share within five years, with an expected cost reduction of 500 billion yen (approximately 4.1 billion dollars at the contemporary exchange rate) over the five-year period. These policies included the provision of bonuses to prescribing physicians and dispensing pharmacies and the facilitation of generic substitution by pharmacists. Despite these initiatives, the actual share of generics has so far not kept pace with the high expectations. There has been a significant increase since 2002, when the share was only 12.2%, but a large part of the gain occurred between 2002 and 2003, and the increase during 2003–2009 has only been 0.6

percentage points per year on average.

C-7 Long term care

The Japanese Government instituted the national long-term care insurance (LTCI) system in 2000 under the Long-Term Care Insurance Act. This system sets out a mechanism for measuring elderly care needs and a financing system to provide care services suited to the level of care required. A total of 5 million elderly people were certified as in need of this service in 2011 (MHLW 2011).

Municipalities are also insurers in Japan, as they are responsible for implementing the Long-Term Care Plan and for determining insurance premiums based on the balance between the needs of the population and the quantity of services provided in the area. Under the Long-Term Care Insurance System, prefectures support the municipalities, while the national government decides the overall direction of the system. Half of municipal financing comes from tax and half is derived from premium contributions. The beneficiaries are divided into two categories: elderly aged 65 or over, and people aged 40 to 64 years. Premiums for people aged 65 and over are withheld from pension payments, while the premium for those aged 40-64 is added to their standard health insurance premium.

When people wish to receive LTC, they must apply to the municipal government for needs assessment. The applicant is then assessed by a qualified care manager using a uniform assessment tool, which consists of 73 survey items to measure daily activities and health. According to the assessors' records, computer-assisted evaluation is conducted for preliminary assessment of care levels. Municipal governments ask attending doctors their professional opinions. A Needs Assessment Review Committee, composed of health and welfare professionals, reviews and adjusts the assessment before funding decisions are made. In 80% of cases, the preliminary assessment are not altered. The system provides benefits to cover both institutional and domiciliary services. Domiciliary services include health care (visiting nursing, visiting rehabilitation and ambulatory

rehabilitation) and welfare services (home help services, catering bathing and day services). For-profit corporations are permitted to provide welfare services.

Licensed care managers coordinate different service providers within a geographical region, and aim to provide services within a fixed budget. They are expected to serve as neutral representatives of the interests of those seeking LTC, rather than as salespeople for providers.

Currently, the number of insured people (4,550,000 beneficiaries) in the Long-Term Care Insurance System is two times higher than it was when the system was implemented in 2000 (2,180,000 beneficiaries) (Olivares-Tirado, 2014). However, the sustainability of the system remains an issue.

D　結論

Services within the Japanese 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 both 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 yet 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 aging increase the pressure on many parts of the system, especially its long-term care components.

E. 健康危険情報

なし

F. 研究発表

1.論文発表

なし

2.学会発表

なし

G. 知的所有権の取得状況の出願・登録状況

1.**特許取得**

なし

2.**実用新案登録**

なし

3.**その他**

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平成 26 年度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２６年度分担研究報告書

近年の主要な保健医療制度改革とその影響についてレビューに関する研究

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研究要旨

本分担研究班では、次期Health Systems in Transition（世界保健機関）の枠組みのうち、Principal health reformsのセクションのフォーマットに則り、概ね過去10年間の保健医療及びそれに影響を与える制度改革についてのレビューを行う。主要な改革について、その健康および健康格差への影響を文献的・数量的に評価する。初年度は、取り扱う制度や構想の整理を行い、また分析方法について検討した。そのうえで必要な政府統計の二次利用申請を進めた。

A. 研究目的

少子高齢化が世界有数の速度で進んでいる我が国の保健医療制度の行く末に、国際的に大きな関心が示されている。特に、近年のUniversal Health Coverage推進の動向をもとに、戦後早期の、まだ発展途上だった時期に国民皆保険を達成し、現在に至るまでその枠組みを維持している日本を見倣い、保健医療制度の本格的な整備に取り掛かろうとしている発展途上国は多く、日本の経験を客観的に評価し、国際発信することが強く国際社会から要請されている。

しかし、医療制度や、関連するその他の制度変更についての客観的な評価結果は乏しく、十分な説得力を持って発信できる情報は限られている。

本分担研究班は、本研究班メンバーが執筆を予定している、世界保健機関のHealth Systems in Transition（HiT）レポートのうち、第6章 Principal health reformsの執筆を担当する予定

となっている。同レポートは、出版元である世界保健機関から、各章ごとに盛り込むべき内容が「テンプレート」形で公表されている。本分担研究では、HiT第6章のテンプレートに則り、過去概ね10年間の主要な保健制度やその他の制度の変遷をレビューし、重要な事項について、利用可能な統計データを取得し、分析を進めることで、客観的な評価結果を踏まえたレポートをまとめる。さらに、その過程で実施した実証分析成果を国内外で積極的に報告し、今後の各国の保健医療改革に資することを目的としている。

B. 研究方法

初年度であるH26年度は、まず、評価すべき制度内容を検討するための準備的会議を行い、その結果を踏まえて、数量的評価に必要な政府統計の二次利用申請を進めた。

C. 結果

年度内に複数回の会合を開いた。特に力を入れて検討すべき制度改正や議論中の事項として、a.医療介護総合確保法と地域医療構想および、b.地域包括ケアシステムがあげられられた。

a.医療介護総合確保法と地域医療構想に関しては、未曽有の少子高齢化という特徴を持つ日本が社会保障費の増大に具体的にどのように対応しており、今後どう対応していくのかを評価する際に重点的に検討すべき法的根拠となる。介護の中では、現在の法整備や構想の内容が効果・効率・公平性の点で十分であるか否かについての理論的・数量的実証を進め、考察することの必要性が確認された。

b.地域包括ケアシステムについては、国際的に大きく注目されている構想であるが、省庁内の各部署において定義が異なるなどの課題がある。このことから、まず文献的な検討を行い、主に介護医療・疾病や介護の予防・それらのための地域ガバナンスのあり方、という3つの視点から政府方針をレビューしたのち、そのパフォーマンスについての実証分析を試みる、という方向性が確認された。

これを受けて、使用すべき政府統計情報を整理し、二次利用申請を行った。申請したデータは以下の通りである。

人口動態調査

人口動態職業･産業調査患者調査医療施設調査

病院報告

医師・歯科医師・薬剤師調査

社会医療診療行為別調査

平成 12 年介護サービス世帯調査

介護給付費実態調査

国民生活基礎調査

21世紀出生時縦断調査

D. 考察

我が国の国民皆保険制度の質を維持するには、地域医療構想のような包括的な資源の再分配と効率的配置のビジョンが求められる。また、地域包括ケアシステムについては、省庁内の各局間で解釈が異るため、画一的な定義が存在せず、このことが制度のデザインや評価の方向性の決定を困難にしている。次年度は、文献的研究により、地域包括ケアの定義を明確にし、それをもとに持続可能な制度のあり方に資する実証分析を追加していく。

また、皆保険制度が未整備の発展途上国の国々では、全体的なパフォーマンスに加えて、健康格差対策への評価も特に重要になる。「公平性、あるいは、健康格差を視点とした評価は特に重要になると考えられる。

E. 結論

近年の医療保険制度改革のレビューと評価を行うための考察とデータ取得準備を進めた。今後具体的なレビューと実証研究を進めていく。

F. 健康危機情報

特になし

G. 研究発表

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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）

特になし

平成 26 年度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 26 年度分担研究報告書

一般病床を有する病院の看護配置と平均在院日数に対する価格政策効果に関する定量分析

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研究要旨

本研究の目的は，「病院報告」及び「医療施設調査（静態）」（厚生労働省）の個票データ（1984-2008 年）を用いて，2000 年と 2006 年における診療報酬改定を「自然実験」とみなし，当該改定が一般病床を有する病院の看護配置（Patient-Nurse Ratio: PNR）と平均在院日数（Length of Hospital Stay: LHS）にもたらした効果を，「差の差」分析（Difference-in-Difference：DID）の手法を用いて，定量的に検証することにある．分析の結果，医療サービスの供給者である病院は，診療報酬点数の改定に対して弾力的に反応し意思決定を行っていることが示された．超高齢化社会を迎えた我が国において，現行の診療報酬制度による価格調整メカニズムの下，医療サービスの質の維持・向上を図りつつ，持続可能な医療保険制度を確立するためには，より一層の医療サービス供給の効率化が求められる．こうした政策目的のため，とりわけ今世紀に入って以降，厚生労働省は，急性期病院における PNR を改善し，LHS を短縮化するインセンティブを強化するような診療報酬点数の改定を継続的に行ってきた．当該政策目的が達成されつつある反面，他方では，供給側が価格メカニズムに弾力的に反応したために，看護配置が 7:1 の急性期病床数が急増し，高齢者医療を根幹から支える亜急性期病床の減少という意図しない結果をもたらした．以上の結果から，診療報酬点数という公定価格による調整機能が政策目的に適合するか否かに対する定量的検証の必要性が示唆させる．

A. 研究目的

本研究の目的は，「エビデンスに基づく日本の保健医療制度の実証的分析」という本研究課題の一環として，我が国の医療政策の根幹である診療報酬制度について，病院の看護配置と平均在院日数に対する価格政策効果に関する定量的検証を行うことにある．

B. 研究方法

当該研究課題により厚生労働省統計情報部に二次利用申請を行った「病院報告」及び「医

療施設調査（静態）」の個票データ（1984-2008年）を用いて，2000年と2006年における診療報酬改定を「自然実験」とみなし，当該改定が病院の看護配置（Patient-Nurse Ratio: PNR）と平均在院日数（Length of Hospital Stay: LHS）にもたらした効果を，「差の差」分析（Kernel Propensity Score Matching Difference-in-Difference：DID）の手法を用いて，定量的な検証を行った．すなわち，2006年改定における7:1の看護配置基準かつ平均在院日数19日以内という入院基本料の基準を2000年と2006年の改定以前に既に満たしている病院を対照群（control group），基準を満たしておらず診療報酬改定に影響を受ける病院を処置群（treatment group）と仮定する．尚，本研究では，一般病床に対する看護配置に基づく入院料に焦点を当てることから，一般病床を有する病院に限定した分析を行う．

C．研究結果及び考察

C-1. PNRとLHSの時系列分布

図1は，1984-2006年までのPNRの変化とPNR及びLHSに重点を置いた診療報酬点数の改定を図示したものである．本研究では，図1の診療報酬点数改定に基づき，研究対象期間を，1988以前，1988-1991年，1992-1999年，2000-2005年，2006年以降の5つに分ける．

図2と図3は，当該5期間（1984-2008年）におけるPNRとLHSのKernel分布を，病床数規模別に時系列で示したものである．1984-1987年においては，PNRの平均値/中央値（標準偏差）は，大病院（一般病床数>500床），中病院（100床<=一般病床数<500床），小病院（一般病床数<100床）でそれぞれ，3.5/2.3 (4.0), 6.7/3.3 (10.7), 9.6/6.4 (10.1)であったが，2006-2008年においては，1.2/1.1 (0.7), 1.6/1.3 (0.8), and 2.4/1.9 (2.1)まで縮小した．同様に，LHSについても，1984-1987年において，31.6/ 30.3 (9.3), 33.7/28.6 (16.1), and 41.8/37.8 (21.5)であったのが，2006-2008年においては，18.0/16.7 (6.7), 25.9/ 21.1 (15.0), 38.3/ 33.5 (22.7)にまで減少した．標準偏差をみると，大病院では縮小傾向にあるが，中小病院ではさほど変化が見られないことがわかる．

図2と図3から，病床規模にかかわらず，時系列でみるとPNRとLHSの分布は全体的に左方向へシフトしているが，とりわけ，2000年以降における中病院と大病院の減少傾向が顕著であり，2006年の7:1入院基本料の改定以前に，大病院では既に78%が，中病院でさえ43%が当該改定の基準を満たしていることがわかる．

以上の結果から，2006年の7:1入院基本料の値上げ改定以前に，大・中病院では価格政策の方向性をあらかじめ予想し，施設内の人的資源に対する意思決定を行っていたことが示唆される．他方，小病院では，2006年以降も7:1入院基本料の基準を満たしている病院が20%と少数であることから，価格政策に対する弾力性は，病床規模に代表される施設属性に依存していることがわかる．したがって，ここでは，対照群と処置群の属性を均衡させるため，Kernel Propensity Score Matching（PS）法を用いる．PS法に用いた病院の属性は，病床数，経営主体，病院の所在市区町村の人口規模である．

C-2．Kernel Propensity Score Matching Difference-in-Differenceの結果

表1と表2はそれぞれ，2000年と2006年

における診療報酬点数改定が PNR と LHS に与えた効果を示している．

まず，2000 年の改定により，対照群と比較すると処置群において，PNR が-0.19 と-0.04（全病院平均で-0.13）大病院と中病院でそれぞれ減少傾向にある．小病院では統計学的に有意な結果が得られなかった．他方，LHS については，対照群に比較すると処置群が-7.1 日と，小病院において減少幅が最も大きく，大病院では-4.9 日，中病院では-2.9 日という結果であった．他方，2006 年の改定では，PNR については 2000 年の改定と同様，対照群と比較すると処置群において，PNR が-0.08 と-0.07 大病院と中病院でそれぞれ減少傾向にあり，小病院では統計学的に有意な結果が得られなかった．他方，病床規模にかかわらず，LHS については有意に減少傾向にあることがわかる（大病院で-1.9 日，中病院で-3.7 日，小病院で-6.9 日，全体平均で-5.1 日）．

2006 年における 7:1 看護配置基準に対する入院基準の引き上げにより，人口密集地域における大病院や一部の中病院に看護労働力が移動・集中したため，地方の中小病院において看護労働力不足が発生したという議論があるが，本研究が得た結果から，実際は PNR の減少傾向は，とりわけ，2000 年以降 PNR と LHS が入院基本料の改定における重要な要素となったことから，2006 年より以前に既に始まっていたとみるべきであろう．病院の規模にかかわらず，7:1 病院では，LHS の短縮化が進み，7:1 病院以外の，とりわけ一般病床を保有する小病院においては，いまだ LHS は 1 か月以上となっている．

D．結論

超高齢化社会を迎えた我が国において，現行の診療報酬制度による価格調整メカニズムの下，医療サービスの質の維持・向上を図りつつ，持続可能な医療保険制度を確立するためには，より一層の医療サービス供給の効率化が求められる．こうした政策目的のため，とりわけ今世紀に入って以降，厚生労働省は，急性期病院における PNR を改善し，LHS を短縮化するインセンティブを強化するような診療報酬点数の改定を継続的に行ってきた．当該政策目的が達成されつつある反面，他方では，供給側が価格メカニズムに弾力的に反応したために，とりわけ中病院・大病院において，看護配置が 7:1 の急性期病床数が急増し，高齢者医療を根幹から支える亜急性期病床の減少という意図しない結果をもたらした．我が国における LHS を OECD 諸国の平均値（2014 年において 7.4 日）程度に引き下げるためには，亜急性期や療養病床を有する中間医療施設や有床診療所が不可欠となるであろう．とりわけ，独居高齢者が今後ますます増加する中，引き続き，在宅医療・在宅介護を政策の中心に据えるのであるならば，高額な急性期医療を終えた予後のケアを提供する医療サービスが必要となる．急性期病床の増加と亜急性期・療養病床の減少を受けて，2014 年における診療報酬改定では，7:1 病院に対する価格が引き下げられ，供給側に対する逆インセンティブを与えることとなった．

以上の結果から，診療報酬点数という公定価格による調整機能が政策目的に適合するか否かに対し，継続的な定量的検証を行っていく必要があることが示唆される．

E．健康危険情報

なし

F. 研究発表

1.論文発表

Noguchi H. How does the price regulation policy impact on patient-nurse ratios and the length of hospital stays in Japanese hospitals? Asian Economic Policy Review, Vol. 10, issue 2, 2015 年 7 月可能予定

※Appendix 論文参照のこと.

2.学会発表

なし

G. 知的所有権の取得状況の出願・登録状況

1.特許取得

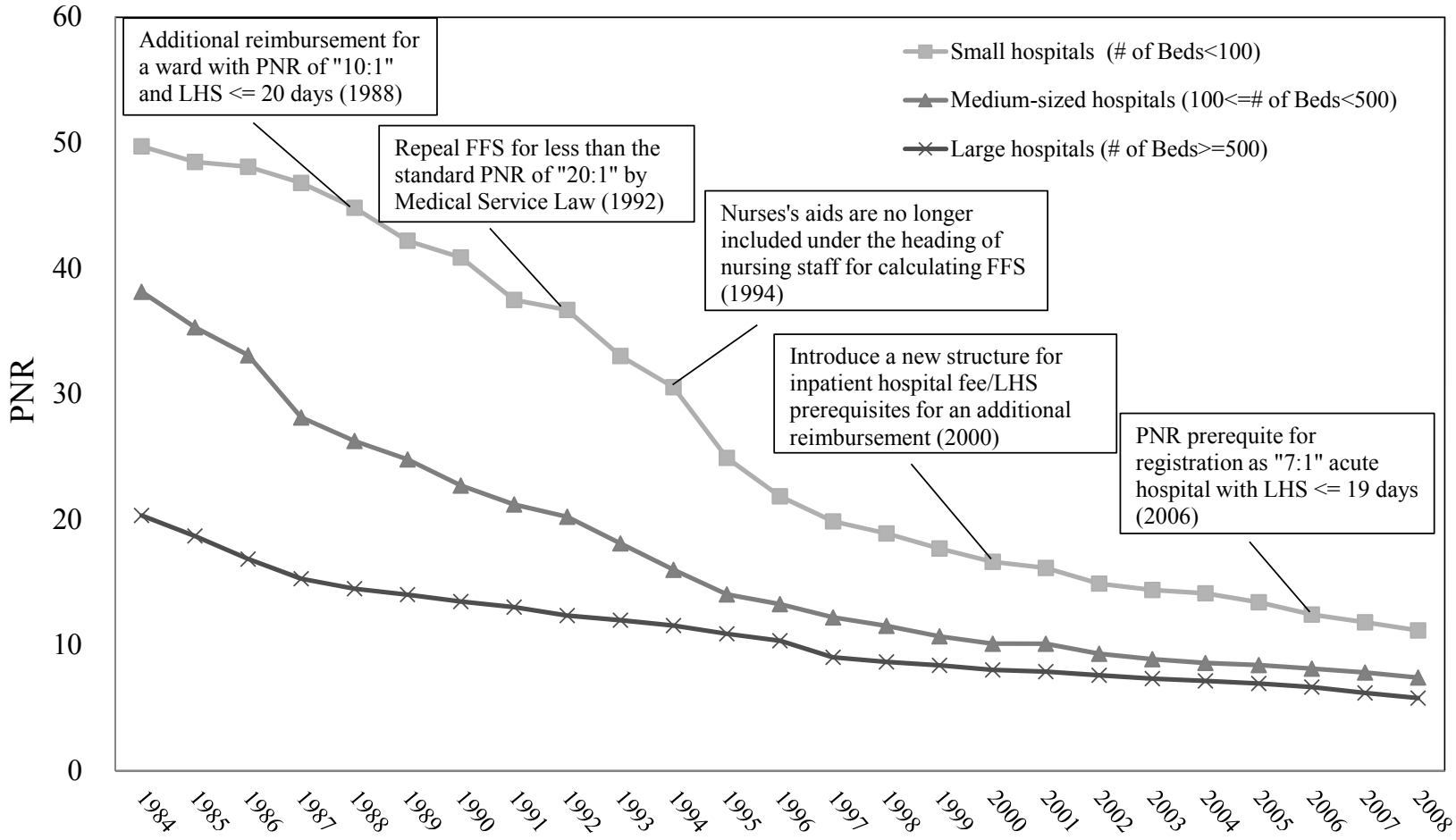
なし

2.実用新案登録

なし

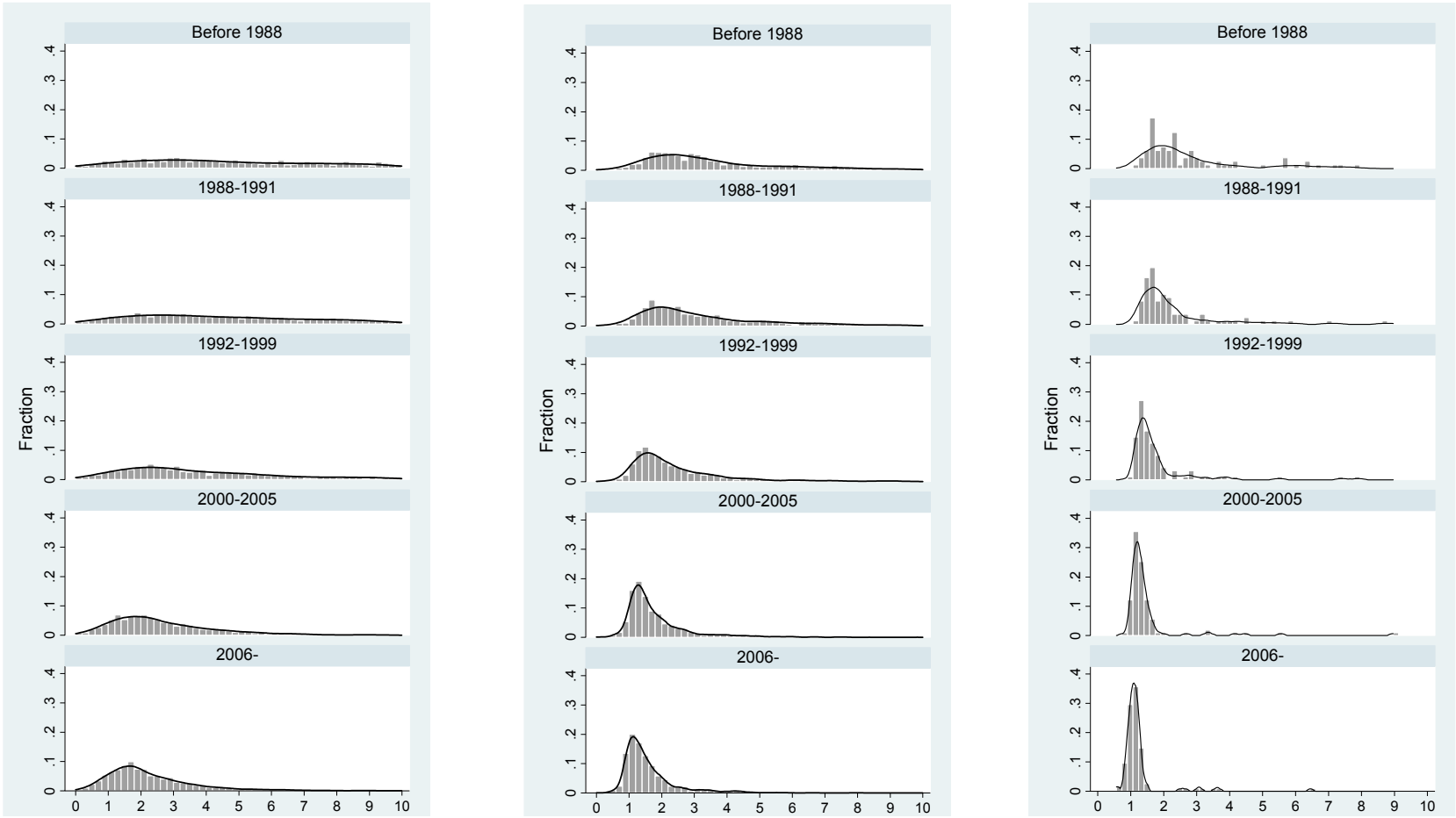
3.その他

図1: PNR by hospital size and the timing of major revisions of FFS (1984-2008)



Source: PNRs are calculated by the author, based on "Hospital Report (HR)" and "Survey of Medical Institutions (SMI)" (MHLW).
Note: PRN and LHS stand for "patient-nurse ratio" and "length of hospital stay", respectively. All PRNs in this figure are based on the new standard revised as of 2006. Before 2006, each PNR of "7:1", "10:1", "13:1", "15:1", "18:1", and "20:1" were counted as "1.4:1", "2:1", "2.5:1", "3:1", "3.5:1", and "4:1" .

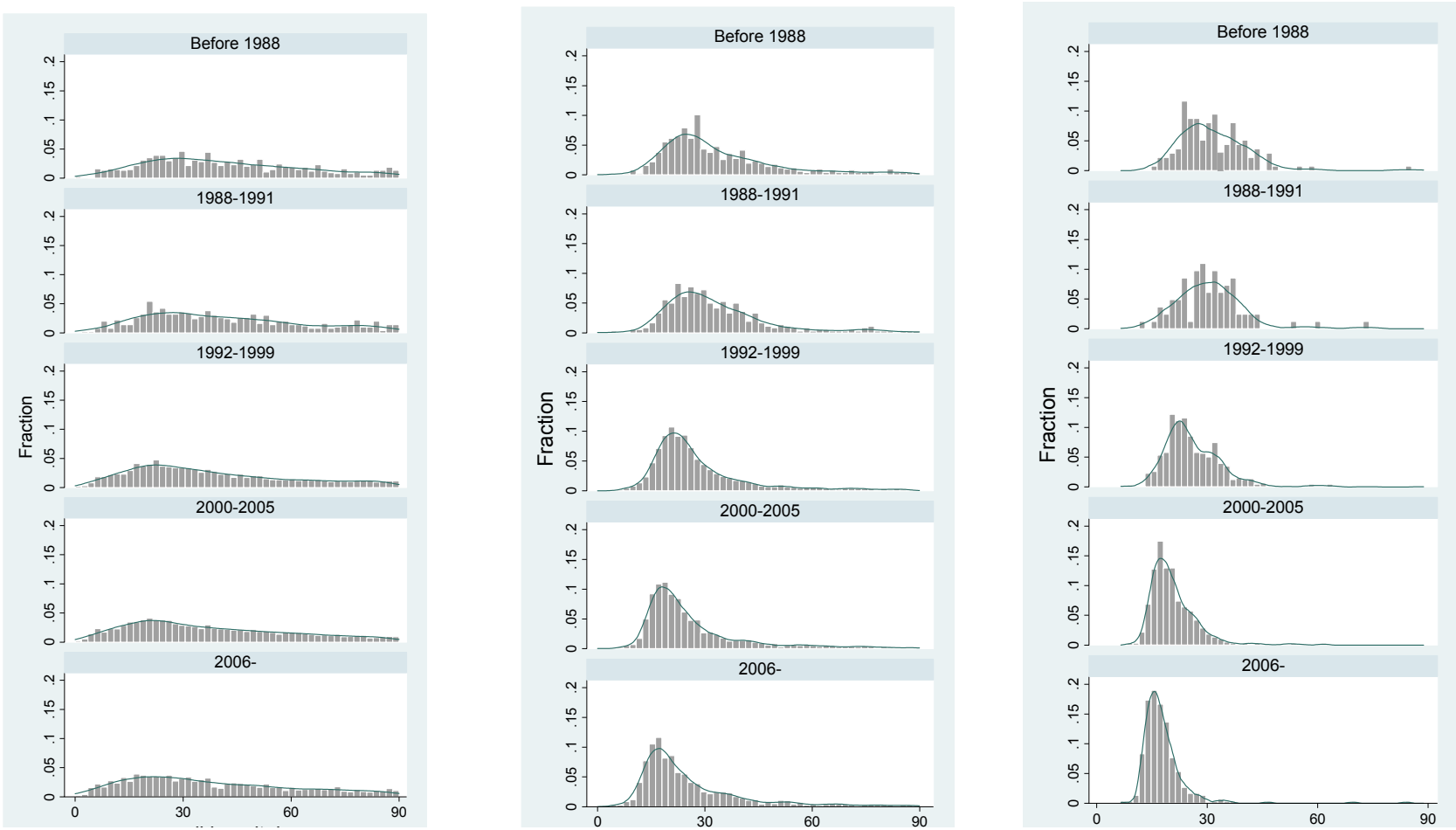
図 2: Histogram of PNR by hospital size and the timing of major revisions of FFS with kernel density estimates



Small hospitals　　Medium-sized hospitals　　Large hospitals

Source: Estimated by the author, based on HR and SMI (MHLW).
Note: Broken lines show “a 7:1 hospital”.

図 3: Histogram of LHS by hospital size and the timing of major revisions of FFS with kernel density estimates



Small hospitals　　Medium-sized hospitals　　Large hospitals

Source: Estimated by the author, based on HR and SMI (MHLW).

表 1:

Table 1 Kernel propensity score matching DID estimates before and after 2000

Outcome variables	Number of observations	Base line before 2000				Follow up after 2000				DID		R-square
		Control	Treated	Difference at base line		Control	Treated	Difference at follow up		δ in Eq.(2)		
A. PNR												
A-1. All hospitals	19501	1.042	1.644	0.602	***	0.880	1.352	0.473	***	-0.130	***	0.133
		(0.010)	(0.010)	(0.014)		(0.012)	(0.011)	(0.016)		(0.022)		
A-2. Small hospitals	9708	0.728	1.421	0.693		0.653	1.314	0.660		-0.032		0.127
		(0.016)	(0.016)	(0.022)		(0.022)	(0.020)	(0.030)		(0.038)		
A-3. Medium-sized hospitals	8214	1.357	1.968	0.612	***	1.008	1.429	0.421	***	-0.191	***	0.321
		(0.011)	(0.011)	(0.015)		(0.011)	(0.011)	(0.016)		(0.022)		
A-4. Large hospitals	1403	1.396	1.568	0.172	***	1.024	1.157	0.133	***	-0.040	***	0.338
		(0.016)	(0.016)	(0.022)		(0.016)	(0.016)	(0.023)		(0.032)		
B. LHS												
B-1. All hospitals	19501	20.549	36.849	16.300	***	20.917	31.758	10.841	***	-5.459	***	0.157
		(0.223)	(0.223)	(0.316)		(0.265)	(0.247)	(0.363)		(0.481)		
B-2. Small hospitals	9708	20.710	42.121	21.411	***	24.280	38.602	14.322	***	-7.089	***	0.189
		(0.359)	(0.359)	(0.508)		(0.493)	(0.432)	(0.655)		(0.829)		
B-3. Medium-sized hospitals	8214	19.790	31.080	11.290	***	18.495	26.924	8.429	***	-2.861	***	0.162
		(0.254)	(0.254)	(0.360)		(0.271)	(0.262)	(0.376)		(0.521)		
B-4. Large hospitals	1403	20.461	28.395	7.934	***	17.057	20.456	3.399	***	-4.536	***	0.259
		(0.374)	(0.374)	(0.529)		(0.383)	(0.384)	(0.542)		(0.758)		

Source: Estimated by the author, based on HR and SMI (MHLW).
Note: *** p<0.01; **p<0.05; and *p<0.1.

表 2:

Table 2 Kernel propensity score matching DID estimates before and after 2006

Outcome variables	Number of observations	Base line before 2006 Control	Treated	Difference at base line		Follow up after 2006 Control	Treated	Difference at follow up		DID δ in Eq.(2)		R-square
A. PNR												
A-1. All hospitals	21964	1.068	1.604	0.536	***	0.871	1.347	0.476	***	-0.060	*	0.100
		(0.009)	(0.009)	(0.012)		(0.021)	(0.020)	(0.029)		(0.031)		
A-2. Small hospitals	11272	0.850	1.442	0.591	***	0.734	1.327	0.594	***	0.002		0.093
		(0.013)	(0.013)	(0.019)		(0.036)	(0.032)	(0.038)		(0.052)		
A-3. Medium-sized hospitals	8859	1.433	1.887	0.454	***	1.014	1.401	0.387	***	-0.066	**	0.199
		(0.009)	(0.009)	(0.013)		(0.021)	(0.020)	(0.029)		(0.032)		
A-4. Large hospitals	1768	1.333	1.494	0.161	***	0.967	1.044	0.077	*	-0.084	*	0.196
		(0.013)	(0.013)	(0.018)		(0.028)	(0.029)	(0.040)		(0.044)		
B. LHS												
B-1. All hospitals	21964	21.514	38.033	16.519	***	22.542	33.958	11.416	***	-5.103	***	0.171
		(0.181)	(0.181)	(0.256)		(0.449)	(0.416)	(0.612)		(0.663)		
B-2. Small hospitals	11272	22.129	42.163	20.035	***	25.753	38.861	13.108	***	-6.927	***	0.193
		(0.282)	(0.282)	(0.398)		(0.772)	(0.680)	(1.029)		(1.103)		
B-3. Medium-sized hospitals	8859	20.532	32.342	11.810	***	18.766	28.706	9.940	***	-1.871	***	0.175
		(0.209)	(0.209)	(0.295)		(0.464)	(0.459)	(0.653)		(0.717)		
B-4. Large hospitals	1768	21.676	29.193	7.518	***	16.406	20.255	3.849	***	-3.669	***	0.241
		(0.289)	(0.289)	(0.409)		(0.637)	(0.654)	(0.913)		(1.000)		

Source: Estimated by the author, based on HR and SMI (MHLW).
Note: *** p<0.01; **p<0.05; and *p<0.1.

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平成２６年度分担研究報告書

医療・介護保険制度の改革動向と影響、ならびに今後の需要推移の検討

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抄録

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、医療介護サービス利用の現状把握、2006年の医療構造改革以降の我が国における保健医療政策の動向、制度改正による受療・利用への影響評価、ならびに人口高齢化・減少化に伴う健康・医療介護需要の将来推計などに資する基礎統計の作成などを担当した。上記目的を達成するため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った。2015年3月に個票利用許可を得たことから、今年度研究事業としては時間の許す限りのものに限定されてしまったが、引き続き分析を進める一方、利用期間の延長手続きを取った。現時点までの分析として、介護給付費実態調査を用いた2012年の点数改定のインパクトの検討の結果、通所介護において利用有無に大きな変化は見られなかったものの、負荷サービスについて、一部サービス事業所で利用回数の増加が見られる傾向が確認され、さらに詳細な分析を行う予定である。また近年増加傾向にある認知症の在宅介護の状況について国民生活基礎調査介護票個票などをもとに検討したところ、要介護者を持つ世帯の約３割で認知症を伴っていた。また近年増加傾向が見える介護者の高齢化・老々介護化の一方で、認知症を有する場合には以前従来の嫁・実子による介護が主となっていた。高齢社会における将来の医療介護需要推計の基礎データとして21世紀中高齢者縦断調査のパネル調査を用いて、心臓病・脳卒中・糖尿病・がんなどの慢性疾患の発症・有病状況の遷移確率の推計を、また国民生活基礎調査健康票データを用いて併存確率の推計を行った。欠損の処理方法によって結果が著しく異なることが確認されたことから、次年度研究においては、同様の推計を行う米国先行研究グループとの連携のもと、適切な処理法の確立と、引き続き将来推計モデルの構築に向けて分析を進める予定である。医療アクセスの水平的公平性の状況、支払負担の水平的公平性については、次年度研究事業に持越し、引き続き検討を行う予定である。

A．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。先行の 2010－11 年科研において、わが国の医療・介護保険制度の需要・供給ならびに波及効果について詳細な検討を、政府統計個票を用いて実証し、医療保険制度によるアクセスならびに支払負担公平性の確立（Ikegami,et al. 2011）、介護者の負担軽減による就労支援効果（Tamiya, Noguchi, et al. 2011）などを明らかにしてきた。本研究事業では、その後の制度変更や経済状況の変動を鑑み、HIT レポート作成にあたって最新の動向について情報を反映することを求められている。前回の 2009 年の HIT レポート以降、医療・介護を巡る社会環境は大きく変化しており、制度改革に向けた政策的取組・政治的手法にも大きな変化が見られている。

平成 18 年の医療構造改革、平成 20 年の社会保障国民会議の改革シナリオ公表では、従来の点数改定や自己負担率改定による財政的インセンティブを用いた改正と、医療法改正による供給体制への規制の双方を取り込み、供給体制改革を強化するものとして注目された。これに対し政権交代下に継続した動きとして社会保障と税の一体改革が遡上にあがり、ついに平成 24 年 8 月、社会保障制度改革推進法が成立したことにより、従来個別対応されていた医療・介護・年金・少子化対策について、一体改革の中で基本的位置づけ・方針が統一的に定められた。これを加速要因とし、以後の動きは急速な展開を見せた。同法に基づく社会保障制度改革国民会議報告書が 25 年 8 月発表、それを受け社会保障改革プログラム法案が 10 月に国会に提出され、12 月には成立した。このように、24 年以降の政策決定プロセスは従来のものと異なり、医療関連の個別法案の改正ではなく、社会保障制度の持続可能化を明確な改革方針とし、その時間枠を示したパッケージ法を根拠として、改革実施に必要な個別法をまたいで、いわゆる縦割り的対応を克服し、改革が包括的かつ計画的に進められることとなった点が注目される。

その結果、従来の demand/supply の各個別コントロールから議論が脱却し始めている。施設完結型ないし限定的な病病・病診連携から、地域完結型のシステムの構築がアジェンダとして浮上し、「地域医療構想」や「地域包括ケア」などの概念がキーワード化した。しかし、その実現に向けた現状の課題や克服の道筋を示す包括的エビデンスは乏しい。本分担研究をはじめとする諸研究活動を通じて、2009 年以降に特に注目し、アクセスや負担の公平性、医療サービスの生産性や質、さらに介護サービスの現状とその波及効果などに加え、前回研究事業で十分迫れなかった特定健診などの一次予防活動やプライマリケアなどの効率性についても、今回事業では射程に取りこむ予定となっている。今年度はその中間的報告として、介護や生活習慣病などを中心とし、政府統計個票を用いた初期的分析結果を報告する。

B．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 月に許可を得た。
21 世紀出生縦断調査（第 1～11 回）
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）
医療施設調査及び病院報告（平成 17 年～23 年）
医師・歯科医師・薬剤師調査（昭和 47 年～24 年）
2015 年 3 月に個票利用許可を得たことから、今年度研究事業としては時間の許す限りのものに限定されてしまったが、引き続き分析を進める一方、利用期間の延長手続きを取り、次年度事業において継続して分析を進めることとしている。本報告は主に 21 世紀中高齢者縦断調査、国民生活基礎調査並びに介護給付費実態調査個票を用いた分析の初期結果を報告する。他の政府統計個票については、次年度事業に引き続き分析を進める予定である。
なお国民健康栄養調査について国民生活基礎調査大調査年分についてデータリンクを図り、検討をする予定であったが、平成 22 年データなどの両調査データリンケージが困難であることなどから、次年度事業で引き続き国民健康栄養調査の個票申請について検討を継続することとしている。

C．結果

1）介護保険制度の点数改定によるサービスへの影響

平成 24 年度の介護保険点数改定では、通所介護サービスのうち、デイサービスについて、一日の提供時間によって点数区分が設けられるとともに、7 時間以下の提供については、従来点数より低い点数が付与されることとなった。これまで、デイサービスの平均提供時間が 7

時間未満であったのに対し、本改定により従来点数より低いカテゴリーを避けるために、一日あたりの提供時間を延長したり、回数を増やす、付加的サービスを増やすなどの供給者誘発需要が発生するインセンティブを与えるのではないかとの懸念があった。

介護保険制度では、居宅介護支援事業所が、要介護高齢者が利用するサービス選択の意思決定を援助している。そのため、居宅介護支援事業所は中立性・独立性なエージェントとして機能することが求められている。しかし、居宅介護支援事業所の約 47%は居宅サービス事業所（供給者）を併設しており、介護報酬の改定などで収入が減少した場合、同一法人のサービス利用を促すことで、事業所の収支を改善させようとするインセンティブを持つ可能性がある。

そこで、実質的に通所介護の報酬が切り下げられた 2012 年度の介護報酬改定を自然実験とし、居宅介護支援事業所と通所介護事業所の経営主体上の独立性によるインセンティブの違いが供給者側の行動に与える影響を考慮に入れた分析を行うことで、誘発需要の識別性の問題に対処し、介護サービス市場における供給者誘発需要仮説の検証することとした
2012 年 1 月から 6 月の介護給付費実態調査の個票データを利用した。また、居宅介護支援事業所の経営主体など特性情報は各都道府県の公開情報を利用した。対象は居宅介護支援事業所を利用している 65 歳以上の要介護高齢者とした。初期的分析として、通所介護利用の有無、利用頻度、1 日当たり費用（サービス提供時間に応じた基本サービス費と入浴などのサービス提供による加算）をアウトカムとし、通所介護事業所併設の有無、介護報酬改定ダミー、それらの交差項を説明変数とした分散分析を実施した。その結果、通所介護事業所を併設している居宅介護支援事業所（通所介護併設型）を利用している要介護高齢者は、通所介護事業所を併設していない居宅介護支援事業所（通所介護独立型）の要介護高齢者に比べ、年齢が低く、介護度が軽度である割合が高かった。通所介護費用の加算部分について、通所介護併設型は独立型に比べ利用単位数が多く（3.8 単位/日）、介護報酬改定後はその差が大きくなっており（4.9 単位/日）、分散分析の結果、通所介護併設、介護報酬改定、通所介護併設と介護報酬改定の交差項が有意（$p<0.01$）であった。通所介護利用の有無、通所介護の利用頻度、1 日当たりの通所介護費用については通所介護併設と介護報酬改定の交差項は有意ではなかった。以上から加算対象となるサービスについて供給者誘発需要の可能性が示唆された。一方で、利用の有無や利用回数、提供時間については明らかな供給者誘発需要は確認できなかった。代替サービスの影響、地域のサービス事業者密度などの地域要因を考慮に入れたパネルデータ分析を追加的に実施し、その結果を含めて介護サービス市場における供給者誘発需要仮説について考察を行う予定である。

２）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

医療介護の需要の将来推計については、従来、現時点での年齢別の医療・介護サービス利用量について将来にわたって定常的であるという強い仮定を置き、それを将来の人口推計結果に当てはめるという方法が取られてきた。しかし定常性仮定が将来にわたって成立することはほとんどありえず、すでに現時点においても、過去の高齢者と現在の高齢者では、健康状態、死亡確率、機能状況などの分布が異なることが明白となっている。したがって、現在の将来推計では、結果を過剰評価している部分と過少評価している部分が混在していることとなる。
米国の University of Southern California の Dana Goldman 教授を中心とする医療経済学者のグループは、こうした既存将来推計モデルの欠点を克服し、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）を提唱し、20 年にわたって、そのモデルを拡張・修正しつづけている。すでに米国においては、FEM は将来の医療介護の需要推計ばかりでなく、政策変更のシミュレーションを行う基盤としても認知され、薬剤価格設定の政策が及ぼす健康への影響など、さまざまな政策シミュレーションに反映されている。本分担研究では、米国 USC の FEM 研究グループと連携し、日本版の FEM を構築し、2035 以降の人口減少に加速がかかる時期を見越した、より精緻な医業介護需要の推計を行うことを目的としている。そのためには主に個人の健康・機能・社会経済的状況などを継時的に測定しているパネルデータが必要である。そこで本研究では 21 世紀中高年縦断調査をベースとして健康・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推計を行うこととした。ただし中高年縦断調査では年齢が 50 代に限られるため、60 代以上の検討を行うための準備として、国民生活基礎調査大調査年データを積み重ね疑似パネルデータとして扱い、併存症の joint probability を求める作業を並列して実施した。その結果を表１ならびに２に示す。

中高年縦断調査では毎回疾患罹患・治療の状況を尋ねているが、今回記述統計を取ったところ、一度診断されているのに続く調査年では「なし」と答えるなど、矛盾回答や回答欠損などが無視できない割合（全体の 2 割以上）存在することが明らかとなり、その欠損処理・データクリーニングをどう図るかによって結果が大きく異なることが明らかとなった。現在米国 FEM 研究グループにデータ処理のプロトコールについて照会中である。以下、今回の報告では、処理前の粗集計の結果を示す。その結果、中高年縦断調査のパネルデータに基づけた、脳心血管系障害と高脂血症・高血圧・糖尿病などのリスク状態との間には期待されたとおりの正相関が認められた。一方、悪性新生物については相関は低く、疫学・生物学的にも妥当な結果が得られた。これに対して国民生活基礎調査の横断的データから併存症確率を求めたところ、こちらもほぼ解釈可能な数値が見られた一方、一部数値については（たとえば悪性新生物と糖尿病の関連など）、医学的観点から十分説明できないものが含まれており、より個別詳細な妥当性検証が必要と思われた。

３）認知症を伴う要介護者の状況と在宅介護の課題について

「要介護者と同居している世帯」を対象として、認知症高齢者を自宅で抱えることになった世帯の特徴、またさらには認知症高齢者を抱える世帯の中で、主介護者になる要因は何か、介護者の健康状態の違いについても併せて検証することを目的とする。６５歳以上の高齢者と同居している世帯を、「認知症が入ったマイルドな身体介護（要介護１）を必要とする世帯」「認知症が入った身体介護を必要（要介護 2 以上）とする世帯」「その他世帯」の３つに分類し、認知症が入ったことによってその家族へのヘルプサービスがどのように変わるのかを検証した。

表３に結果を示す。国民生活基礎調査平成 25 年度調査介護票対象世帯は 3893 世帯であり、そのうち「認知症が入ったマイルドな身体介護を必要（要介護１）とする世帯」350 世帯、「認知症が入った身体介護を必要（要介護 2 以上）とする世帯」は 712 世帯、「その他世帯」は 2831 世帯であった。要介護者が認知症であると介護負担が増えるためか、介護者は老介護者であろう夫や妻である割合が減少し、嫁や実の子供の割合が増加することがわかった。また、利用している介護サービスは要介護度が低い認知症では、ショートステイの割合が多かったが、要介護度が高くなると外出できないためか訪問介護の利用の割合が増えた。認知症を対象とするグループホームの利用があまりされていないのは、ニーズに見合っていないためか、あるいは施設数が少ないためかと思われた。

D．考察およびE.結論

初年度研究事業として、2015 年 3 月に統計法 33 条に基づき個票利用許可を得た、各種政府統計について初期的分析を行った。次年度に向けてこれをさらに進めるとともに、残る人口動態統計の解析、追加申請による国民健康栄養調査個票と国民生活基礎調査のリンケージによる特定健診制度の導入効果の検証、さらには国勢調査個票利用申請を行い、学歴別などの死亡数推計のジオコーディング分析などを展開する予定である。

F．健康危険情報

該当せず。

G．研究発表

投稿準備中

H．知的財産権の出願・登録状況（予定含む）

該当せず。

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Table 1.　中高年縦断調査（第 1 回〜第 8 回）による慢性疾患の遷移状況

サンプル数(粗データ・重みづけなし)

出生年(昭和)	第 1 回	第 2 回	第 3 回	第 4 回	第 5 回	第 6 回	第 7 回	第 8 回
20	307	302	297	291	287	279	273	268
21	2,858	2,787	2,736	2,695	2,661	2,581	2,549	2,510
22	4,098	3,972	3,910	3,833	3,782	3,652	3,601	3,543
23	4,060	3,932	3,838	3,781	3,731	3,591	3,532	3,438
24	4,239	4,106	4,019	3,947	3,889	3,740	3,692	3,594
25	3,666	3,527	3,438	3,354	3,314	3,177	3,125	3,026
26	3,409	3,297	3,221	3,182	3,142	2,997	2,934	2,861
27	3,313	3,224	3,144	3,093	3,061	2,917	2,856	2,795
28	3,067	2,978	2,907	2,868	2,823	2,680	2,635	2,590
29	2,928	2,839	2,782	2,731	2,706	2,603	2,551	2,483
30	2,411	2,351	2,302	2,258	2,239	2,150	2,118	2,076
合計	34,356	33,315	32,594	32,033	31,635	30,367	29,866	29,184
糖尿病	2,363	2,497	2,504	2,553	2,709	2,584	2,666	2,628
心臓病	895	980	1,012	1,053	1,110	1,118	1,172	1,172
脳卒中	426	429	461	493	536	524	530	545
高血圧	5,759	6,164	6,411	6,759	7,064	6,960	7,197	7,210
高脂血症	2,890	3,511	3,613	3,669	3,905	3,772	3,877	3,869
悪性新生物	585	485	559	583	634	707	730	767

糖尿病の診断の有無　　(第 1 回) 1:診断あり / 2:診断なし / △:その他（第 1 回調査回答なし）
(第 2 回〜第 8 回)　　1:診断あり / 2:診断なし / V:不詳(診断有無不詳) / △:その他（調査回答なし）

粗データ

糖尿病	第 1 回	第 2 回	第 3 回	第 4 回	第 5 回	第 6 回	第 7 回	第 8 回
	690	2,412	3,908	5,017	5,853	8,317	9,192	10,479
1	2,363	2,497	2,504	2,553	2,709	2,584	2,666	2,628
2	31,452	22,590	20,960	22,276	22,527	22,167	20,555	19,527
V		7,006	7,133	4,659	3,416	1,437	2,092	1,871

心臓病の診断の有無　　(第 1 回) 1:診断あり / 2:診断なし / △:その他（第 1 回調査回答なし）
(第 2 回〜第 8 回)　　1:診断あり / 2:診断なし / V:不詳(診断有無不詳) / △:その他（調査回答なし）

粗データ

心臓病	第 1 回	第 2 回	第 3 回	第 4 回	第 5 回	第 6 回	第 7 回	第 8 回
	690	2,412	3,908	5,017	5,853	8,317	9,192	10,479
1	895	980	1,012	1,053	1,110	1,118	1,172	1,172
2	32,920	24,069	22,422	23,755	24,077	23,586	22,017	20,958
V		7,044	7,163	4,680	3,465	1,484	2,124	1,896

脳卒中の診断の有無　　(第 1 回) 1:診断あり / 2:診断なし / △:その他（第 1 回調査回答なし）
(第 2 回～第 8 回)　　1:診断あり / 2:診断なし / V:不詳(診断有無不詳) / △:その他（調査回答なし）
粗データ

脳卒中	第 1 回	第 2 回	第 3 回	第 4 回	第 5 回	第 6 回	第 7 回	第 8 回
	690	2,412	3,908	5,017	5,853	8,317	9,192	10,479
1	426	429	461	493	536	524	530	545
2	33,389	24,598	22,945	24,287	24,624	24,153	22,625	21,542
V		7,066	7,191	4,708	3,492	1,511	2,158	1,939

高血圧の診断の有無　　(第 1 回) 1:診断あり / 2:診断なし / △:その他（第 1 回調査回答なし）
(第 2 回～第 8 回)　　1:診断あり / 2:診断なし / V:不詳(診断有無不詳) / △:その他（調査回答なし）
粗データ

高血圧	第 1 回	第 2 回	第 3 回	第 4 回	第 5 回	第 6 回	第 7 回	第 8 回
	690	2,412	3,908	5,017	5,853	8,317	9,192	10,479
1	5,759	6,164	6,411	6,759	7,064	6,960	7,197	7,210
2	28,056	18,999	17,106	18,128	18,199	17,811	16,064	14,971
V		6,930	7,080	4,601	3,389	1,417	2,052	1,845

高脂血症の診断の有無　　(第 1 回) 1:診断あり / 2:診断なし / △:その他（第 1 回調査回答なし）
(第 2 回～第 8 回)　　1:診断あり / 2:診断なし / V:不詳(診断有無不詳) / △:その他（調査回答なし）
粗データ

高脂血症	第 1 回	第 2 回	第 3 回	第 4 回	第 5 回	第 6 回	第 7 回	第 8 回
	690	2,412	3,908	5,017	5,853	8,317	9,192	10,479
1	2,890	3,511	3,613	3,669	3,905	3,772	3,877	3,869
2	30,925	21,605	19,847	21,184	21,277	20,924	19,291	18,217
V		6,977	7,137	4,635	3,470	1,492	2,145	1,940

悪性新生物の診断の有無　(第 1 回) 1:診断あり / 2:診断なし / △:その他（第 1 回調査回答なし）
(第 2 回～第 8 回)　　1:診断あり / 2:診断なし / V:不詳(診断有無不詳) / △:その他（調査回答なし）
粗データ

悪性新生物	第 1 回	第 2 回	第 3 回	第 4 回	第 5 回	第 6 回	第 7 回	第 8 回
	690	2,412	3,908	5,017	5,853	8,317	9,192	10,479
1	585	485	559	583	634	707	730	767
2	33,230	24,515	22,820	24,172	24,470	23,958	22,403	21,288
V		7,093	7,218	4,733	3,548	1,523	2,180	1,971

上記にもとづく各慢性疾患の有病率

有病率	第 1 回	第 2 回	第 3 回	第 4 回	第 5 回	第 6 回	第 7 回	第 8 回
糖尿病	6.99%	9.16%	10.39%	11.50%	12.64%	13.58%	14.90%	16.55%
心臓病	2.65%	3.88%	4.84%	5.69%	6.45%	7.27%	8.20%	9.34%
脳卒中	1.26%	1.76%	2.28%	2.75%	3.20%	3.61%	4.10%	4.70%
高血圧	17.03%	22.04%	25.27%	28.03%	30.75%	33.16%	36.27%	40.29%
高脂血症	8.55%	13.96%	17.61%	20.30%	23.23%	25.77%	28.52%	32.09%
悪性新生物	1.73%	2.33%	3.03%	3.59%	4.28%	5.11%	6.09%	7.42%

併存状態（相関係数）

	糖尿病	心臓病	脳卒中	高血圧	高脂血症	悪性新生物
糖尿病	1					
心臓病	0.1401	1				
脳卒中	0.0913	0.1279	1			
高血圧	0.1595	0.1571	0.1471	1		
高脂血症	0.1296	0.101	0.0501	0.1936	1	
悪性新生物	0.037	0.0395	0.0435	0.0278	0.0397	1

Table2.　国民生活基礎調査健康票個票（平成 10 年～平成 25 年）を用いた併存症状況

	年齢カテゴリー	サンプル数	H10																																													
			糖尿病	肥満症	高脂血症	甲状腺の病気	痴呆	精神病	神経症	自律神経失調症	白内障	網膜の病気	耳	難聴	高血圧症	脳卒中	狭心症・心筋梗塞	その他の循環器系の病気	急性鼻咽頭炎	アレルギー性鼻炎	喘息	その他の呼吸器系の病気	胃炎・十二指腸炎	胃・十二指腸かいよう	肝炎・肝硬変	胆石症・胆のう炎	その他の消化器系の病気	ムシ歯	歯肉炎・歯周疾患	アトピー性皮膚炎	接触皮膚炎	じんま疹	脱毛症	痛風	慢性関節リウマチ	関節症	肩こり症	腰痛症	骨粗しょう症	腎臓の病気	前立腺肥大症	閉経期又は閉経後障害	骨折	骨折以外のけが・やけど	貧血・血液の病気	悪性新生物	妊娠・産褥	その他
		190	1	1	5	1	0	0	0	0	1	0	0	0	12	0	0	3	1	2	1	1	1	2	2	0	2	4	2	2	1	0	0	0	0	4	4	5	1	0	0	1	2	3	0	0	0	1
1	0歳-4歳	28,637	7	8	4	16	0	0	7	1	6	17	450	21	1	3	3	98	1,378	239	473	246	3	5	9	2	45	417	16	1,006	242	116	2	0	1	9	2	8	0	18	0	0	22	79	31	6	0	561
2	5歳-9歳	36,401	12	20	6	11	0	4	17	10	14	28	612	84	7	9	3	100	736	1,094	960	277	7	4	2	2	33	1,810	68	1,040	177	83	8	0	1	14	8	6	3	47	0	0	85	150	16	5	0	736
3	10歳-14歳	42,712	20	31	8	28	0	12	27	18	25	45	143	63	17	6	9	83	265	1,061	649	144	22	10	6	6	50	1,132	143	751	126	82	13	0	2	80	36	57	4	84	0	0	190	321	38	6	0	736
4	15歳-19歳	46,633	25	27	13	52	0	24	43	48	18	36	55	30	18	4	9	67	136	532	239	59	47	33	11	9	64	924	99	747	143	90	15	4	7	116	100	287	5	80	0	0	176	429	107	6	16	566
5	20歳-24歳	46,022	29	30	16	74	0	61	83	66	28	40	36	25	26	10	13	63	113	314	174	70	97	78	24	6	84	1,397	134	722	211	102	9	8	11	76	234	365	9	74	2	0	106	218	69	4	198	456
6	25歳-29歳	46,653	60	45	42	105	0	120	126	130	25	33	39	33	65	12	14	48	178	333	173	101	123	107	52	19	120	1,736	234	523	259	131	24	26	19	110	474	605	7	74	3	0	103	218	82	12	670	637
7	30歳-34歳	42,726	106	40	88	148	0	178	128	145	21	48	49	29	88	21	21	47	238	389	231	115	146	183	66	33	142	1,613	268	339	205	180	22	56	31	150	599	750	7	106	6	0	84	205	113	33	615	659
8	35歳-39歳	43,514	167	69	190	176	0	183	170	209	27	58	52	39	270	30	24	103	239	509	229	137	200	319	132	50	203	1,659	380	215	213	151	23	130	51	200	751	976	14	127	11	0	96	221	156	64	176	751
9	40歳-44歳	46,783	369	100	406	233	3	188	175	256	57	86	70	63	715	58	88	152	187	479	239	153	279	526	224	73	230	1,570	601	149	225	137	16	228	89	315	949	1,176	30	204	17	0	116	256	265	96	36	720
10	45歳-49歳	58,752	868	203	882	395	16	255	249	349	129	184	115	137	2,120	150	254	311	221	627	304	189	440	900	348	117	345	2,025	1,050	202	328	214	37	329	198	624	1,483	1,857	64	337	46	325	154	291	444	241	9	808
11	50歳-54歳	53,241	1,458	231	1,525	430	12	236	245	416	258	273	133	178	3,657	300	477	426	208	565	312	234	515	887	419	144	448	1,942	1,299	167	336	246	20	348	243	843	1,939	2,095	149	387	77	600	187	269	338	249	2	734
12	55歳-59歳	48,922	1,847	333	2,160	426	19	190	263	527	621	380	192	287	5,036	526	816	604	236	522	353	330	704	966	653	232	475	1,993	1,480	206	329	250	37	419	367	1,059	2,037	2,534	343	438	164	340	261	327	241	245	1	665
13	60歳-64歳	46,217	2,461	402	2,571	419	40	165	355	580	1,439	498	229	433	6,728	823	1,200	815	325	534	450	499	832	1,043	827	293	648	1,787	1,495	207	372	293	33	428	445	1,491	2,414	3,248	674	467	337	132	285	275	296	244	0	746
14	65歳-69歳	44,118	2,757	444	2,778	458	75	189	408	594	2,595	608	227	639	8,375	1,258	1,753	1,162	310	510	593	685	996	1,188	871	320	791	1,562	1,364	241	386	274	37	520	578	2,088	2,612	4,031	1,116	535	623	70	381	296	359	215	0	805
15	70歳-74歳	36,663	2,370	322	2,266	347	129	144	427	531	3,599	584	175	796	8,068	1,323	1,908	1,265	278	337	600	755	1,021	1,060	707	353	831	1,122	946	238	342	230	29	369	588	2,278	2,269	4,405	1,496	491	739	30	425	266	381	221	0	755
16	75歳-79歳	24,809	1,564	198	1,328	215	234	108	404	387	3,340	425	118	759	5,893	1,116	1,550	1,092	196	198	505	584	702	682	361	272	651	579	529	146	213	176	29	250	551	1,996	1,580	3,439	1,442	388	620	38	353	196	344	139	0	607
17	80歳-84歳	16,046	932	106	683	111	288	72	228	206	2,267	240	76	628	3,903	755	1,054	776	138	91	318	429	415	422	130	133	471	272	264	121	158	122	8	161	375	1,321	851	2,082	944	224	399	18	257	125	223	71	0	403
18	85歳-89歳	8,849	413	42	254	48	274	33	116	82	1,197	127	34	420	2,016	421	551	416	59	46	167	246	215	204	66	78	267	103	118	52	123	61	7	61	188	681	374	1,003	470	111	207	8	140	70	151	37	0	256
19	90歳-94歳	2,947	110	5	66	5	126	13	30	29	355	38	8	139	558	108	162	165	24	5	49	65	48	40	10	23	86	23	44	7	38	16	0	13	49	178	78	276	141	52	74	4	53	20	47	13	0	96
20	95歳-99歳	587	6	1	10	0	31	1	9	5	61	4	0	30	83	23	19	35	3	3	9	8	6	9	2	8	14	4	4	1	7	2	1	3	7	30	16	37	21	12	14	3	12	3	10	2	0	36
21	100歳-104歳	54	1	0	0	0	4	0	1	0	5	0	0	3	6	1	5	2	1	0	1	1	1	0	1	1	2	0	0	0	1	2	0	1	0	1	0	3	3	0	1	0	1	0	0	0	0	4
22	105歳-109歳	2	0	0	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	合計	721,478	15,583	2,658	15,301	3,698	1,252	2,176	3,511	4,589	16,088	3,752	2,813	4,837	47,663	6,957	9,933	7,833	5,470	8,390	7,029	5,328	6,820	8,668	4,923	2,174	6,002	23,674	10,538	7,082	4,435	2,958	370	3,354	3,801	13,664	18,810	29,245	6,944	4,256	3,340	1,569	3,489	4,238	3,711	1,909	1,723	11,738

	年齢カテゴリー	サンプル数	H13																																													
			糖尿病	肥満症	高脂血症	甲状腺の病気	痴呆	精神病	神経症	自律神経失調症	白内障	網膜の病気	中耳炎	難聴	高血圧症	脳卒中	狭心症・心筋梗塞	その他の循環器系の病気	急性鼻咽頭炎	アレルギー性鼻炎	喘息	その他の呼吸器系の病気	胃炎・十二指腸炎	胃・十二指腸潰瘍	肝炎・肝硬変	胆石症・胆のう炎	その他の消化器系の病気	ムシ歯	歯肉炎・歯周疾患	アトピー性皮膚炎	接触皮膚炎	じんま疹	脱毛症	痛風	慢性関節リウマチ	関節症	肩こり症	腰痛症	骨粗しょう症	腎臓の病気	前立腺肥大症	閉経期又は閉経後障害	骨折	骨折以外のけが・やけど	貧血・血液の病気	悪性新生物	妊娠・産褥	その他
		252	8	0	3	1	0	0	1	0	3	0	1	1	2	2	1	0	3	1	2	0	0	0	1	0	1	3	3	1	1	1	0	0	0	0	1	2	1	1	0	0	1	0	0	1	0	1
1	0歳-4歳	28,041	15	5	13	23	0	4	15	2	20	18	571	30	28	9	7	111	1,585	278	561	336	4	8	9	3	73	402	18	973	287	125	1	1	4	18	22	22	6	34	0	0	29	86	40	7	0	722
2	5歳-9歳	34,976	26	7	16	20	4	11	26	13	33	32	634	68	44	10	8	97	767	1,158	1,024	308	10	5	7	4	53	2,046	89	1,013	215	104	13	3	3	30	12	28	4	30	0	0	85	173	14	6	0	900
3	10歳-14歳	37,979	26	20	27	16	2	21	33	20	17	31	163	51	34	4	8	94	285	1,042	650	110	23	6	7	3	52	1,092	163	736	152	85	17	7	5	106	63	111	9	69	0	0	195	396	37	9	1	933
4	15歳-19歳	42,665	37	10	34	49	1	37	64	44	33	55	79	30	68	12	21	85	153	566	286	80	50	32	15	6	76	848	144	733	175	85	9	2	14	124	113	389	5	98	0	0	182	497	115	13	14	709
5	20歳-24歳	39,379	50	9	34	56	3	86	92	76	36	53	36	26	62	8	12	55	132	246	177	77	64	61	34	7	82	1,143	140	709	187	114	10	18	8	77	220	349	5	59	3	0	105	200	63	12	218	585
6	25歳-29歳	45,419	79	27	53	151	3	186	141	144	32	52	45	40	88	20	21	73	182	331	270	119	135	93	35	10	141	1,698	263	627	249	153	19	34	21	105	414	640	8	96	6	0	103	212	83	21	670	795
7	30歳-34歳	45,050	141	38	125	174	8	209	173	171	45	59	62	47	164	26	25	69	244	489	288	137	155	159	74	21	163	1,822	398	461	225	183	25	69	37	146	648	819	16	92	7	0	74	218	127	38	678	876
8	35歳-39歳	40,933	194	48	216	218	8	230	161	224	39	74	57	50	315	44	53	93	248	528	287	162	174	201	120	44	212	1,627	534	301	239	144	22	118	51	198	786	886	17	140	15	0	104	244	171	62	234	924
9	40歳-44歳	43,748	367	84	452	260	11	228	210	272	66	120	72	62	835	64	102	158	198	578	317	181	281	408	192	72	256	1,535	729	228	259	183	18	203	78	315	944	1,166	22	185	11	0	105	237	310	128	30	1,004
10	45歳-49歳	49,104	821	127	823	299	9	272	196	330	103	151	93	86	1,897	124	222	248	201	640	299	177	375	658	255	98	313	1,682	1,022	221	297	230	34	294	154	514	1,220	1,471	32	257	41	330	119	218	365	200	2	914
11	50歳-54歳	62,101	1,793	237	1,935	554	28	327	283	481	305	331	151	204	4,790	364	579	490	310	811	410	294	625	994	482	168	495	2,422	1,823	289	472	284	45	487	293	938	2,058	2,333	150	412	109	868	205	326	386	329	5	1,086
12	55歳-59歳	45,374	1,993	276	2,276	439	20	250	226	430	547	411	148	264	5,193	537	677	567	258	652	426	343	632	825	521	178	424	1,848	1,669	205	352	199	45	439	311	944	1,782	2,201	265	384	208	486	246	271	209	285	0	722
13	60歳-64歳	44,940	2,644	365	2,963	496	47	233	296	534	1,427	539	201	364	7,087	831	1,158	783	286	700	468	417	785	859	665	250	584	1,925	1,905	248	411	269	31	504	430	1,319	2,187	2,808	555	479	426	243	263	268	269	316	0	686
14	65歳-69歳	44,025	2,997	451	3,405	510	78	199	387	576	2,740	693	209	592	8,608	1,290	1,700	1,133	339	633	645	599	1,036	944	885	315	768	1,837	1,832	323	418	308	32	535	526	1,972	2,476	3,656	1,077	540	721	114	381	303	333	295	0	750
15	70歳-74歳	38,873	2,807	345	3,099	478	189	200	377	554	4,159	700	193	753	8,997	1,635	1,978	1,383	274	529	726	802	1,151	979	749	325	923	1,330	1,368	341	427	290	34	468	551	2,467	2,379	4,289	1,524	515	990	62	430	275	395	287	0	705
16	75歳-79歳	29,201	2,007	244	1,910	343	297	160	310	415	4,046	484	152	844	7,037	1,381	1,871	1,324	253	314	599	698	910	756	479	310	797	727	753	217	327	226	31	336	506	2,121	1,724	3,867	1,622	441	930	38	416	240	454	204	0	632
17	80歳-84歳	17,299	1,064	98	859	143	322	87	226	208	2,617	289	65	671	4,125	910	1,177	877	151	115	370	429	522	424	186	176	501	316	353	124	228	127	12	157	326	1,364	928	2,232	1,166	271	533	31	282	136	276	114	0	443
18	85歳-89歳	9,586	465	36	354	62	322	66	95	91	1,366	145	39	419	2,199	514	662	518	61	49	196	241	221	185	59	93	293	130	172	57	122	72	9	72	175	679	390	1,098	613	159	291	10	172	77	168	48	0	307
19	90歳-94歳	3,677	127	14	101	22	145	8	29	20	440	35	6	158	749	172	226	193	19	16	71	83	66	44	8	28	102	31	35	23	53	17	3	20	45	224	105	283	189	59	78	5	82	25	65	25	0	121
20	95歳-99歳	669	14	2	8	3	44	3	2	2	71	6	1	46	112	24	40	49	6	0	10	21	17	4	2	6	22	5	7	6	10	2	0	5	7	49	19	54	37	11	12	0	17	3	10	1	0	19
21	100歳-104歳	106	2	0	0	0	4	0	2	1	7	0	0	3	16	2	5	6	0	0	1	2	2	0	0	0	4	1	0	0	1	0	0	2	0	7	1	6	6	1	0	1	3	0	3	1	0	5
22	105歳-109歳	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
	合計	703,399	17,677	2,443	18,706	4,317	1,545	2,817	3,345	4,608	18,152	4,278	2,978	4,809	52,450	7,983	10,554	8,406	5,955	9,676	8,083	5,616	7,238	7,645	4,785	2,117	6,335	24,470	13,420	7,836	5,107	3,201	410	3,774	3,545	13,717	18,492	28,710	7,329	4,333	4,381	2,189	3,599	4,405	3,893	2,402	1,852	13,839

	年齢カテゴリー	サンプル数	H16																																														
			糖尿病	肥満症	高脂血症（高コレステロール血症等）	甲状腺の病気	認知症	精神病（躁うつ病、統合失調症（精神分裂病）等）	神経症	自律神経失調症	白内障	網膜の病気（網膜はく離等）	中耳炎	難聴	高血圧症	脳卒中（脳出血、脳梗塞等）	狭心症・心筋梗塞	その他の循環器系の病気	急性鼻咽頭炎（かぜ）	アレルギー性鼻炎	喘息	その他の呼吸器系の病気	胃炎・十二指腸炎	胃・十二指腸かいよう	肝炎・肝硬変	胆石症・胆のう炎	その他の消化器系の病気	ムシ歯	歯肉炎・歯周疾患	アトピー性皮膚炎	接触皮膚炎（かぶれ）	じんま疹	脱毛症	痛風	関節リウマチ（慢性関節リウマチ）	関節症	肩こり症	腰痛症	骨粗しょう症	腎臓の病気	前立腺肥大症	閉経期又は閉経後障害（更年期障害等）	骨折	骨折以外のけが・やけど	貧血・血液の病気	悪性新生物（がん）	妊娠・産褥	不妊症	その他
		458	3	2	8	0	0	1	1	1	4	0	0	0	12	3	1	4	1	3	1	3	4	3	2	2	2	8	3	0	1	0	0	2	1	4	5	10	3	0	0	0	2	0	1	0	0	0	5
1	0歳-4歳	23,775	3	2	4	10	2	1	8	0	5	8	516	16	6	2	3	89	1,105	295	521	218	7	4	5	4	56	366	10	879	224	105	2	0	1	6	2	4	2	31	0	0	22	54	27	5	0	0	704
2	5歳-9歳	30,152	7	9	1	19	0	9	10	2	11	19	504	62	0	5	0	79	597	1,109	962	221	4	0	2	2	39	1,836	78	889	178	77	5	0	3	11	6	4	1	39	0	0	69	127	17	11	0	0	1,000
3	10歳-14歳	32,000	11	18	9	15	1	13	19	25	15	20	151	43	6	3	7	69	208	1,071	597	99	8	1	0	3	33	978	152	617	106	77	8	0	4	100	21	82	3	35	0	0	154	298	39	10	0	0	1,002
4	15歳-19歳	35,046	25	11	11	57	0	58	58	51	20	24	52	18	9	4	1	60	107	463	229	47	31	12	4	3	76	725	114	630	116	91	11	0	7	111	84	304	4	64	0	0	152	441	96	11	17	0	788
5	20歳-24歳	31,657	22	18	17	64	1	121	74	72	10	26	21	20	17	3	6	52	82	259	165	48	69	27	14	4	64	801	123	640	157	90	9	13	12	56	179	292	3	52	2	0	60	141	48	8	154	16	551
6	25歳-29歳	34,665	51	24	27	88	5	222	116	117	14	33	31	16	39	12	14	51	99	300	215	65	90	66	33	5	114	1,231	206	607	183	123	23	28	11	85	402	498	2	58	4	0	74	132	62	17	496	90	739
7	30歳-34歳	41,019	117	52	78	181	1	295	166	178	31	56	40	37	107	11	22	69	190	374	263	119	110	108	46	25	128	1,510	353	490	200	165	21	79	31	118	604	792	5	97	3	0	84	177	105	27	568	192	935
8	35歳-39歳	37,956	196	71	181	209	4	333	183	224	34	74	44	36	284	31	33	74	161	431	276	107	139	169	78	30	174	1,429	453	359	177	150	29	113	52	186	738	875	18	110	4	0	88	183	149	57	222	145	914
9	40歳-44歳	38,193	343	95	383	225	1	312	193	231	29	86	47	60	745	60	66	139	153	439	281	100	206	218	142	44	212	1,368	593	210	205	142	22	224	70	271	894	1,031	20	142	14	0	95	182	251	94	24	61	1,051
10	45歳-49歳	39,403	640	130	679	289	4	314	183	294	62	124	36	60	1,583	101	141	226	116	494	275	133	238	344	154	66	224	1,427	814	179	208	145	28	309	112	399	1,008	1,257	23	175	29	177	102	186	327	202	0	12	1,080
11	50歳-54歳	46,450	1,449	212	1,390	438	13	377	197	359	210	243	93	126	3,397	272	332	384	169	601	352	201	354	557	292	120	342	1,811	1,481	212	309	207	28	469	256	718	1,556	1,870	96	292	81	369	150	188	304	290	3	3	1,185
12	55歳-59歳	48,633	2,363	327	2,370	577	23	328	236	468	504	387	130	209	5,957	492	654	628	232	729	419	265	518	749	452	162	437	1,962	1,875	193	353	235	34	574	320	1,013	1,913	2,362	237	358	202	342	219	239	194	371	0	0	1,157
13	60歳-64歳	43,398	2,704	364	2,833	555	56	292	303	471	1,198	498	171	319	7,021	740	1,108	841	231	688	484	362	623	700	574	211	471	1,899	2,068	204	361	240	43	599	421	1,284	1,944	2,681	536	397	482	146	244	221	212	377	0	0	988
14	65歳-69歳	38,889	3,145	405	2,907	479	92	254	322	539	2,154	564	182	488	7,985	1,001	1,451	1,016	219	625	579	454	822	740	628	294	495	1,792	1,829	239	327	280	48	569	521	1,609	2,184	3,269	948	451	734	58	273	201	276	345	0	0	983
15	70歳-74歳	35,849	2,942	437	2,575	530	166	235	392	535	3,427	543	183	691	8,648	1,304	1,897	1,394	242	532	670	600	965	780	697	332	640	1,458	1,498	238	349	269	37	514	589	2,259	2,282	4,203	1,374	495	1,122	35	379	196	376	366	0	0	1,017
16	75歳-79歳	29,528	2,384	273	1,834	423	323	179	418	456	3,802	471	148	798	7,715	1,291	1,990	1,473	199	399	641	676	866	786	499	294	694	901	953	211	314	219	32	386	569	2,234	1,967	4,159	1,599	417	1,175	32	427	197	436	329	0	0	929
17	80歳-84歳	18,263	1,340	142	903	211	416	126	277	273	2,572	266	75	632	4,764	850	1,314	1,010	125	202	422	464	473	427	200	160	528	422	403	125	224	131	20	168	408	1,596	1,083	2,620	1,255	297	666	15	298	118	330	169	0	0	689
18	85歳-89歳	9,277	524	47	327	54	369	43	111	124	1,224	118	38	428	2,347	442	693	552	57	61	203	256	233	193	64	88	268	149	182	47	108	54	7	77	190	798	416	1,171	627	148	294	4	171	79	172	78	0	0	373
19	90歳-94歳	4,035	171	11	122	26	203	18	39	48	446	34	14	185	912	152	274	253	25	18	59	92	94	65	21	29	107	40	51	29	71	24	2	23	82	278	128	362	241	60	106	2	81	19	86	20	0	0	189
20	95歳-99歳	828	26	1	10	1	52	2	8	2	76	7	3	40	143	22	42	42	4	3	11	15	16	8	3	5	17	4	3	5	8	5	1	5	8	39	18	52	39	17	16	1	18	4	9	5	0	0	43
21	100歳-104歳	97	0	0	1	0	7	1	0	0	7	1	0	5	19	2	2	6	0	0	1	2	0	0	1	0	2	0	0	0	3	0	0	1	3	4	2	3	4	1	2	0	1	1	0	1	0	0	4
22	105歳-109歳	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		619,573	18,466	2,651	16,670	4,451	1,739	3,534	3,314	4,470	15,855	3,602	2,479	4,289	51,716	6,803	10,051	8,512	4,322	9,096	7,626	4,548	5,870	5,957	3,911	1,883	5,123	22,117	13,242	7,003	4,182	2,829	410	4,153	3,671	13,179	17,436	27,901	7,040	3,736	4,936	1,181	3,163	3,384	3,517	2,793	1,484	519	16,326

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年齢カテゴリー	サンプル数	糖尿病	肥満症	高脂血症（高コレステロール血症等）	甲状腺の病気	うつ病やその他こころの病気	認知症	パーキンソン病	その他の神経の病気	眼の病気	耳の病気	高血圧症	脳卒中（脳出血、脳梗塞等）	狭心症・心筋梗塞	その他の循環器系の病気	急性鼻咽頭炎（かぜ）	アレルギー性鼻炎	喘息	その他の呼吸器系の病気	胃・十二指腸の病気	肝臓・胆のうの病気	その他の消化器系の病気	歯の病気	アトピー性皮膚炎	その他の皮膚の病気	蕁麻疹	関節リウマチ	関節症	肩こり症	腰痛症	骨粗しょう症	腎臓の病気	前立腺肥大症	閉経期又は閉経後障害（更年期障害等）	骨折	骨折以外のけが・やけど	貧血・血液の病気	悪性新生物（がん）	妊娠・産褥（切迫流産、前置胎盤等）	不妊症	その他
	1,812	38	11	34	10	12	0	4	8	49	7	112	12	22	15	8	24	20	14	20	12	8	34	6	20	10	5	31	47	71	19	11	0	0	6	6	7	5	0	0	18
1 0歳-4歳	23,008	2	2	3	17	3	0	0	21	120	370	6	2	2	127	967	254	525	175	5	6	58	190	626	605	4	0	7	0	4	1	29	0	0	13	43	19	2	0	0	449
2 5歳-9歳	29,868	6	3	3	16	13	0	1	54	419	419	7	1	2	77	557	1,110	926	195	10	6	41	1,127	816	558	0	3	11	7	6	1	33	0	0	84	104	18	8	0	0	539
3 10歳-14歳	31,307	17	11	3	19	20	0	0	55	336	157	8	1	2	46	195	1,063	545	88	13	5	34	781	585	353	2	2	90	26	61	1	32	0	0	161	374	33	5	0	0	638
4 15歳-19歳	31,773	23	9	7	37	142	4	1	57	207	70	19	5	9	75	112	471	206	39	38	13	54	486	499	343	3	9	93	80	255	6	46	0	0	135	431	57	7	2	3	573
5 20歳-24歳	29,159	32	13	14	63	270	4	2	57	148	62	29	9	4	43	69	260	142	35	71	18	44	569	474	395	6	8	43	175	280	5	52	1	0	49	154	48	11	93	10	459
6 25歳-29歳	31,760	62	20	24	109	458	1	1	3	75	151	79	43	41	12	10	39	105	122	153	49	107	38	88	802	527	448	24	12	78	436	467	12	63	3	0	63	124	52	9	325	72	574
7 30歳-34歳	40,113	133	47	77	169	720	5	3	106	203	90	119	19	12	65	162	418	257	93	163	70	122	1,131	504	540	63	41	123	641	810	11	88	2	0	78	187	101	41	457	173	768
8 35歳-39歳	42,093	233	54	190	254	817	2	4	133	270	97	304	40	36	99	175	513	314	118	223	125	154	1,322	361	587	139	50	158	848	1,003	22	122	4	0	86	205	136	65	231	176	894
9 40歳-44歳	37,967	407	93	369	274	742	1	3	135	382	125	742	55	68	104	144	520	291	118	311	189	171	1,287	185	511	204	82	209	979	1,111	17	119	16	0	93	185	247	102	39	74	920
10 45歳-49歳	39,079	711	143	712	333	674	11	8	157	494	170	1,771	116	143	207	125	586	290	143	428	290	186	1,391	125	601	316	128	395	1,115	1,308	45	191	32	145	94	176	318	204	1	15	1,000
11 50歳-54歳	41,537	1,294	208	1,433	445	670	15	15	203	765	241	3,355	201	279	331	143	614	315	207	657	411	253	1,842	111	690	410	209	590	1,449	1,662	85	268	77	294	121	217	252	251	1	5	1,005
12 55歳-59歳	53,383	2,704	370	2,850	644	770	28	54	306	1,631	440	6,700	500	651	646	213	799	390	327	1,028	724	382	2,623	125	921	589	417	1,062	2,043	2,530	277	431	238	290	218	266	177	406	0	0	1,185
13 60歳-64歳	43,629	3,027	382	3,290	610	580	32	52	298	2,207	513	7,572	738	956	746	216	673	456	404	1,129	711	434	2,640	102	879	578	421	1,101	1,922	2,587	504	406	483	103	209	213	172	408	0	0	886
14 65歳-69歳	40,445	3,402	474	3,481	563	550	93	108	363	3,272	660	8,603	1,021	1,419	1,014	223	718	498	466	1,304	909	538	2,778	134	851	585	489	1,501	1,987	3,115	889	500	811	59	273	228	247	390	0	0	812
15 70歳-74歳	37,290	3,448	501	3,430	550	469	193	172	446	4,437	886	9,350	1,334	1,798	1,269	241	667	698	656	1,443	994	655	2,383	150	879	511	580	2,079	2,417	4,174	1,446	595	1,210	43	381	216	328	418	0	0	846
16 75歳-79歳	31,486	2,819	447	2,647	480	410	431	248	447	4,729	852	8,687	1,366	1,969	1,482	208	489	627	726	1,413	846	665	1,794	123	822	383	560	2,240	2,171	4,513	1,889	573	1,371	39	424	219	368	378	0	0	782
17 80歳-84歳	21,697	1,724	176	1,381	272	286	604	187	379	3,374	639	5,912	1,039	1,506	1,155	134	241	482	527	1,005	497	551	927	91	567	219	437	1,725	1,293	3,119	1,602	426	1,008	15	333	124	362	253	0	0	609
18 85歳-89歳	10,971	673	90	489	132	145	488	84	209	1,587	323	2,784	470	786	662	63	79	234	280	420	197	285	335	39	331	80	204	893	552	1,445	828	209	443	10	185	85	201	100	0	0	391
19 90歳-94歳	4,497	224	12	168	32	37	256	27	67	546	132	1,076	204	292	266	16	25	61	120	137	55	120	91	13	122	25	61	312	158	403	308	80	138	1	83	27	90	29	0	0	168
20 95歳-99歳	1,177	22	1	28	9	10	84	4	12	105	34	242	51	64	57	3	1	14	29	30	13	43	15	2	36	4	16	57	29	77	33	22	2	0	24	39	7	18	9	0	0	39
21 100歳-104歳	109	3	1	2	0	0	7	0	0	3	4	13	1	3	9	0	0	1	2	0	0	0	0	0	1	0	1	4	2	4	3	3	1	0	2	0	2	2	0	0	0	12
22 105歳-109歳	7	0	0	0	0	0	1	0	0	0	1	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1
23 110歳-114歳	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
合計	624,168	21,004	3,068	20,637	5,032	7,846	2,263	980	3,588	25,438	6,376	57,455	7,197	10,038	8,529	4,079	9,849	7,430	4,800	9,955	6,134	4,887	24,553	5,598	11,060	4,155	3,735	12,802	18,378	29,006	8,025	4,304	5,861	992	3,117	3,591	3,253	3,104	1,154	531	13,564

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年齢カテゴリー	サンプル数	糖尿病	肥満症	高脂血症（高コレステロール血症等）	甲状腺の病気	うつ病やその他こころの病気	認知症	パーキンソン病	その他の神経の病気	眼の病気	耳の病気	高血圧症	脳卒中（脳出血、脳梗塞等）	狭心症・心筋梗塞	その他の循環器系の病気	急性鼻咽頭炎（かぜ）	アレルギー性鼻炎	喘息	その他の呼吸器系の病気	胃・十二指腸の病気	肝臓・胆のうの病気	その他の消化器系の病気	歯の病気	アトピー性皮膚炎	その他の皮膚の病気	蕁麻疹	関節リウマチ	関節症	肩こり症	腰痛症	骨粗しょう症	腎臓の病気	前立腺肥大症	閉経期又は閉経後障害（更年期障害等）	骨折	骨折以外のけが・やけど	貧血・血液の病気	悪性新生物（がん）	妊娠・産褥（切迫流産、前置胎盤等）	不妊症	その他
	608	4	0	9	1	1	0	1	2	5	4	22	3	2	3	0	5	0	3	4	2	1	8	3	4	0	0	7	5	8	5	3	0	0	1	1	1	0	0	0	5
1 0歳-4歳	21,215	1	2	1	13	5	0	0	26	115	358	0	1	0	77	1,017	303	520	214	4	2	7	61	214	579	563	0	0	7	8	2	1	0	24	0	0	11	36	16	2	0	0	468
2 5歳-9歳	27,887	4	6	3	19	28	0	0	40	385	384	9	2	0	61	514	1,122	941	175	4	2	7	29	1,332	800	598	0	0	11	9	4	2	1	40	0	0	57	115	21	2	0	0	549
3 10歳-14歳	30,826	13	17	6	29	84	0	0	85	360	138	2	1	4	69	200	1,208	542	99	11	6	37	1,038	567	434	1	2	66	32	62	2	42	0	0	173	385	30	7	0	0	608
4 15歳-19歳	30,168	27	2	7	47	199	1	1	66	177	76	15	2	4	74	112	507	200	63	31	10	57	658	457	384	1	2	89	79	253	6	44	1	0	154	428	60	9	4	0	495
5 20歳-24歳	25,886	47	16	23	75	322	2	2	82	141	43	13	8	2	41	81	279	124	56	49	15	52	697	486	381	3	10	35	148	194	3	44	1	0	44	107	36	7	49	8	426
6 25歳-29歳	28,668	46	25	32	105	523	1	0	86	163	63	30	9	4	40	94	286	173	58	94	29	96	991	497	479	19	22	62	368	418	3	62	1	0	53	118	66	20	220	69	510
7 30歳-34歳	33,850	107	39	86	188	728	1	2	126	217	84	86	10	8	48	148	458	264	94	119	53	105	1,298	482	498	31	30	93	569	665	4	73	1	0	58	139	102	48	276	165	624
8 35歳-39歳	41,786	258	73	256	293	922	4	2	151	292	120	351	34	32	85	190	592	337	153	229	95	183	1,208	401	591	131	66	160	795	1,007	15	125	7	0	74	171	157	83	201	215	888
9 40歳-44歳	38,676	424	134	521	321	908	3	4	158	351	123	805	49	71	146	146	561	333	161	315	149	192	1,731	274	621	230	93	251	964	1,044	16	153	12	0	111	206	248	141	41	92	931
10 45歳-49歳	38,884	778	166	968	372	928	3	3	171	365	159	1,870	118	123	234	145	614	316	200	384	263	239	1,826	184	578	301	126	383	1,113	1,286	29	221	26	214	85	216	399	230	2	16	1,002
11 50歳-54歳	39,434	1,302	220	1,878	466	668	742	4	18	248	814	2,613	199	258	290	133	598	338	199	589	338	272	2,168	137	703	437	240	663	1,561	1,522	79	259	71	399	143	179	293	308	2	1	891
12 55歳-59歳	45,282	2,444	351	3,566	675	821	17	42	286	1,455	353	6,270	391	597	547	163	745	392	351	927	558	424	2,785	123	737	556	343	939	1,626	2,100	251	372	187	270	170	211	193	487	0	0	871
13 60歳-64歳	52,673	3,951	507	5,598	889	817	50	80	348	2,921	569	10,242	857	1,145	949	214	911	523	549	1,414	862	587	3,791	135	1,018	753	493	1,384	2,211	3,017	725	576	580	154	256	262	257	674	0	0	945
14 65歳-69歳	40,800	3,844	478	5,200	653	628	87	100	366	3,703	632	9,745	971	1,459	1,125	195	755	585	534	1,343	847	634	3,264	125	831	694	535	1,424	1,960	3,227	1,071	511	899	72	272	182	267	516	0	0	720
15 70歳-74歳	36,340	3,712	491	4,769	600	591	209	192	411	4,594	758	9,890	1,242	1,688	1,315	217	663	588	653	1,533	872	658	2,905	129	849	554	526	1,922	2,321	4,157	1,598	604	1,221	40	347	223	354	513	0	0	701
16 75歳-79歳	32,500	3,412	435	3,868	556	494	494	243	513	5,215	886	9,724	1,357	1,989	1,476	214	582	634	774	1,676	884	777	2,341	128	800	419	530	2,397	2,220	4,706	1,970	610	1,521	23	470	237	441	462	0	0	670
17 80歳-84歳	24,268	2,272	203	2,503	366	356	852	214	399	4,177	694	7,406	1,104	1,729	1,466	134	364	466	696	1,140	554	613	1,366	86	615	266	452	1,982	1,572	3,828	1,821	532	1,262	23	460	175	450	363	0	0	581
18 85歳-89歳	12,936	936	74	995	174	163	737	92	255	2,097	390	3,897	621	978	846	61	118	251	417	620	214	414	509	54	345	111	221	1,069	667	1,893	1,103	280	582	8	247	92	281	159	0	0	353
19 90歳-94歳	4,831	283	22	311	46	62	392	33	67	710	135	1,363	211	353	319	13	39	66	115	175	63	156	134	11	128	26	72	340	166	509	374	107	144	5	93	35	103	54	0	0	0	146
20 95歳-99歳	1,344	64	4	66	11	7	99	3	22	150	37	329	52	86	101	5	8	27	37	35	9	42	27	6	56	8	11	80	32	99	89	27	41	0	28	8	20	10	0	0	0	43
21 100歳-104歳	153	1	0	6	1	0	12	0	1	15	4	20	4	5	15	0	0	1	1	3	1	2	2	0	5	0	2	4	3	6	7	2	0	0	3	2	0	0	0	0	0	8
22 105歳-109歳	4	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
合計	609,019	23,930	3,270	30,674	5,907	9,329	2,970	1,035	3,909	28,633	6,225	65,557	7,245	10,538	9,327	3,996	10,718	7,611	5,671	10,701	5,838	5,633	30,793	5,664	11,168	4,541	3,777	13,363	18,218	30,009	9,172	4,713	6,556	1,208	3,315	3,528	3,797	4,097	795	566	12,437

H25

年齢カテゴリー	サンプル数	糖尿病	肥満症	脂質異常症（高コレステロール血症等）	甲状腺の病気	うつ病やその他こころの病気	認知症	パーキンソン病	その他の神経の病気	眼の病気	耳の病気	高血圧症	脳卒中（脳出血、脳梗塞等）	狭心症・心筋梗塞	その他の循環器系の病気	急性鼻咽頭炎（かぜ）	アレルギー性鼻炎	慢性閉塞性肺疾患	喘息	その他の呼吸器系の病気	胃・十二指腸の病気	肝臓・胆のうの病気	その他の消化器系の病気	歯の病気	アトピー性皮膚炎	その他の皮膚の病気	蕁麻疹	関節リウマチ	関節症	肩こり症	腰痛症	骨粗しょう症	腎臓の病気	前立腺肥大症	閉経期又は閉経後障害（更年期障害等）	骨折	骨折以外のけが・やけど	貧血・血液の病気	悪性新生物（がん）	妊娠・産褥（切迫流産、前置胎盤等）	不妊症	その他1
	454	4	0	1	2	2	0	0	1	7	1	10	0	0	3	0	1	0	1	2	1	0	1	1	0	2	0	0	1	3	1	1	0	0	0	2	1	1	1	0	0	3
1 0歳-4歳	21,334	3	0	0	13	2	0	0	19	102	255	0	1	3	101	683	252	3	365	156	9	10	54	182	462	524	0	1	2	1	0	1	46	0	0	16	51	24	1	0	0	393
2 5歳-9歳	26,762	5	2	3	17	8	0	0	64	286	274	0	0	1	96	301	933	3	273	148	8	5	38	973	670	498	0	0	7	2	0	1	61	0	0	70	88	14	5	0	0	474
3 10歳-14歳	29,801	8	9	6	24	90	0	1	69	270	125	7	3	2	63	103	1,057	1	473	62	12	9	31	726	537	353	0	6	51	18	49	0	37	0	0	186	392	22	3	1	1	579
4 15歳-19歳	30,219	24	15	8	42	189	1	1	79	126	55	5	6	3	65	63	568	1	193	34	30	9	57	505	428	356	2	3	6	4	72	214	3	0	0	151	460	61	10	5	0	538
5 20歳-24歳	24,498	41	11	15	56	296	1	0	78	85	42	11	5	4	37	43	271	0	113	45	61	10	64	548	424	341	4	9	41	139	200	3	43	0	0	42	127	37	13	16	0	394
6 25歳-29歳	26,660	64	29	39	109	469	2	2	78	131	57	12	4	5	56	56	311	0	173	66	84	28	95	811	462	438	21	24	60	150	302	2	0	0	0	88	127	64	22	212	55	504
7 30歳-34歳	31,182	123	26	68	203	684	3	1	107	164	91	93	8	15	67	88	444	3	246	95	123	48	147	1,070	502	484	49	39	99	480	661	7	71	3	0	48	124	81	38	332	173	617
8 35歳-39歳	39,282	249	90	239	285	1,051	3	4	143	227	108	376	34	33	88	119	594	2	354	129	200	90	210	1,454	493	512	142	73	169	752	922	3	110	2	0	79	211	178	93	220	202	845
9 40歳-44歳	42,984	577	121	549	396	1,129	5	8	187	410	152	968	82	71	149	119	603	7	384	191	303	166	254	1,674	385	586	241	103	222	918	1,122	18	179	8	0	102	215	291	142	68	112	992
10 45歳-49歳	38,597	783	187	843	368	994	8	4	184	571	178	1,970	135	131	215	104	597	5	359	179	329	263	285	1,722	360	587	337	145	380	1,076	1,231	32	192	15	174	105	231	419	188	2	17	1,098
11 50歳-54歳	37,644	1,367	182	1,638	516	897	4	14	185	851	196	3,621	219	289	307	95	711	13	367	187	536	342	329	1,929	167	621	446	206	672	1,281	1,485	65	273	44	399	139	228	320	314	11	3	986
12 55歳-59歳	39,842	2,221	307	2,787	624	862	15	38	252	1,341	326	5,948	349	541	483	114	759	25	394	292	749	510	393	2,076	129	664	617	338	893	1,220	1,750	200	374	154	254	188	185	198	376	0	0	859
13 60歳-64歳	49,299	3,833	473	4,603	832	790	49	83	360	2,626	526	9,225	694	986	873	152	944	63	546	520	1,153	684	630	3,108	134	844	750	525	1,327	1,778	2,700	610	535	492	112	237	238	227	579	0	0	999
14 65歳-69歳	44,778	4,653	462	5,032	844	674	97	121	365	3,716	684	11,481	1,024	1,514	1,151	141	949	115	525	604	1,343	847	721	3,173	128	949	786	564	1,461	1,828	3,234	985	647	967	57	277	235	279	692	0	0	842
15 70歳-74歳	39,583	4,275	472	4,444	773	598	272	187	447	4,920	843	11,180	1,254	1,792	1,446	167	980	134	597	671	1,469	833	723	3,087	125	960	683	587	1,834	2,204	4,221	1,679	682	1,388	31	401	238	362	605	0	0	799
16 75歳-79歳	32,887	3,766	375	3,253	616	498	620	253	472	5,290	927	10,469	1,338	1,927	1,580	165	680	138	560	694	1,485	795	762	2,417	99	874	669	550	2,064	2,246	4,743	1,980	684	1,573	32	521	241	433	544	0	0	734
17 80歳-84歳	25,082	2,459	234	1,945	432	344	915	230	381	4,235	802	8,290	1,201	1,712	1,439	123	457	116	464	625	1,213	567	697	1,520	117	644	365	424	1,873	1,690	3,967	2,008	596	1,282	25	481	203	465	379	0	0	655
18 85歳-89歳	15,046	1,233	88	887	241	211	1,063	144	287	2,525	543	4,893	716	1,252	1,066	66	167	75	259	441	631	295	456	637	66	423	127	230	1,226	796	2,271	1,388	380	752	18	361	114	315	197	0	0	463
19 90歳-94歳	5,665	382	21	249	74	59	538	32	91	829	181	1,723	233	421	400	23	43	16	92	132	205	70	184	144	14	158	41	67	402	193	658	503	136	183	4	116	32	119	50	0	0	211
20 95歳-99歳	1,392	69	0	53	16	14	126	14	15	163	38	412	53	106	93	7	10	4	13	36	37	8	42	17	2	50	11	10	99	36	107	91	42	34	1	25	10	36	9	0	0	62
21 100歳-104歳	207	8	0	4	1	0	17	1	0	17	2	46	1	2	14	1	0	0	0	4	6	3	4	2	0	8	0	0	12	2	11	8	2	3	0	6	2	0	0	0	0	10
22 105歳-109歳	13	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
合計	603,211	26,152	3,101	26,664	6,494	9,972	3,740	1,138	3,859	28,892	6,456	71,319	7,366	10,819	9,792	2,735	11,241	722	7,257	5,313	10,035	5,590	6,229	27,776	5,606	10,788	5,026	3,912	12,959	17,155	29,968	9,599	5,144	6,902	1,107	3,601	3,758	3,951	4,261	917	569	13,065

Table 3. **国民生活基礎調査介護票（平成25年度）を用いた認知症介護の状況**

	認知症が入ったマイルドな身体介護を必要（要介護1）とする帯
1. 要介護者特性	
①要介護者性別(男性:1、女性:2)	1.64
②要介護者年齢	84.33±6.33
③要介護者通院有無(なし:0、あり:1)	1.10
④要介護者要介護度(要支援1:1、要支援2:2、要介護1:3、要介護2:4、、要介護3:5、要介護4:6、要介護5:7)	2.67
⑤就床日数/1か月	20.45±11.51
2. 介護者特性	
①介護者性別(男性:1、女性:2)	1.73
②介護者年齢	63.53±12.00
③介護者通院有無(なし:0、あり:1)	1.40
④介護者学歴(小中)	71.25%
⑤介護者学歴(高、専門学校、短大)	18.13%
⑥介護者学歴(大学大学院)	10.63%
⑦介護者仕事(正社員)	33.75%
⑧介護者仕事(パート)	10.63%
⑨介護者仕事(その他)	16.56%
⑩介護者仕事(無職)	39.06%
⑪介護者の続き柄	
夫	7.81%
妻	20.63%
嫁	27.81%
既婚の娘	20%
既婚の息子	18.75%
未婚の娘	0.94%
未婚の息子	1.25%
3. 世帯の特性	
①家族員数	4.06±1.66
②利用しているサービス	
訪問系サービス	18.40%
通所系サービス	38.76%
短期入所サービス	38.76%
居住系サービス(グループホーム)	0.32%
配食サービス	0.97%
外出支援サービス	1.62%
寝具類等洗濯乾燥消毒サービス	1.14%

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平成２６年度分担研究報告書

Japan’s UHC for sustainable and equitable development: a new vision

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研究要旨
Health is a pivotal asset for social development and individual realization of human dignity. Japan’s universal health coverage (UHC) system provides affordable healthcare for all citizens with high levels of access equity regardless of age, income, or region. However, this impact was observed only when Japan’s population was young and the nation’s economic growth rate was still high. As Japan’s population dividend dwindled in the late 1980s, and began to suffer from economic stagnation, the function of UHC for risk pooling, access equity, and protection against household impoverishment has been declining and its financial sustainability has been questioned. Japan’s past experiences of successful UHC implementation can provide policy makers and officers in charge of national UHC development with a useful guide for design, program management, and human resource development dedicated to UHC. This report summarizes policy recommendations to be offered to the G7/G8 2016 health agenda, and describes how they can be used to inform other countries that are developing their health systems along the pathway that Japan followed to UHC.

A. 研究目的

Health is a pivotal asset for social development and individual realization of human dignity. Since 2007 the Japanese government has integrated the human security approach in its foreign policy to contribute to global health development through health-system strengthening (Takemi, et al. 2008). Today, the movement is synergized with global advocacy for Universal Health Coverage (UHC) to ensure necessary and adequate health services for all without financial hardship. Japan's leading experiences in UHC have recently been summarized to be shared with low- and middle-income countries that are moving forward to UHC (Ikegami,et al. 2011; Ikegami, 2014).

According to detailed analysis and comments by Oshio, et al.(2014), Japan's UHC provides affordable healthcare for all citizens with high levels of access equity regardless of age, income, or region. As Ikeda, et al. (2011) revealed, improved access to primary care at least partially contributed to improved control of chronic conditions such as hypertension, resulting in remarkable reductions in stroke mortality and extension of life expectancy. Moreover, the policy indirectly exercised a considerable impact on income redistribution through benefit provision, and supported stable social development and economic growth since the 1970s. However, this impact was observed only when Japan's population was young and the nation's economic growth rate was still high. As Japan's population dividend dwindled in the late 1980s, and began to suffer from economic stagnation, the function of UHC for risk pooling, access equity, and protection against household impoverishment has been declining (Watanabe and Hashimoto, 2012), and its financial sustainability is ever more questioned.

Since the majority of low- and middle-income countries are still able to take advantage of the population dividend, Japan's past experiences of successful UHC implementation can provide policy makers and officers in charge of national UHC development with a useful guide for design, program management, and human resource development dedicated to UHC. The

demographic and health transition is a common challenge across countries. Japan is at the very forefront of this issue, followed by China and other middle income countries with an even faster pace of population ageing, that face demographic challenges of even larger magnitude. Japan's policy leadership to go beyond demographic and economic difficulties will provide further important lessons for these countries to ensure they can better prepare against future challenges. This report describes the development of a framework for disseminating Japan's experiences in UHC to low- and middle-income nations to enhance the pace of their movement towards UHC, and improve the quality and sustainability of UHC when it is achieved.

B. 研究方法

The policy recommendations for G7/G8 2016 are now under preparation by a multi-stakeholder working group including Diet members, government officials in health, foreign affairs and the finance sector, academics, and reperesentatives of civil society and the private sectors.

Japan's troika of JICA, NIPH, and the NGMC synergize their activities to systematically provide a knowledge hub, content-based solutions, and personnel training on strategies to raise human capacity for UHC management. Inter-sectoral collaboration of government officials will provide pragmatic lessons regarding key administrative functions and institutional capacities required for UHC operation. This report summarizes the findings of that working group, and the main conclusions regarding the future direction of cooperation on UHC in the region.

C. 研究成績及び考察

UHC is a milestone towards human security, but not an end in and of itself. Continuing efforts are required to meet changing demands, technologies, and external environments in order to sustain UHC. With emerging demographic and economic burdens, the Japanese government is developing a new vision for equity and sustainability in the context of a super-aged and depopulating demographic situation in the near

future.

Older people used to be stereotyped as frail, in need of care, and non-productive. With the advancement of life expectancy, later life today consists of “second” and “third” ages of human development. Maintaining older people’s engagement in social roles as long as possible is crucial both for the economic sustainability of society and the achievement of human dignity. Physical, mental, and cognitive health is fundamental for active social engagement, in support of which UHC should provide effective services. Furthermore, social inclusion of older people requires policies for labor participation, economic security, affordable housing and transportation, and community environments outside of the health sector to fully enable their participation. These social determinants of health should be incorporated systematically and effectively in UHC policy discussion.

Another key feature of an aging population is its diversity in socioeconomic conditions, functional and health status, and subsequent needs. Not all of older people are unhealthy, poor, or have high care needs but the traditional social security system treats old age as the dominant and sole risk of impoverishment and illness. Indeed, Japan’s current UHC performs a re-distributional function between old and young. However, the social risks of impoverishment and ill health are unequally distributed even within generations. Japan’s current cabinet takes very seriously the high relative poverty rate among child-bearing generations, as well as the increasing number of households with older people being supported by welfare programs. A new scheme for risk portfolios and novel effective re-distribution mechanisms, such as strengthening tax credits and shifting from direct to ear-marked indirect tax collection, are essential to maintain the stability of UHC and ensure equity within as well as between generations. The role of government in risk pooling and household financial stability is increasing, but may not be enough to control emerging risks. Intra-generational mechanisms of risk pooling are required to complement the government’s role.

To reach these goals, two key ideas hold great promise: community-based integrated care systems and new public-private partnerships to account for local needs. Local communities are diverse in available types and capacity of healthcare institutions. Creative use of locally available resources to achieve local needs requires detailed needs assessment, strategic management of resource allocation, effective monitoring and communication across sectors. To enhance community-based reconstruction of health-systems, local government should be empowered and supported by the national government.

Current health systems suffer functional barriers between preventive, curative, rehabilitation, and long-term care modalities. Horizontal and vertical integration of healthcare institutions through information linkage is a step forward, but does not necessarily guarantee effective and timely response to patients' care needs, which change over the life-course. Accountability, effective use of information for monitoring and ensuring quality of care, and proper integration are a pre-requisite for realizing patient's individual needs in such a system.

Finally, realization of community-based integrated care systems is not possible solely through the efforts of local and central governments. Private sector organizations with social responsibility to serve local communities should be invited as partners to meet the diverse needs of health in the community. Citizens are also encouraged to raise their health literacy to specify their fundamental needs and make their own contribution as community partners. Effective communication and co-ordination of multi-stakeholder parties provides crucial leverage to achieve community-based integration of health systems. Reciprocally, empowerment of individuals and communities is expected to arise from health-system strengthening (Takemi, et al. 2008).

D 結論

The demographic and economic challenges that Japan currently faces are enormous. Japan needs to keep learning from its own experiences and those of other countries to go beyond its current achievements. Joint learning

across countries should be enhanced through global communication towards UHC, and Japan is most willing to participate in these endeavors towards achieving health for all.

E. 健康危険情報

なし

F. 研究発表

1.**論文発表**

2.**学会発表**

なし

G. 知的所有権の取得状況の出願・登録状況

1.**特許取得**

なし

2.**実用新案登録**

なし

3.**その他**

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