Nursing for the people with lifestyle- related diseases in Japan

1. Current state of lifestyle-related diseases/ NCDs in Japan and actions taken

Japanese Nursing Association

1. Current state of lifestyle-related diseases/NCDs in Japan and actions taken
2. Nursing for the people with lifestyle-related diseases: health promotion, prevention and living with the diseases (to be issued soon)
3. Japanese Nursing Association in Action (to be issued soon)

The lifestyle-related diseases

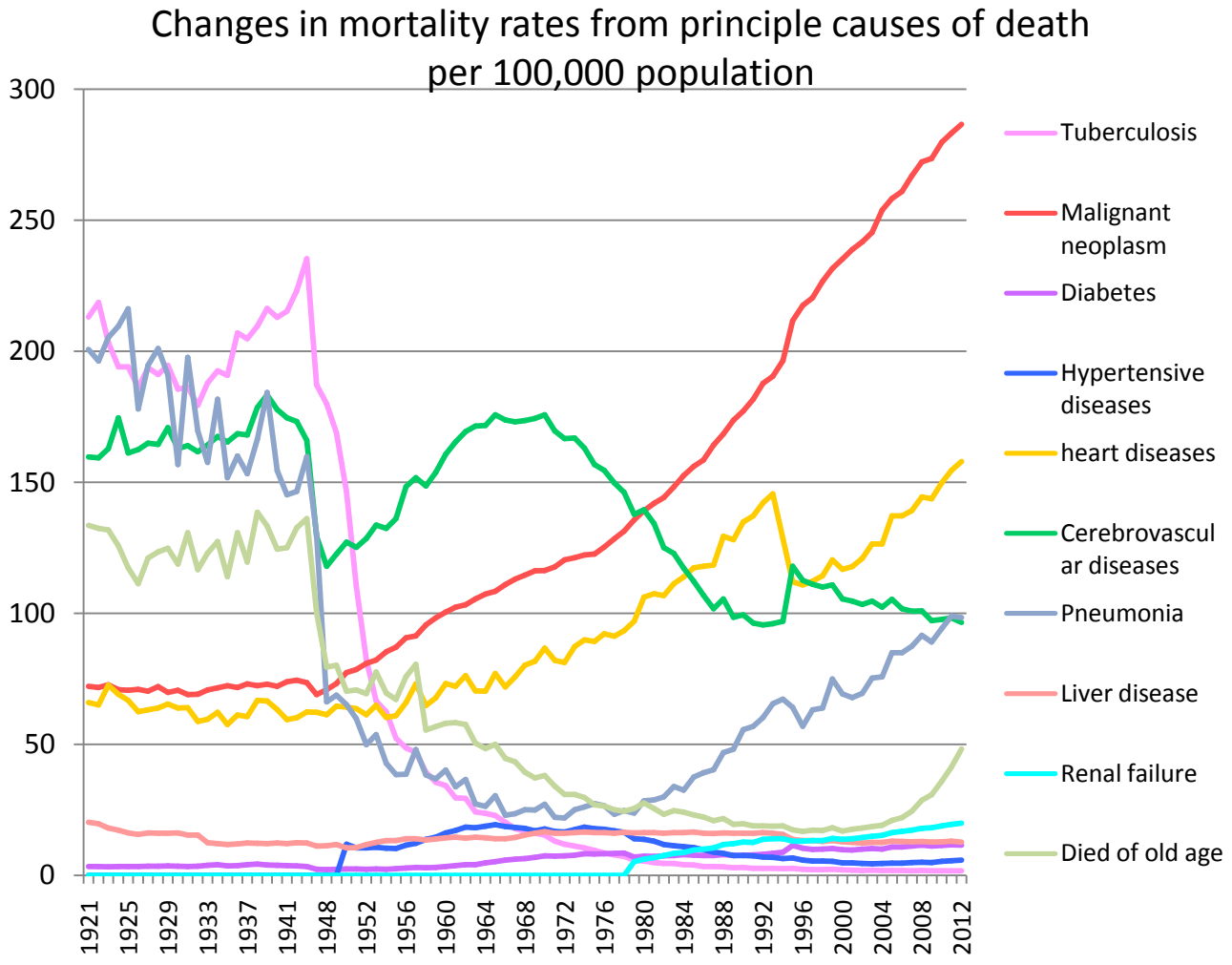
It is a group of diseases the onset and progress of which are concerned with lifestyle and behavior factor(s) such as dietary habits, physical activities, rest, smoking, alcohol consumption, etc.

Examples: Diabetes, hypertension, heart diseases, cerebrovascular diseases, cancers, etc.

The term “lifestyle-related diseases(Seikatsu-shukan-byo)” was proposed in 1996 by the Ministry of Health and Welfare’s Council on Public Health.
In Japan the mortality rates of such diseases as cerebrovascular diseases, cancers and heart diseases rapidly increased around the age of 40. The traditional administrative term of “adult diseases (Seijin-byo)” was used because these diseases were related with aging. However, as the prevention of such diseases required considerations based on the current state of one’s lifestyle and behavior factors such as diet, physical activities, smoking and alcohol consumption as well as the issues related to those, the concept of “lifestyle-related diseases” was introduced.

The lifestyle-related diseases are chronic diseases including cancer, heart diseases and diabetes. It is also non-communicable diseases (NCDs) against which worldwide actions are being taken.

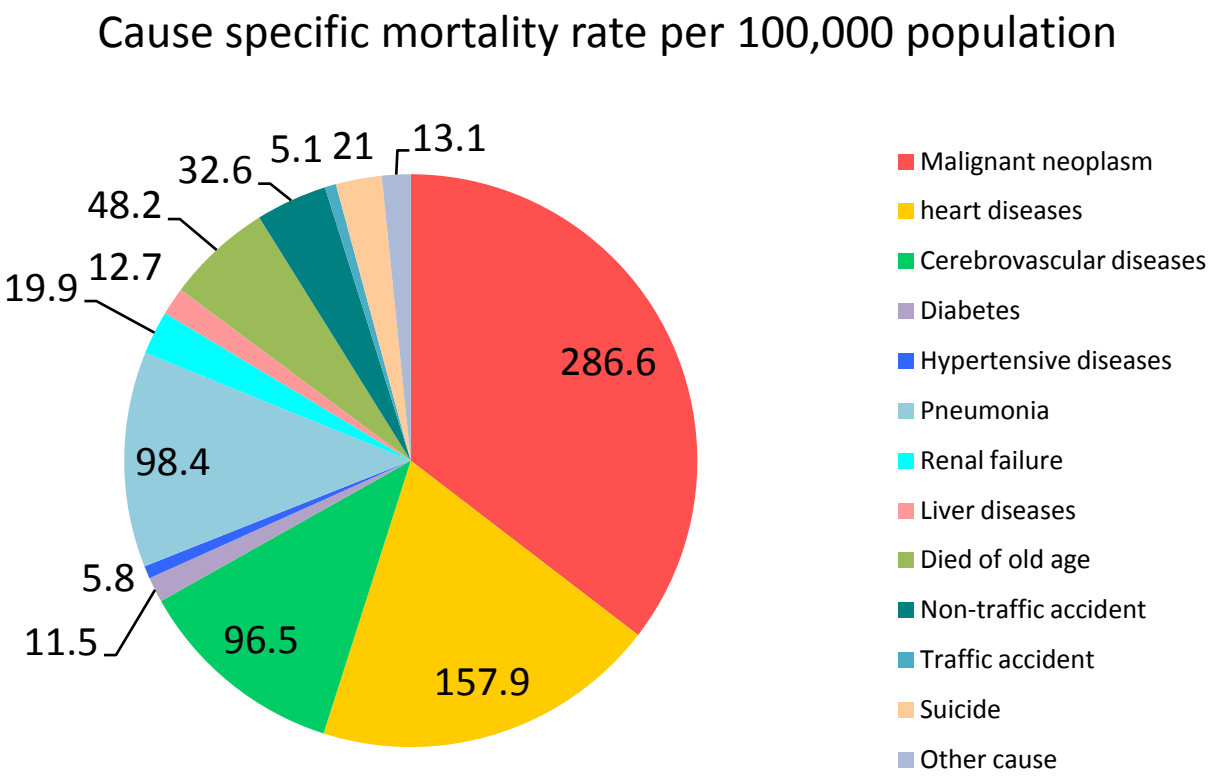
The principle causes of death among the Japanese have changed from infections to lifestyle-related diseases such as cancer, heart diseases and cerebrovascular diseases



Source: 2012 Vital Statistics, Ministry of Health, Labour and Welfare(MHLW)

Japan saw a rapid decline in tuberculosis- and pneumonia-related deaths in the early 1950s. The leading causes of deaths was dramatically changed from communicable diseases to the lifestyle-related diseases around this time. Malignant neoplasm, cardiovascular diseases and cerebrovascular diseases have been the three major causes of death since 1958, currently making up approximately 60% of all causes of death. Against this backdrop, emphasis is being placed on the preventive measure of the lifestyle-related diseases.

Approximately 30% of deaths among Japanese people are caused by cancer

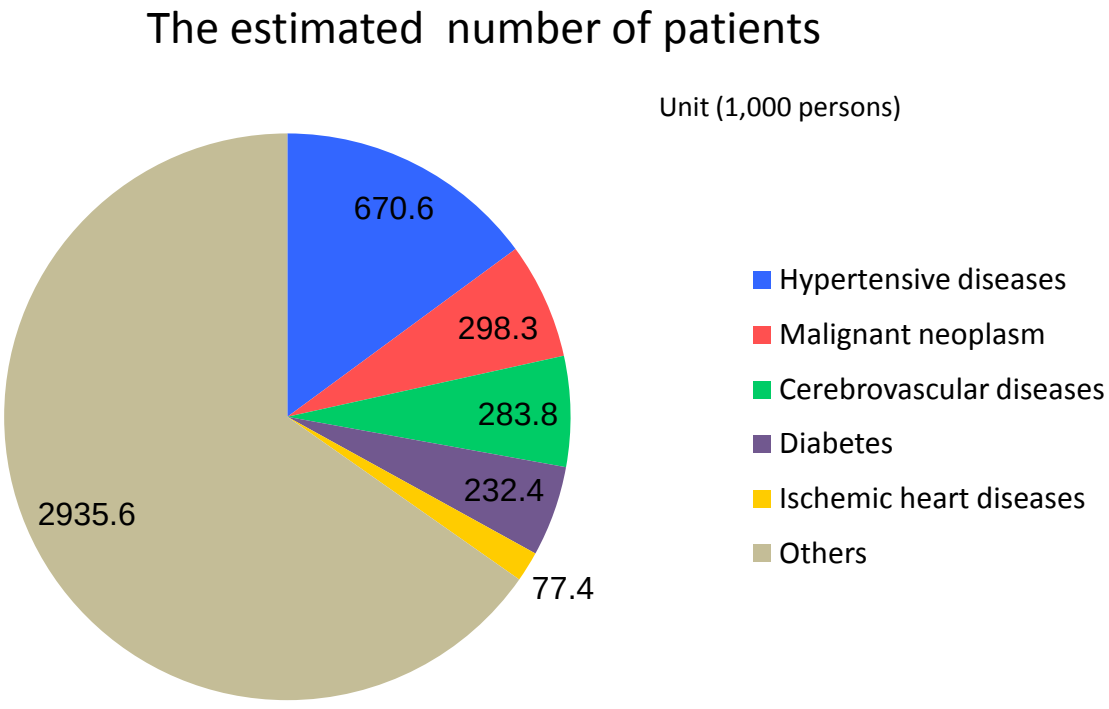


Source: 2012 Vital Statistics, MHLW

Approximately 60% of deaths among Japanese people are caused by lifestyle-related diseases; while approximately 30% are caused by cancers.
Research on preventable risk factors in the Japanese population identified the two principle determinants of adult deaths due to NCDs or injuries in Japan in 2007 as smoking and high blood pressure.[1)]

1) The issue of The Lancet featuring Japan (September 2011): Series Japan: Universal Health Care at 50 Years: What has made the population of Japan healthy? (Kenji Shibuya (representative); Comprehensive assessment of risk factor interventions and prevention of disease burden; Grant-in-Aid for Scientific Research from the Ministry of Health, Labour and Welfare (FY 2010–2012))

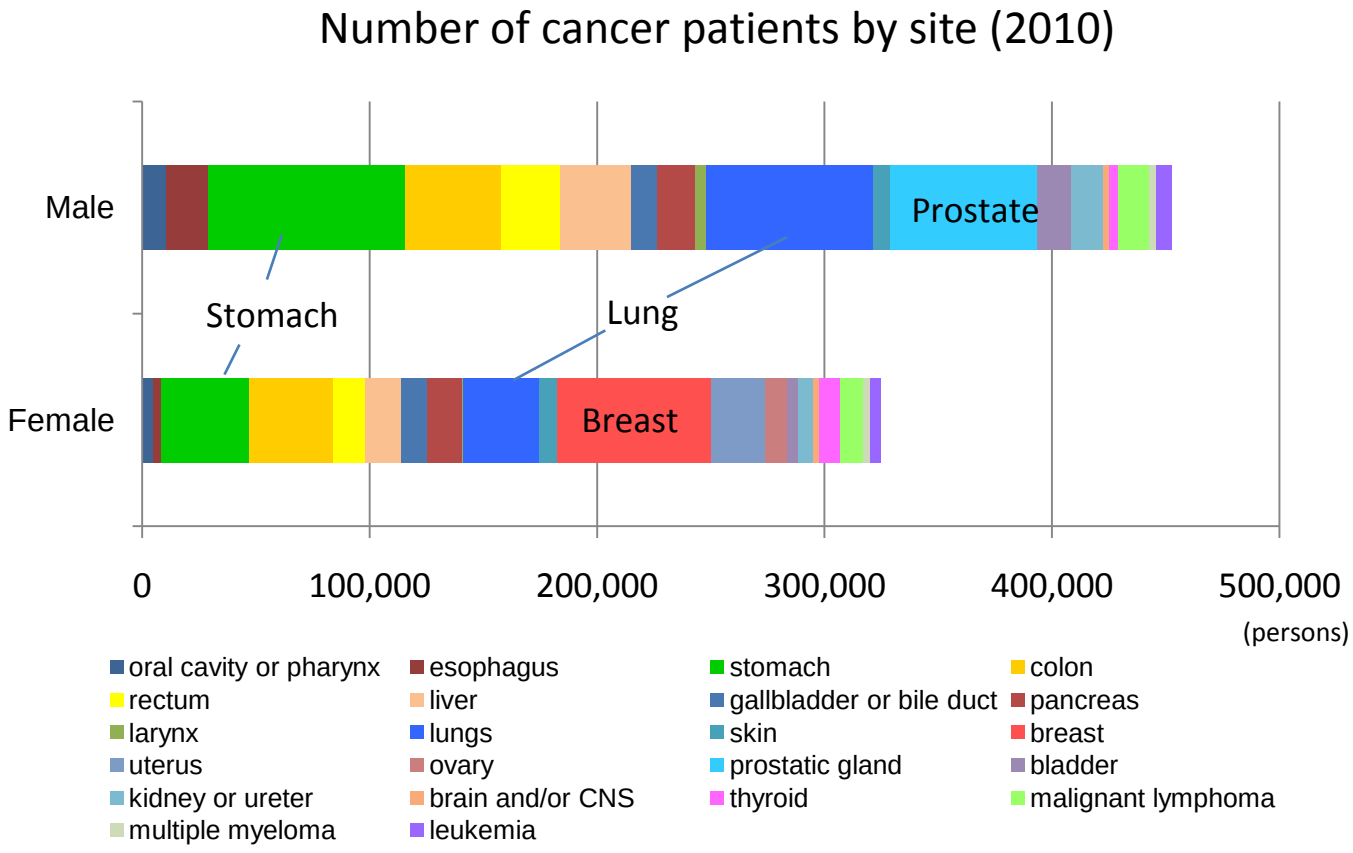
The estimated number of patients



Source: 2011 Patients survey, MHLW

Approximately a third of the estimated number of patients in Japan is suffering from lifestyle-related diseases.
With regard to the hypertensive diseases, which rank at the top in the estimated number of patients list, the 2012 National Health and Nutrition Survey shows 55.5% of males and 39.6% of females of 20 years or older are deemed to have a hypertensive diseases (systolic blood pressure of 140 mmHg or higher and/or diastolic blood pressure of 90 mmHg or higher, or taking a antihypertensive drug).

Cancers in the Japanese population

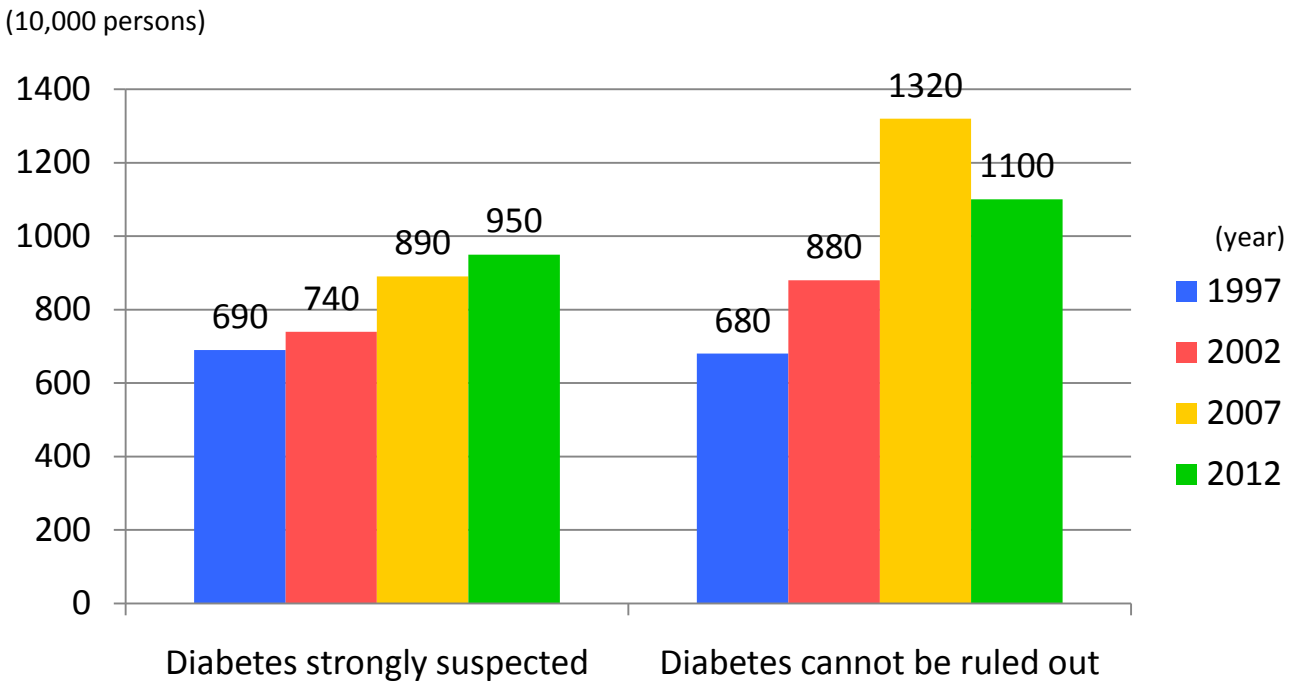


Cancer has topped the causes of death list in Japan since 1981. The lifetime risk of cancer in Japanese is one in two. The likelihood of dying from cancer is one in four for males (26%) and one in six for females (16%). The mortality rate from cancer start to increase in those in their 60s. The mortality rate is greater for males than females in their 60s and older.

The national cancer screening rate in 2010 was extremely low. In males, the screening rate of stomach cancer was 36.6%, colon cancer was 28.1%, and lung cancer was 26.4%. In females, the screening rate of stomach cancer was 28.3%, colon cancer was 23.9%, and lung cancer was 23.0%, breast cancer was 30.6% and uterine cancer was 28.7%

Source: Center for Cancer Control and Information Services, National Cancer Center, Japan
http://ganjoho.jp/public/statistics/pub/statistics01.html (accessed on 24 June 2014)

Diabetes

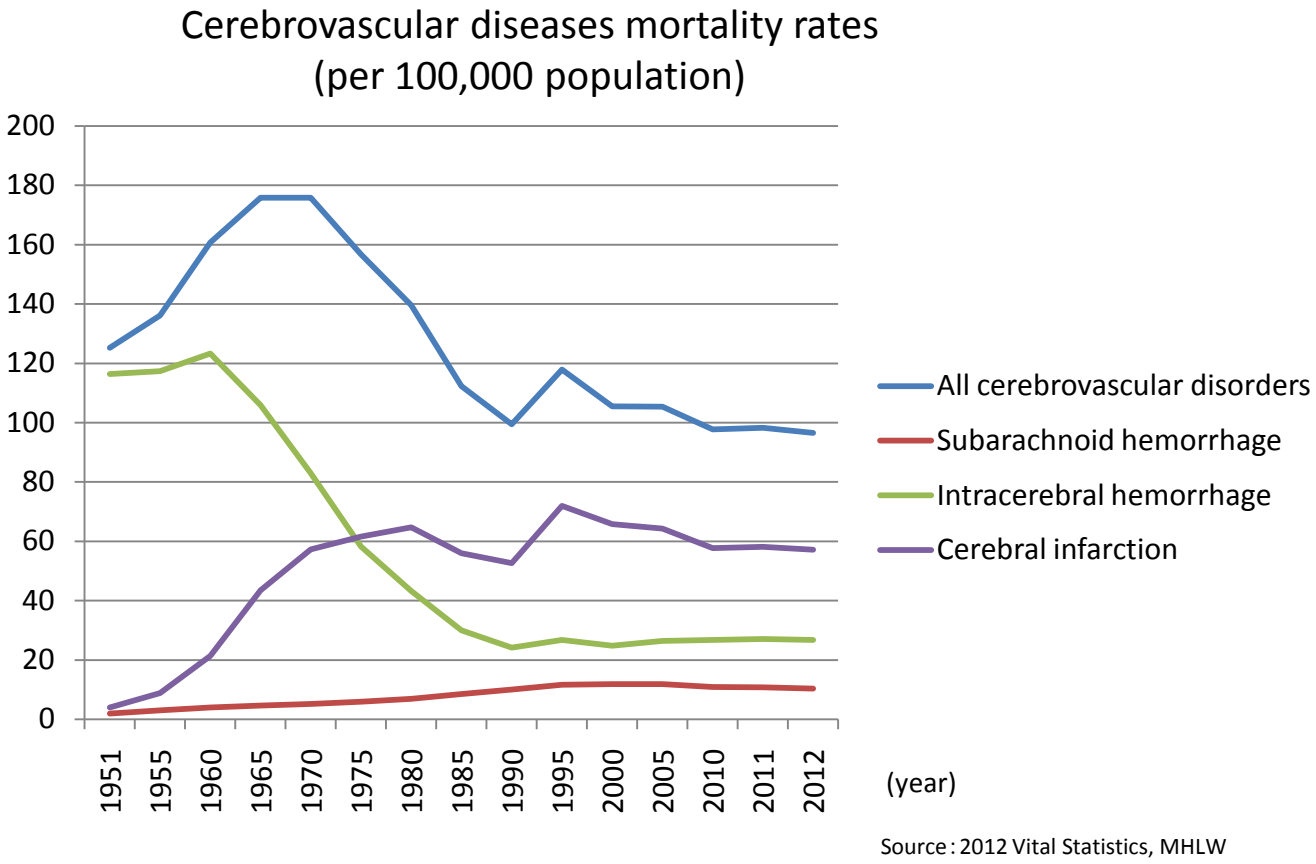


Diabetes strongly suspected: persons with HbA1c (NGSP) of 6.5% or greater, and/or persons who have been diagnosed with diabetes and received treatment
Diabetes cannot be ruled out: persons with HbA1c (NGSP) of 6.0% or greater, but less than 6.5%, and not strongly suspected to have diabetes

The estimated figure for the number of “diabetes cannot be ruled out” had shown an increasing tendency before, but decreased in a Japanese government survey in 2012. The percentage of the “diabetes strongly suspected” group was 15.2% for males and 7.8% for females. Compared to the figures of previous survey in 2007, there were no changes for males but an increase for females. Meanwhile the percentage of “diabetes cannot be ruled out” was 12.1% for males and 13.1% for females. In comparison to the figures in the previous survey in 2007, there was no change for males but a decrease for the females.

Source: 2012 National Health and Nutrition Survey, MHLW

Cerebrovascular diseases



Source : 2012 Vital Statistics, MHLW

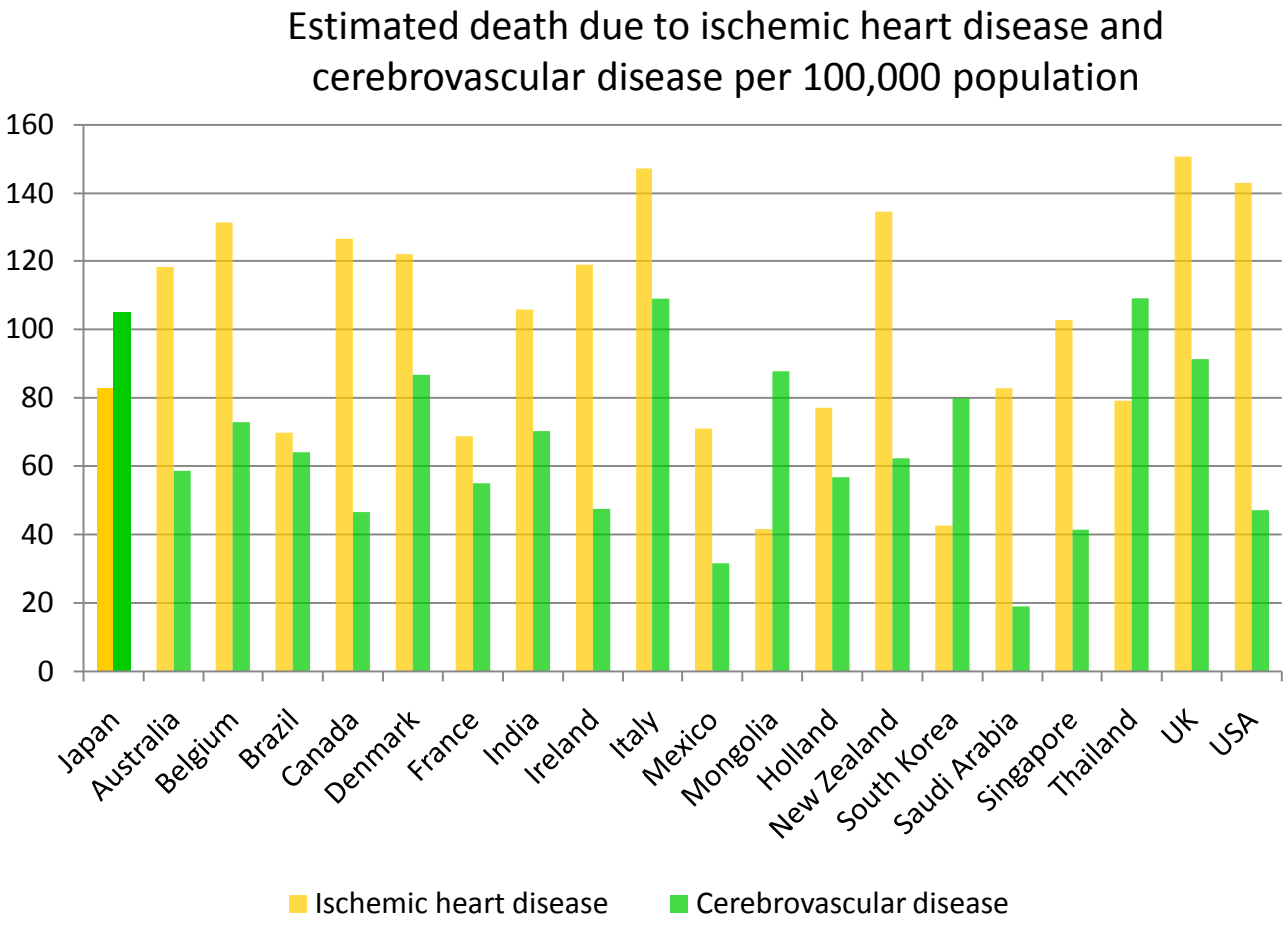
The third highest cause of death among the Japanese is cerebrovascular diseases. When cerebrovascular diseases occur, they also have a high risk to create a need for long-term care.

The mortality rate of cerebrovascular diseases among the Japanese peaked around 1965, and then declined. The largest factor behind this change was a decline in intracerebral hemorrhage cases. At present, cerebral infarction makes up approximately 60% of cases in which cerebrovascular diseases cause death, and it is attributed to increasing dyslipidemia and diabetes. Although the exact incidence rate of cerebral infarction is unknown, it is estimated to be between 100 and 200 cases per 100,000 population, and around 600 cases per 100,000 population of 40 years or older.[1)]

The estimated number of patients with cerebrovascular diseases in 2011 was 1,235,000.

Source: 1) Stroke management guideline 2009, by Stroke joint guideline committee

Heart diseases

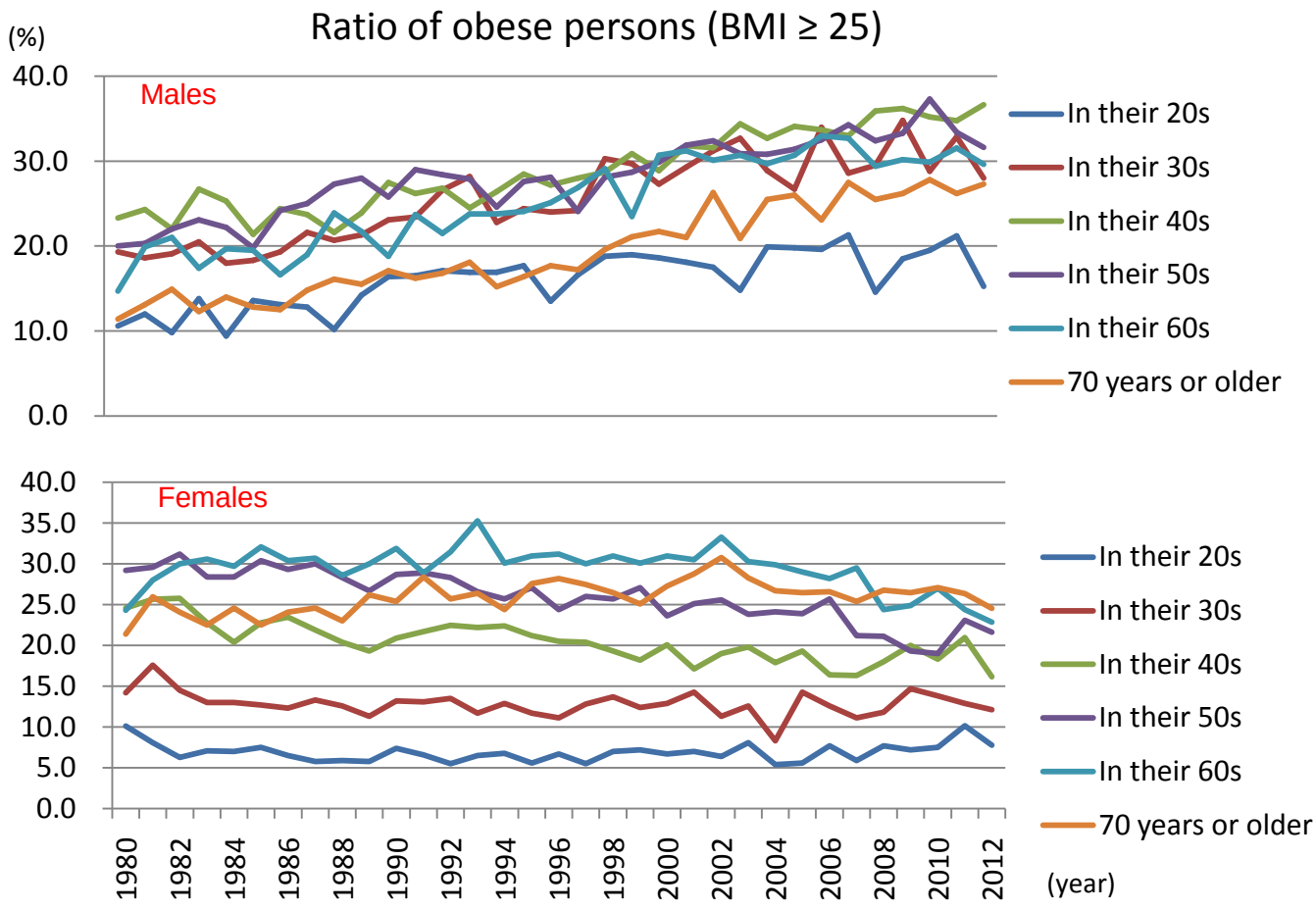


Source: WHO Global Health Observatory Data Repository, Disease and injury country estimates, 2008

Mortality rate of heart diseases among the Japanese is on the increase. In the past, when compared to various overseas populations, the Japanese showed higher mortality rate from cerebrovascular diseases and lower mortality rate from ischemic heart disease. However the changes in lifestyle and diet of Japanese population have brought an increase in metabolic diseases such as obesity, dyslipidemia and impaired glucose tolerance. It is feared this trend may lead to an increased risk of ischemic heart disease.

Reference:
Guidelines for the primary prevention of ischemic heart disease revised version(JCS 2012) by joint team from: The Japanese Circulation Society, Japan Society of Nutrition and Food Science, The Japanese Society of Hypertension, The Japan Menopause Society (The Japan Society for Menopause and Women's Health), Japanese Society of Pediatric Cardiology and Cardiac Surgery, Japanese College of Cardiology, The Japanese Association of Cardiac Rehabilitation, The Japan Diabetes Society, Japan Atherosclerosis Society and The Japan Geriatrics Society

Obesity



Source: 2012 National Health and Nutrition Survey, MHLW

The WHO definitions are: a BMI greater than or equal to 25 is overweight while a BMI greater than or equal to 30 is obesity.[1)]

The Japanese definition of obesity is a BMI greater than or equal to 25, while those with concurrent health issues or visceral fat area size of 100 cm^2 or larger are deemed adiposity. Although the obesity-related diseases are on the rise in Japan, obese Japanese mostly fall within a BMI range of 25 or more but less than 30. Since not many fall in the WHO's obese criterion of BMI of 30 or greater, Japan uses different criteria from WHO.[2)]

According to the 2012 National Health and Nutrition Survey, 25.3% of males and 15.9% of females of 20 years or older fall in a BMI range of 25 or greater but less than 30, while 3.8% of the males and 3.4% of the females have a BMI of 30 or greater. There is an increasing tendency for obesity in males.

Sources:
1) World Health Organization (2014) Obesity and overweight Fact sheet No. 311, http://www.who.int/mediacentre/factsheets/fs311/en/# (accessed 19 June 2014)
2) Japan Society for the Study of Obesity (2011) Journal of Japan Society for the Study of Obesity, 17(50), pp1-2.

Metabolic Syndrome

Metabolic syndrome diagnostic criteria

Abdominal girth	Additional risks	Diagnosis
	i. blood glucose; ii. lipids; iii. blood pressure	
Male≥ 85cm Female≥ 90cm	Two or more apply	Metabolic syndrome
	One applies	Potential

i. blood glucose:	fasting blood glucose level of 110 mg/dL or higher
ii. lipids:	neutral fat level of 150 mg/dL or higher and/or HDL cholesterol level of less than 40 mg/dL
iii. blood pressure:	Systolic blood pressure(BP) of 130 mmHg or higher and/or diastolic BP of 85 mmHg or higher

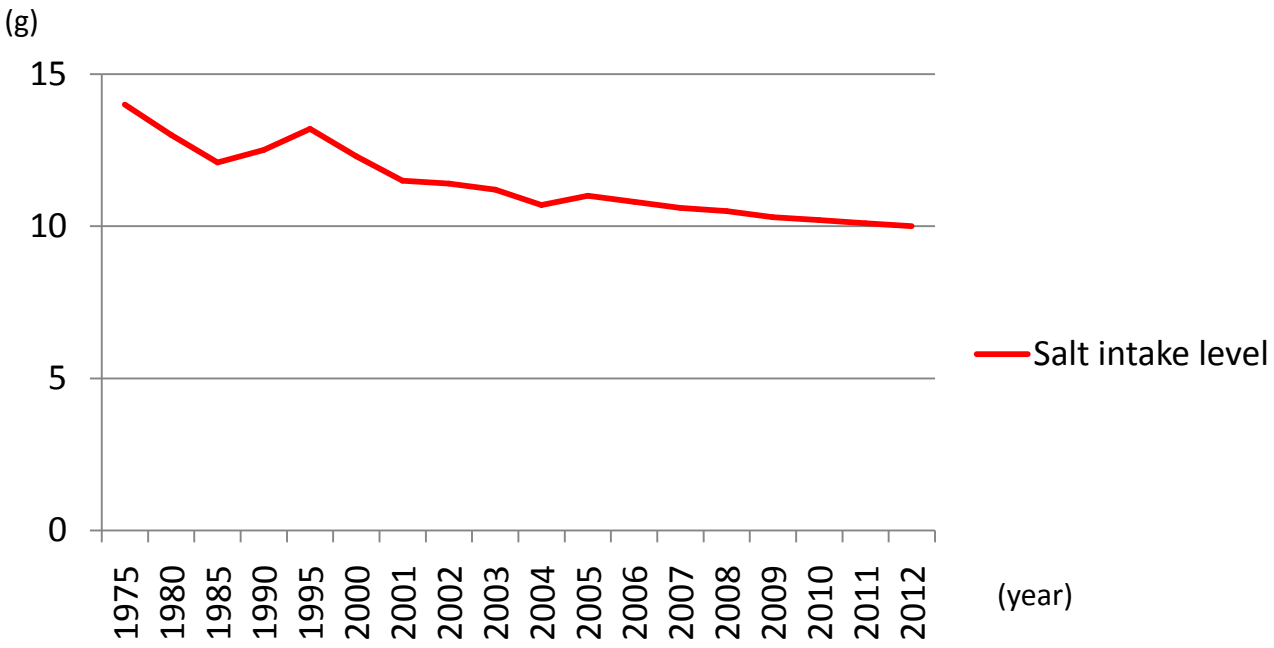
It has become known that lifestyle-related diseases are strongly associated with obesity with excess visceral fat (visceral fat obesity). The visceral fat obesity increases the risks for diabetes, dyslipidemia and hypertension, as well as progressive arterial sclerosis, which raises the risk for myocardial infarction (MI) and stroke. In Japan, metabolic syndrome (visceral fat syndrome) is diagnosed when two of the three indicators of blood glucose, lipids and blood pressure, exceed their respective reference ranges. Those who fulfill the criteria need to manage the conditions by improving their lifestyles.

The 2011 data of those who underwent metabolic syndrome-focused screening, targeting those of 40 years or older, show that 14.6% were likely to have metabolic syndrome while 12.1% were deemed in the “potential” category.[1)]

Source: 1) Data related to specified health examination and/or specified health guidance, MHLW
http://www.mhlw.go.jp/bunya/shakaihosho/iryouseido01/info02a-2.html (accessed on 25 June 2014)

RISK FACTORS

Although declining, salt intake level among the Japanese is still high



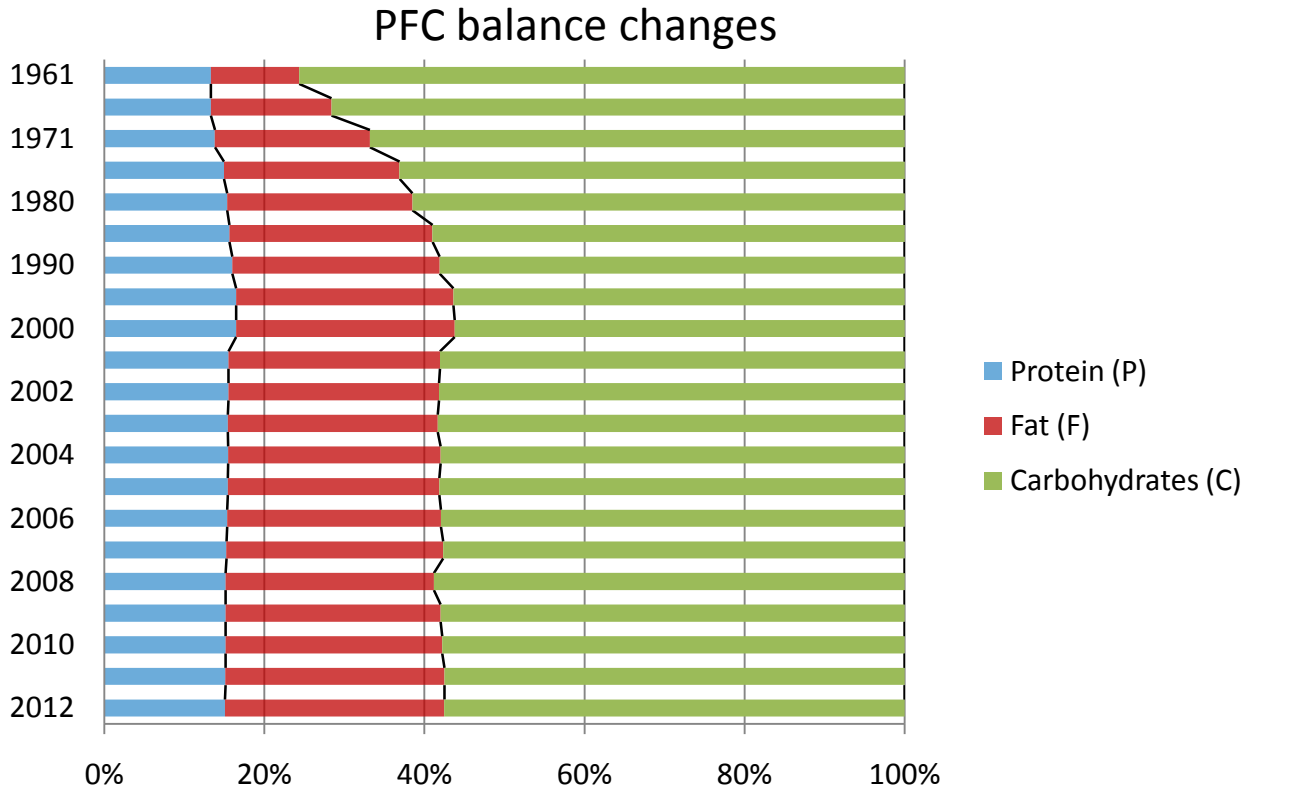
Source: 2012 National Health and Nutrition Survey, MHLW

Dietary habits form one of the important factors that influence lifestyle-related diseases. Historically Japan had a higher prevalence of hypertension and deaths due to stroke. One of the contributing factors was the high level of salt intake. On average, the Japanese consume 10.4 g of salt/day (2012 data). Although WHO recommends to limit the salt intake to 5 g/day, the target salt intake in Japan are less than 9 g/day for males and less than 7.5 g/day for females.

Sources:

- 2012 National Health and Nutrition Survey, MHLW
- Dietary reference intakes for Japanese (2010 edition), MHLW
- 2014 Hypertension management guideline by The Japanese Society of Hypertension

Changing dietary structure of the Japanese



Source: Sections 44, 45 and 46, "Current state of citizens' nutrition" from 2012 National Health and Nutrition Survey by MHLW

The Japanese diet has seen major changes. Although the total calorific intake has not changed much, the ratio of fat on an energy intake level is increasing while that of carbohydrates is on the decline.

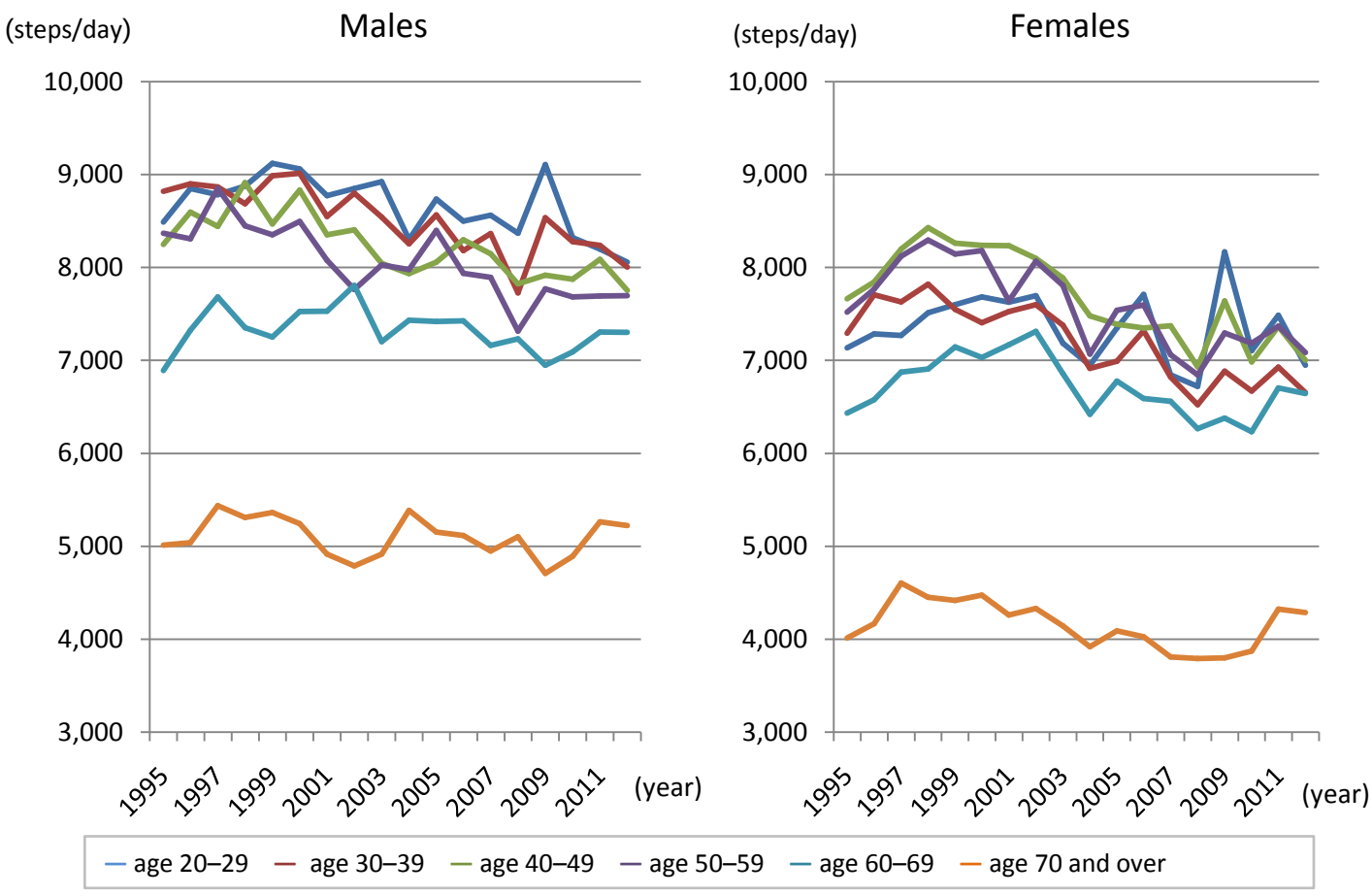
Meat, eggs, dairy products and oils have become a larger source of fat intake, while tubers and rice-based carbohydrate intake has decreased. Although the protein intake level remains relatively stable over times, an increase in animal protein intake has been observed (from 25.3 g in 1961 to 36.4 g in 2012) while the plant protein intake has decreased.

"Kenko Nippon 21 (Health Japan 21)" suggests a daily intake target for vegetables and fruits of 350 g, though the 2012 survey showed adults' average vegetable, etc., intake remained 286.5 g.

Sources:
"Current state of citizens' nutrition" from 2012 National Health and Nutrition Survey , MHLW
"Shokuiku guidebook for parents and children" by Office of Shokuiku Promotion, Cabinet Office
"aff" May 2008 issue by Ministry of Agriculture, Forestry and Fisheries (http://www.maff.go.jp/j/pr/aff/backnumber.html; accessed on June 11, 2014)

Physical activities: Fewer steps are taken per day on overage

Chronological changes in the average number of steps per day



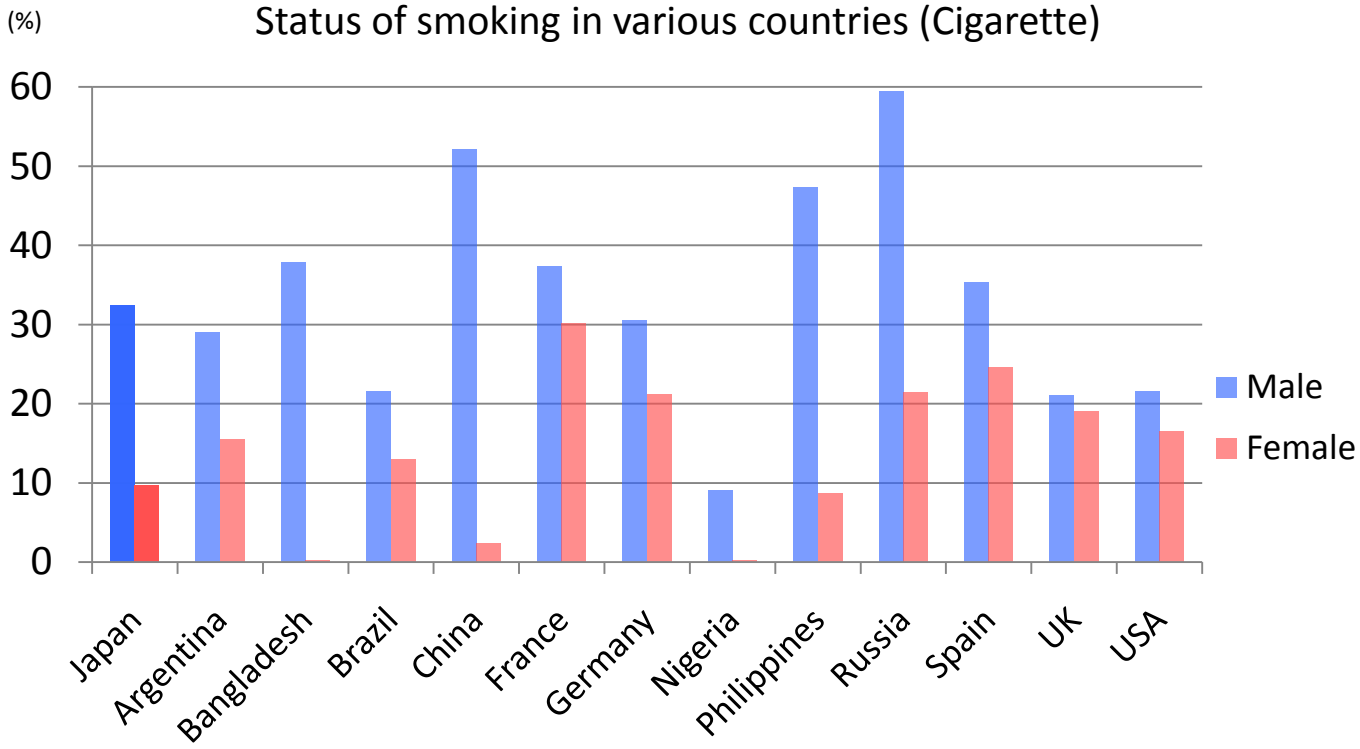
Source: 2012 National Health and Nutrition Survey , MHLW

According to WHO, physical inactivity is the fourth highest risk factor in terms of the number of deaths worldwide, following hypertension (13%), smoking (9%) and hyperglycemia (6%).[1)] Regular physical activity is deeply related to NCDs.

When looking at the mean number of steps taken per day by Japanese males and females under 60 years of age, a gradual declining trend is observed. When looking at the number of persons who have continued an exercise habit at least twice a week at 30 minutes per session, the numbers among those in their 20s and 40s have fluctuated at around 20%, while the figures for those in their 50s or older have shown increasing trends.

Source: 1) Global recommendations on physical activity for health, Geneva, World Health Organization, 2010.

Smoking



Source: Global Tobacco Epidemic 2013, WHO

Tobacco(Cigarette) is one of the significant risk factors for lifestyle-related diseases such as cancers, lung diseases, cardiovascular diseases and diabetes. Passive smoking also has a major health impact.

In Japan, smoke cessation treatment is covered by insurance since 2006.

However, despite the tobacco tax was increased in 2010 in the interest of health, researchers reported that based on the survey data of tobacco tax rate and smoking, the effect on non-smoking, reducing smoking and/or preventing an increase in smoking was transient.[1)]

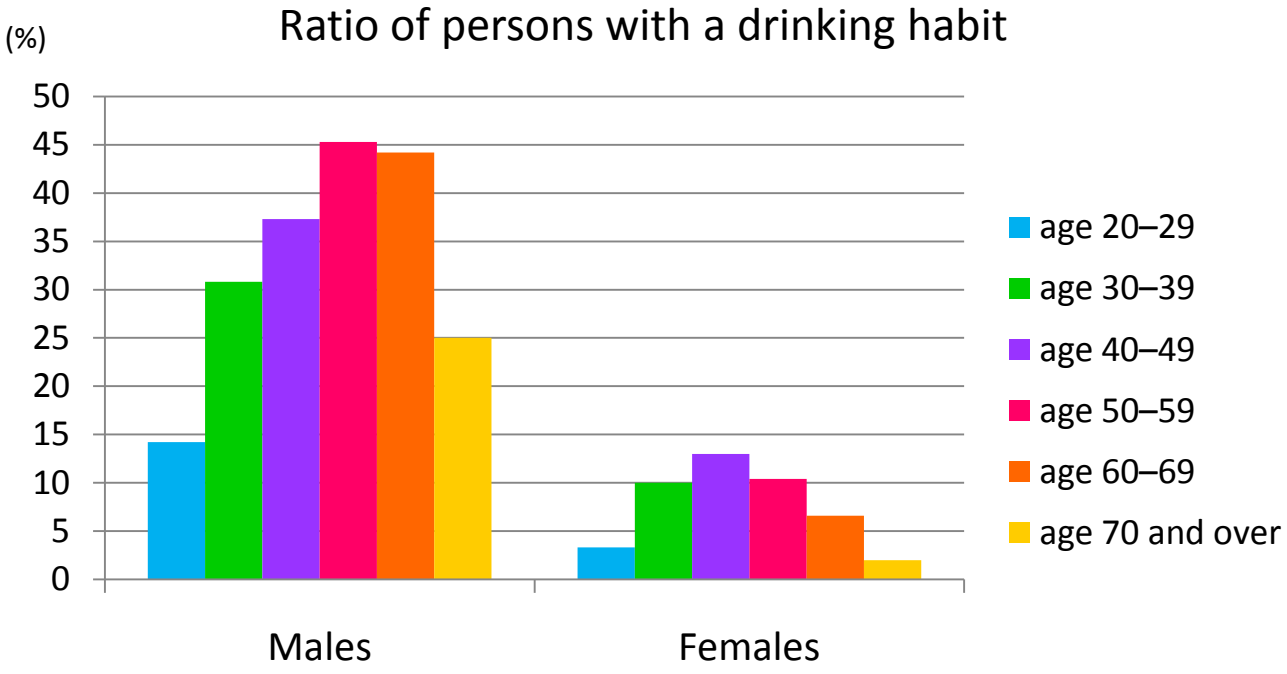
The smoking rates of Japanese was 34.1% for male and 9.0% for female according to the 2012 data. Although the smoking rates among men had been on a decline after 1995, the trend has turned upward since 2010. [2)]

Sources:

1) Compiled data from "National Survey on Changes in Work and Life Styles (Japanese Life Course Panel Survey for the Middle-aged) 2013" by Institute of Social Sciences, The University of Tokyo; specific data in press release (http://ssjda.iss.u-tokyo.ac.jp/panel/PR/13PressRelease.pdf; in Japanese; accessed on June 10, 2014)

2) 2012 National Health and Nutrition Survey, MHLW

Drinking alcoholic beverages (alcohol consumption)

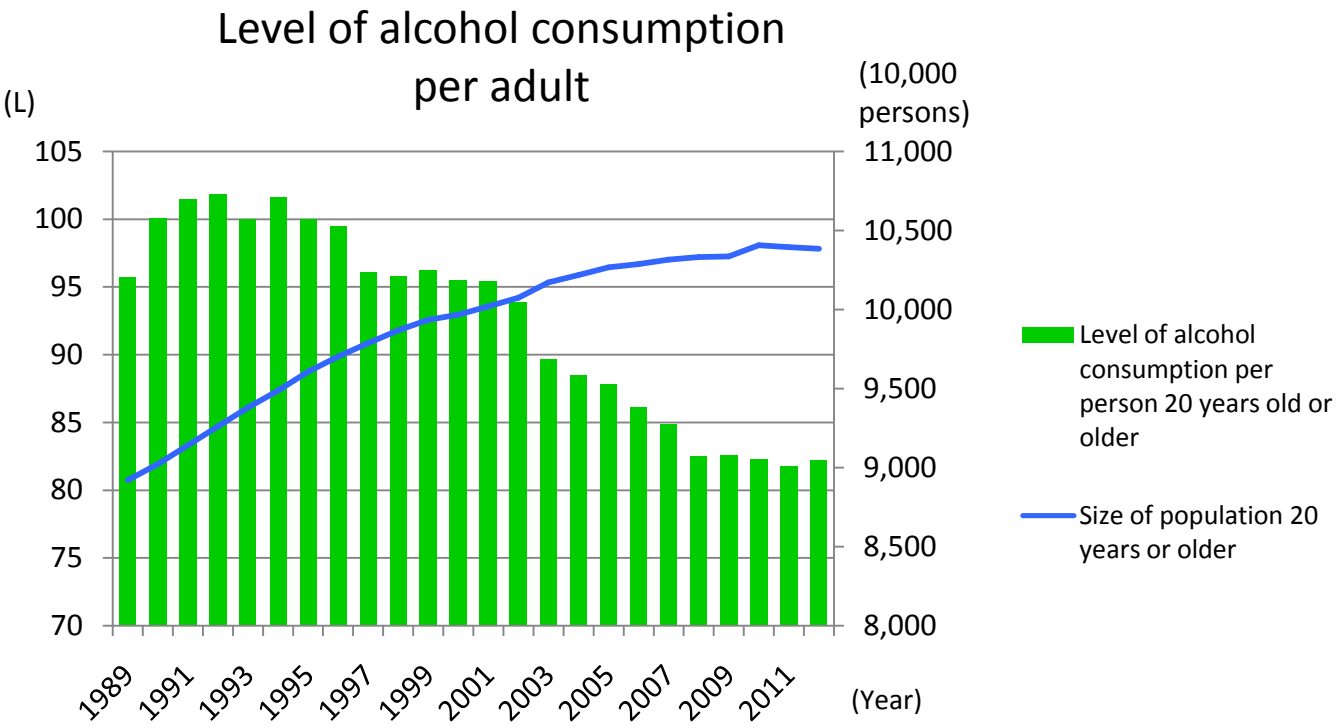


Persons who answered they would drink at least three days a week and at least 180 mL of seishu (refined sake) or equivalent on the days when they drink
180 mL of seishu = approx. 500 mL of beer = 240 mL of wine

Source: 2012 National Health and Nutrition Survey, MHLW

There is a large difference between males and females concerning the drinking habit.
The ratio of persons with a drinking habit that raises the risk for lifestyle-related diseases (daily alcohol intake of 40 g or more pure alcohol for males or 20 g or more for females): 14.7% for males and 7.6% for females.

Drinking alcoholic beverages (alcohol consumption)

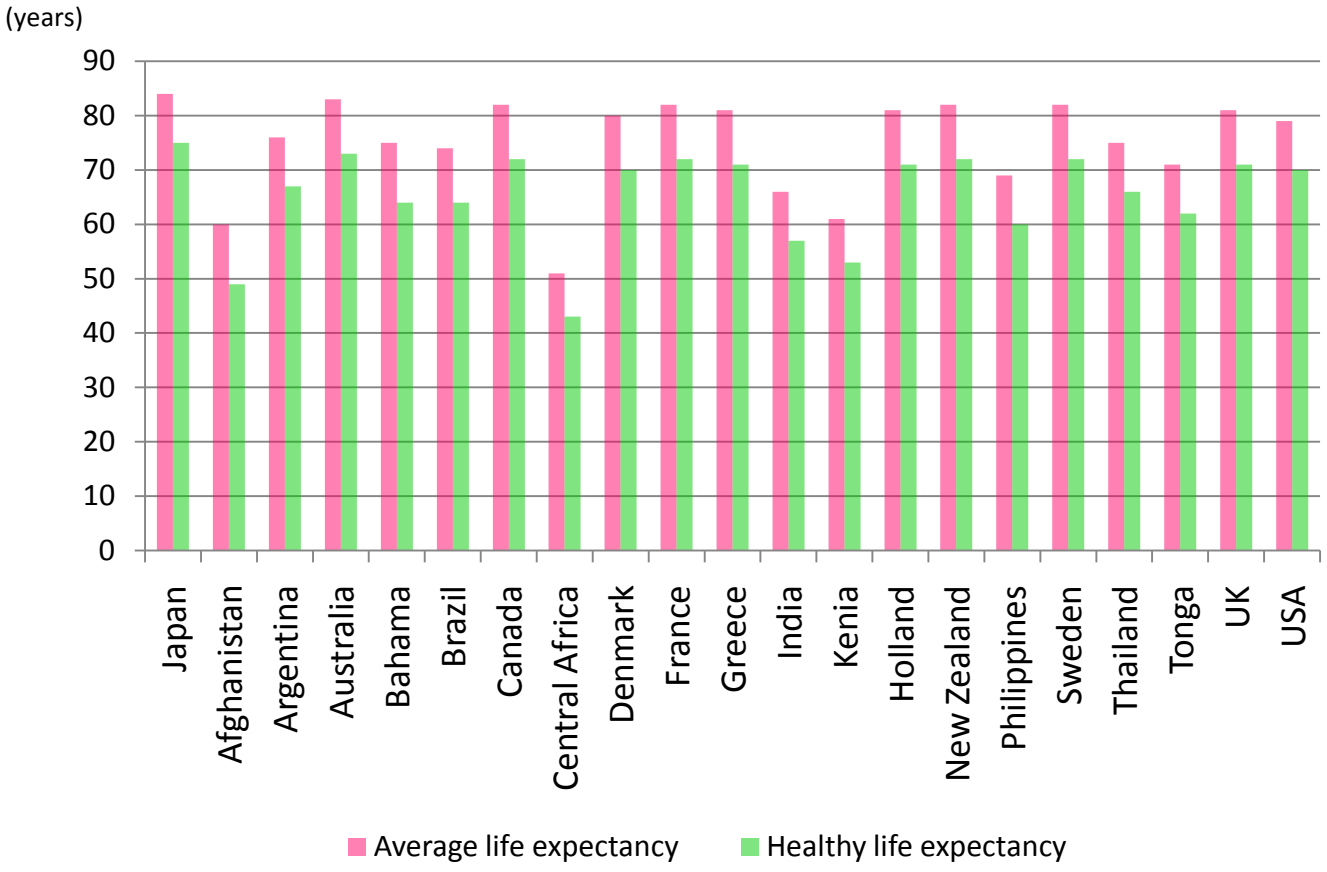


Size of population 20 years or older is based on "Annual demographic report (as of October 1, 2012)" of the Statistics Bureau, Ministry of Internal Affairs and Communications
Not including Okinawa Prefecture

Source: "Alcohol factsheet" (March 2014) by Alcohol Tax Division, Taxation Department, National Tax Agency
http://www.nta.go.jp/shiraberu/senmonjoho/sake/shiori-gaikyo/shiori/2014/pdf/100.pdf
(accessed on 23 June 2014)

While the size of the population of 20 years or older increased, the level of alcohol consumption per person showed a declining tendency.

The necessity to make actions to control lifestyle-related diseases: The gap between average life expectancy and healthy life expectancy



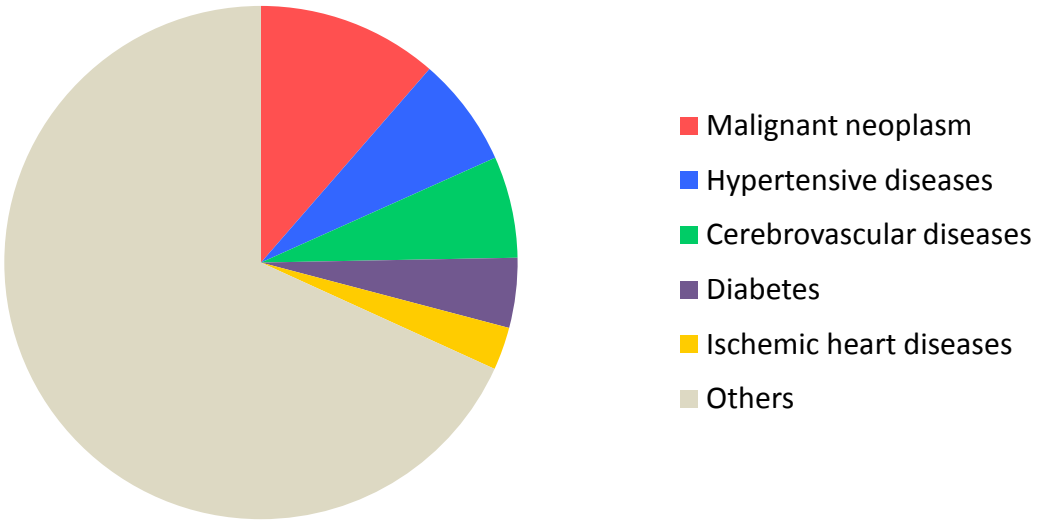
Source: Global Health Observatory Data, World Health Organization
http://apps.who.int/gho/data/view.main.690?lang=en (Accessed on 2014/6/11)

The Japanese population boasts the world's highest average life expectancy at birth of 80.21 years for men and 86.61 years for women(2013 data). On the other hand, there is a large difference between the average life expectancy at birth and healthy life expectancy : about 9 years for men and 12 years for women. Health promotion and disease prevention will play a major role to fill this gap.

Although various countries throughout the world show varying length of average life expectancy, the gap between average life expectancy and healthy life expectancy ranges from 7 to 10 years.

The necessity to make actions to control lifestyle-related diseases: Ratio of healthcare expenditures used for the lifestyle-related diseases

Ratio of medical care related healthcare expenditure by disease

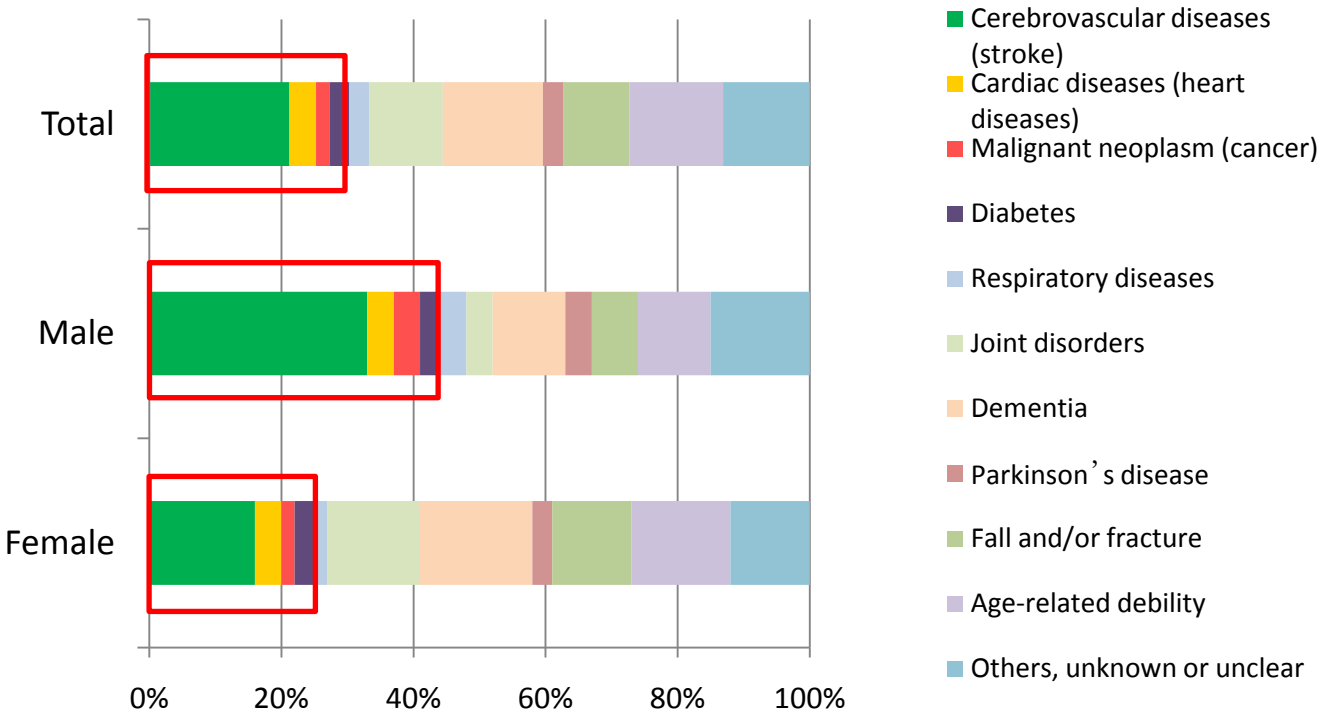


Total medical care related healthcare expenditure
¥ 27812.9billion
(about US$ 271billion)

Source: 2011 Estimates of national medical care expenditure, MHLW

A few lifestyle-related diseases account for up to almost 30% of the healthcare expenditure.

The necessity to make actions to control lifestyle-related diseases: Lifestyle-related diseases' impact on long-term care



Source: 2012 Comprehensive Survey of Living Conditions, MHLW

The four major lifestyle-related diseases, cerebrovascular diseases, cardiac diseases, malignant neoplasm and diabetes, account for up to 30% of the main causes for long-term care needs (44% in the male population and 27% in the female population).

JAPANESE GOVERNMENT POLICIES

National Health Promotion Program

1978–	The First National Health Promotion Program:
1988–	The Second National Health Promotion Program: Active 80 Health Plan
2000–	The Third National Health Promotion Program: National Health Promotion in the 21st Century (Health Japan 21)
2013–2022	The Fourth National Health Promotion Program: Phase 2 National Health Promotion in the 21st Century (Health Japan 21 (Phase 2))

The Japanese Government has formulated and revised the policies to promote health of population for many years.

Health Japan 21 Phase 2

(1) To extend healthy life expectancy and to reduce health disparity

(2) To thoroughly implement measures to prevent the onset and/or exacerbation of lifestyle-related diseases

(3) To maintain and improve the functions necessary for having a social life (mental health, health of the next generations and health of the elderly)

(4) To improve the social environment to support and protect health

(5) To improve lifestyle and behavior and the social environment

Health Japan 21 (Phase 2) is a plan for the ten-year period from 2013. It was formulated to set the policy direction among the socioeconomic changes in recent years and the rapid population aging and fewer children, by focusing on the demographic movement in the next ten years and clearly presenting, "What to strive for."

Altogether the plan sets 53 targets (excluding duplications) for health promotion of population in numerical indicators to build an energetic society where people can live healthy and spiritually content lives in each stage of their lives, and thus ensure that social security systems are sustainable.

"To thoroughly implement measures to prevent the onset and/or exacerbation of lifestyle-related diseases," specific targets for NCDs namely cancer, cardiovascular diseases, diabetes and chronic obstructive pulmonary disease (COPD) are set. At the same time, with regard to the objective, "To improve lifestyle and behavior and the social environment," specific lifestyle targets in relation to the lifestyle-related diseases are set (namely nutrition and diet, physical activities and exercise, rest, alcohol consumption, smoking and dental and oral health).

Health Japan 21 Phase 2: To improve lifestyle and behavior and social environment (nutrition and diet)

- Increase in the number of people maintaining optimal weight (fewer obesity or underweight persons)
- Increase in the number of people taking adequate quantity and quality of meals (more meals with a combination of staple carbohydrate, main protein dish and side vegetable dish, less salt intake and more intake of vegetables and fruit)
- Increase in the number of people having meals in the company of others (smaller ratio of children who eat meals alone)
- Increase in the number of food companies and restaurants that registered as tackling reduction of salt and fat in food
- Increase in the proportion of specified meal catering facilities that implement the plan, cooking and nutritional assessment of meals depending on the users they cater for

* Specified meal catering facilities: facilities that provide at least 100 meals at once or at least 250 meals per day on an ongoing basis
Examples: meal catering facility at a childcare center, school, business establishment, hospital or aged care facility

To extend healthy life expectancy and improve the quality of life, targets are set for prevention of main lifestyle-related diseases (cancers, cardiovascular diseases and diabetes) based on scientific evidences. Due to the large ratio of underweight females in their 20s (29.0%) and for better nutrition and prevention of malnourishment for the elderly, targets aimed to reduce underweight conditions are also set, in addition to obesity-related targets.

Health Japan 21 Phase 2: To improve lifestyle and behaviors and social environment (physical activities)

- Increase in the number of walking steps in the course of daily living (1200–1500 more steps)
- Increase in the proportion of people who exercise regularly (approximately 10% more)
- Increase in the number of local governments that commit to building an exercise friendly town for residents and commit to improving the environment for it

The government set the above targets in Health Japan 21 (Phase 2). As a part of the actions to promote Health Japan 21 (Phase 2), "Exercise and Physical Activity Reference for Health Promotion 2013" was developed to present the importance of physical activities and exercise and a method to put them into practice.

By increasing the daily physical activity level, one can lower the risks of developing lifestyle-related diseases including metabolic syndrome, the risk of dying from such a condition and the risks of losing the functions for living due to aging, as well as the risk of developing mental disorders. Furthermore, regular practice of physical activity is expected to increase the preventative effects against those diseases, etc., will increase.

Source: Report by the committee on revision of Exercise and physical activity reference and guideline, Ministry of Health, Labour and Welfare

Health Japan 21 Phase 2: To improve lifestyle and behavior and social environment (smoking)

- Reduction of the smoking ratio in adults
- Eliminate underage smoking
- Eliminate smoking in pregnant women
- Reduction of the ratio of persons who are exposed to second-hand smoke (at home, in the workplace, restaurants, government facilities and healthcare institutions.)

Smoking is the main risk factor of such diseases as cancer, stroke, ischemic heart diseases and diabetes. Since both smoking and second-hand smoke are considered as a factor of many diseases in the Japanese population, its risk shall be reduced.

Health Japan 21 Phase 2: To improve lifestyle and behavior and social environment (alcohol)

- Reduction of the ratio of persons with a drinking habit that raises the risk for lifestyle-related diseases (daily alcohol intake of 40 g pure alcohol or more for males and 20 g or more for females)
- Eliminate underage drinking
- Eliminate drinking in pregnant women

Health Japan 21 (Phase 2) sets the three above targets on alcohol.
Drinking also tends to increase consumption of accompanying food, and with the calories of the alcohol, tends to increase the total energy intake. Since cancer, hypertension, cerebral hemorrhage, dyslipidemia and such show a lineal correlation with the average daily alcohol consumption, a target on the quantity of alcohol consumption has been set as a measure to prevent lifestyle-related diseases.
In addition, elimination of underage drinking was set as a target for healthy physical development in underage persons (younger than 20 years old), alongside the reduction of the ratio of pregnant women who drink from 8.7% in 2010 to zero, as the target to protect the fetus from the impact of drinking during pregnancy.

Source: Health Japan 21(Phase 2), MHLW

Specified health examination and specified health guidance

- Target groups: those between 40 and 74 years of age
- Costs: paid for by insurers of health insurance (except for a partial out-of-pocket contribution with some insurers)
- Basic examination items:

Questionnaire	History of medication, smoking, etc.
Physical measurement	Height, weight, BMI and abdominal girth
Blood pressure measurement	
Physical screening	Physical examination
Urinalyses	Glucose and protein in urine
Blood tests	Lipids: neutral fat, HDL cholesterol and LDL cholesterol Blood glucose: fasting blood glucose or HbA1c Liver function: GOT, GPT and γ-GTP

*When the physician deems necessary, electrocardiogram, funduscopy and other examination(s)/test(s) may be conducted

To prevent lifestyle-related diseases, which cause approximately 60% of deaths in the Japanese population, the health examination focusing on the metabolic syndrome began in 2008.
It became mandatory for insurers to provide insured persons and their families with health examination and health guidance. However, the ratio of implementing specified health examination in 2011 was 44.7%, which is not a high figure. Males tend to show a lower screening ratio in the age groups older than 60 years, which is the general retirement age.[1)]

Source: 1) "Specified health examination and specified health guidance: Status of implementation" by MHLW

Specified health guidance

Specified health guidance target group

<table>
<tr><th rowspan="2">i. Abdominal girth & BMI</th><th>Additional risks</th><th rowspan="2">v. history of smoking</th><th colspan="2">Assessment</th></tr>
<tr><th>ii. blood glucose;
iii. lipids;
iv. blood pressure</th><th>age 40–64</th><th>age 65–74</th></tr>
<tr><td rowspan="3">Male≥ 85cm

Female≥ 90cm</td><td>Two or more applicable</td><td></td><td rowspan="2">Proactive support</td><td rowspan="3">Motivational support</td></tr>
<tr><td rowspan="2">One applicable</td><td>Yes</td></tr>
<tr><td>Not</td><td colspan="2"></td></tr>
<tr><td rowspan="4">Above not applicable
AND
BMI ≥ 25 kg/m²</td><td>Three applicable</td><td></td><td rowspan="2">Proactive support</td><td rowspan="4">Motivational support</td></tr>
<tr><td rowspan="2">Two applicable</td><td>Yes</td></tr>
<tr><td>No</td><td colspan="2"></td></tr>
<tr><td>One applicable</td><td></td><td colspan="2"></td></tr>
</table>

Based on the results of the specified health examination, specialized support in lifestyle and behavior review is offered by designated professionals including physicians, public health nurses, and/or registered dietitians to persons with a high risk of developing a lifestyle-related disease, but more likely to benefit from lifestyle improvements to prevent the lifestyle-related diseases. Specified health guidance may be provided in the form of motivational support or proactive support, depending on the degree of the risks. Those with higher risks receive proactive support.

Among those who underwent the 2011 specified health examination, 18.2% were identified as a specified health guidance target group. Specified health guidance completion rate in the specified health guidance target group was 15.0%. This rate has increased every year since the introduction of specified health guidance in 2008.

Effects of specified health examination and specified health guidance

A working group at the Ministry of Health, Labour and Welfare reviewed the effects of specified health guidance and published its findings as an interim report. In those findings, among the specified health guidance target group, those who received proactive support by public health nurses or other professionals in the form of telephone calls and interviews experienced a major reduction in abdominal girth, BMI and body weight and improvement in such indicators as blood glucose, blood pressure and lipid levels, in comparison to those without support or those who did not continue. Furthermore, it was observed in approximately 20–30% of the males and approximately 30–40% of the females in the metabolic syndrome group or potential group had "graduated" from the respective groups at completion of the proactive support stage.

Source: Interim report by the working group for review of healthcare cost optimization effects of specified health examination and specified health guidance, MHLW, April 2014

Basic Act on Food and Nutrition Education and Basic Plan to Promote Food and Nutrition Education

Fundamental policies concerning promotion of food and nutrition education(Shokuiku)

- Promotion of food and nutrition education according to each developmental stage throughout one's life
- Promotion of food and nutrition education that leads to prevention and improvement of the lifestyle-related diseases
- Promotion of food and nutrition education for children through having meals together with their families

Source: Basic Plan to Promote Food Education Phase 2, Cabinet Office (http://www8.cao.go.jp/syokuiku/about/plan/pdf/2kihonkaiteihonbun.pdf; accessed on 23 June 2014)

Against the backdrop of changing socioeconomic structure and diversifying values, the traditional diet of eating a wide range of side dishes along the staple of rice has changed, leading to unbalanced nutrition such as over-intake of lipids and irregular eating habits such as skipping breakfast. In order to ensure the health of body and mind, and to live an active and full life, food and nutrition is extremely important. The Basic Act on Food and Nutrition Education was established in 2005 for the purpose of facilitating children to acquire knowledge on food and nutrition and the ability to choose food well, so that they can grow healthy diet habits. Actions to prevent lifestyle-related diseases and improve one's lifestyle are also under way by the Plan to Promote Food and Nutrition Education.