Extension of healthy life expectancy and reduction of health disparities

Reference Material for Health Japan 21 (the second term)

i. Introduction

Healthy life expectancy is defined as the length of life that an individual lives without limitation in daily activities due to health problems. Extension of healthy life expectancy is given as one of the goals presented in Health Japan 21. At the time, however, clarity was lacking in the concept of healthy life expectancy and methods of estimating it, and no specific figure or goals for healthy life expectancy were presented.

With recent developments in research, however, there is growing consensus with regard to the concept of healthy life expectancy and methods of estimating it. Health Japan 21 (the second term) shows current figures for healthy life expectancy as well as how those goals are viewed.

ii. Basic philosophy

(i) Extension of healthy life expectancy

Extension of healthy life expectancy is a core issue in Health Japan 21 (the second term), and its inclusion as an indicator is essential to the program. Showing current figures for healthy life expectancy and regularly estimating subsequent changes are beneficial in managing the progress of a national health promotion movement.

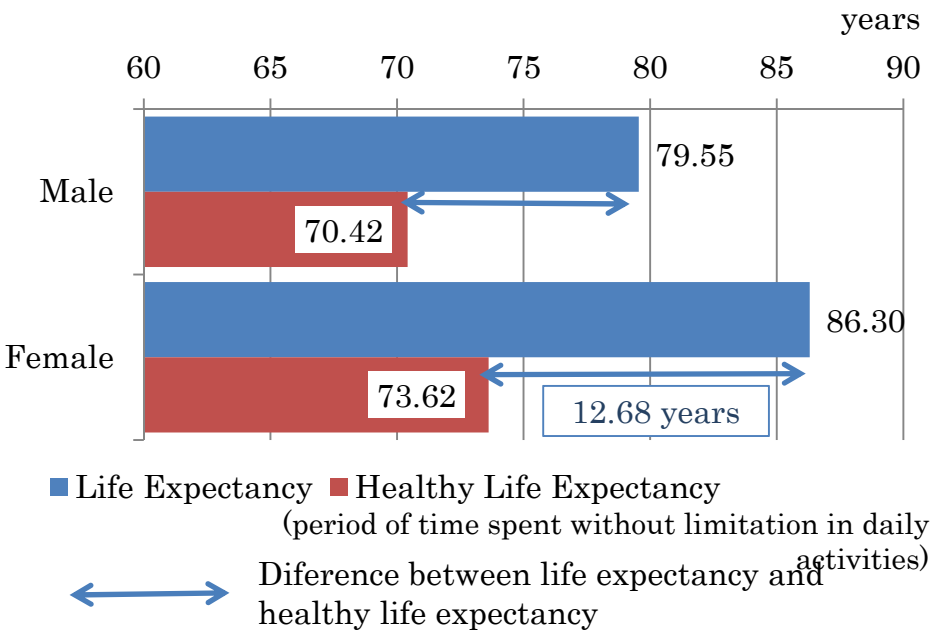
Various definitions of healthy life expectancy and ways of estimating it exist. First, with regard to the definition of healthy life expectancy, a mutually complementary evaluation is possible by taking the more objective “average period of time spent without limitation in daily activities” as the main index, and the more subjective “average period of time individual consider themselves as healthy” as a secondary index. Next, for the method of estimation, calculations based on Comprehensive Survey of Living Conditions data (disability-free life expectancy using the Sullivan method) are thought to be the most appropriate based on considerations of consistency and feasibility with current public statistics and other factors.

In setting target values, the focus is on the difference between life expectancy and healthy life expectancy. The difference between life expectancy and healthy life expectancy is the “unhealthy period” an individual spends with limitation in daily activities. The difference between life expectancy and healthy life expectancy (period of time spent without limitation in daily activities) was 9.13 years in men and 12.68 years in women in 2010 (Figure 1).

If this difference with healthy life expectancy grows as life expectancy increases, the period during which large expenditures for medical care and care benefits are consumed will become longer. If the difference between life expectancy and healthy life expectancy can be reduced by

preventing disease, promoting health, and avoiding the need for care, we can expect not only to prevent decreases in individuals' quality of life, but also to reduce the social security burden. It is very important that we approach this problem from the perspective of launching a new national health promotion movement that also contributes to a sustainable social security system.

Figure 1. Difference between life expectancy and healthy life expectancy



(Sources: Life expectancy (2010): "Complete Life Table 2010" by Ministry of Health, Labour and Welfare; healthy life expectancy: Health and Labour Sciences Research Grants "Study on future predictions of healthy life expectancy and cost-effectiveness of measures to prevent lifestyle-related diseases")

(ii) Reduction of health disparities

The health disparities are defined as differences in health status among a population due to region and socioeconomic status. Given that data on regional disparities are collected with considerable accuracy, and that effects can be expected when local governments advance their own independent efforts after identifying the gaps between themselves and other local governments, the focus in current plans is placed on regional disparities.

For each local government, identifying and analyzing factors in the healthy life expectancy gap, and thinking of strategies to extend healthy life expectancy, are important in advancing health promotion.

Various indices may be considered in elucidating existing health gaps between local

governments and strengthening efforts to close those gaps, but the most important is healthy life expectancy.

iii. Present status and goals

(i) Extension of healthy life expectancy

Target measure	Average period of time spent without limitation in daily activities
Present status	Men 70.42 years, women 73.62 years (2010)
Goal	To extend healthy life expectancy more than the increase of life expectancy* (2022)
Data source	Health and Labour Sciences Research Grants “Study on future predictions of healthy life expectancy and cost-effectiveness of measures to prevent lifestyle-related diseases” Note: Estimations based on Comprehensive Survey of Living Conditions

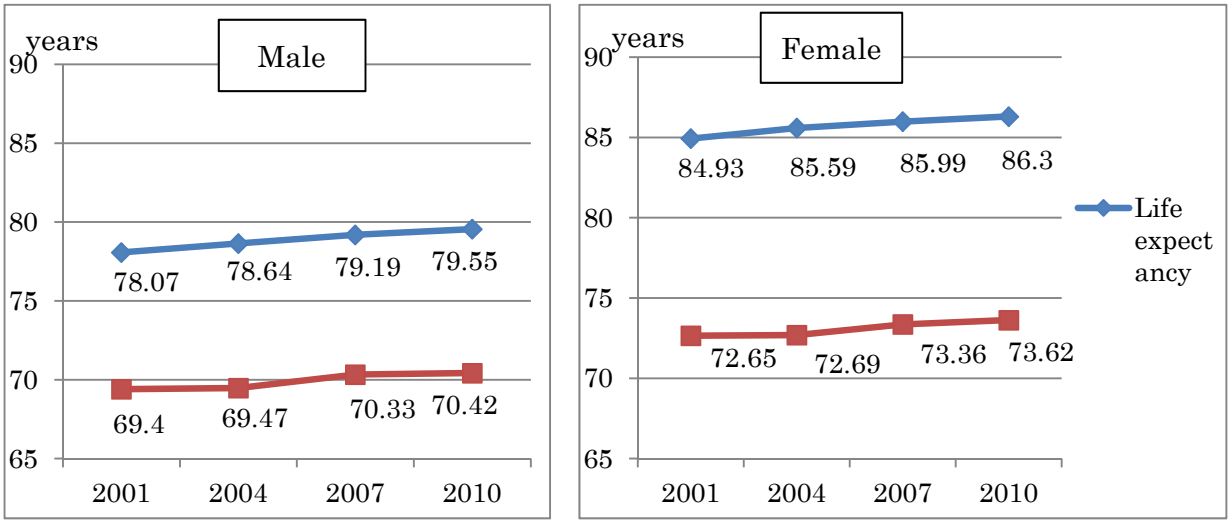
*To accomplish the above goals, not only the “average period of time spent without limitation” but “average period of time individuals consider themselves as healthy” should also be taken into account.

“Average period of time spent without limitation in daily activities” was calculated using the Sullivan method, with basic data taken from the Comprehensive Survey of Living Conditions and Life Table (see below for the calculation method). The figures used in current values were calculated based on the Health and Labour Sciences Research Grants “Study on future predictions of healthy life expectancy and cost-effectiveness of measures to prevent lifestyle-related diseases.”

A comparison of period of time spent without limitation in daily activities (healthy life expectancy) between 2001 and 2012 revealed that it rose from 69.40 years to 70.42 years in men, an increase of 1.02 years, and from 72.65 years to 73.62 years in women, an increase of 0.97 years. Meanwhile, life expectancy during those years rose from 78.07 years to 79.55 years in men, an increase of 1.48 years, and from 84.93 years to 86.30 years in women, an increase of 1.37 years (Figure 2).

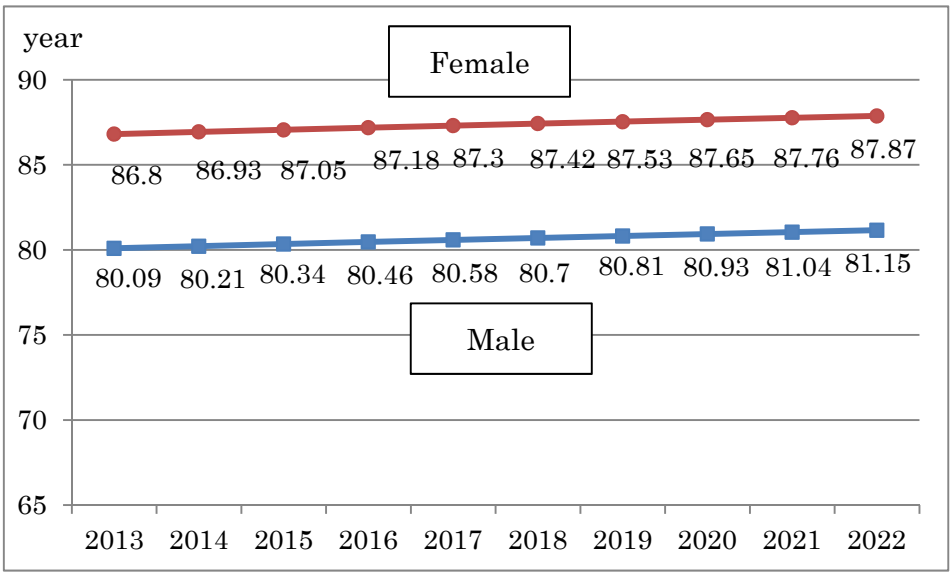
According to the Population Projection of Japan (January 2012 estimates) by the National Institute of Population and Social Security Research, life expectancy in the years from 2013 to 2022 is predicted to rise from 80.09 years to 81.15 years in men, an increase of 1.06 years, and from 86.80 years to 87.87 years in women, an increase of 1.07 years (Figure 3).

Figure 2. Trends in life expectancy and healthy life expectancy



(Sources: Life expectancy: Ministry of Health, Labour and Welfare's "Abridged Life Table" in 2001, 2004, and 2007, "Complete Life Table" in 2010; healthy life expectancy: Health and Labour Sciences Research Grants "Study on future predictions of healthy life expectancy and cost-effectiveness of measures to prevent lifestyle-related diseases")

Figure 3. Life expectancy projection (2013–2022)



(Source: "Population Projection of Japan (January 2012 estimates)" by National Institute of Population and Social Security Research)

It is predicted that in the future not only the period of health but also the period of unhealth will become longer as life expectancy increases. Therefore, greater efforts to promote the health of citizens are important, so that the healthy life expectancy is extended by more than the increase of

life expectancy (delay the time when people reach an unhealthy state). In this way we can aim to shorten the unhealthy period. At present, however, there is little evidence to infer how much, and through which prevention measures, lifestyle-related diseases can be decreased, and by how much this will extend healthy life expectancy. Further advances in research are needed.

Therefore, the goal was taken to be "to extend healthy life expectancy more than the increase of life expectancy." For healthy life expectancy, it is also important to try to extend the "period of time individuals consider themselves as healthy" together with the "period of time spent without limitation in daily activities." The period of time individuals consider themselves as healthy was compared between 2001 and 2010, and found to rise from 69.55 years to 69.90 years in men, an increase of only 0.35 years, and from 72.94 years to 73.32 years in women, an increase of only 0.37 years. Although these amounts of increase do not reach the targeted amount of exceeding the increase of life expectancy, they are noted because in the next 10 years it will be necessary to be mindful of trying to also achieve a certain extension in the period of time individuals consider themselves as healthy together with extension in the period of time spent without limitation in daily activities.

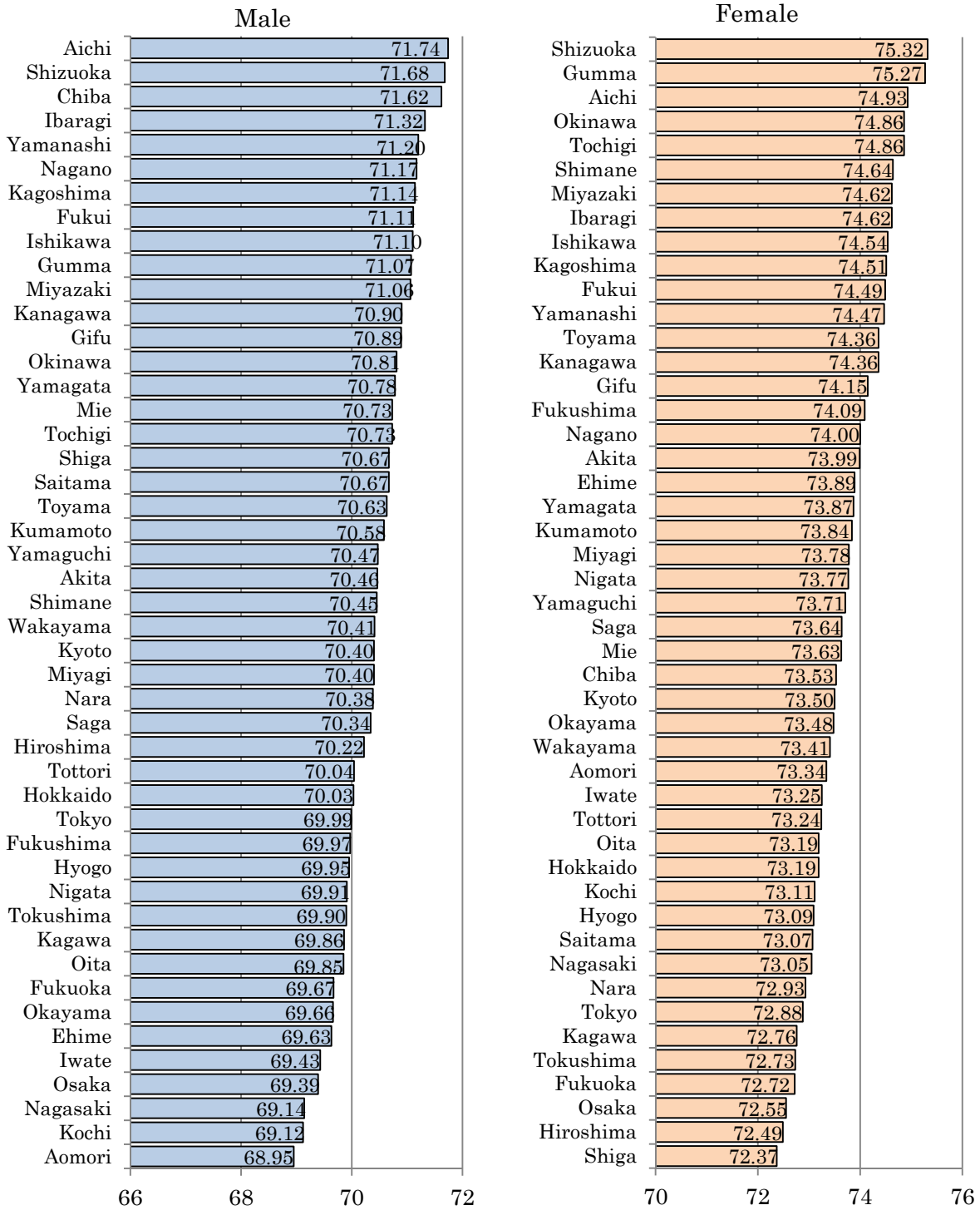
(ii) Reduction of health disparities

Target measure	Reduction in gap among prefectures in average period of time spent without limitation in daily activities
Current status	Men 2.79 years, women 2.95 years (2010)
Target	Reduction in gap among prefectures (2022)
Data source	Health and Labour Sciences Research Grants "Study on future predictions of healthy life expectancy and cost-effectiveness of measures to prevent lifestyle-related diseases" Note: Estimations based on Comprehensive Survey of Living Conditions

In 2010, the places where average period of time spent without limitation in daily activities were longest were Aichi Prefecture for men (71.74 years) and Shizuoka Prefecture for women (75.32 years). The shortest were Aomori Prefecture for men (68.95 years) and Shiga Prefecture for women (71.37 years). These are differences of 2.79 years for men and 2.95 years for women (Figure 4).

Reduction in gap among prefectures was established as a goal. In working to achieve this goal, however, we must assume that the figure for the prefecture with the longest healthy life expectancy is the goal each prefecture is working toward as it makes efforts to extend healthy life expectancy.

Figure 4. Average period of time spent without limitation in daily activities by prefecture (2010)



Difference between the longest and the shortest

2.79 years

Difference between the longest and the shortest

2.95 years

(Source: Health and Labour Sciences Research Grants “Study on future predictions of healthy life expectancy and cost-effectiveness of measures to prevent lifestyle-related diseases”)

<Method of calculating healthy life expectancy>

Method of calculating "average period of time spent without limitation in daily activities"

"Average period of time spent without limitation in daily activities" is calculated using the Sullivan method (a method widely used to calculate healthy life expectancy), with information from the Comprehensive Survey of Living Conditions and Life Table as basic data. Thus, a response of "No" to the question, "Do health problems currently have some effect on your daily activities?" in the Comprehensive Survey of Living Conditions is taken to indicate limitation-free daily activities, and the percentages of people without limitation in daily activities were obtained for each sex and age group. The stationary population and number of survivors were obtained from Life Table. The percentage of people without limitation in daily activities was then multiplied by the stationary population for each sex and age group to obtain the stationary population without limitation in daily activities. Next, the totals for given age groups were divided by the number of survivors to obtain the "average period of time spent without limitation in daily activities."

In prefectures, Comprehensive Survey of Living Conditions data, prefectural population, and number of deaths are used as basic data. The percentages of people without limitation in daily activities in each prefecture by sex and age group are obtained from the Comprehensive Survey of Living Conditions. Using the life table methodology of Chiang (a widely used method of calculating life tables), the stationary population and number of survivors in the prefecture are obtained. The average period of time spent without limitation in daily activities is obtained using a method similar to the above from the percentage of people without limitation in daily activities, stationary population, and number of survivors.

In municipalities, when surveys are conducted in conformance with the Comprehensive Survey of Living Conditions, the basic data are taken to be the percentages of people without limitation in daily activities by sex and age group according to those surveys, the population of the municipality, and the number of deaths. The "average period of time spent without limitation in daily activities" can be obtained using the same method as for the prefectures. When a survey is not conducted and existing data are used, care information from long-term care insurance, the population, and the number of deaths in the municipality are used as basic data. "Average period of time spent independent in daily activities" (an index like "average period of time spent without limitation in daily activities") can then be obtained with a method similar to the above. In municipalities with small populations, the addition of a certain handling method needs to be considered in calculating the index (taking the number of deaths in multiple years, using 95% confidence intervals of the index, etc.). In municipalities with very small populations calculation of the index is difficult.

Note: Method of calculating “average period of time individuals consider themselves as healthy”

“Average period of time individuals consider themselves as healthy” is calculated using the Sullivan method with information from the Comprehensive Survey of Living Conditions and Life Table as basic data. Responses of “Good,” “Rather good,” or “Ordinary” to the Comprehensive Survey of Living Conditions question of “How is your current state of health?” are taken to indicate that individuals consider themselves as healthy. Using the percentage of these responses, “average period of time individuals consider themselves as healthy” is obtained using the same method as for “average period of time spent without limitation in daily activities.” In prefectures, “average period of time individuals consider themselves as healthy” is obtained with the same method as for “average period of time spent without limitation in daily activities.”

In municipalities, similar to “average period of time spent without limitation in daily activities,” it is possible to obtain the “average period of time individuals consider themselves as healthy” in cases when a survey is conducted by taking the percentage of individuals that consider themselves as healthy by sex and age group from the survey, the municipal population, and the number of deaths as basic data. In municipalities with small populations, the addition of a certain handling method needs to be considered in calculating the index. In cases when a survey is not conducted, calculation of the index is difficult. This is because municipalities have no index similar to “average period of time individuals consider themselves as healthy” in their existing data. Calculation of the index is also difficult for municipalities with very small populations.

(Source: Health and Labour Sciences Research Grants “Study on future predictions of healthy life expectancy and cost-effectiveness of measures to prevent lifestyle-related diseases”)

Results of the calculation in 2010

Prefecture	Average period of time spent without limatation in daily activities		Average period of time individuals consider themselves as healthy	
	Male	Female	Male	Female
Hokkaido	70.03	73.19	69.33	73.08
Aomori	68.95	73.34	68.89	73.46
Iwate	69.43	73.25	68.81	72.40
Miyagi	70.40	73.78	70.80	73.35
Akita	70.46	73.99	69.56	73.07
Yamagata	70.78	73.87	70.81	73.44
Fukushima	69.97	74.09	69.66	73.58
Ibaragi	71.32	74.62	71.09	73.99
Tochigi	70.73	74.86	69.94	74.33
Gumma	71.07	75.27	70.35	74.77
Saitama	70.67	73.07	70.62	72.98
Chiba	71.62	73.53	71.32	73.53
Tokyo	69.99	72.88	69.89	73.08
Kanagawa	70.90	74.36	70.85	74.12
Nigata	69.91	73.77	69.36	73.92
Toyama	70.63	74.36	69.42	73.72
Ishikawa	71.10	74.54	70.12	73.18
Fukui	71.11	74.49	70.23	74.34
Yamanashi	71.20	74.47	70.49	74.77
Nagano	71.17	74.00	70.76	73.56
Gifu	70.89	74.15	70.32	73.29
Shizuoka	71.68	75.32	71.01	74.86
Aichi	71.74	74.93	70.60	73.37
Mie	70.73	73.63	70.21	73.07
Shiga	70.67	72.37	70.10	73.03
Kyoto	70.40	73.50	69.56	73.31
Osaka	69.39	72.55	68.69	72.12
Hyogo	69.95	73.09	68.98	72.72
Nara	70.38	72.93	71.10	74.03
Wakayama	70.41	73.41	70.44	73.76
Tottori	70.04	73.24	69.67	72.67
Shimane	70.45	74.64	69.62	74.23
Okayama	69.66	73.48	69.20	73.73
Hiroshima	70.22	72.49	68.97	72.59
Yamaguchi	70.47	73.71	68.92	72.24
Tokushima	69.90	72.73	69.03	72.45
Kagawa	69.86	72.76	69.27	72.86
Ehime	69.63	73.89	68.70	73.45
Kochi	69.12	73.11	68.64	71.92
Fukuoka	69.67	72.72	68.89	72.14
Saga	70.34	73.64	69.80	73.28
Nagasaki	69.14	73.05	69.19	73.73
Kumamoto	70.58	73.84	69.66	73.76
Oita	69.85	73.19	69.13	72.85
Miyazaki	71.06	74.62	71.55	75.31
Kagoshima	71.14	74.51	70.77	74.70
Okinawa	70.81	74.86	70.46	73.84
All Japan	70.42	73.62	69.90	73.32

(Source: Health and Labour Sciences Research Grants “Study on future predictions of healthy life expectancy and cost-effectiveness of measures to prevent lifestyle-related diseases” http://toukei.umin.jp/kenkoujyumyou/)

iv Measures needed for the future

All of the activities presented in Health Japan 21 (the second term) are things that will contribute to extending healthy life expectancy. Monitoring the shifts in healthy life expectancy is therefore important in terms of managing the progress of this plan. Healthy life expectancy therefore should be calculated, and its trends investigated, each time a large-scale survey is conducted every three years in the Comprehensive Survey of Living Conditions.

While healthy life expectancy in each prefecture is calculated and announced, calculation of the healthy life expectancy in each municipality in the prefectures is desirable for the nation as a whole. Using each type of survey and statistic, it also would be desirable for prefectures to clarify the status of the health disparity in municipalities in their prefecture and make efforts to close those gaps. Doing this, however, requires a high level of statistical knowledge and skill in terms of the calculation procedures used in life tables and the handling of data in municipalities with small populations. Technical support for prefectures (training sessions, publicly available calculation software, etc.) should be provided.

In approaching the issue of extending healthy life expectancy, the roles of promoting health and preventing disease are extremely important. Various other approaches are also needed, including early detection of disease, prevention of increasing disease severity with proper treatment management, prevention of the need for care, and provision of care services. Systems need to be developed for the seamless, integrated provision of these approaches matched to the health level and risks and health, welfare, and care needs of each person.

In the coming years the health disparity will also need to be monitored from perspectives other than healthy life expectancy. Aggregation of data from the various surveys carried out by the national government (Comprehensive Survey of Living Conditions, National Health and Nutrition Survey, Patient Survey, Survey of Long-term Care Benefit Expenditures) would help to enable comparisons of things such as lifestyle, health status, disease, and use of long-term care insurance in each prefecture, and is encouraged. It is also desirable that results of those comparisons be announced.

Translated by Toshiyuki Ojima and Shuji Hashimoto