

# Editorial

## The future of occupational and general health in Japan

### Population Status and Healthcare

In the 21<sup>st</sup> century, a rapidly increasing elderly and decreasing younger generation is the most serious socio-economic problem in Japan, resulting in a severe burden on the working population bearing medical care expenses for the whole population.

Increase in life expectancy for both males and females has reached its peak in the world since the 1980s. At present, important diseases affecting adults and the elderly include malignant neoplasms, cerebrovascular diseases, myocardial infarctions, and diabetes (as listed in the Improved Medical Act in 2007), and psychiatric diseases such as depression at the workplace and dementia in the elderly (added by the Medical Section, Deliberative Council on Social Security in 2011). Most of these diseases are lifestyle-related. The central government has led a national movement for the prevention of lifestyle-related diseases with the “Healthy Japan 21” movement that started in 2000. Furthermore, the “Specified Health Examination and Guidance” for the prevention of metabolic syndrome that started in 2008 obliges citizens aged 40–74 years to receive a health check for metabolic syndrome, with the costs borne by the public health insurance agency to which they belong.

### The Occupational Safety and Health Program (OSHP)

In order to reduce work-related injuries and diseases, the central government enacted the “Occupational Safety and Health Law” in 1972, and has formulated occupational safety and health programs every five years, implementing measures to prevent occupational diseases and accidents in line with the development of industrial activities and new materials.

The activities<sup>1)</sup> of the present 12<sup>th</sup> OSHP covers the years 2013–2017. In this program, prioritized measures to ensure health and prevent occupational diseases include (1) measures for mental health, (2) measures against overwork, (3) measures to prevent health hazards due to chemical substances, (4) measures to prevent low back pain and heat

stroke, and (5) measures against passive smoking. Among these, mental health problems and low back pain will be discussed here.

#### 1) *Mental Health*

In Japan, since 1997, the number of people who committed suicide has exceeded 30,000 per year (general population circa 127 million) and depression has increased rapidly as a cause of sick leave from the workplace. Owing to measures undertaken by societies, workplaces, and governments, the number of suicides has decreased since 2012 and dropped below 25,000 in the year 2015 (n=23,971). Among the reasons or motives for suicide, health-related problems exceeded 50% of the cases and work-related problems were around 10%.

In order to prevent mental health disorders in workers, self-care by workers is the most important measure. In addition, employers are encouraged to pay attention to working conditions and human relations at the workplace. From this standpoint, the Ministry of Health, Labour and Welfare (MHLW) added the “Act on Stress Check” in the Occupational Safety and Health Law, effective from December, 2015<sup>2)</sup>.

According to the Act, employers are required annually to give every worker an opportunity to receive the “Stress Check Test” and arrange medical consultation upon workers’ request.

The Stress Check Test for individuals starts with a questionnaire, the “Brief Survey on Occupational Stresses,” consisting of 57 questions about work, physical and mental conditions, environmental support, and feeling of happiness. It generally takes 5 minutes for a person to answer. If the questionnaire results suggest the worker is experiencing high levels of stress, the worker may ask the employer for an opportunity to consult with a doctor or other qualified health personnel at the employer’s expense. The Stress Check principally targets the primary prevention of work-related mental disorders.

#### 2) *Low Back Pain*

According to statistics by the MHLW, low back pain accounts for the highest frequency (around 60%) of work-

related diseases and injuries necessitating leave from work for more than 4 days. Not only workers but also most of the general population including both males and females suffer from low back pain and stiff shoulders as bodily discomforts in daily life (Nationwide Survey for Basic Daily Life of Citizens, 2013, MHLW)<sup>3)</sup>.

From a phylogenetic point of view, since the acquisition of bipedal walking, human beings suffer from a continuous burden due to gravity and external loads on the cervical and lumbar spine, hip, and knee joints. These burdens naturally result in degeneration of tissue through aging and frequent injuries at work or in daily activities.

Thus, obvious injuries to bones, joints, or spinal structure act as causes for only a small fraction of cases (15% of patients<sup>4)</sup>), and sociopsychological factors play an important role<sup>5)</sup>.

Occupations with a higher frequency of low back pain in Japan are (1) work with heavy materials, (2) work involving prolonged standing posture, (3) work involving prolonged sitting posture, (4) care or nursing work for patients, and (5) vehicle driving work (Revised Guidelines for Prevention of Low Back Pain in Workplace; MHLW, June, 2013).

For occupations with a high risk of low back pain, safety instructions for workers, development and utilization of work-support systems, and instruments including robots are being promoted.

## Present and Future of Periodic Health Examination

### 1) Present State of Health Examination

Since 1961, Japanese citizens and foreigners living more than one year in Japan are entitled to a health examination once a year with financial support from the public health insurance agency to which they belong. Since 2008, citizens aged 40–74 years are being encouraged to receive the Specified Health Examination and Guidance for the prevention of metabolic syndrome. Data from MHLW show that in the year 2013, 25,374,874 or 47.6% of entitled citizens received the Specified Health Examination, and 14.3% of them were diagnosed with metabolic syndrome. It should be noted here that the criterion of obesity in Japan is a Body Mass Index (BMI) above 25, compared to a BMI above 30 in other developed countries.

For workers, periodic health examination once a year is encouraged by the Occupational Safety and Health Law for the prevention of accidents or diseases associated with work.

Because the items of health examinations by public health insurance and the Occupational Safety and Health Law overlap considerably, workers can select either one of these two health examinations with the agreement of employers.

Nowadays, the main purpose of annual health examinations has shifted to an early detection of cancer or lifestyle-related diseases rather than work-related health disturbances. This shift of purpose is well acknowledged by both workers and employers with an expectation of healthy circumstances at the workplace.

Statistics of annual health examinations by the Occupational Safety and Health Law have shown consistent data for the last several years. Recipients of the health check numbered 13,096,696 in the year 2012. Individuals with abnormal findings in physical, laboratory, or X-ray examinations reached 52.7%, and 29.2% (n=3,821,342) were instructed to receive further medical examinations. Items with abnormal findings were serum lipids (32.4%), blood pressure, liver function, and blood glucose or HbA1c (each above 10%). Within a few weeks after their health check, recipients are given a report on personal data and instructions on healthcare. If necessary, medical consultation is provided by occupational doctors or nurses.

### 2) Data-health Plan

Similar to other developed countries, Japan suffered from a rapid increase in the number of aged people during the economic recession. Every year, the central government has spent 1/3rd of its budget for social security, and the financial deficit is critical. Of the social security budget, 80% is spent on pensions, medical expenses, and healthcare for the elderly.

Thus, the government started the “Data-health Plan” in 2015 for health promotion and disease prevention of citizens<sup>6)</sup>. Under this plan, all laboratory and other health data for each citizen are collected from yearly health examinations as described above and medical institutions visited. Employers are required to collect and analyze the health data and return the results on health state and recommendations for health promotion to each employee. In contrast to “Healthy Japan 21,” a voluntary movement by citizens themselves, the Data-health Plan is an action that employers are required to take with the data obtained from public health insurance agencies.

### 3) Reference Value for Laboratory Examination

As physical and laboratory data have been accumulated on the health promotion movement for all citizens, mainly

workers, the reference value of healthy people should be established as a standard. At present, the reference value of laboratory examinations is settled by individual health examination agencies, medical institutions, or medical societies. This situation is inadequate for promotion of the Data-health Plan, and a group of medical societies concerned, governmental institutions, and unions of health examination agencies started work to establish a national standard for laboratory data<sup>7)</sup>.

#### 4) From Preventive Medicine to Healthy Management

Recent progress in medicobiological research invites the concept of “pre-emptive medicine,” a new idea of preventive medicine. Based on discovery of genes for various cancers and other diseases, and changes in tissue metabolism at the molecular level of diseases, new tests are being developed for the detection of disease, particularly common cancers, at very early stages.

Among several new tests for early cancers, Aminoindex<sup>®</sup> is now used as a reliable, optional test in annual health examinations for workers. Based on the measurement and statistical analysis of various amino acids in plasma, the probability of early stages of common cancers is evaluated. Sensitivity for Stage I cancers are 40% for stomach, 38% for lung, and 32% for colon, a much higher sensitivity compared with hitherto established cancer markers<sup>8)</sup>. If a high risk value for cancer is obtained with this test, further elaborate medical examinations are encouraged.

Thus, the significance of yearly health examinations for workers and general citizens is increasing with respect to pre-emptive medicine for early detection of cancers and other diseases.

In recent times, employers are increasing focus on the health of workers, as productive management is expected when employees work efficiently with a healthy body and mind. This “Healthy Management” idea is gaining significance among Japanese employers.

In Japan, a decrease in the working population will continue. In addition to the healthcare of adult workers, con-

sideration of the physiological characteristics for female and aged workers is necessary in labor-health management.

Workers themselves are requested to care for their health from a more scientific standpoint and acknowledge the Data-health Plan and the Specified Health Examination and Guidance for Metabolic Syndromes for their own healthy lives and for a healthy society.

## References

- 1) Ministry of Health, Labour and Welfare, Japan. The 12<sup>th</sup> Occupational Safety & Health Program. February 25, 2013.
- 2) Ministry of Health, Labour and Welfare, Japan. Introductory Manual for “Stress Check” System. <http://www.mhlw.go.jp/bunya/roudoukijun/anzeneisei12/pdf/150709-1.pdf>.
- 3) Ministry of Health, Labour and Welfare, Japan. Overview of the “Nationwide Survey for Basic Daily Life of Citizens, 2013”. <http://www.mhlw.go.jp/toukei/saikin/hw/k-tyosa13/>
- 4) Deyo RA, Weistein JN (2001) Low back pain. *New Eng J Med* **344**, 363–370.
- 5) Matsudaira K, Kawaguchi M, Isomura T et al. (2015) Assessment of psychosocial risk factors for the development of nonspecific chronic disabling low back pain in Japanese workers—Findings from the Japan epidemiological research on Occupation-related Back pain (JOB) study. *Industrial Health* **53**, 368–377.
- 6) Ministry of Health, Labour and Welfare, Japan. For Promotion of the “Data-health Plan”. June 3, 2014. [http://tokuteikenshin-hokenshidou.jp/interview/002/datahealth\\_mhlw.pdf](http://tokuteikenshin-hokenshidou.jp/interview/002/datahealth_mhlw.pdf)
- 7) Special issue. New Era of Laboratory Testing (2013) *J Jap Soc Intern Med* **102**, 3077–3210.
- 8) Miyagi Y, Higashiyama M, Gochi A et al. (2014) Clinical utility of Aminoindex Cancer Screening (AICS) for early detection of various cancers in comparison with detection using tumor markers. *Human Dock* **29**, 585–591.

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