

# Countermeasures against Diabetes in Japan and Efforts Made by the Japan Medical Association

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## Present State of Diabetes in Japan

Although the government of Japan has been striving to control diabetes and other lifestyle-related diseases through the Health Promotion Program called “Healthy Japan 21” campaign and other initiatives, the effectiveness of these efforts has been rather unsatisfactory. The combined number of people who are strongly suspected of diabetes and those with the undeniable possibility of diabetes increased from approximately 16.2 million in 2002<sup>1</sup> to 22.1 million in 2007.<sup>2</sup> With respect to diabetic complications, estimates show that there are approximately 14,000 patients entering hemodialysis due to diabetic nephropathy, 3,500 patients losing their eyesight, and 3,000 lower limb amputees, every year. In addition, a large number of patients with myocardial infarction and stroke have diabetes as an underlying disease. On the other hand, about 50% of the people who are strongly suspected of diabetes have sought healthcare, and only 30% are actually continuing treatment. This suggests there are many untreated patients and therapy drop-outs in Japan.

Turning our gaze to the specialists who provide care, there are approximately 3,700 diabetologists in Japan, which is insufficient even for the patients currently undergoing treatment. The increase in diabetic patients, particularly untreated patients

and therapy drop-outs, seriously affects the costs of medical care and long-term healthcare, undermining the health of people. New nationwide measures are urgently required, and the role of Japan Medical Association (JMA) is rather important on this issue.

## Diabetes Control Measures of the Government of Japan

### The New Health Frontier Strategy

The New Health Frontier Strategy was announced in 2007 as a joint program of the Cabinet Office and four ministries including the Ministry of Health, Labour and Welfare (MHLW) to deal with various health problems under the theme of “challenge towards a healthy nation.” In the area of diabetes, the Strategy emphasized the development of methods for preventing and treating diabetes, built upon the achievements from innovations and the practice of custom-designed healthcare guidance and treatment (the so called “tailor-made medicine” in Japan). Japan Promotion Council for Diabetes Prevention and Countermeasures (discussed below) is the only organization mentioned in the Strategy report as being instrumental in these measures. This fact underscores the importance of this Council.

In response to the New Health Frontier Strategy, the MHLW established the Study Group

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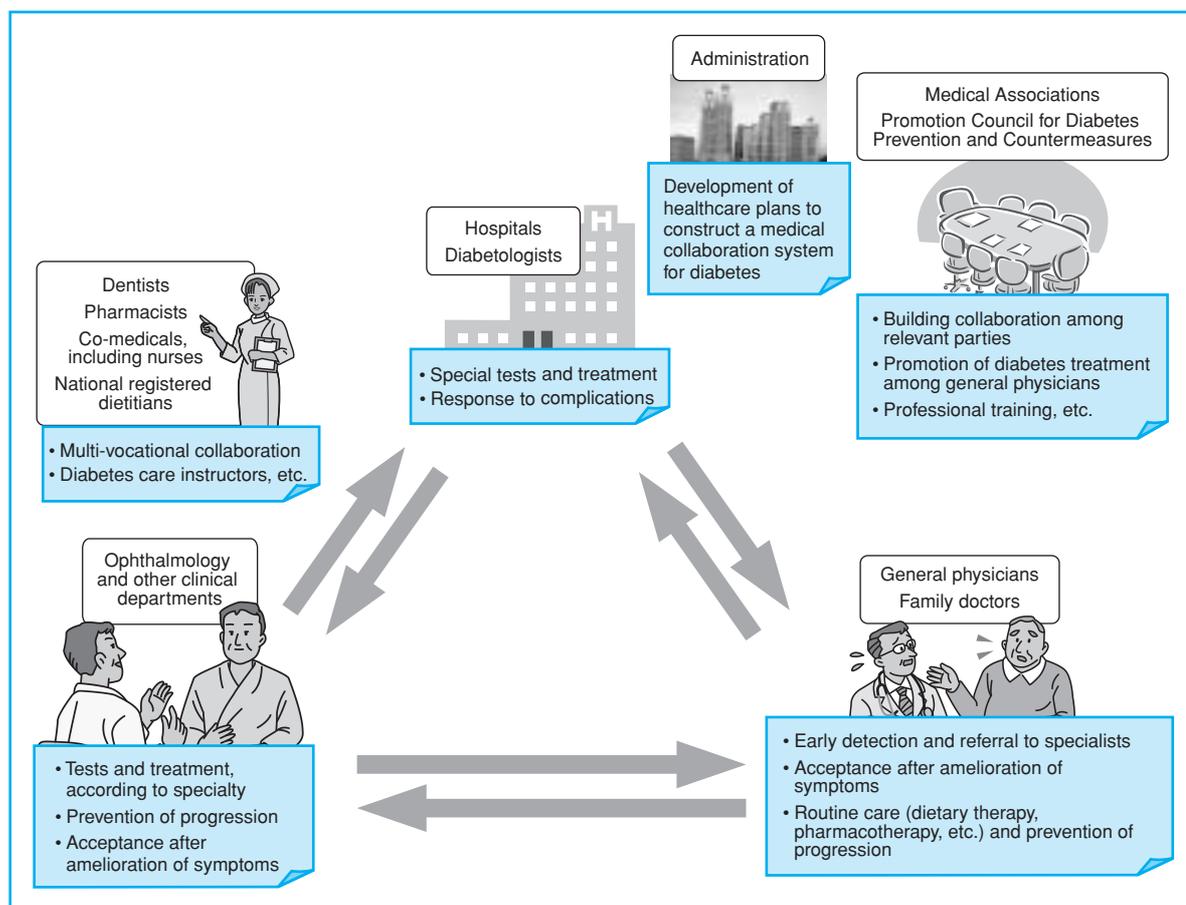


Fig. 1 Ideal picture of healthcare collaboration in diabetes care

on the Promotion of Measures against Lifestyle-related Diseases such as Diabetes to discuss the roles of the government and related organizations for future diabetes control activities in Japan. The report designates the International Medical Center of Japan as the central organization for the national actions against diabetes. It also proposes the effective use of the Japan Promotion Council for Diabetes Prevention and Countermeasures in the construction of medical systems based on healthcare plans of prefectures and municipalities (discussed below). The emphasis is placed on the role of the Council in the construction of a collaboration system ranging from family doctors who provide primary care to specialists who provide specialized care, the information distribution in collaboration with the International Medical Center of Japan, and the development of professional training system.

### Revision of healthcare plans

The 5th amendment to the Medical Service Act enforced in April 2007 ordered prefectures to formulate medical plans covering four diseases (diabetes, cancer, stroke, and acute myocardial infarction) and five activities (emergency medicine, disaster medicine, rural medicine, perinatal medicine, and pediatric medicine including pediatric emergency medicine). These plans were to be developed following the basic policy of the central government (MHLW) and responding to the actual situation of respective regions. In the planning process, numerical goals are defined according to the PDCA (“Plan, Do, Check, and Action”) cycle, and the achievement of these goals is assessed and fed back to the development of future medical plans. The keys to a good healthcare planning are the definition of the coverage area, the sharing of medical functions and col-

laboration within the coverage area, and the construction of the healthcare system to provide seamless medical services (Fig. 1). The formulation of such solid plans is not a task to be performed by administrative bodies alone; it requires the participation of other parties who understand the reality of the region, including healthcare providers (medical associations, regional Promotion Council for Diabetes Prevention and Countermeasures, etc.), patients, and local residents.

The first step in the formulation of plans is to grasp the actual situation, including the number of patients and medical institutions, healthcare resources (specialist physicians, family doctors, diabetes care instructors, national registered dietitians, medical institutions, etc.), and the present state of healthcare collaboration. The parameters that may be considered for numerical goals include the number of medical institutions providing patient education, the penetration rate of the liaison critical pathway, the percentage of therapy drop-outs, and the occurrence of new dialysis patients. The selection of these parameters must match the actual situation of the region. Establishing collaboration within each coverage area requires trust-based relationships among relevant organizations and facilities. With the local medical association playing a central role, the Promotion Council for Diabetes Prevention and Countermeasures must strive to facilitate the sharing of information and knowledge on therapeutic techniques, clinical data, associated facilities, physicians and other professionals in collaboration, and on any other relevant issues.

### Specific health examination and specific health guidance

Starting from April 2008, medical insurance providers are required to conduct specific health examination and specific health guidance (hereafter “health examination and guidance”) under the Act on Assurance of Medical Care for Elderly People. The concept of the metabolic syndrome is introduced in these health examination and guidance, with a particular emphasis on diabetes control. Among the criteria for screening individuals who require health guidance, the threshold of the blood glucose level is set at 100 mg/dl, not 110 mg/dl as defined in the diagnostic criteria for the metabolic syndrome. It is because people with blood glucose level of 110 mg/dl or below, who were once considered to be in normal range,

are found to develop diabetes later. The importance of early health guidance has been recognized and is reflected in the lowered threshold. On the other hand, with respect to the criteria for recommending medical treatment, providing health guidance is given priority when interpreting blood pressure at the discretion of the physician. However, medical treatment is recommended when the blood glucose is 126 mg/dl or above, as in the diagnostic criteria for diabetes. It is important to ensure that patients follow recommendations and visit physician to receive treatment.

As a result of the introduction of health examination and guidance, medical insurance providers now maintain the data from both health examination and receipts. By collating these two sets of data, they can identify therapy drop-outs and untreated patients. It is essential that insurance providers educate the insured and their dependents on the importance of receiving and continuing diabetes treatment. Furthermore, because the functions of medical institutions related to diabetes will be listed in medical plans, insurance providers can use these data to provide information to the insured and their dependents. Then, it also will be possible to develop a mechanism for medical collaboration between communities and workplaces.

### Strategic studies for diabetes prevention: J-DOIT (Japan Diabetes Outcome Intervention Trial)

The MHLW launched a special research project as the strategic studies for diabetes prevention, known as the Japan Diabetes Outcome Intervention Trial. There are three J-DOIT studies, each of which is ongoing at the present. The final goal is to reduce the diabetes occurrence rate by 20% by 2015. J-DOIT 1 is “the study on the intervention method to achieve a 50% reduction in the transition rate from impaired glucose tolerance to diabetes.” The individuals requiring diabetes-related guidance are identified in a community or workplace health examinations are allocated to either a group receiving prophylactic support or a group receiving information only, and the effectiveness in reducing the diabetes occurrence rate is evaluated.

J-DOIT 2 is “the study on the intervention method to achieve a 50% reduction in the therapy drop-out rate in diabetic patients.” This study examines the effectiveness of a system to

support the treatment of type 2 diabetes through the involvement of family doctors. Approximately 80% of diabetic patients are treated by non-specialist physicians and only about 50% of diabetic patients are receiving treatment. This study aims to reduce therapy drop-outs and improve clinical outcomes by providing external supports to patients and physicians. Because community-based family doctors play a central role in this study, local medical associations are working as organizers. A pilot study has been conducted with the participation of four medical associations, two for the normal treatment group and two for the supported treatment group. This study will be expanded to cover the entire nation, involving 30 medical associations.

J-DOIT3 (also known as Japan Diabetes Optimal Integrated Treatment study for 3 major risk factors of cardiovascular diseases) is “the study on the intervention method to achieve a 30% suppression of the progression of diabetic complications.” Of the patients aged 45–69 with type 2 diabetes and dyslipidemia who have HbA1c of 6.5% or more, those with systolic blood pressure of 140 mmHg or greater or with diastolic blood pressure of 90 mmHg or greater are allocated randomly either to the intensive therapy group or the conventional therapy group. The objective of this study is to evaluate efficacy of the different treatment groups.

## Efforts Made by JMA

### Continuing education and lecture meetings

Considering the importance of diabetes control, JMA has been providing its members with the up-to-date knowledge on diabetes care as part of continuing education through the publication of *The Journal of the Japan Medical Association* (monthly and special issues). In addition, JMA has been holding special forums open to public, featuring diabetes and other lifestyle-related diseases at the JMA Hall. These open forums were broadcasted on the NHK’s educational television channel nationwide and also published in newspapers, to better educate citizens and patients about diabetes. JMA has also been providing subsidies to prefectural medical associations to support making countermeasures in various regions against lifestyle-related diseases like diabetes.

### Japan Promotion Council for Diabetes Prevention and Countermeasures

In response to the continuing increase in the number of diabetic patients, JMA, Japan Diabetes Society (JDS), and Japan Association for Diabetes Care and Education (JADCE) jointly established Japan Promotion Council for Diabetes Prevention and Countermeasures in February, 2005, for the purpose of (1) enrichment of family doctor functions and promotion of hospital-clinic collaboration, (2) recommendation of physician visits and enrichment of follow-up guidance, and (3) improvement of diabetes treatment outcomes. Thereafter, the Council was joined by the Japan Dental Association in August, 2007, and then by National Federation of Health Insurance Societies and All-Japan Federation of National Health Insurance Organizations in February, 2008, as these organizations endorsed the ideals of the Council.

The Council consists of a board of executive members and working groups that deal with publications, surveys, and other functions. There is a Prefectural Promotion Council for Diabetes Prevention and Countermeasures in each of the 47 prefectures of Japan. Municipal and county-level councils have also been established in some areas. Besides these six organizations mentioned before, prefectural and county/municipal councils are conducting various local activities with the participation of administrative bodies, pharmaceutical associations, nursing associations, dietetic associations, and other organizations to meet the needs of local situations.

### Specific activities of the Japan Promotion Council for Diabetes Prevention and Countermeasures

#### Development of educational materials for physicians, healthcare professionals, and patients

- 1) The Council published “The Essence of Diabetes Treatment” as a handy booklet for use by family doctors, which summarized important knowledge according to the key points described in the “Diabetes Treatment Guide” edited by the JDS. The sections of this booklet provide friendly descriptions of (1) hospital-clinic collaboration, (2) the points at initial evaluation of diabetic patients, (3) treatment goals and control targets, (4) dietary and exercise therapies, (5) the timing of pharmacotherapy and the practice of prescription, and

- (6) diabetic complications. In 2007, the handbook was revised to include insulin therapy, sick-day management, and new oral hypoglycemic agents and was distributed to JMA members and others.
- 2) The Council prepared three educational leaflets for patients and citizens, featuring the improvement of health examination coverage, the encouragement to receive health examination, and dietary/exercise therapy for diabetic patients, respectively.
  - 3) To be used practically by medical professionals, the Council produced useful materials such as a notebook-sized celluloid sheet that lists points of diabetic treatment, check sheet and result sheet for health examination, assessment sheet for individuals who require medical treatment at the time of health examination, assessment sheet to be used after dietary guidance, treatment check sheet, and clinical data form for diabetic patients.
  - 4) An educational poster for patients and family doctors promoting the knowledge of diabetic retinitis was printed and distributed to various parties, including all JMA members.
  - 5) To diffuse the knowledge of diabetic neuropathy among patients and family doctors, the Council produced a poster encouraging a foot examination and distributed it to JMA members and others. At the same time, the Council produced a check sheet to record subjective symptoms of a patient and physician's findings during a foot examination.

#### Survey and research

The Council received orders repeatedly for the above mentioned diabetic neuropathy check sheet from approximately 200,000 physicians at 17,000 medical institutions across the country. A follow-up study using this sheet was conducted at approximately 250 sites that had used the sheet. As a result, the data for nearly 200,000 patients (representing 5% of diabetic patients who were under medical treatment) were analyzed, and the report of the findings was distributed to all JMA members. It was extremely significant that the

actual situation of neuropathy was surveyed and analyzed based on a large number of patient data from practicing physicians.

#### Questionnaire surveys

As the activities of JMA and Japan Promotion Council for Diabetes Prevention and Countermeasures accelerated, it became necessary to grasp the present situation of activities so that we can verify the effectiveness of these activities in the future. The following questionnaire surveys were conducted for this purpose.

- 1) Questionnaires on the specific actions of prefectural medical associations in diabetes control promotion programs and the involvement in formulating healthcare plans.
- 2) Questionnaires for family doctors and specialists on "the awareness and situation of diabetes care," "the recognition and practicability of the Essence of Diabetes Treatment," and "the actions for healthcare collaboration and regional disparities."

#### Future plans and problems

The activities planned for 2009 and after include the production of an educational poster on diabetic nephropathy. We also plan to conduct a study on diabetic nephropathy using check sheets similar to those used for diabetic neuropathy.

#### Other issues

Aside from the activities centered on Japan Promotion Council for Diabetes Prevention and Countermeasures, JMA is working actively to facilitate smooth implementation of the above-mentioned health examinations and guidance in communities and at medical institutions. For this purpose, we participate in MHLW study groups, coordinate with related organizations, and provide information to prefectural and county/municipal medical associations. Because regional medical associations play a critical role in J-DOIT2, JMA shall continue its efforts to provide information to regional medical associations and encourage participation in the J-DOIT2 study, while collaborating with researchers.

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