

Disease Management Reporter in Japan

March 2006 No.5

Sompo Japan Research Institute established the “Disease Management Case Study Group” in July 2005 to promote the management of chronic disease through discussion of actual disease management case studies. Members are medical service providers, insurers, private sector labor safety and occupational health staff and other disease management specialists. At each meeting, members and guests report on specific disease management/healthcare management programs, followed by a discussion of issues chosen by the participants and study group staff.

At the first meeting in July 2005, Mr. Shigeo Okamoto, a manager from the Business Planning Department of Meiji Yasuda Life Insurance Company (“Meiji Yasuda Life”) reported on a pilot program run by Meiji Yasuda Life that offers healthcare management services. Discussions focused on issues relating to the future of the program.

Since the first issue in March 2004, this publication has reported on disease management programs in Japan based on information gathered by the Sompo Japan Research Institute editorial department. From now on, the articles will report on presentations and discussions from the meetings of the aforementioned study group.

Outline of the Disease Management Case Study Group

Goal

The goals of the study group are to contribute to the development of disease management and prevention in Japan and the learning of individual study group members by studying actual healthcare management cases, identifying concrete issues, and working to solve them through group debate and discussion.

Study Group Organization

Chair

Shigeru Tanaka, Ph.D., Professor, Graduate School of Business Administration, Keio University

Research Committee Members

Shinya Matsuda, M.D., Professor, Department of Preventive Medicine and Community Health, School of Medicine, University of Occupational and Environmental Health, Japan

Hiroyuki Sakamaki, Ph.D., Research Department Director and Chief Researcher, Institute for Health Economics and Policy

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Contents

Meiji Yasuda Life's New Programs

Trial of new healthcare management services in which company physicians play the core role 2

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On April 1, 2005, Meiji Yasuda Life established a new company (Healthcare Total Support Co., Ltd.) to provide healthcare management and prevention services to industry, health insurance societies, and other organizations responsible for employee or member health. Prior to establishing the new company, Meiji Yasuda Life had been piloting similar programs targeting groups of its own employees and those of another company since October, 2004.

Background

The Industrial Safety and Health Law is being strengthened in the area of follow up of employee physicals. Employees who have been judged as requiring special efforts to maintain their health based on the results of these physicals are eligible for health guidance by company physicians or nurses. Before 1996, the law only required employers to make an effort to provide such guidance. However, currently, providing follow-up guidance is an obligation of the employer. In addition, the importance of health management and promotion programs of health insurance societies has increased in recent years. Meiji Yasuda Life concluded that the strengthening of the Industrial Safety and Health Law and other related regulations would create a market for a new healthcare management service industry.

Pilot program

1. Outline of the program

Mr. Okamoto described one of the pilot healthcare management programs that ran for six months, from October 2004 through March 2005. This program targeted Meiji Yasuda Life employees based in the company's headquarters who were found to have significant risk factors during their employee physicals. The program was accomplished through cooperation between Meiji Yasuda Life's physicians and nurses, and call center staff who communicated with the participants.

2. Flow of services (refer to Figure 1)

(1) Participant selection

Participants were selected based on the results of employee physicals. Employees thought to be at high risk for poor health based on their exam results were identified as candidates.

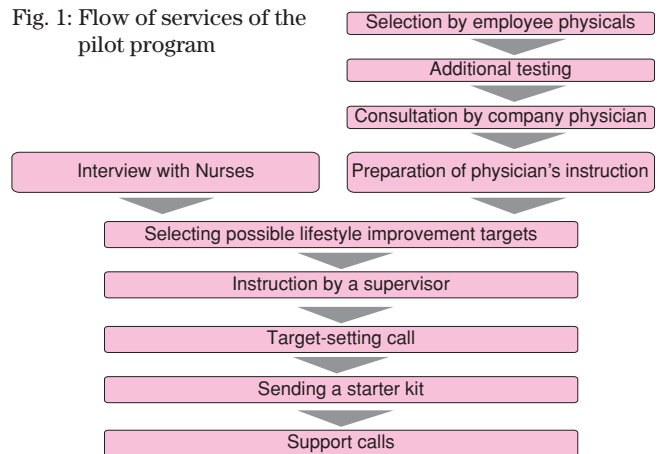
The final selection was based on the results of additional testing. This pilot enrolled 61 high-risk employees, out of a total population of 1,940 headquarters employees.

(2) Setting goals and provision of services

Company physicians interviewed each participant, reviewed their specific results, and wrote out individual management instructions. Nurses interviewed and administered questionnaires to all participants regarding their lifestyle and habits. The physicians' instructions and the lifestyle information were processed using software to select specific lifestyle improvement targets to reduce each participant's health risks. Then the program supervisors, consisting of company physicians and nurses, separated the listed lifestyle improvement targets into four groups: very effective and easy to do, very effective but difficult to do, not very effective but easy to do, and not very effective and difficult to do. The supervisors informed the call center staff of the most effective lifestyle improvement targets for each participant. The call center staff was instructed to work with each participant to help them to make the prescribed changes in lifestyle.

Call center staff telephoned each participant, discussed the potential lifestyle improvement targets, and recorded the goals that each participant agreed to try to achieve in the following six months (named "target setting calls" by Meiji Yasuda Life). The agreed upon goals were also printed and mailed to each subject in a starter kit. Thereafter, call center staff telephoned the subjects approximately once every two weeks (named "support calls") to check on the degree of compliance.

Fig. 1: Flow of services of the pilot program



(Source) Reference materials used by Mr. Okamoto for his report

3. Features of the program

Mr. Okamoto stated that the following points (1) - (6) are key features of the healthcare management program of Meiji Yasuda Life.

(1) Program developed and supervised by leading authorities of chronic diseases

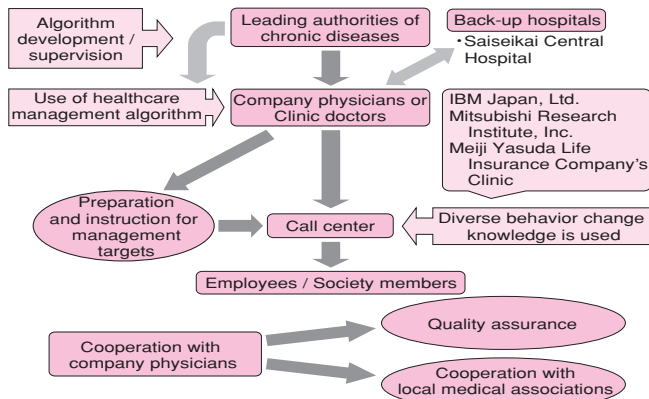
Before developing its own healthcare management program, Meiji Yasuda Life examined many similar programs that had been introduced in Japan. With regard to diabetes, healthcare management programs to date provided services emphasizing improvements in lifestyle and blood sugar control. Meiji Yasuda Life took a different approach, developing a healthcare management program focusing on mechanisms that lead to worsening disease and increasing difficulties in daily life. Meiji Yasuda Life analyzed the mechanisms of the development of complications that erode quality of life and result in expensive medical treatment, and then focused on how to prevent the disease from progressing in the first place. Leading authorities with extensive experience in diabetes treatment, supervised and provided guidance for the development of the program in order to assure its reliability.

(2) Linkage between company doctors and clinic doctors (refer to Figure 2)

In Japan, under the Industrial Safety and Health Law, company physicians are mainly responsible for the health management of the workers. Therefore, Meiji Yasuda Life developed their program to utilize and cooperate with the capabilities of company physicians to perform healthcare management. In this program, these physicians set management targets for their program participants and provide instructions to call center staff who communicate with the recipients according to a manual. The program is managed by company physicians and is performed based on healthcare management algorithms developed with leading authorities. The content of each participant's plan is determined by the company physicians through their initial interviews with participants. Meiji Yasuda Life believes that they can maintain the quality of medical treatment despite the fact that regular patient communication is through non-physician call center staff, because the interactions are performed based on instructions by physicians.

Meiji Yasuda Life is examining the feasibility of integrating the program with local independent clinics for services for which cannot be provided through company physicians and clinics. Meiji Yasuda Life believes they will receive support for the program from local medical associations since their members (i.e. the local independent clinic owners) will play the same role as that of company doctors in the program.

Fig. 2: Cooperation between local clinic doctors and company doctors



(Source) Reference materials used by Mr. Okamoto for his report

(3) Program covers diseases on the increase among employers

Diseases in the healthcare management program of Meiji Yasuda Life are hypertension, hyperlipidemia, hyperglycemia (pre-diabetes) and obesity: diseases referred to as the “quartet of death”. Services of the pilot program started in October 2004 covered hyperglycemia (diabetes) and obesity. Plans call for future pilot programs to test services covering hypertension and hyperlipidemia¹. Currently, Meiji Yasuda Life is not planning to add services for other diseases, but plans to introduce management for depression into their program in a few years time.

(4) High self-management effectiveness

The basic concept of Meiji Yasuda Life’s healthcare management program is to help participants to improve their daily lifestyle. Services of many existing healthcare management programs focus on observation and classification of participants into stages based on observation and assessment of current knowledge and behavior. Meiji Yasuda Life observed that such programs have difficulty in raising the current self-management consciousness of participants, so they decided to re-think the logic of behavior modification used in healthcare management. As a result, Meiji Yasuda Life decided to adopt the Prochaska Model in their new program, in which changes in behavior are classified into stages based on assessment of self-awareness of change.

The Prochaska model was developed by the American behavioral scientist, James O. Prochaska. In the Prochaska Model, improvements in daily lifestyle such as smoking cessation, reduced drinking, diet and exercise are regarded as a process, and this process of behavioral change is divided into five stages based on the degree of interest in change and current behavior. These stages of changes in behavior are shown in Figure 3.

Meiji Yasuda Life designed a new questionnaire to obtain medically relevant information from participants on lifestyle in order to set the improvement targets for each participant’s individual program. The questionnaires were designed to be very simple by including as few questions as possible. Meiji Yasuda Life found that employees tend to have little interest in participating in the program in general, so it was necessary to gather the required information quickly and efficiently using as brief a questionnaire as possible.

¹: Pilot programs commencing from September 2005 onwards include services for hypertension and hyperlipidemia.

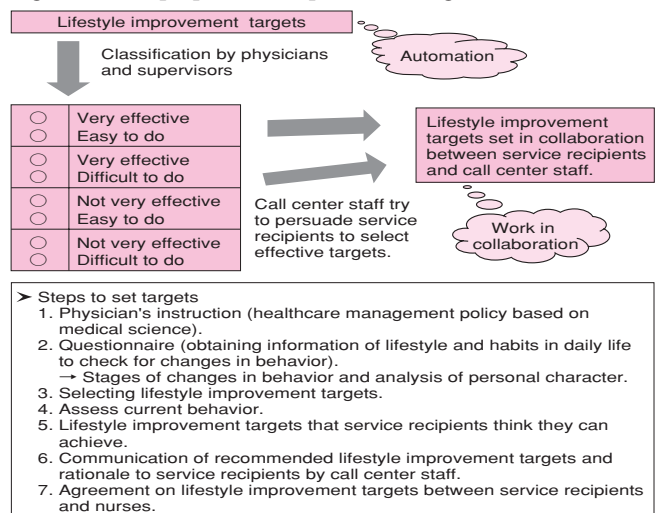
Fig. 3: Stages of changes in behavior in the Prochaska Model

Stage I : Pre-planning	Not considering improving lifestyle within the next six months.
Stage II : Planning	Planning to start to improve lifestyle within the next six months.
Stage III : Preparing	Interested in improving lifestyle and planning to start within the next month.
Stage IV : Action	Actively making efforts to improve lifestyle for a short time (less than six months).
Stage V : Continuing	Actively making efforts to improve lifestyle for a relatively long time (more than six months).

(5) Involving the participant in making the behavior modification plan (Refer to Figure 4)

As described above, at the beginning of preparation of individual plans for each Meiji Yasuda Life healthcare management program participant, supervisors use their medical knowledge to select a group of improvement targets for each participant based on the examining physician’s instructions and the participant questionnaire. Then, when call center staff made target setting calls to the participants, the participants themselves participate in the final stage of determining the improvement targets. During conversations with the participants, call center staff try to persuade them to select targets which will have the biggest impact on their health. Meiji Yasuda Life considers that it is important that participants themselves participate in setting the specific targets during these calls.

Fig. 4: Flow of preparation of plans to change behavior



(Source) Reference materials used by Mr. Okamoto for his report

(6) Customizing the program for individual companies and health insurance societies

The healthcare management program of Meiji Yasuda Life was developed to provide services to companies and health insurance societies. Meiji Yasuda Life realized that an inflexible program would not be able to respond to the varying needs of companies and health insurance societies that have different concepts of healthcare management depending on the organization’s culture. Therefore, the healthcare management program of Meiji Yasuda Life is designed to be customizable in order to provide various types of services adapted to the specific requirements of individual customers.

Before implementing a healthcare management program, Meiji Yasuda Life will examine the conditions and needs of each company, including for example, whether or not the company has its own clinic, how the company wishes to contact their employees to provide the services (e.g. by telephone or email), the frequency of visits by company physicians, etc. The results of this assessment will be recorded in a format known as a “customization sheet”. The best care management service flow for individual companies and health insurance societies will be determined through discussions with the company physicians and others, based on the conditions described in the customization sheet.

Pilot program outcomes (an interim assessment of effectiveness)

Meiji Yasuda Life conducted an interim assessment of the effectiveness of the pilot program services measuring the continuation rate among participants, and the effectiveness of medical care and expenses.

1. Continuation rate

As part of the pilot program starting in October 2004, the health of 1,940 head office employees of Meiji Yasuda Life was screened. Of these, 99 with fasting blood glucose levels of 110mg/dl or higherⁱⁱ were selected as candidates for the pilot program. Of these, 24 who transferred out of the head office were excluded, and 72 of the remaining 75 employees (96% of the candidates) received follow-up examinations. Excluded from the program were two employees who did not wish to participate after receiving the follow-up and nine employees with pre-existing illnesses revealed through interviews, leaving 61 employees to become participants in the pilot program. Except for the 9 employees excluded because of pre-existing illness, the participation rate of those who underwent follow-up examinations and agreed to participate in the program was 96.8%.

During the six months of the program, 3 participants retired and the remaining 58 subjects all continued therefore the continuation rate was considered to be 100%, excluding the retirees.

2. Effectiveness relating to medical care

The effectiveness of the pilot program from the aspect of medical care, and the reasons for the effectiveness and outstanding issues were described by Mr. Okamoto as in (1) - (5) below.

(1) Improvements in HbA1c values

The HbA1c valuesⁱⁱⁱ of the subjects were checked during the interim assessment to compare with the baseline values recorded at the beginning of the program. For the 27 subjects who had HbA1c values below 5.8 at the beginning, 5 (18.5%) showed improvement, 10 (37.0%) no change, and 12 (44.4%) had worsened. For the remaining 31 subjects, who had HbA1c values of 5.8 or higher at the beginning, 28 (90.3%) showed improvement, 1 (3.2%) was unchanged, and 2 (6.5%) were worse. Significant improvements in HbA1c values were seen among the subjects whose HbA1c values were relatively higher at the beginning of the program (see Figure 5).

Meiji Yasuda Life believes that the significant improvements in HbA1c values are due to the participation of physicians in the program. As described above, company physicians wrote out their assessment and provided instructions concerning relative importance of specific goals to the call center staff in order to help patients set improvement targets. Meiji Yasuda Life believes the positive results were achieved because the company physicians provided instructions which emphasized setting improvement targets that were relatively easy for the service recipients to achieve in their daily lives and which allow the participants to

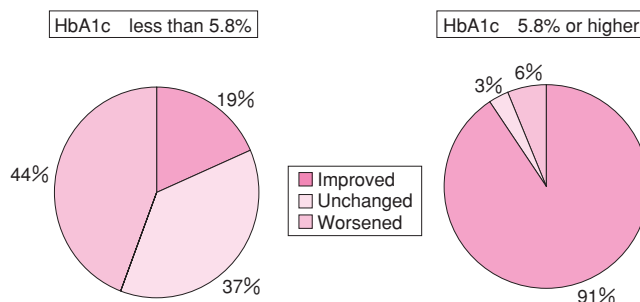
ii: Empty stomach blood glucose values of less than 110mg/dl are judged to be normal, values between 110mg/dl and less than 126mg/dl are borderline, and values 126mg/dl and higher are considered to indicate diabetes.□

iii: HbA1c was used to judge the recipients' overall blood sugar level. Unlike blood glucose, HbA1c is not affected by the timing of the previous meal, so HbA1c tests can be performed at any time. HbA1c is also called glycohemoglobin and glycosylated hemoglobin in the blood. The HbA1c test shows the average level of the blood sugar over approximately the previous 120 days. The standard value of HbA1c is 4.3 - 5.8%; values of 6.5% or higher are considered to indicate diabetes.

realize improvements in health. This is in contrast to programs which provide vague instructions similar to those written in textbooks of nutritional and exercise consultations, such as, "Eat three balanced meals each day".

However, in some cases, call center staff could not thoroughly understand the physicians' instructions, so Meiji Yasuda Life is aware of the need to provide additional medical training to call center staff.

Fig. 5: Changes in HbA1c values
(further examination → latest examination)



(Source) Reference materials used by Mr. Okamoto for his report

(2) Prevention of complications (diabetic nephropathy)

Concerning the assessment of the effectiveness of prevention of diabetic complications, trace amounts of albuminuriaⁱⁱⁱⁱ were detected in 9 of 58 subjects, categorizing the subjects as in stage 2 of diabetic nephropathyⁱⁱⁱⁱ (refer to Table 1). Meiji Yasuda Life believes the program prevented the symptoms of the 9 subjects from advancing to the stage 3 by referring them to specialist doctors early.

Meiji Yasuda Life stresses the prevention of advancement of diabetic nephropathy from stage 2 to stage 3 because commencement of stage 3 precludes return to stage 2. Meiji Yasuda Life considers the facts that they were able to refer the 9 subjects with trace amounts of albuminuria to specialist doctors early, potentially avoiding high medical expenses, as a very positive outcome.

Table 1: Trace amounts of albuminuria
(ACR: albumin/creatinine ratio in urine)

<30mg/gCr	18 participants
≥30mg/gCr	9 participants
≥300mg/gCr	0 participants

(Source) Reference materials used by Mr. Okamoto for his report

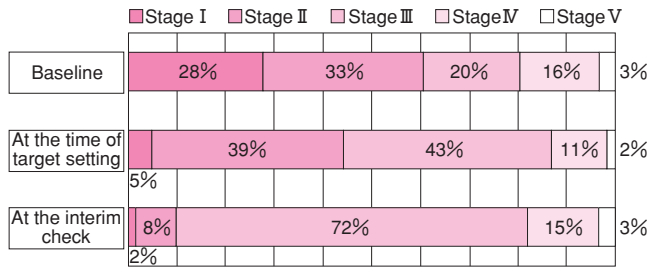
(3) Improvements in stages of changes in behavior

Improvement targets were selected by physician and nurse supervisors based on their medical knowledge, and intensive services were provided during the initial Prochaska behavior modification stages (Stages I - III). Subjects at Stage II (Planning) or Stage III (Preparing) at the time of setting targets showed particularly significant improvement (refer to Figure 6).

iiii: Compared with people who have normal levels of albumin in the urine, people with trace amounts of albuminuria are at greater risk of developing continuous proteinuria and of dying from proliferative retinopathy or vessel-related diseases.□

iiiiii: Degeneration of the blood vessel wall cells or blood flow disturbance in the renal glomerulus. Diabetic nephropathy has five stages. In stage 2, patients are able to live normally, do housework and give birth if they have treatment to control blood sugar and treatment to lower blood pressure. Stage 3 is the onset of proteinuria, so protein intake and exercise have to be limited. Patients can live normal lives but cannot give birth. Worsening of symptoms restricts normal lifestyle. Stage 4 is kidney failure, and stage 5 requires dialysis treatment.

Fig. 6: Improvements in the stages of behavior change



(Source) Reference materials used by Mr. Okamoto for his report

(4) Improvements in lifestyle

Asked about improvements in lifestyle, 94% of the subjects responded “much improvement” or “some improvement”. Meiji Yasuda Life believes that the reasons for these significant improvements were their effort in making sure that call center staff were fully aware that the basic concept of the program was to support participant self-management and that the support services provided were documented on a daily basis. There were however issues identified for improvement including differences between the results achieved, and inconsistent documentation of management activities, among the call center staff.

(5) High enrollment of participants

As stated above, in the pilot program, 96% of people whose blood glucose level was revealed to be 110mg/dl or higher at the health check received follow-up examinations; of these, 96.8% enrolled as pilot program participants, a high participation rate. Meiji Yasuda Life believes that one of the reasons for this was the brevity of the daily lifestyle questionnaire, leading to ease of enrollment and participation.

3. Effect on medical expenses

For the assessment of effectiveness relating to medical expenses, the potential savings for diabetes, myocardial infarction and brain infarction were estimated based on changes in the levels of blood glucose, cholesterol and triglycerides. Meiji Yasuda Life contracted the work of calculating these estimates to a third party, Mitsubishi Research Institute, Inc., to assure objectivity.

Based on changes in blood glucose levels over a period of ~1.5 months from the beginning of the pilot, Mitsubishi Research Institute estimated the program would save approximately ¥55,000 (~\$470 @117 yen/US dollar) per person per year in medical expenses.

Furthermore, based on changes in the levels of blood glucose, cholesterol, and triglycerides over a five month from the beginning of the pilot, Mitsubishi Research Institute estimated the program would save approximately ¥230,000 (~\$1,965 @117 yen/US dollar) per person per year in medical expenses.

Future development

Meiji Yasuda Life has started other pilot programs including a program in which instructions for healthcare management targets are provided by local clinic doctors from the regional medical association, and a program which covers not only the insured but also the insured's dependents. Meiji Yasuda Life is planning to introduce IT-based healthcare management services and to expand its programs to cover national and local government health insurance programs.

Summary of Study Group discussions

At the first Study Group meeting, Mr. Okamoto gave his report and the committee members and other members discussed issues related to the provision of healthcare management services. The following is a summary of the discussions.

1. Collaboration with doctors

• Mr. Okamoto

[Asked about the incentives for clinic doctors to participate in the program.] One of the incentives that clinic doctors have to participate in the program is the opportunity to receive referrals for new patients at their clinic. Another is the potential to improve the quality of care provided, made possible by finding problems and providing medical treatment at an earlier stage than before.

• Consulting company executive

If a company's senior managers do not emphasize employee health in their management philosophy, receiving cooperation from that company's occupational health physicians will also be difficult. If management is not interested in the health of employees, it will be important for service providers to think about how to discuss their services with company physicians, otherwise people who truly need healthcare management cannot receive it, and healthcare management services will not expand.

Many service providers participated in this study group meeting. The healthcare management business will only succeed by considering how companies (i.e. the potential customers of healthcare management service providers) think about the health of their employees and the expectations of their company physicians.

• A manufacturing company occupational health physician

Except for company physicians who are already providing a certain level of health management service in industry, most will not know how to deal with healthcare management services. Lack of clear instructions from a healthcare management program provider about the role of the company physician in the program will lead to confusion since the physician will still have at least some responsibility for the program by virtue of their position. On the other hand, it will not be so difficult for most company physicians to agree to participate in these programs if the details of the work involved and the scope of responsibilities are clear. In the case of the pilot program reported herein, there are clear rules that company physicians participate in writing the care management plans and provide medical instructions to call center operators, so there would likely be no problem.

Collaboration with local clinic physicians will be required for companies that do not have their own clinics. The roles and division of labor between company and local clinic physicians will have to be clarified.

2. Identifying and stratifying participants

• A hospital doctor

Follow-up medical guidance after annual employee physicals is currently focused only on employees whose health is at high risk and in need of immediate hospital admission. If relevant laws are strengthened to require follow-up medical guidance to more employees, company physicians and health nurses will have to adapt. However, if the industry waits for these new laws, healthcare management will not advance. Also, healthcare management programs should serve a wider range of people, not only those whose health is at borderline or high risk.

• A manufacturing company's occupational health physician

If healthcare management programs are limited to borderline or high risk employees, such as those with blood glucose levels of 110mg/dl or higher, as in this pilot, it will not be possible to produce a prospective program. The feasibility of managing younger employees, or all for that matter, should be examined.

• A local clinic physician

In the case of the pilot program reported, participant awareness of and interest in health must have been high even before the program, since 96% of them received follow-up exams after their physicals. In most cases, the proportion of people who receive such indicated follow-up after physical exams is low, so healthcare management service providers must develop a strategy to raise this proportion.

3. Plans to improve service effectiveness

• Mr. Okamoto

[Asked about how services will differ according to the participants.] In the pilot program reported, the intensity of services differed depending on the participant's fasting blood glucose measurement. In the past, Meiji Yasuda Life provided services by separating the subjects into four groups based on the character classification of Carl Gustav Jung, which did not produce good results.

• Annual physical exam clinic senior manager

Doctors often only instruct patients of what not to do, so it is difficult for them to know what they should do. Consultations about diet with nurses and dietitians do not, for example, provide practical information about eating that people should consider when going out after work to restaurants and bars with their friends. Practical healthcare management instructions should be given to employees that answers their questions about everyday life.

Editorial Board Members of Disease Management Reporter in Japan:

- Shigeru Tanaka, Ph.D., Professor, Graduate School of Business Administration, Keio University Research Committee Members
- Shinya Matsuda, M.D., Professor, Department of Preventive Medicine and Community Health, School of Medicine, University of Occupational and Environmental Health, Japan
- Hiroyuki Sakamaki, Ph.D., Research Department Director and Chief Researcher, Institute for Health Economics and Policy
- Michiko Moriyama, R.N., Ph.D., Professor, Division of Nursing Science Graduate School of Health Science, Hiroshima University
- Gregg L. Mayer, Ph.D., President, Gregg L. Mayer & Company, Inc.

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Editorial Department of Disease Management Reporter in Japan

Attention: Mr. Naonori Yakura

Mailing Address: Sompo Japan Research Institute Inc.

1-26-1 Nishishinjuku, Shinjuku-ku, Tokyo, 160-8338, Japan

E-mail: dmr@sj-ri.co.jp

Tel: +81-3-3348-6147

FAX: +81-3-3348-6146

About our organization

Sompo Japan Research Institute Inc., a think-tank of Sompo Japan Group, was established in 1987 as the first think-tank in the non-life insurance industry in Japan. We conduct research and development, and provide information in various areas such as insurance, medicine, healthcare, social security and finance.

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