Fundamental approach to quality improvement of Japan Society of Health Evaluation and Promotion

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ABSTRACT

Japan Society of Health Evaluation and Promotion has engaged in several activities for quality improvement of multiphasic health checkups. The activities consist of four major topics. First one concerns total quality control about checkup examinations. Second one relates human resource development including certification of medical specialist. Third one relates to the information quality including health data exchange. Concept of health cloud is mentioned for data management system dedicating health promotion. Last one refers to the development of educational material based on health literacy. Our society is responsible for quality improvement activities and building appropriate evidence concerning multiphasic health checkups.

Key Words TQC, Specialist, Quality Improvement, Health Literacy, Data Sharing

1. Introduction

A. What is AMHTS?

Automatic multiphasic health testing systems have been developed during four decades in Japan. These systems have following characteristics[1],[2]

1 data management supported by computer system
2 high quality control for laboratory measurement
3 concentration of health testing in a few hours
4 evaluation of health function by multiphasic examinations

B. Status quo of health evaluation system in Japan

Japanese government has enacted several legislation for conducting health checkups for Japanese people. For example, tuberculosis health examination played important role for preventing tuberculosis spreads in Japan. Labor safety law contributes to prevent labor's health from occupational hazards. In 2008, Japanese government established health checkups and health education system for metabolic syndrome[3]. Multiphasic health checkups in Japan have been conducted not by the legislation but by voluntary support from health insurance society. Threat of suffering from malignant neoplasms[4] is considered to be important motive power to perform multiphasic health checkups in Japan.

Total number of clients of multiphasic health checkups reached to three million people per year about 20 years ago[5]. In Japan, medical cost of Japan are increasing gradually due to the life-style related diseases[6]. The multiphasic health checkups have been expected to restrain further medical expenditure by preventing life-style related diseases.

C. Contribution to health services

Evidence-based medicine has been interested in from viewpoints of appropriate health and medical policy making. Concerning multiphasic health checkups, socioeconomic evidence was not enough excluding colorectal cancer[7], prostate cancer[8] and hypertension[9].

Shenson et al.[10] reported multiphasic health checkups had negligible impact on the delivery of Preventive Services. Friedman et al.[9] also reported the limitation on usefulness of multiphasic health checkups on Preventing Services. However, the effect of multiphasic health checkups on medical expenditure[10] has been recently expected to be clarified.

Multiphasic health checkups have been facing further client's health demands for preventing disease burden in elderly society[11] such as locomotive syndrome[12] among aged people and Alzheimer's disease[13][14][15]. Mental health[16] and chronic obstructive lung diseases[17] are also considered to be health problems in younger generations. Urinary incontinence[18] attracts interests from a viewpoint of quality of life.

D. Role of academic society

Japan Society of Health Evaluation and Promotion gets involved in new scientific activity for making sufficient evidence concerning usefulness of multiphasic health checkups and for expanding the function of checkups and promotion to contribute to client's health.

2. Scope of this paper

This paper describes the quality improvement activities conducted by Japan Society of Health Evaluation and Promotion. Fig.1 illustrates four major topics of our activities. Quality improvement of multiphasic health checkups consists of 4 fields. First one refers to quality control of examinations performed in multiphasic health checkups. Second one refers to human resource development activity. Third one refers to information quality dealt with multiphasic health checkups. Last one refers to health literacy of clients.

3. Quality control of medical examinations

A. Demand of quality control activity

Hinohara et al.[19] mentioned the quality control activity as an important function of our society. Accuracy of biochemical examination is essential for appropriate judgements based

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on multiple health checkups. Our society has original quality control system which distributes several materials to all health checkup institutes four times a year. Every institute has both internal and external quality control scheme to secure the accuracy of measurements.

B. At present

Tauchi reported the present system of external quality control performed in our society. Distributed materials consist of gradual concentration substances which guarantee traceability of standard material. The measurement value is evaluated after converting to the standard deviation index.

C. Further subjects

Interpretation of imaging data such as echocardiogram, x-ray films and echograms plays important role for evaluating health status. The quality improvement activity might be necessary for interpretation of these imaging data. Quality control activity of echocardiograms and chest x-ray are introduced to current quality control activity. After distributing standard imaging of these material to each institute, reading of these imaging are evaluated according to the definite findings of imaging.

Recently, quality control is not restricted to analytical problems. As pre-analytical and post-analytical process also have influence on measurement results, total quality control scheme will be introduced to each institute to assure accurate results from laboratory.

Precise data management is also significant not only for assessment of individual health status but also for epidemiological analysis of these data.

4. Human resource development

A. Development of medical specialists

Our society has introduced certification system for health evaluation and promotion specialists since 2005. This specialist is requested to finish five years training in specific institutes and to pass the specialist examination.

A1. Background

Medical doctors engaged in multiphasic health checkups are required specific knowledge and skill for preventing medicine.

Health evaluation and promotion specialists not only examine client's physical condition but also promote their health condition.

The multiphasic health checkups in Japan sometimes require the knowledge of occupational medicine for assessing the client's health problems.

A2. Knowledge and skill

Medical doctors engaged in multiphasic health checkups are required to have enough knowledge and skill concerning preventive medicine and primary care. Following are the subjects which health evaluation and promotion specialists must have acquire during the period of training:

1. Planning health checkups based on estimated risk of client
2. Health evaluation of checkup results
3. Arrangement of ex post health program
4. Development of health promotion strategy

Recently, health literacy attracted special attention from viewpoint of effective health promotion. Multiphasic health checkups offer appropriate material for their client in order to understand their health status and decision making for their health. Development of practical materials for health literacy is required for health evaluation and promotion specialists. Skills for sharing information concerning health problem between clients and their specialists are also essential for effective health promotion.

Furthermore, positive attitude of specialists for their clients is considered to be indispensable for effective health promotion. The specialists are eligible to improve compliance with medical advice.

A3. Certification

One hundred sixty two physicians have gotten certification of specialist until now (April 2011). This certification requires five-year renewal of specialists to improve their knowledge.
and skill for health evaluation and promotion.

Our society and Japan Society of Ningen Dock had an agreement on the certification system of health evaluation and promotion specialist. Rules for the certification will be set for this specialist near future.

In addition to this faculty program, specialists of this field are required to deliver the fundamental and broad care[34],[35].

B. Other staffs

In this preventive medical activity, development of para-medical is also important among human resources[35]. Our society has already started the certification of paramedic, such as operation specialist and health promotion instructor. The number of certificated paramedics is over two hundred (April 2011).

5. Improvement of information quality

After introduction of health checkups about metabolic syndrome[3], health data are exchanged between health checkup institutes and health insurance society for evaluating this health service[39].

A. Information strategy

Sharing of health data is important for making appropriate health policy[31] from a viewpoint of public health. On the basis of sharing these data, definite data exchange protocol is required in primary care[37].

B. Protocol for data exchange

Primary care informatics[38] will be needful for understanding health demand and making appropriate policy in public health. Data exchange format based on XML[39], HL7[40] and Japanese version[41],[42] have been proposed. However, there seems to be no adequate data sharing system from a viewpoint of primary care.

Standardization of specific exchange protocol for primary care informatics[43] and comprehensive taxonomy system[44] will be developed. International Association of Health Evaluation and Promotion decided to engage in developing health data sharing system at a board meeting.

We will pay special attention on security and safety of these client's information in health data sharing[45].

introduction of these data exchange system will offer incentive to each health checkup institute because it reduces the economic burden imposed on these institutes[46].

C. Utilization of shared health data

Analyzing these shared health data will offer useful information for primary care[47]. For example, health promotion for client is valuable under sharing these data between client and medical staff[48],[49]. Combination of sharing health data and health literacy also contributes to effective health promotion[50],[51].

These shared health data will be helpful for development of clinical guideline[52] and disease management[53].

Fig.2 showed relationship between shared health data and utilization of these data. Health cloud will take charge of gathering and distributing health data among clinics, hospital, insurance society and government. Health data gathered in health cloud are supervised under privacy protection and ethical guidelines. Health cloud contribute to health promotion.

![Fig. 2 Concept of health cloud system](image-url)
through evidence building, data sharing and health literacy.

6. Enlightenment of client behavior

Enlightenment of client behavior for health promotion is necessary for preventive care of life-style related diseases, because understanding and cooperation of clients are indispensable for modification of undesirable life-style. This enlightenment gives client empowerment of healthy choice.

A. Health literacy

Health literacy consists of:
1. gathering adequate data
2. interpretation and assessment for the information
3. decision making for their good health
4. execution of desirable life-style.

Health literacy helps us to enlighten the client on their health promotion, because low health literacy interrupts health promotion.

Media literacy is considered to be core concepts and skills among development materials of health promotion. Especially, sharing health status and outcome between clients and specialists is important in health literacy. Internet communication technology including internet environment contributes to health literacy.

Information devices help to construct the good relationship between clients and medical staffs.

This approach can cover mental disorders which the clients are sometimes suffered from.

B. Usefulness of health education

Health literacy is considered to be fundamental part of health education and promotion. Health literacy plays important role to improve obesity and diabetes mellitus. Also, appropriate health literacy is expected to prevent their life-style related diseases in primary care.

7. Future approach of JHEP

A. Quality improvement activities

Quality improvement of multiphasic health checkups includes three components.

First one relates to the development of human resource in our society.

Paramedic cooperation might be essential for quality improvement of health evaluation. Concerning life-style related disorders, clinical dietitian plays an important role for modification of poor dietary habits of clients.

Second one concerns to development of educational materials for health literacy. Skills of medical staffs for enlightenment of client’s health help effective health promotion after health checkups.

Third one contains total quality control in multiphasic health checkups. This activity must improve pre- and post analytical quality control which secures total quality assurance for Multiphasic health checkups.

B. Building appropriate evidence

Our society must work on assessment and verification of effectiveness from multiphasic health checkups. Suka et al. showed annual health checkups may contribute to reduction of medical expenditures in Japanese middle-aged workers. Further analysis is expected to clarify the usefulness of multiphasic health checkups. These kinds of evidence will contribute to the quality improvement of preventive medical care.

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