Data-sharing Environment Concerning Health Examination

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Introduction

In Japan, Industrial Safety and Health Act has been set since 1972. The purpose of this Act is to secure, in conjunction with the Labor Standards Act (Act No. 49 of 1947), the safety and health of workers in workplaces, as well as to facilitate the establishment of comfortable working environment, by promoting comprehensive and systematic countermeasures concerning the prevention of industrial accidents, such as taking measures for the establishment of standards for hazard prevention, clarifying the safety and health management responsibility and the promotion of voluntary activities with a view to preventing industrial accidents. In this Act, in Article 66, it has been set that (1) The employer shall have medical examinations of workers conducted by a physician. (5) Workers shall undergo the medical examination conducted by the employer.

Thus, the annual health check health services have been common in every worker in Japan. However, in Japanese situation, the other physical check-ups such as the prescribed medical examination are also intermingled. “Ningen Dock” is one of the common annual health check, in which normative people visit an institute on their own initiative for a check-up of their health. The purpose of this health check is early detection of disease and prevention. Specific Health Checkup and Specific Counseling Guidance is another common annual health check system in Japan and is focused on metabolic syndrome (age 40 yrs – 74 yrs). Combined with these health check systems, annual health check services are rather complicated for workers.

By the change of the work style and systems, the rate of participation for this health check has been changing. According to the statistics by the Ministry of Welfare and Labor, the participant rate in 2007 was 80% on a scale of more than 50 workers, on the other hand, less than 80% on a scale of less than 50 workers1). And the rate was more than 90% in the regular employees, but less than 80% on a scale of less than 50 workers1). The rate in 2007 was 80% on a scale of more than 50 workers, on the other hand, less than 80% on a scale of less than 50 workers1). Thus, the annual health check health services have been common in every worker in Japan. However, in Japanese situation, the other physical check-ups such as the prescribed medical examination are also intermingled. “Ningen Dock” is one of the common annual health check, in which normative people visit an institute on their own initiative for a check-up of their health. The purpose of this health check is early detection of disease and prevention. Specific Health Checkup and Specific Counseling Guidance is another common annual health check system in Japan and is focused on metabolic syndrome (age 40 yrs – 74 yrs). Combined with these health check systems, annual health check services are rather complicated for workers.

By the change of the work style and systems, the rate of participation for this health check has been changing. According to the statistics by the Ministry of Welfare and Labor, the participant rate in 2007 was 80% on a scale of more than 50 workers, on the other hand, less than 80% on a scale of less than 50 workers1). And the rate was more than 90% in the regular employees, but less than 50% in the part time workers, which reveals the inequality of occupational health service between regular and non-regular employees.

The purpose of annual health examination in Industrial Safety and Health Act is not only an early detection of work-related disease, but also to secure as well as to facilitate the establishment of comfortable working environment. This law asks for the employer an obligation of security and ask for a promotion of self-health care for workers. The occupational physician in Japan is usually contracted with a company, and he is in charge to balance both of them.

After the annual health examination for workers has been done, evaluation cascade of annual health examination data (in Japan) should be carried out as following steps.

i) Clinical Diagnosis: usually carried out by occupational health service center.

ii) Health Guidance: usually operated by the occupational medical staffs.

iii) Work Fitness Assessments: recommended by the occupational physician to the company.

However, in reality, this evaluation cascade does not seem to be well-achieved because the data quality and environment are not sufficient to perform work fitness assessments. Occupational physicians need other information for assessment and evaluation, such as the state of disease management (medical history including current and past illnesses, subjective symptoms and objective responses, attending physician’s opinions, record of past interviews with occupational physicians), work information (overtime hours and attendance), and work environment information (work environment assessment results and special medical examination results). In addition, past workplace inspection records by occupational physicians may also be needed.

It is important to build up the system through utilizing the Information Technology how to promote the occupational health activity including the annual health check and its aftercare. Recently, personal health check data can be recorded and stored as a digital form. The utilization of the digital annual health check data of workers would be more necessary especially in the mid- and small-scale companies. We would like to introduce the concept of digitalized industrial personal health record (iPHR), which is devised as the conventional and easy-to-handle system to promote a better occupational health service. This iPHR system is aimed to enable the part-time-engagement occupational physicians to evaluate the adjustment at worksite or fitness for work through the medical examinations or other information even in the he mid- and small-scale companies.

Concept of industrial personal health record (iPHR) system frameworks

Our department research team has conceptualized the design and operation of an industrial personal health record system, generically called “iPHR”. As mentioned above, this iPHR system should be designed around “low cost” and “ease of use” objectives. In reality, the system can be used in any of the frame-
works below.

1) “Staff-Initiated Type” Framework: where a database is developed under the initiative of occupational physicians (Fig. 1). This is a relatively minimum type of system that uses. A dedicated private internet connection would be established between the contractor business and the temporary contract occupational physician. The company would upload medical examination and attendance data to this server, and the occupational physician and other occupational health staff can access and update the data in a secure manner as stated in a confidentiality agreement or similar. This framework would enable occupational health staff to customize software such as FileMaker and to use commercial software in combination with existing internet environments, facilitating the attainment of low cost and ease of use objectives.

2) “Provider-Initiated Type” Framework: where a database is developed under the initiative of medical examination providers (Fig. 2). In this type of framework, a database server is set up or managed mostly in or by the medical examination provider. Under present circumstances, medical examination providers undertake medical examination agreements and associated occupational physician agreements with many businesses. The medical examination provider would serve as a service operations center for occupational physicians and businesses under temporary contract with the provider.

3) “Outsourced Type” Framework: where an outsourcer develops a database and establishes connections between a business, the medical examination provider, and occupational health staff (Fig. 3). In this type of framework, an outsourcer (server provider) of databases (servers) supports Occupational Health Service (OHS) under indi-
individual agreement with OHS staff, the medical examination provider, and businesses.

The type of framework that is chosen will determine the appropriate application used. Applications may vary in design depending on the mode of use but would basically consist of the following unit structures: (1) health information (including medical examination data), (2) company information (including attendance data, work environment assessment data), and (3) OHS (interview record, information on occupational measures). The application digitally stores each information unit interannually, providing accessibility via the internet or another interconnected system whenever and wherever necessary. Through the application and data system, the iPHR system is expected to improve the convenience and effectiveness of the process from medical examinations to follow-up measurements as required by the Industrial Safety and Health Act.

Conclusion

In developing a new integrated digital system to manage workers’ health, various schemes can be developed to, for example, 1) use occupational physicians and nurses ubiquitously in job categories, geographical areas, and at workplaces, and demonstrate electronic medical records dedicated to occupational health (health management support system); 2) develop and standardize security media containing medical examination results available for individuals to manage and view their own individual health information in real time, as well as individual identification IC chips and software including DB interannual information (data management system for which both individuals and employers are accountable); or 3) develop a database in which interannual information related to data from medical examinations can be used as references and statistics for comprehensive health management (workers DB management system).

Industrial hygiene and health management should be developed under such an integrated digital system after addressing technical challenges, including (1) global-standard personal information protection and information security policy, and (2) promotion of standard anonymization and encryption tools and methods. The system may also provide linkage to the specific medical examination and health guidance and recent new Japanese “My Hospital Everywhere” systems, all of which have been built on digital technology.

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REFERENCE