Mobile healthcare service model in Japan – Current condition and future issues

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Abstract

A private wearable healthcare service has already started in Japan. Japanese electronic manufacturers and mobile phone service providers are working actively on R&D of a wearable healthcare devices and services. The governmental regulation of the computer program for medical use had come into force. However, Japanese wearable healthcare services are considered to be in the stage of a trial and pilot study. To make a wearable healthcare pervasive in Japan, there are some problems to be solved such as accumulation of data and evidence about its effect on healthcare, and its cost coverage by the national health insurance. It is recommended that The Ministry of Health, Labor and Welfare (MHLW) start the discussion to promote wearable healthcare services (WHS) within the Japanese national health insurance policy.

Author Keywords

Mobile healthcare, regulation, service model, physician

ACM Classification Keywords

F.1.1 Models of Computation

Introduction

A computer-assisted health promotion (CAHP) had been embodied by a diffusion of personal computer and information and communication technology (ICT) at

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UbiComp/ISWC'15 Adjunct, September 7-11, 2015, Osaka, Japan.
© 2015 ACM 978-1-4503-3575-1/15/09...\$15.00
<http://dx.doi.org/10.1145/2800835.2809439>

home. According to an advancement of devices, CAHP was transformed to e-healthcare that is operated by an internet platform and mobile healthcare using a mobile phone. At present, a mobile healthcare is just about to be replaced by a wearable healthcare (operated by a wearable device platform). The number of wearable devices in Japan is estimated to be 0.4 million devices in fiscal 2013 and 1.1 million devices in fiscal 2014, according to MM Research Institute Ltd. In fiscal 2020, it is forecasted to be about 6.0 million devices and share of wristwatch type devices is estimated to be one third of the number in wearable devices.

Progress of the technology in Japan

In Japan, a pedometer and an activity tracker are popular in a personal health promotion device. Its market size has reached about 6.0 million US dollars in 2013 (Yano Research institute Ltd.). Yamasa Ltd, a Japanese pedometer maker released the first mechanical pedometer in 1965, in a response to the commencement of the national health promotion campaign 'Walk by 10,000 steps per a day'. The Yamasa pedometer was modified to electric devices in 1987 and they started the sale of their wristwatch type pedometer in 2001. Thereafter, the active tracker equipped with a motion sensor and a GPS sensor was developed as a personal device for health promotion. Nike Inc. released 'Nike +iPods Sport Kit', a motion sensor which was attached with a Nike sport shoes in 2006, a running watch with GPS sensor in 2011 and 'Fuel Band, a wrist ring type active tracker using a motion sensor in 2013. Apple Japan released the Apple Watch in April 2015.

Japanese electronics manufactures also released wearable devices. Sony Corporation developed a smart

watch and sold SMARTWATCH 3 with a motion sensor and GPS sensor in November 2014. Seiko Epson Corporation released a smart running watch with a motion sensor, a GPS sensor and an optical heart rate monitor in 2014. By an introduction of this new convenient heart rate monitoring technology without putting wire-less heart rate monitor on chest, we can measure a level of exercise, sleep state and stress burden easily and continuously.

Other critical technologies on wearable healthcare are compact blood pressure monitor without a cuff and blood glucose monitor without blood sampling, by applying an optical measurement method. If it is possible to monitor a blood pressure and glucose by a micro-sensor, a high standard smart watch for healthcare will be released to assist prevention and treatment of life-style related diseases. Intelligent clothes, which monitor body temperature, perspiration and heart rate, etc. are under development in Japan.

Regulation of computer programs for a mobile healthcare

There is no governmental regulation regarding a mobile healthcare service to be utilized for personal exercise, fitness and wellness, etc. However, the devices and software programs of the mobile healthcare service for special medical treatment such as diabetes, etc. may be applicable for the regulation of the Pharmaceutical Affairs Law. The Ministry of Health, Labor and Welfare (MHLW) is the supervisory authority regarding a healthcare device and service. Therefore, if there are any questions, it is recommended to contact MHLW.

In November, 2014 MHLW enforced the notice of the adaptation of medical software programs in the Pharmaceutical Affairs Law as well as medical devices.

According to the notice, Medical software listed below is considered as medical devices by the law.

- 1) Programs used for a data processing and analysis to calculate an indicator and to draw an imaging and graphics, etc. for diagnosis and treatment.
- 2) Program to assist the decision making of a treatment plan and a treatment methodology for a patient. A simulation program is included in this group.

While, following medical software is not applicable for the regulation.

- 1) Programs for a transformation, storage and /or an indication of data collected by a medical device to be used as medical records.
- 2) Programs to be used for data (excluding an imaging) processing and analysis. Programs used for diagnosis are excluded.
- 3) Programs for medical education.
- 4) Programs of a presentation for a patient.
- 5) A device maintenance program.
- 6) In-hospital work assisted programs.
- 7) Programs of a health check up.
- 8) Programs to be considered as the general medical device that has little adverse effect to human life and health in case of its functional trouble, etc.

Service models for a wearable healthcare

In Japan, generally a wearable device is used for exercise and running control in personal training. The application of a wearable device for healthcare is not

popular and a number of the devices used for healthcare are limited at present.

In FY2007, the Ministry of Health, Labor and Welfare (MHLW) enacted 'A Standard Health Checkup and Counseling Guidance Program' and was put into enforcement in FY2008. The implementation of these policies became one of the opportunities for employers to promote their employees' health. For an example, Seiko Epson Corporation started the development of a health promotion and a treatment service model of a life-style related disease.

It was organized by a health insurance society with using a wearable device. NTT DOCOMO, Inc. the major national mobile phone network provider and OMRON Corporation, a medical device manufacturer established a business alliance to develop the digital platform for health promotion in 2012, and NTT DOCOMO sells a wristband type active tracker. SoftBank Corp. started a service for their smartphone users by health promotion platform with 'Fitbit', a US brand wristband type active tracker in 2013.

A mobile phone service provider and a major fitness club chain made business alliance. A fitness club provides its club members the service to manage the member's exercise and health data, using a mobile phone service provider's ICT platform.

Discussion – Change for the future

In a wearable healthcare service, there are some problems that an establishment and diffusion of the service are left behind compared to the progress of

R&D on a wearable device technology. Medical information specialist understands the potentiality of a wearable healthcare as a prevention and treatment tool for non-communicable diseases. However, most of Japanese physicians do not recognize a wearable healthcare device and service as a professional medical tool and their interest in a wearable device and technology seem to be not sufficient.

Additionally, a cost of a wearable healthcare is not compensated by the current Japanese national health insurance.

Therefore, in Japan a wearable health service will grow as a private healthcare business at the moment and utilized by some companies, which promote actively with their employee's health. In the future, private health insurance companies may also provide a wearable healthcare service for the health promotion of an insured.

Japanese wearable healthcare service is considered to be in the stage of a trial and pilot study. Gaining popularity of the service is necessary to accumulate its evidence of a benefit to national healthcare system and an improvement of personal health conditions. To promote a wearable healthcare throughout Japan, MHLW is recommended to start the discussion about the national health insurance policy for a wearable healthcare service.

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