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Title : Introduction of a comprehensive home healthcare and welfare system and the development of a corresponding information system in the community

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Summary

Japan is experiencing rapid aging of its population at a pace unseen anywhere else in the world. Urban areas in particular are experiencing unprecedented growth in the number of late elderly (75 years and older). Therefore, conventional medical care policies need to be reexamined, and comprehensive policies that include urban and other types of policies need to be developed.

Over the next 20 years, the population of late elderly in Japan is expected to increase rapidly, predominantly in urban areas, as is the proportion of people who die in hospitals, which is currently substantial. Conventional hospital-centered geriatrics medical care will be unable to cope with the rising number of elderly requiring medical care.

Therefore, the widespread establishment of home healthcare is an indispensable national issue in the future of Japan's super-aging society. An information system model that links relevant agencies and professional occupations will be key in establishing and promoting home healthcare; however, hardly any empirical evidence has been presented regarding the establishment and validation of such a system in the community. We believe that if home healthcare can be popularized through the widespread dissemination of practical research findings throughout Japan, it will greatly contribute to relieving the anxieties of the Japanese people and society in relation to the impending arrival of a super-aging society.

The purpose of this study was to develop a practical and versatile information system that will allow relevant home healthcare providers to share information during the process of introducing a home healthcare service model. An urban city in a metropolitan area (Kashiwa city in Chiba Prefecture) and a district in a rural area (Sakai district [Sakai city and Awara city] in Fukui Prefecture) were chosen as fields for validation. An initiative was carried out in Kashiwa city, Chiba Prefecture, which is expected to undergo rapid aging in the future, that aimed to develop a home care system, which included home healthcare, that would allow residents to enjoy good health as long as possible and continue living in the comfort of their communities, even if their health were to deteriorate. In order to confirm the universality of our study findings, we conducted a study in conjunction with and using the methodology as that in Kashiwa city in the Sakai district of Fukui Prefecture as our rural area model.

The study results can be organized as follows: 1) Creating a model on how to coordinate the establishment of a collaboration system for community-based integrated care that includes home healthcare; and 2) Developing an information system that

supports multidisciplinary collaboration and includes home healthcare. A brief summary of the main findings is described as follows.

1) Creating a model on how to coordinate the establishment a collaboration system for community- based integrated care that includes home healthcare.

To establish a framework of “multidisciplinary collaboration” for the effective care of home healthcare patients, we created case studies through i) the introduction of the “attending and associate attending physician” system to enhance the grouping of independent private physicians, and ii) collaboration between multidisciplinary home healthcare professionals, including physicians. In conjunction with the establishment of the above framework, an information sharing system was developed to facilitate the exchange of information between various multidisciplinary healthcare professionals, including physicians. Then, to proceed further with the study through an investigation of actual cases, a trial run with case studies was carried out for a limited period. Through this trial run, we repeated the cycle of trial and evaluation to establish rules for multidisciplinary collaboration. First, the process was self-evaluated using multidisciplinary trial case study. The home healthcare team was composed of attending physicians, associate attending physicians, and long-term care support specialists as core members, as well as home visiting nurses, hospital social workers, and, if needed, pharmacists, dentists, and dental hygienists. The process of extracting rules for the seamless exchange of information between multidisciplinary home healthcare professionals, including physicians, was then repeated.

The rules were categorized according to the following five phases: 1) Between the first consultation regarding transition into home care and the medical conference; 2) Between the medical conference and hospital discharge; 3) During monitoring and evaluation (periodically); 4) During assessment after a patient’s condition changes (on demand); and 5) Terminal phase (death, hospitalization, admitted into a facility). Over half of the rules were categorized between the first consultation regarding transition into home care and hospital discharge. Therefore, for examination, the rules were further categorized as those before and after the time of hospital discharge.

By conducting self-evaluations based on specific case studies such as these, issues pertaining to multidisciplinary collaboration were discussed, and a rough draft of rules was created. Representatives from each professional organization were consulted to reexamine the rules and take part in a comprehensive discussion before reaching a final decision.

2) Developing an information system that supports multidisciplinary collaboration and includes home healthcare.

A service provision was used to configure the information sharing system through cloud computing, and multiple data centers for cloud computing were used for the server environment. Through the use of other data centers, uninterrupted services became possible in case of emergencies such as natural disasters. Initially, a tablet computer (iPad2) was used as the client terminal; however, a variety of other terminals, such as Windows for PC, Android tablets, Android smartphones, and iPhones, were subsequently introduced to create a friendlier user environment.

In terms of physical security measures, user (patient) data was stored within a secure data center. A system was created whereby no data would remain in the client's terminal as processing took place from the server side, and clients were limited to browsing and updating features only. Regarding the logical security measures, access to patient data was limited, with information sharing restricted to those personnel actually involved in the care of the patient.

Only two functions were developed: i) The "face sheet" containing the patient's basic information, which was prepared based on the collaboration system used in Chiba Prefecture; and ii) the "care report" (electronic care notes) for information on daily changes. At this point, the "care report" only had open text entry functions. The information to be shared was separated into two broad categories: i) information that seldom changes and ii) information that frequently changes.

In the past, a large number of documents needed to be completed for multidisciplinary data sharing; however, as stated above, this information system allows the entry of minimal data. In addition, by utilizing the accumulated data from case studies, rules needed for smooth multidisciplinary collaboration, such as those related to setting, considerations, and sender, were established, and an information sharing system based on these rules was established. As a result, various healthcare professionals, including physicians, nurses, and care providers participating in the system, were able to share home healthcare information in real time. This system gives multidisciplinary and multi-corporate providers the opportunity to provide seamless services beyond the boundaries of health and long-term care insurance. Furthermore, the "attending and associate attending physician system" was able to be utilized in medical intraprofessional collaboration between physicians.