

# An Infrastructure to Enabling Integration of Personal Telehealthcare into Taiwan National Health Insurance

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## INTRODUCTION

NATIONAL Taiwan University Hospital (NTUH) established a telehealthcare center in 2009, combining home healthcare service network and sensors network to provide a continuous healthcare service, while the patients stay at home. Using reliable, easy-to-use sensors and equipments, patients upload their daily biometric information to the health management information system. Equipped with video communication device, patients are able to keep close contact with their own case manager. Case manager, with the combination of the health data and electronic medical records, are able to provide further health advices, and facilitate patient's performance of self health management, or inform patients if the symptoms noticed require attention in time, or inform the physician if necessary.

## MATERIALS AND METHODS

The project present an infrastructure for continuous care service, as in Figure 1, an integrated service with an exclusive information system based on SOA and web based infrastructure, embedded with HL7 standard, including the services needed in a personal health management to both patients and healthcare provider. The system collects patient health data from various resources, including medical record, lab results, medication list in the hospital, and integrated with biometric information uploaded daily.

The system provides clinical decision support and patient decision support. With clinical decision support, the system will combine biometric information and electronic medical record information, give case manager an easy to use user interface with data monitoring tool and alert if the patient need further attention. With patient decision support, under authorization, the system will extract recommendation from patient data for further health improvement, and encourage

patient engagement with self-healthcare management function, providing educational information and potential treatment advice. Also, with the data patient uploaded and the data of surrounding environment, such as the climate, temperature, humidity, the system are able to provide real time reminder, reminding the patient related health information.

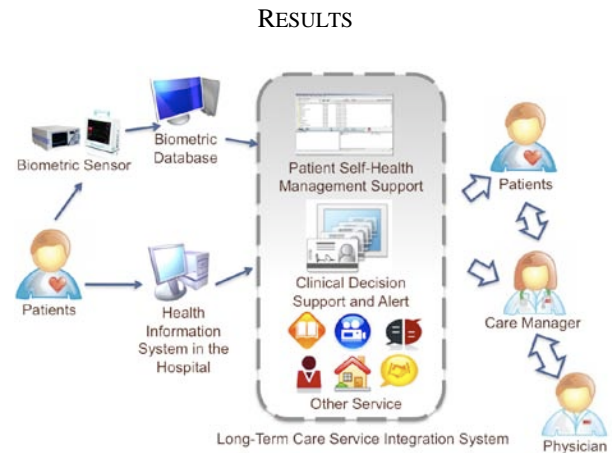


Fig. 1. Infrastructure of Continuous Care Service Information System.

The project initially focuses on heart failure care, chronic diseases care, and terminal care, and had been proven effective. Within the initial three months, patient readmission rate had decrease from 12% to 8% in 14-day post discharge follow-up, and the length of stay had also decreased. The project demonstrates a continuous, personalized healthcare service, improving patient's life quality and safety. The Department of Health of Taiwan has been establishing an national health insurance that includes continuous care service for those in need. A continuous and comprehensive care service to support posthospital community service is needed. Our service paves the road for the coming integrated personal healthcare service. With the convenience and cost-benefit of telehealth care service, a reimbursement to telehealth care services needs to be considered.

Manuscript received January 25, 2010.

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