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# Measuring the performance of electronic health records: a case study in residential aged care in Australia

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# Measuring the performance of electronic health records: a case study in residential aged care in Australia

## **Abstract**

Measuring the performance of electronic health records (EHR) is an important, yet un-resolved challenge. Various measurements have addressed different aspects of EHR success, yet a holistic, comprehensive measurement tool needs to be developed to capture the potential EHR success variables completely. A self-administered questionnaire survey instrument was developed based on the theoretical framework of the DeLone and McLean Information Systems Success Model. It measures nine variables of EHR success: system quality, information quality, service quality, training, self efficacy, intention to use, use, user satisfaction and net benefits. The instrument was used to measure the performance of aged care EHR systems in three aged care organizations. The results suggest that the instrument was reliable.

## **Keywords**

performance, care, australia, measuring, aged, residential, study, case, records, health, electronic

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## Measuring the Performance of Electronic Health Records: A Case Study in Residential Aged Care in Australia

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### Abstract and Objective

Measuring the performance of electronic health records (EHR) is an important, yet un-resolved challenge. Various measurements have addressed different aspects of EHR success, yet a holistic, comprehensive measurement tool needs to be developed to capture the potential EHR success variables completely. A self-administered questionnaire survey instrument was developed based on the theoretical framework of the DeLone and McLean Information Systems Success Model. It measures nine variables of EHR success: system quality, information quality, service quality, training, self efficacy, intention to use, use, user satisfaction and net benefits. The instrument was used to measure the performance of aged care EHR systems in three aged care organizations. The results suggest that the instrument was reliable.

**Keywords:** Electronic health records; EHR; evaluation; performance; nursing home; DeLone & McLean IS Success

### Introduction

Electronic health records (EHR) are increasingly introduced in health care organizations; however, there are many uncertainties and risks associated with EHR introduction, but limited research about the value and efficacy of such investment. The aim of this study is to develop a questionnaire survey instrument that is underpinned by DeLone & McLean Information System Success Model [1] to measure the success of EHR.

### Methods

The study was conducted in 16 residential aged care homes belonging to three not-for-profit aged care organisations in the states of New South Wales (NSW), Queensland, and Australian Capital Territory (ACT). The size of the aged care homes ranged from 20 to 160 beds. A cross sectional data collection was conducted from January to December, 2009.

### Instrument development

A self-administered questionnaire survey instrument was used to collect data. The questionnaire consisted of two parts. The first part elicited respondent demographics, including gender, age, job role, organisation working for, employment status, shifts worked and length of work in the current aged care facility.

The second part was designed to measure 9 variables in the research model: system quality, information quality, service

quality, training, self efficacy, intention to use, use, user satisfaction and net benefits. To ensure content validity, the original items for each variable were adopted from published literature, modified to fit the specific context of EHR in residential aged care in Australia.

### Preliminary results

#### The reliability of the measurement constructs was confirmed

The reliability of the measurement constructs was confirmed. Table 1 lists the values of the Cronbach's alpha for each construct. Except two variables intention to use and use, the reliability of other variables has met the shred held value of 0.70 set by Nunnally [2].

Table 1. The construct and its Cronbach's alpha value.

Variables and no. of measurement items	Cronbach's $\alpha$
System Quality (3)	0.872
Information Quality (10)	0.908
Service Quality (8)	0.864
Self Efficacy (2)	0.933
Intention to Use (0.58)	0.583
Use (2)	0.491
User Satisfaction (1)	1.000
Net Benefits (7)	0.890

### Conclusions

The instrument is reliable to measure the nine variables related to EHR success. Further findings of the study will be published elsewhere.

### References

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