Trends in Information Systems and Long-Term Care: A Literature Review

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ABSTRACT

A review of the literature highlights the ways in which Health Information Technology (HIT) offers opportunities in Long-Term Care (LTC). When no journal article or book could be found that comprehensively reviewed LTC HIT, this author reviewed 8 books about LTC to find evidence of the possibilities for HIT. That led to the hypothesis that quality control, workflow, and telehealth are important topics for the LTC HIT journal literature. A MeSH query about LTC HIT was presented to PubMed and retrieved approximately 700 citations. Patterns in that literature supported the hypothesis. A further experiment examined year-by-year trends over the last quarter century and highlighted the increasing importance of ‘telehealth’ and ‘monitoring’ in LTC HIT. The trends are consonant with the emergence of computer-assisted life flow as a future topic for LTC HIT.

Keywords: Assisted-Living Facilities, Health Information Management, Nursing Homes, Quality Control, Telehealth, Workflow

INTRODUCTION

The demographics and economics of Long-Term Care (LTC) create an impossible future unless new ways are found to care for the elderly (Wolff, Starfield, & Anderson, 2002). Healthcare Information Technologies (HIT) for LTC might facilitate care and reduce cost, but progress has been relatively slower (Ekeland, Bowes, & Flottorp, 2010) than in other areas of healthcare (Meyer & Degoulet, 2010). To address the inadequacies of LTC, governments have introduced quality control regulations, and the information systems implementations in LTC are partly driven by the need to satisfy these regulations (Rada, 2002). However, much more research is needed on theory and applications of LTC HIT (Mei, Marquand, Jacelon, & DeFeo, 2013).

What does the literature show about LTC HIT progress? This paper answers that question by reviewing the literature, both in journal and book form. No previous comprehensive reviews were found in the journal literature. Also no book focuses on LTC HIT. However, some books on LTC provide a context for interpreting the journal literature.

The ensuing study of 8 books, 700 journal articles, and a quarter century of trends synthesizes that literature in a novel way. The claim is that three topics are most interesting in research in LTC HIT, and those topics are quality control, workflow, and telehealth. The paper’s contribu-
tion is to identify those trends, to provide synopses of key literature describing the trends, and to show the patterns in the literature that support the claim that those are the dominant themes.

In addition to identifying the currently dominant themes in the LTC HIT literature, this paper proposes a combination of those themes in a new theme that should shape the future. That new theme would extend workflow models to represent the life of the LTC resident. LTC HIT enterprise systems are useful when a model of the enterprise is encapsulated in code (Rada, 2008). One approach to modeling health care enterprises uses Cooperation Pictures (Krabbel & Wetzel, 1999) that show health care providers processing patients (see Figure 1). For LTC this model must be extended for the patient is instead a resident; namely, the ‘customer’ lives in the LTC facility for the remainder of his or her life (Goffman, 1961). The proper model for LTC HIT puts the resident at the center so that data and decisions based on that data can readily enter the workflow of the health care professional (Vesely, 2013). Research on computerized life-flow is a natural sequel to research on quality control, workflow, and telehealth.

BOOKS

Normally, a journal article that reviews the literature is reviewing other journal articles. However, in this case some reason exists to begin with a review of books. The reason is that no published journal articles have addressed the major concerns of LTC HIT and to get a perspective of what is important in LTC HIT, one needs to review first what is important in LTC.

Evidence that no adequate journal review on LTC HIT has been previously published is established as follows. First, the author retrieved all “review” articles (Medical Subject Headings Section, 2014) in PubMed about LTC HIT. Of the 16 citations that were retrieved, none were comprehensive. One article reviewed the use of videoconferencing for remote psychiatric consultation for the elderly with mental disorders (Ramos-Rios, Mateos, Lojo, Conn, & Patterson, 2012). One was a thought piece about replacing staff with robots in nursing homes (Sharkey & Sharkey, 2012). Several reviews addressed drug-drug adverse reactions in LTC (S. M. Handler et al., 2008; Subramanian et al., 2007).

Since no journal articles reviewed LTC HIT broadly, the author went to books to get a sense of the needs of LTC HIT. However, no book focused on LTC HIT. A convenience sample of 8 LTC books was chosen. These books might be categorized by their intended audience as general public, policy maker, and LTC staff books.

One book for the general public describes the challenges faced by a nurse’s aide (Gass, 2004). A nurse aide is an entry-level position in long-term care, requires no formal education,
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