

Background

In 2006 the Health Services Cost Review Commission (HSCRC) provided funding to the Maryland Patient Safety Center (MPSC) to design and conduct the first comprehensive survey on Health Information Technology (HIT) across Maryland hospitals. The rationale for the survey was derived from the increasing evidence that specific technologies, when used appropriately, would minimize errors during the delivery of care, increase the effectiveness of disease treatment and patient management, and optimize the efficiency in the production of services. The implications for the overall improvement of quality of care while decreasing its production cost are germane to HSCRC's agenda of contributing to the continuous improvement of Maryland's health care system.

The HSCRC funding was for a two-step approach. The first consisted of designing a survey tool which would incorporate field-tested types of questions about the organizational needs for HIT by type, the hospitals' readiness to use these HIT, and specific details about how HIT are currently being used in each hospital. To tailor the questionnaire for Maryland hospitals' and their environments, additional questions were added about the use of quality indicators, and safety of care activities.

The questionnaire was designed and an Internet-based application was developed for hospitals to respond to the questions and submit the data. All data were anonymized during the analysis. Thirty-four Maryland hospitals voluntarily completed the questionnaire.

Step two of the survey consists of the in-depth analysis of data and ongoing communication about the findings with HSCRC staff. The analysis covers two scopes: descriptive analysis of all the data submitted by the 34 hospitals; and, regression analysis to identify the most significant explanatory variables to the adoption, appropriate use, and usefulness of various HIT among Maryland hospitals.

Methodology

Data Collection

HIT adoption was measured through a web-based survey. The data collection time period spanned from October 2006 to February 2007. Survey topic areas included: Organization and Respondent Information, Wired for Business Processes, Wired for Customer Service, Wired for Safety and Quality, Wired for Public Health and Safety, and Wired for Accountability.

Supplementary data on hospital characteristics were obtained from the American Hospital Association hospital statistics from the year 2005 (including: bed size, teaching status, and ICU availability) and from HSCRC records (including: urban/non-urban location).

Data Analysis

For each survey question, response frequencies were generated. Where appropriate, question responses were also stratified by the following variables: affiliation with health system, bed size, number of physicians, number of nurses, number of pharmacists, urban/non-urban location, electronic medical record use, and/or ICU availability. Statistical analyses were conducted for these cross tabulations in order to determine the statistical significance of the associations in question.

Frequencies of missing values were presented in the reports of question response frequencies. For all further analyses, missing values were inputted as “zero” or “none” where appropriate.

Several regression models were run in order to identify factors that may predict a hospital’s implementation of electronic medical records. However, due to sample size limitations, statistical power was inadequate to yield statistically significant findings.