

A Longitudinal Telephone and Multiple Disease Management System to Improve Ambulatory Care

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Organization:	Boston Medical Center
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Summary: The purpose of this study is to assess the effectiveness of conversational computer telephony to monitor the care of patients with multiple complex chronic diseases and socio-demographic vulnerabilities. These patients tend to experience a higher rate of health care utilization in the form of increased acute care, including emergency department (ED) and hospital care. The objective of this project is to reduce preventable ED and hospital utilization, improve quality of life, increase satisfaction with ambulatory care, improve disease-specific metrics, and reduce net payer costs. Telephone-Linked Care for Complex Patients (TLC-C) is a modification of the existing TLC-MultiDisease (TLC-MD) system, which targets patients with multiple chronic diseases. The modification to create TLC-C focuses on identifying and intervening for patients with clinical instability: those at high risk for sudden, severe clinical decompensation. TLC-C uses conversational computer telephony to monitor patients' multiple diseases and clinical status between ambulatory care visits, detecting changes in clinical status that are associated with disease exacerbation and heightened risk of unscheduled acute care. The system monitors patients through virtual visits, detecting and then notifying clinicians of important clinical problems. It also promotes patient self-care management, scheduled medical visit appointment attendance, and patient preparation for ambulatory care visits, all of which have been negatively associated with unscheduled acute care services.

TLC-C utilizes information reported by patients during the virtual visits and clinical information about the patients that reside in their providers' clinical data repositories, primarily sourced from electronic health records and ambulatory care scheduling systems. Information in the repositories is derived from the patients' clinical encounters in clinics, laboratories, ED, and hospital services, and other settings where they receive medical care. Information from the repository is transferred automatically to TLC-C daily. This information includes diagnoses, prescribed medications, scheduled primary care visits and other clinical encounters, patient's disposition, laboratory and other test results, and other selected information used by TLC-C. In addition, the investigators implemented an expert system for directing the patient user to TLC-C modules likely to be of special use and interest to the patient and his or her responsible clinicians.

A multi-method evaluation study includes a two-arm randomized clinical trial of TLC-C versus usual care. The trial is evaluating the system in 249 patients followed for 6 months. Subject data are collected through in-person interviews at baseline, and through telephone interviews at followup, 3 and 6 months after baseline. The primary outcome will be unscheduled acute care utilization. Secondary outcomes will include patient quality-of-life, satisfaction, ambulatory appointment show rate, and net payer costs. Other

evaluation methods include formative and summative qualitative studies of the system and its impact on patients, providers, and practices.

Specific Aims:

- Modify the TLC-C so that it contains additional content that addresses the needs of patients with multiple chronic diseases who transition to ambulatory care from acute care settings. **(Achieved)**
- Evaluate this modified TLC System in urban ambulatory care practices that serve a vulnerable patient population. **(Achieved)**
- Assess outcomes of patients in these practices who use the TLC-C system. **(Ongoing)**
- Present a realistic and effective plan for sustaining TLC-C in the general internal medicine practices at Boston Medical Center. **(Ongoing)**

2012 Activities: Activities focused on recruitment and enrollment of intervention and control participants, and on promoting intervention system use by intervention group participants. The study team completed enrollment in June 2012 for a total of 249 subjects with 123 patients randomized to the intervention and 126 randomized to usual care. All study subjects completed the study by December 2012. At the end of the year, data collection was complete with the exception of five final questionnaires.

The study team conducted 30 in-depth interviews for the patient summative evaluation sub-study for patients who used TLC-C for 6 months. The objective of these interviews was to assess patients' reactions to the intervention's content and the appropriateness of using the TLC system to deliver health communications. Analysis of these interviews was ongoing at the end of 2012. The study team also conducted interviews with physicians to assess their reactions to the TLC-C system's various features particularly its reporting and alerting functions. Physician interviews are targeted for completion in January 2013.

As last self-reported in the AHRQ Research Reporting System, project progress and activities are on track, and spending is roughly on target. Due to recruitment challenges in previous years, the project team used a no-cost extension (NCE) from September 2011 to September 2012 and another NCE through June 2013 to ensure adequate time for recruitment, analysis, and dissemination.

Preliminary Impact and Findings: This project has no findings to date as analysis is ongoing.

Target Population: Adults, Chronic Care*, Low SES/Low Income*, Medicaid, Medically Under-served, Safety Net, Uninsured

Strategic Goal: Develop and disseminate health IT evidence and evidence-based tools to support patient-centered care, the coordination of care across transitions, and the electronic exchange of health information to improve quality of care.

Business Goal: Implementation and Use

* This target population is one of AHRQ's priority populations.