

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

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Summary: This study will assess the effectiveness of conversational computer telephony to monitor the care of patients with multiple complex chronic diseases and socio-demographic vulnerabilities who experience increased health care utilization and transitions from ambulatory to emergency department (ED) and hospital care. The objective 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. This modification focuses on identifying and intervening for clinical instability (i.e., the patient is 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 urgent care (e.g., hospitalizations or ED visits). The system monitors patients through virtual visits, detecting and then notifying clinicians of important clinical problems. It also promotes patient self-care management (e.g., medication regimen adherence), scheduled medical visit appointment attendance, and patient preparation for ambulatory care visits, all of which have been associated with unscheduled urgent 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. 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.

A multi-method evaluation study of the patients, the providers, and the practice will include a two-arm randomized clinical trial of TLC-C versus usual care. The trial is evaluating the system in 240 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 urgent care utilization (unplanned hospitalizations and ED visits). Secondary outcomes will include patient quality-of-life, satisfaction, ambulatory appointment show rate, and net payer costs.

Evaluation methods will include formative and summative qualitative studies of the implementation of the system; its use and performance over time; and its impact on patients, providers, and practices.

Specific Aims:

- Design, program, and lab test the system. **(Achieved)**
- Pilot test the system. **(Achieved)**
- Redesign and reprogram the system based on the pilot. **(Achieved)**
- Conduct an evaluation study. **(Ongoing)**
- Recruit patients. **(Ongoing)**
- Evaluate project. **(Upcoming)**
- Analyze study data. **(Upcoming)**
- Sustain and disseminate the system. **(Upcoming)**
- Write the final report and other manuscripts. **(Upcoming)**

2011 Activities: Activities focused on recruitment and enrollment of intervention and control participants, and on promoting intervention system use by intervention group participants. Increases in enrollment were seen following Institutional Review Board (IRB) approval in October 2010 to stop the requirement that potential subjects have any specific disease. Subjects who do not have any of the listed diseases will not get disease-specific guidance on the phone system but will receive the remainder of the TLC-C system, including medication support and visit adherence promotion. By the end of 2011, 218 study subjects had been enrolled, with 110 in the intervention group and 108 in the control group. Fifty of the 110 intervention subjects (45.5 percent) had made at least one TLC call.

During the beginning of 2011, project staff began to conduct calls with intervention group subjects prior to their first intervention call to promote system use and to remind participants that they would be receiving an intervention call. They also began to make additional calls to remind participants of their passwords. A TLC monitoring system was developed so staff could track scheduled and completed calls for study participants. Research staff also used the monitoring system to determine the effects of the introduction and continued use of steps to increase or maintain TLC system use by intervention group study participants, and to identify particular intervention group participants who need to be contacted by research staff about their use of the system. The research team received IRB approval to send a ‘wallet-card’ with information about the study to intervention group participants, and approval to resend the TLC instruction sheet upon request. In fall 2011, in an additional effort to increase use of the TLC system, the research team established an incentive system for intervention participants. This incentive system is set up as a lottery, with one entry each time a participant uses the TLC system, for up to four entries per participant per month. Random drawings have been held using these entries, and a gift card has been awarded to one winner each month since August.

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 2010, the project team utilized a 1-year no-cost extension to ensure adequate time for recruitment, implementation, analysis, and dissemination.

Preliminary Impact and Findings: This project has no findings to date because the clinical trial is ongoing.

Target Population: Adults, Chronic Care*, Low SES/Low Income*, Medicaid, Medically Underserved, 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.*