Project Title:	Harnessing Health Information Technology for Self-Management Support and Medication Activation in a Medicaid Health Plan
Principal Investigator:	Schillinger, Dean, M.D.
Organization:	University of California, San Francisco
Mechanism:	RFA: HS07-007: Ambulatory Safety and Quality Program: Enabling Patient-Centered Care through Health Information Technology (PCC)
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Summary Status as of:	December 2008

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

Business Goal: Implementation and Use

Summary: This project, approximately mid-way through its scheduled funding period, enhances an automated telephone self-management (ATSM) support system to provide ethnically diverse, publicly insured patients who have diabetes with surveillance and education and to prioritize additional telephone care management through questions on patient behavior. This work builds on a previously funded AHRQ project by promoting dissemination of these results as well as modifications for improved outcomes and adaptation for sustained implementation. Through a randomized, controlled trial, the project team will examine the effects of interacting with the ATSM on members of the San Francisco Health Plan (SFHP), a Medicaid plan. Upon enrollment into the study, patients will be randomized to the ATSM-only group, the ATSM-plus group, or the usual care waitlist comparison group (subsequently to receive ATMS-only or ATSM-plus services). In the ATSM-only model, patients will respond to a rotating set of questions on self-care, psychosocial aspects of care, and receipt of preventive services. Patients with an answer that is 'out of range' on an item receive an immediate automated health education message. Patients with an answer 'significantly out of range' receive the automated message plus a follow-up person-to-person call from an SFHP manager. In addition to those services, the ATSM-plus model has supplementary phone communications from the ATSM care manager to the patient triggered by data derived from pharmacy claims and a diabetes registry. These calls further activate patients with respect to medication adherence and/or intensification based on clinical criteria developed by a clinical advisory board.

To measure patient-centeredness, the team will conduct patient surveys to analyze outcomes such as perspectives on the structure of their care and the interpersonal processes of care. To analyze patient safety, the team will explore characteristics of adverse events: triggers, frequencies, their nature, preventability and/or ability to be ameliorated, and clinician awareness. To analyze effects of the intervention on relevant metabolic and clinical process and outcome measures, the team will use electronically available clinical and administrative data.

Specific Aims

- Measure the effects of a Medicaid health plan-directed ATSM on patient-centered outcomes among ethnically diverse health plan enrollees with diabetes. **(Upcoming)**
- Explore whether combining ATSM with an additional patient-directed health IT innovation—a medication activation communication strategy triggered by pharmacy claims data—yields differential effects on patient-centered outcomes compared to ATSM alone. **(Upcoming)**

- Quantify and characterize patient safety events triggered and/or identified through active surveillance among ATSM participants. **(Upcoming)**
- Measure differences in the frequency and nature of patient safety events among participants receiving ATSM-only vs. ATSM-plus medication activation. **(Upcoming)**
- Explore the effects of ATSM interventions on Healthcare Effectiveness Data and Information Set (HEDIS)-relevant metabolic and clinical process and outcome measures when compared to usual care. **(Upcoming)**
- Explore whether ATSM-plus medication activation is superior to ATSM-only with respect to HEDIS-relevant metabolic and clinical process and outcome measures. **(Upcoming)**

2008 Activities: Throughout the past year, the team has developed or secured project materials such as the pre-invitation postcard, information card, flow chart of the overall project, patient welcome letter, patient wallet card, postcard from a care manager to patients, provider pre-enrollment notification card, notification of enrollment letter to the patient's primary care provider, consent forms, and gift cards for participants. The expert advisory panel met monthly during the initial project period to provide advice on and develop medication intensification protocols for care managers' counseling efforts. The team has worked with SFHP to create protocols for program invitation, orientation, study enrollment, data collection, and triggers for ATSM calls. The two groups also collaborated in the development of user-friendly enrollment and orientation scripts. The team created a database for identifying and tracking enrollees and data entry form for care managers. The project team revised ATSM scripts, implemented the development of the scripts into audio wave files, piloted, and finalized the audio files.

Preliminary Impact and Findings: The project team completed a study of cost effectiveness ratio of ATSM intervention based on prior work that is directly relevant to this project. Cost-utility was measured by examining the costs per quality adjusted life years (QALY) for ATSM patients relative to usual care. The cost-utility ratio in the main analysis was $65,167 for start up and ongoing implementation costs combined, and $32,333 for ongoing program costs alone. The cost-utility ratio in the sensitivity analyses ranged from $10,666 to $72, 404 per QALY. The per-patient cost to achieve a 10 percent increase in the number of intervention patients meeting American Diabetes Association exercise guidelines was estimated to be $537 for all costs, and $267 for ongoing implementation costs.

The project team's study of adverse events (AEs) showed that multiple factors contribute to AEs and potential AEs and that patients are key drivers of safety and AEs. Among the 111 patients, 86 percent had at least one event detected over the 9-month observation period. Overall, 111 AEs and 153 Potential AEs were identified. For all events, medication management was the most common domain (166 events, 63 percent). Often, a combination of system, clinician, and patient factors contributed to the occurrence of events; the project team ascertained a single contributing cause for only 20 percent of events. Patient actions were implicated in 205 events (77 percent), systems issues contributed to 183 events (69 percent), and impaired physician-patient communication contributed to 155 events (59 percent). Aside from communication, primary care clinician actions contributed to the occurrence of the event in 16 cases (6 percent).

Selected Outputs

Schillinger D. Effects of self-management support on structure, process and outcomes among vulnerable patients with diabetes: a 3-arm practical clinical trial. Diabetes Care 2009;32(4):559-566.

Schillinger D, Hammer H, Wang F, et al. Seeing in 3-D: examining the reach of diabetes self-management support strategies in a public health care system. Health Educ Behav 2008;35(5):664-82.

Handley M, Shumway M, Schillinger D. Cost-effectiveness of automated telephone self-management support with nurse care management among patients with diabetes. Ann Fam Med 2008;6(5):1-7.

Sarkar U, Handley M, Gupta R, et al. Use of an interactive telephone-based self-management support program to identify adverse events among ambulatory diabetes patients. J Gen Intern Med 2007;23(4):459-65.

Schillinger D. Developing partnerships between literacy providers and public health. National Institute for Literacy (NIFL) Summit; 2008; San Francisco, CA.

Schillinger D. Systems re-design to provide diabetes self-management support. California Health Care Safety Net Institute (SNI) Spreading Effective and Efficient Diabetes Care (SEED); 2008; Oakland, CA.

Schillinger D. Using health IT to cross the language and literacy divide. California Diabetes Program; 2008; Sacramento, CA.

Schillinger D. Self-management support strategies for the underserved. Project Summer Educational Experience for the Disadvantaged (SEED); 2008; Oakland, CA.

Schillinger D. Ecology matters: patient perspectives on self-management support. AHRQ Practice-Based Research Network (PBRN) Conference; 2008; Washington, DC.

Schillinger D. Health literacy as a public health challenge. California Department of Public Health; 2008; Sacramento, CA.

Schillinger D. Engaging ethnic media for strategic health communications. New America Media; 2008; Sacramento, CA.

Schillinger D. What has literacy to do with health outcomes. International Conference on Healthcare Transformation; 2008; Singapore.

Schillinger D. Productive interactions in chronic care. Disease Management Conference; 2008; Singapore.

AHRQ 2008 Annual Conference presentation: Enabling chronic disease care through health IT (PowerPoint® File, 7.2 MB; PDF File, 830 KB; Web Version).

Grantee's Most Recent Self-Reported Quarterly Status: About 65-80 percent of the project's milestones are being met, but there is a viable plan for achieving the others. The project team is significantly behind in its timeline for beginning outreach and enrollment due to a number of personnel changes at the senior level in SFHP. With new leadership in place at SFHP, enrollment is scheduled to begin on a full scale on May 1, 2009. Investigators will be requesting a 1-year no-cost extension to complete the project.

Milestones: Progress is on track in some respects but not others.

Budget: Somewhat under spent, approximately 5 to 20 percent.