

Project Title:	Value of Technology to Transfer Discharge Information
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Organization:	University of Illinois at Chicago
Mechanism:	RFA: HS04-012: Demonstrating the Value of Health Information Technology (THQIT)
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Summary Status as of:	August 2007, Conclusion of Grant

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: Errors in discharge communication between inpatient and outpatient physicians can cause adverse care events. However, the value of discharge software for improving clinically relevant outcomes is unknown. This study assessed the benefit of discharge software when discharging patients who are at a high risk for repeat admission at a teaching hospital. Study participants were internal medicine hospitalist physicians at a teaching hospital and patients who had a high probability of readmission.

The discharge software used a computerized physician order entry system. After the discharge software was implemented, the rates of hospital readmission, emergency department visits, and post-discharge adverse events due to medical management were compared with handwritten discharge. The discharge interventions from the perspectives of the patient, the discharging hospitalist, the pharmacist, and the outpatient primary care physician were also compared.

During the study, hospitalists discharged 631 patients to their homes. Patients assigned to discharge software had no differences in hospital readmission, emergency department visits, or adverse events than patients assigned to usual care. However, discharge software patients and their outpatient physicians had more positive perceptions of discharge. Hospitalist users of discharge software reported more effort but no difference in satisfaction with usual care. Pharmacists reported no difference between usual care and discharge software groups.

Specific Aims

- Compare the benefits of discharge health information technology to usual care in recently discharged patients at high risk for readmission. **(Achieved)**

Impact and Findings: The discharge software is a stand-alone software application that is not integrated with the hospital electronic medical record (EMR). Consequently, hospitalists had to re-enter patient demographic data and prescription data that already existed in the EMR, which may be why hospitalists attributed greater effort to the discharge software. Despite the perception of increased effort, hospitalists did not report significant differences in their overall satisfaction with the software-assisted discharge process as compared to handwritten usual care.

Outputs from the discharge software were faxed and standard-mailed to community physicians because the vast majority of community physicians in the area did not have access to interoperable EMRs or secure e-mail. In addition, electronic transmittal of prescriptions was not commonplace. Despite the

limited technology available to community physicians in the study, they perceived communication generated by the software to be an improvement over the handwritten process.

There was a low overall rate of observed adverse events in this study across both treatment arms as compared with similar studies. The reason for the low rate may be because medication reconciliation was a component of both software-assisted discharge and usual care in the study. The research intervention did not show further reduction in medication errors and adverse drug events, which are a significant proportion of the adverse events after hospital discharge.

Adult patients of all ages with high risk for readmission had slightly better perceptions of their preparedness when their hospitalist used discharge software. Pharmacist-related outcomes were not different in the discharge software and usual care groups. Pharmacists gave high satisfaction scores for discharge prescriptions from both groups. However, the results should be interpreted with caution because large amounts of pharmacist data were missing.

Selected Outputs

Graumlich JF, Novotny NL, Nace GS, et al. Patient readmissions, emergency visits, and adverse events after software-assisted discharge from hospital: cluster randomized trial. *J Hosp Med.* 2009 Sep;4(7):E11-9.

Graumlich JF, Novotny NL, Nace GS, Aldag JC. Patient and physician perceptions after software-assisted hospital discharge: cluster randomized trial. *J Hosp Med.* 2009 Jul;4(6):356-63.

Graumlich JF, Novotny NL, Aldag JC. Brief scale measuring patient preparedness for hospital discharge to home: psychometric properties. *J Hosp Med.* 2008 Nov-Dec; 3(6):446-54.

Graumlich JF, Grimmer-Somers K, Aldag JC. Discharge planning scale: community physicians' perspective. *J Hosp Med.* 2008 Nov-Dec; 3(6):455-64.

Nace GS, Graumlich JF, Aldag JC. Software design to facilitate information transfer at hospital discharge. *Inform Prim Care.* 2006; 14(2):109-119.

Grantee's Most Recent Self-Reported Quarterly Status (as of December 2007): Grantee did not provide self assessment.

Milestones: Did not report.

Budget: Did not report.