

## Improving Management of Test Results That Return After Hospital Discharge

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<b>Organization:</b>	Indiana University
<b>Mechanism:</b>	PAR: HS09-085: Mentored Clinical Scientist Research Career Development Award (K08)
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**Summary:** Hospital patients discharged with pending test results are at risk for medical errors related to missed results for those tests. These errors may arise from poor methods of managing test results and poor communication with followup providers. Discharge summaries, the main mode of in-to-outpatient communication, remain highly inadequate at documenting tests with pending results at discharge. While the problems related to poor management of test results returning after hospital discharge is widely acknowledged, little has been done to implement and evaluate interventions to improve existing systems.

The goal of this project is to improve management of tests with pending results at hospital discharge with two health information technology (IT) interventions. The project team developed the first tool, the Pending Test Processor (PTP), which automatically identifies tests with pending results at hospital discharge and incorporates them into the discharge summary. The second is a modification of the DOCS4DOCS® clinical-messaging tool to deliver results for pending tests automatically to followup providers.

This work is being conducted at Wishard Memorial Hospital (WMH), a 353-bed urban public hospital on the campus of the Indiana University School of Medicine. The first tool was evaluated by a before-and-after time-series study to identify if it increased the percentage of tests with pending results that are mentioned in the discharge summary and increased the number of mentioned pending tests whose results eventually come back as actionable. The study team is evaluating the clinical messaging tool by randomizing returning test results to be delivered automatically to the followup providers using DOCS4DOCS® as soon as the result is available (intervention group), or to be delivered using existing systems of communicating test results (control group). The main outcome of the randomized controlled study will be whether an actionable test has led to an appropriate action by any followup provider after hospital discharge.

### Specific Aims:

- Develop and implement a computerized tool to automatically identify tests with pending results at hospital discharge and assist in the incorporation of these tests into the discharge summary. **(Achieved)**
- Evaluate the impact of this tool on accuracy of documenting pending tests in discharge summaries. **(Achieved)**
- Modify an existing clinical-messaging program to enable automatic delivery of returning results for pending tests to the designated outpatient followup providers. **(Achieved)**

- Evaluate how the automatic delivery of test results impacts followup providers' actions and attitudes. **(Ongoing)**

In addition to these specific research aims, Dr. Were, a recipient of the Mentored Clinical Scientist Research Career Development Award, will continue his long-term career goal of implementing and evaluating informatics-based interventions that improve quality of care and patient safety. Project funds allow him to acquire advanced skills through structured coursework, regular seminars, and mentoring with leaders in medical informatics, health services research, biostatistics, and implementation research.

**2012 Activities:** Data collection and analysis to evaluate the PTP was completed for 500 discharge summary reviews, each of which was reviewed by two people to ensure reliability of abstraction. The team developed a manuscript summarizing the study results, which was published in *Applied Clinical Informatics*. Three more manuscripts are in development.

Dr. Were and his team successfully modified the PTP system and the DOCS4DOCS® tool to enable automatic delivery of returning results for pending tests to the designated outpatient followup providers. The team also began the randomized controlled trial to evaluate the tool's ability to improve management of test results returning after hospital discharge.

**Preliminary Impact and Findings:** The analysis showed that documentation of all tests with pending results significantly improved from 12 percent before to 22 percent after implementation, and documentation of tests with eventual actionable results increased from 0 to 50 percent.

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**Target Population:** Adults

**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:** Knowledge Creation

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