

MEDINFO 2017: Precision Healthcare through Informatics

A.V. Gundlapalli et al. (Eds.)

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doi:10.3233/978-1-61499-830-3-1357

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## Event Notification in Support of Population Health: The Promise and Challenges from a Randomized Controlled Trial

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### Abstract

Event notifications are real-time, electronic alerts that have the promise of improving population health by exchanging critical information to a patient's extended care team. In a trial of event notifications in U.S. Veterans Affairs facilities, we seek to understand the impact of notifications on health care utilization within 30 and 90-days. Lessons from the trial have implications beyond the evidence by informing strategies to develop and implement event notifications in other health systems.

### Keywords:

Health Information Exchange; Organization and Administration; Veterans

### Introduction

Event notification is the real-time, electronic, automatic alerting of providers to their patients' contact with other health care facilities [1]. Also referred to as an alert or subscription service, event notifications are messages triggered by specific patient activities, such as a visit being registered in a hospital's admission-discharge-transfer (ADT) system. Triggers often involve an inpatient admission, discharge, or emergency department visit. Event notification systems fall under the broader category of health information exchange (HIE).

Event notification holds promise for improving population health. Event notifications are a source of information about patients, thereby increasing providers' general awareness of patients' complex medical histories. Additionally, informing the provider by event notification creates opportunities for immediate intervention where appropriate. For example, care coordinators may be able to contact the emergency department prior to inpatient admission to provide insights that may prevent unnecessary utilization of resources. Likewise, if the patient is still at the emergency department or hospital, the ambulatory primary care (PC) provider could support the coordination of post-discharge transitions and services, potentially improving the quality of care for a patient. Event notification may also help identify patients for referral into care coordination programs.

The evidence base for the effectiveness of event notifications is just beginning to grow. Few studies have examined these systems in real-world settings.

### Methods

We are conducting a cluster randomized trial in two geographically diverse medical centers within the U.S. Department of Veterans Affairs (VA) to examine the impact of event notifications for non-VA on quality of care following acute events. Older Veterans ( $\geq 65$  years of age) are randomized

to one of two arms based on their PC provider: 1) event notifications to PC; or 2) event notifications plus a 30-day care coordination intervention designed to engage Veterans in managing their health. The trial seeks to understand the impact of even notifications and the intervention on 30-day and 90-day readmissions. We further seek to understand the acceptance of event notifications by patients and providers.

### Results

The trial began in mid-2016 with an emphasis to date on patient recruitment and development of the event notification services. Event notifications are delivered to the VA using two different technical architectures. In the Bronx, New York, event notifications are delivered to a provider portal in which staff at the VA log into to view details about non-VA events. In Indianapolis, Indiana, notifications are delivered to VA systems using the Direct standard, and details of the non-VA events are entered as clinical notes in the VA electronic health record.

### Conclusion

While event notification services hold much promise, to date there have been challenges to introduce them within the VA. Providers are wary about the utility of notifications as they perceive them as a new 'alert' that may interrupt workflow. Patients generally view them favorably, although many Veterans do not perceive the need for them as they do not believe they will consume non-VA care (an assumption not supported by available evidence). Lessons from this trial will be of use to other health systems that seek to leverage event notifications in support of population health.

### References

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