Event Notification Service Overview for the Florida HIE

What is the Event Notification Service?

All too often, primary care providers and the care coordination teams at insurance companies do not learn about the hospitalization of a patient under their care until months after the fact, either when a claim is submitted to the insurer or the patient shows up again at his or her doctor’s office. Improving and better coordinating follow-up care and reducing hospital readmissions are areas of great interest in healthcare, particularly since the passage of the Affordable Care Act.

While health information exchanges (or HIEs) allow clinical information to move from one care setting to another, to date there is no reliable mechanism to notify interested parties in real-time of a hospitalization to support care coordination. Audacious Inquiry (Ai), an innovative healthcare technology startup based in Baltimore, is teaming with Harris Corporation and the Agency for Health Care Administration (AHCA) to capitalize on the basic building-blocks of the Florida HIE to enable such a care coordination mechanism.

The Event Notification Service (ENS) is designed to provide real-time notifications for care coordination and quality improvement purposes when patients are admitted, discharged, or transferred to, from or within a hospital. ENS delivers real-time alerts about a patient’s medical services encounter, for instance at the time of hospitalization, to a permitted recipient with an existing relationship to the patient, such as a primary care provider. ENS is lightweight and flexible enough that it can be deployed in a wide variety of environments at relatively low cost.

How Does it Work?

ENS is intended to rely on existing HIE infrastructure. In Florida, ENS will rely on pre-existing, available Harris Express Mirth Connect and Mirth Match appliances. As shown below, the ENS solution will rely on ADT (Admit-Discharge-Transfer) messages that are already being sent within hospital systems and will flow into Express. It will also rely on participants, be they primary care providers or practices, or health plans, who “subscribe” to ENS by submitting a patient panel of the patients with whom they have an existing relationship and would like to receive alerts about their encounters. As ADT messages flow out of hospitals, the patient that is the subject of each ADT message will be compared,
using Mirth Match, to the identities that have been “subscribed to” in the ENS patient panel upload process. Other than lightweight mapping within Mirth Connect, no additional mapping is necessary as ENS relies on basic and standard sections of ADT messages. Clinical data is not centralized in this solution. The Mirth Match MPI will maintain patient identities, as in any MPI solution, and the ENS solution will store patient lists from participating entities. All other data is processed on a transactional basis and not stored centrally.

Figure 1 - ENS Architecture

Relying on patient or member panels loaded into ENS ensures complete and accurate routing of messages to the intended recipients, and is a small lift for ENS participants (payers or providers). ENS can receive member files in any format (such as Excel) and via any transport, and requires only patient information that plans and providers already have and use, as well as whatever identifier they use for the patient (member ID, local MRN, etc.) Patient or member panels are updated frequently, to reflect changes in patient relationships and ensure that alerts are only sent to current providers and payers.
The alternative method for routing is to rely on information in the ADT message itself (either care provider or insurance provider), transcribed at the encounter itself. In past deployments of ENS, Ai has found that these segments of ADT messages are often either missing or inaccurate. Patients (especially Medicaid patients who move in and out of coverage plans) may not know or remember who their current provider or insurer is. Likewise, hospital registrars may not ask for this information, especially in an emergency setting, or may mishear, misspell, or mistype the information. In our experience, these are frequent occurrences.

**Who Does ENS Benefit and How?**

**Insurers/Health Plans**

The data provided via ENS alerts is not necessarily new to health plans. This data set could conceivably be cobbled together via hospital eligibility checks prior to a hospitalization and claims data submitted post-discharge. The problem lies in the timeliness of this data. Eligibility checks are inherently not a guarantee of a forthcoming hospitalization, and months can pass between an eligibility check, a hospitalization, and the subsequent claim for that episode of care being received by a health plan. Receiving encounter data in this manner may be sufficient for claims processing, but it is of little to no use for care coordination. A patient can easily arrive at a hospital for an unnecessary readmission prior to the receipt of a claim pertaining to the initial hospitalization that could have facilitated more efficient, affordable follow-up care in an ambulatory setting.

Health plans also have challenges maintaining current demographic information for their members—ENS alerts can provide them with up-to-date contact information, provided to the hospital at the time of registration, so as to better manage care. One health plan in Maryland has reported a higher rate of successful contact among ENS patients than other patients in case management, due to the availability of a current phone number.

**Hospitals & Ambulatory Providers**

ENS is a service that helps providers operate within new payment models by relying on simple encounter data and certain portions of a traditional HIE infrastructure. Notifications and utilization insights provided by ENS, while basic, have an increasing value proposition in the context of value-based payment models. While providers have always had a clinical interest in knowing about patient encounters and care outside of their practice or facility, new models are shifting financial incentives and risk to providers, making “patient panel intelligence” increasingly central to financial success. Infrastructures that support notifications also have potential to better engage patients, families, and care givers.
ENS has already been deployed in Maryland, where it serves 562 providers covering more than 550,000 patients. Physicians report that insights gained from ENS allow them to be more responsive when their patients present at a hospital. A large primary care network has preliminarily reported that patients enrolled in ENS have had fewer readmissions (11% vs. 17%) than the control. The same organization reports that their Milliman Advanced Risk Adjuster (MARA) score for their ENS cohort is 20 points lower than the national average.

Two new Medicare CPT codes went into effect in January, 2013, to account for Transitional Care Management (codes 99495-6). According to the Society of Hospital Medicine, these new codes are intended for community-based primary care physicians to enable transitional care management for cases that involve moderate-to-high complexity medical decision making. The new codes require that physicians communicate\(^1\) with patients and/or caregivers within 2 days of a discharge and schedule a face-to-face visit within 1-2 weeks, given the case’s complexity. CMS estimates that payments for these codes will total $600M in 2013.\(^2\) This new billing revenue opportunity would be nearly impossible if providers had no mechanism to notify them of a hospital discharge in a timely fashion. ENS is well-positioned to facilitate this new care management based on its real-time ability to deliver accurate notifications.

The Florida HIE

Sustainability is, indisputably, the greatest challenge facing health information exchanges today. More specifically, exchanges struggle to find revenue drivers that provide a quantifiable financial return on investment for their participants. ENS delivers financial returns while requiring a low up-front investment, by leveraging infrastructure largely pre-existing across the Florida HIE. By capturing ADT admission and discharge messages that are already being generated in real-time at hospitals across the state, the Florida HIE can use ENS to notify a PCP or care team coordinator of a patient’s hospitalization or discharge, identify a readmission in real-time to the admitting hospital (or perhaps to the previous discharging hospital that will be penalized), or simply produce reports for hospitals that are interested in managing readmission rates in the context of new payment models that incent or dis-incent improvements or deterioration in readmissions. This value-add service of the Florida HIE presents an additional opportunity for revenue to supplant the HIE’s operational budget in the early stages of its deployment, while affording the availability to pursue additional innovative services to benefit HIE stakeholders and participants in the future. Providers, health plans, and tax payers as a whole have already made significant contributions to the success of HIE in the state of Florida, and the rollout of the ENS service would serve to bolster those initial investments.

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1 Communication can be direct contact, telephone, or electronic.
What Data is Transmitted? How and When?

ENS transmits data taken from hospital ADT feeds. As its name indicates, an ADT message can be triggered by a number of different hospital events: admissions, discharges, and transfers, all occurring both in the inpatient and emergency department (ED) settings. The Florida HIE’s instantiation of ENS plans to initially leverage only those ADT feeds deemed to be most relevant for health plan care coordination: ED discharges, inpatient admissions and inpatient discharges. These messages will contain the following data on a patient:

- Source Facility (ex. Memorial Hospital)
- Source Class (Emergency or Inpatient)
- First Name
- Last Name
- Gender
- DOB
- Address
- Home, Cell, and Work Numbers
- Event (Admit or Discharge)
- Event Time / Date
- Primary Complaint (if applicable)

These messages will be delivered to subscribers via the Florida HIE’s Direct Secure Messaging (DSM) service. This is a secure, encrypted messaging system that is analogous to web-based email, but it can be used to exchange protected health information (PHI). The Florida HIE can easily create a DSM inbox for any ENS participant that can then be accessed from any device with a web browser (including mobile, tablet, desktop).

Subscribers will be able to indicate the frequency with which they would like to receive these alerts. ENS alerts can either be delivered in real time, or they can be batch-delivered on a daily, weekly, or monthly basis. This prevents data overload, where subscribers receive alerts more frequently than they can track in their existing workflow. Below are two images, the first of which is what a screenshot of a single, real-time ADT alert would look like in DSM. The second image represents what these messages might look like in batch format.
Figure 2 - DSM View of Real-Time ENS Alert

Figure 3 - Batch-Delivered ENS Alerts (Truncated)
Is This Legal?

ENS does not necessarily deliver health plans with any data that they do not already receive today. It just ensures that the data arrives in a timelier, more actionable fashion, while avoiding the false negatives associated with other types of alert delivery services. Because it relies on frequently updated and pre-loaded patient or member files, and it interacts with an MPI, ENS ensures that alerts are delivered to the right recipient, 100% of the time. Additionally, the data is still being used in accordance with HIPAA definitions of Treatment, Payment, and Operations. The hospital data source still maintains total control over its data. ENS in no way enables health plans to query hospital repositories for data that may not be necessary for payment or care coordination. Given these factors, there are no policies or laws that treat the ENS data flow any differently than those already in place between providers and payers today. Neither of the previous deployments of ENS have encountered any such legal issues.