

Title:

The Use of Wireless Handheld Devices to Improve Availability of Inpatient Results at an Academic Center and Its Cost Benefit Analysis

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Abstract:

In November 2004, the Department of Pathology at Creighton University deployed an internally developed system allowing care providers to view inpatient information on wireless enabled handheld devices. The system, dubbed LARA (Live Anywhere Record Access) utilizes a web browser on handhelds to display patient data including vital signs, ins-and-outs, lab results, radiology reports, therapy notes and medications ordered and administered. On the backend, LARA uses predominantly open source solutions (Apache, PHP and MySQL) running on an Xserve with Apple Computer's Mac OS X. Instead of employing the more customary HL7 interface, the system directly accesses data in the hospital's information system allowing it to be presented to the user in real-time. No patient information is stored on the handheld devices and all data is encrypted during transport with 128-bit SSL.

Since deployment, LARA has gained widespread adoption with excellent user retention (over 80% of users log in daily). Based on direct user feedback, this is credited to the interface design which is easy to use and anticipates and displays the most clinically relevant data. To estimate the cost benefit to the hospital, a linear econometric model based on publicly available data was developed, focusing on Medicare short-stay hospital utilization. Assuming a 200 bed Midwest hospital with an average 80% capacity and 65%-25%-10% distribution between short (less than 6 days), intermediate (6 to 14 days) and long term (more than 14 days) length of stay, estimated savings from decreased length of stay significantly exceeded the system's installation and ongoing support costs and indicated an initial positive ROI.

Our experience with LARA to date suggests a significant cost benefit in making real-time patient information easily available to care providers to support their decision making.

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