A Handier Healthcare Solution

Denver Public Health simplifies workflow, patient and vaccine tracking with mobile data collection

Background

Denver Public Health is a department within Denver Health, Colorado's largest safety net institution that provides level-one care to more than 150,000 individuals annually.

http://www.denverhealth.org/publichealth

Denver Public Health is committed to promoting, improving and protecting the health and well-being of the residents of Denver and beyond. It achieves this by partnering with communities through educational and health promotion activities, direct clinical care, and other prevention services, like vaccinations.

Challenges

When the H1N1 influenza virus pandemic broke out in 2009, many healthcare providers faced the challenge of tracking thousands of vaccinations, especially those administered through mass immunization programs. Denver Public Health was no exception. Stacks of patients' personal and vaccination information, written on paper, waited for later entry into a database. These manual data collection and entry processes were time-consuming, labor intensive, and increased the likelihood of errors. Also, the transfer of information to the state immunization registry to monitor vaccine program activity and effectiveness was often delayed. Denver Public Health sought a more efficient method for tracking vaccines, registering patients, and expediting the whole data capture process, while complying with HL7 standards and HIPAA regulations.

Accurate and timely vaccination data is a vital health concern. According to the CDC, "Approximately 30,000 Vaccine Adverse Even Reporting Systems (VAERS) reports are filed annually, with 10-15% classified as serious (resulting in permanent disability, hospitalization, life-threatening illnesses or death)." Yet the CDC has also reported that approximately 20% of those reports are missing the lot number. Obviously, the consequences can be serious.

Solution

In need of a mobile solution to support efficient public health immunization processes (e.g., accurate and rapid collection and transfer of standardized data), Denver Public Health contracted with Countermind, LLC, the Mobile Intelligence™ company. Using its MI Clinic – a mobile application that automates patient processing and data collection for health campaigns – Countermind worked closely with Denver Public Health to create the Handheld Automated Notification for Drugs and Immunizations (HANDI). HANDI is an iOS mobile application, running on an iPod touch or iPhone, which scans barcodes/magnetic strips through a Honeywell "sled" accessory, the Captuvo SL22. In addition, HANDI has a server for defining campaigns and collecting data captured by the mobile devices. For the accompanying hardware and ongoing support, Countermind brought its partner, Barcoding, Inc., a leader in enterprise-wide mobility solutions, onboard.

HANDI is designed around a secure, flexible, three-station business process workflow. For example, at an immunization clinic, a healthcare professional would first scan a patient's drivers' license through the Honeywell Captuvo sled, which automatically populates the app's

At a Glance

Background

- Denver Public Health (DPH) is a department within Denver Health, Colorado's primary safety net institution.
- DPH partners with communities through educational and health promotion activities, direct clinical care, and other prevention services.

Challenges

- Manual data collection during and after immunization at clinics was time-consuming and labor intensive.
- Data transfer to state immunization registries was often delayed.
- Denver Public Health sought a more efficient method of tracking vaccines, registering patients, and entering data.

Solution

- HANDI application, developed using Countermind's MI technology, created with MI (Mobile Intelligence™) Clinic, running on an iPod touch/iPhone iOS and server.
- Honeywell Captuvo SL22 Sled barcode reader and Zebra RW420 mobile printer, provided by Barcoding.
- Wi-Fi access point/existing network and a monthly HANDI subscription.

Results

- Real-time, automated data collection and entry.
- Smoother, more efficient workflows from patient consent to injection.
- Quick and easy creation of HL7 records for export.

"Our biggest savings have been on the back end. Our employees no longer have to perform time-consuming, manual data entry, which also reduces the chance for human error."
-Melissa McClung
Epidemiologist
Denver Public Health

pre-programmed fields with patient/driver license information, such as name, age, gender and contact information. The healthcare professional then prints a barcoded label encoded with this information, which the patient takes to the next station.

At the second station, another clinic worker scans the patient's barcoded label, asks health questions to ensure the patient's eligibility for the vaccine, and records answers onto the device. Finally, at the third station, the patient's barcode is scanned and he or she receives the vaccine. Data specific to the vaccination such as lot number, dosage and injection site are recorded via the application, and a patient-specific proof of vaccination is printed from the mobile app using a mobile printer. Data are saved in encrypted format on the device to ensure patient privacy and HIPAA compliance, and securely transferred to the server database in real time. If no wireless connection is available, the user can simply upload the information once a connection has been established.

Results

In 2010, Denver Public Health participated in a meningococcal immunization pilot with HANDI at a nearby university. The pilot was a success – Denver Public Health reported that the average time from consent to injection was five minutes, and that data entry and creation of HL7 records were quick and easy.

In 2011 and 2012, Denver Public Health used HANDI once again for Denver Health's employee flu campaigns. In 2011, 242 employees were vaccinated with an average time from consent to injection of four minutes. In 2012, approximately 3,000 employees were vaccinated with an average injection time of two minutes. Data were successfully exported to Denver Health's existing data systems without the need for manual entry.

Denver Public Health also deployed HANDI during a childcare worker pertussis campaign in the beginning of 2013. Nurses traveled to childcare sites around Denver and used HANDI to vaccinate 400 workers. Data were stored on iPod touches until return to the health department where they were converted to HL7 messages for export to the state immunization registry.

With the option of using HANDI for health campaigns, clinics and internal initiatives, Denver Public Health has acquired the ability to 1) ensure timely patient service, 2) effectively monitor ongoing public health efforts, and 3) easily and accurately collect, store and analyze data in real time. Using HL7 messaging, the organization can instantaneously transfer encrypted data to state immunization registries, rather than transferring information weeks later.

"Although it is typically not a long process from registering to vaccinating a patient without HANDI, the application's data collection capabilities are truly what makes this application indispensable," said Melissa McClung, epidemiologist, Denver Public Health. "Our biggest savings have been on the back end. Our employees no longer have to perform time-consuming, manual data entry, which also reduces the chance for human error."

In July 2012, HANDI won the Model Practice Award at the National Association of County and City Health Officials (NACCHO) Annual Conference.

In the future, Denver Public Health would like to expand the application's use. "We want to make HANDI even more flexible and use it for more than just immunization clinics," McClung said. "For example, we could create an extended data model that could fit any type of outreach, such as distributing pharmaceuticals."

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