Today’s Challenges

In today’s healthcare environment, medication errors occur in nearly one out of every five doses given to patients. Adverse drug reactions (ADRs) cause more than 100,000 deaths per year in the United States, making ADRs the fourth leading cause of death. It is also estimated that administrative errors account for 38 percent of all medication errors. If eliminated, preventable ADRs could save the U.S. $2 billion a year.

Since the signing of the American Recovery and Reinvestment Act (ARRA) of 2009, and continuing with the recent passage of the healthcare reform bill, healthcare information technology and its abilities to reduce medical errors have come to the forefront of the conversation. Of the many benefits healthcare IT provides, many view electronic medication reconciliation as one of its most direct and positive impacts on patient care. Medication reconciliation is the identification of the most accurate and up-to-date list of all medications a patient is taking, including all over-the-counter (OTC) medications and herbals, at the time of admission, transfer, and discharge within the healthcare environment. This overview includes the medication’s name, dosage, frequency, and route of administration.

Throughout the process, a caregiver compares a patient’s current list of medications against the clinician’s admission, transfer, and/or discharge orders. If discrepancies are discovered at any point of reconciliation, these inconsistencies can be brought to the attention of the prescriber, and if appropriate, changes can be carried forward in the ordering process.

Medication reconciliation is designed to enhance patient safety by verifying medication history, clarifying medication names, dosages, routes, and frequencies, and reconciling documentation of recorded changes of identified medications.

In one study, medication reconciliation reduced potential adverse drug events by 80 percent within three months of implementation.

Technology and Medication Reconciliation

Implementation of electronic medication reconciliation systems that are linked to electronic medical record (EMR) systems have been shown to improve patient safety by reducing prescribing errors and virtually eliminating transcription errors. In addition, electronic medication reconciliation allows doctors and caregivers to access the patient data in multiple locations, allowing for the information to follow the patient across the entire continuum of care. Also, by capturing the data electronically in the beginning of patient care, hospitals can save clinician’s time, reduce errors, and eliminate the need for duplicate paperwork. In one study, nursing time at admission was reduced by more than 20 minutes per patient, and the amount of time pharmacists were involved in discharge was reduced by more than 40 minutes.

Greater Accuracy, Better Decision Making

It is important to note that this saved time is not at the cost of accuracy. For example, EMR systems that allow a medication list to be downloaded from an electronic nursing documentation system onto an electronic form will reduce the time-consuming and error-prone process of manually completing forms. Similarly at discharge, reformatting the patient medication discharge profile from the pharmacy system into a prescription form can streamline the discharge prescription process. It can also be helpful to program the form so it automatically converts medical abbreviations to patient-friendly directions, such as converting “BID” to “twice daily.”

As an added layer of support for clinicians and their staff, decision support tools can be incorporated with electronic medication reconciliation technology to alert staff of potential safety issues, such as therapeutic overlap or interactions between OTC medications and herbals taken by the patient at home. This more accurate list of all medication taken by a patient also offers insight into patient compliance or efficacy with home medications, especially long-term medications.
Implementing an Electronic Medication Reconciliation System

Before implementing (and/or optimizing) an electronic solution, it is important to examine the current medication reconciliation workflows operating in your practice to ensure your organization’s processes are effectively utilizing best practices across provider workflows. Unless you investigate, analyze, and fully understand the issues surrounding medication reconciliation, technology cannot compensate for challenges in the current workflow. However, given a well-designed and implemented solution, technology can provide tremendous support for the medication reconciliation process.

Once you have identified and established a future state workflow that effectively and efficiently performs across provider workflows and the patient continuum, you can then begin to look at how an electronic medication reconciliation system can impact your organization. The process should be able to deliver a full range of functionality in an integrated package that is easy to use and accurately reflects a real-world workflow. Specifically, it should offer the following:

- **Easy data access** – Simple access to current, accurate, and complete patient medication data at any point during a patient’s hospital visit, including:
  - Past medication history
  - Current home medication list
  - Any medications that have been administered during the current visit
  - Modifications made to the home medication list during the current visit

- **Medication identification** – Ability to quickly identify home medications when patients are unable to correctly identify the medications themselves.

- **Printed prescriptions and e-prescribing** – Printed prescriptions for the patient or electronic prescription transmittal directly to pharmacies.

- **HIS integration** – Health Level 7 (HL7) data feeds from any compliant HIS provides instant information on medications ordered during prior hospital visits. Patient allergy data from the HIS is used to trigger onscreen alerts — for instance, drug-allergy (as well as drug-drug) interaction checking. By accessing past discharge medication orders, hospitals can reduce errors in creating the patient home medications list due to incorrect patient recall or second-hand information from friends or family. All vendors’ platforms should allow users to develop custom outbound integration solutions for most healthcare information systems, further enhancing efficiency and staff productivity.

- **Automatic data feeds from external sources** – The vendor’s technology should allow for seamless and transparent integration of patient-specific prescription data from retail pharmacies and insurance plans into a patient’s medication history.

- **Simplified drug identification** – Referential data links would permit an admitting nurse or other intake staff to quickly and accurately identify loose medications based on physical description, imprints, and photos. This further increases the accuracy of the home medication list and facilitates the intake process.

- **Drug-interaction checking** – Interaction monitoring provides immediate onscreen alerts in case of conflicts, ensuring patient safety and enhancing the accuracy of the medication reconciliation process throughout a patient’s hospital visit.

- **Compliant security** – Medication reconciliation vendors should be HIPAA-compliant with solutions that meet and exceed measures outlined in HIPAA guidelines. IT systems need technical safeguards to help providers meet requirements as specified in Section 164.312 of the HIPAA Final Security Rule, which relates specifically to user authentication, access control, audit controls, encryption, integrity, and transmission security.

**Conclusion**

Medication reconciliation is an essential process for ensuring high-quality, safe medical care. An accurate, validated, and up-to-date patient medication list is vital in all healthcare settings. Implementing common practices of comparing what medication is being used in one setting with what is being prescribed in another will avoid errors of omission, drug-drug interactions, drug-disease interactions, and other discrepancies. The reconciliation process is a major component of patient safety in any environment and across all continuums of care.

For more information about medication reconciliation or any of our service offerings, please contact your Dell representative or visit dell.com/services.