Assessment of Pediatric Look-Alike, Sound-Alike Substitution Errors

Principal Investigator: Basco, William, M.D.
Organization: Medical University of South Carolina
Mechanism: PAR: HS08-268: Small Research Grant to Improve Health Care Quality Through Health Information Technology (IT) (R03)
Grant Number: R03 HS 018841
Project Period: April 2010 – March 2012
AHRQ Funding Amount: $100,000
Summary Status as of: December 2010

Target Population: Pediatric*

Summary: Look-alike, sound-alike (LASA) medication errors occur when a patient receives an incorrect medication because its name is spelled like or sounds like another medication. While medication errors have been studied in the pediatric population, the frequency of LASA-specific errors in pediatric prescriptions is not well documented or understood.

This study will identify pediatric medications that are at highest risk of causing child harm through LASA errors and refine a method for "flagging" individual prescriptions as potential errors. Research methodology will use a modified Delphi approach that uses a panel of practicing general pediatricians to define a target list of 200 LASA medication pairs. The error rates of these 200 medication pairs will then be estimated by reviewing patient medication histories and diagnostic data. After estimation of the error rate, the positive predictive value will be identified for the screening alerts.

Research results could help guide the creation of a computerized set of pediatric-specific LASA screening alerts that could be implemented in the pharmacy setting to reduce LASA errors for children. This research will lay the groundwork for development of a larger-scale implementation study in pharmacy settings, with the goal of reducing pediatric ambulatory LASA errors.

Specific Aims:

- Identify a subset of known LASA drug pairs that are prescribed in ambulatory pediatric care. **(Ongoing)**
- Estimate frequencies of screening alerts (potential LASA substitution errors) in these drug pairs, and determine the positive predictive values (true positives) of the screening alerts. **(Ongoing)**

2010 Activities: The project began by identifying the LASA list of medications. The team used two established lists, removed duplicates and, through the assistance of a clinical pharmacist, decided which drugs to remove from the entire list. Beginning with 17,000 medications, the team eliminated LASA pairs where one of the drugs in the pair is either IV, topical, or where the pairs represent similar drugs (e.g. extended-release versions of a drug versus the non-extended release version). This resulted in a list of 917 drug pairs that need further review. These are the drugs that will be included in the Delphi process to identify pairs that are of greatest concern to pediatricians should a substitution occur.

The Delphi process will occur through an online survey that was in development in 2010. After an initial pilot, the team made alterations to the form of the online survey and piloted the second version. Based on that feedback, the team altered the survey a third time to capture more detail on the reasons why the pediatricians made their decisions regarding any given drug pair.

The pairs will be presented reciprocally so there will be a total of approximately 1,800 pairs in the surveys. The grant team is now building 37 individual surveys to parse the 1,800 pairs into a manageable number for each survey participant. Each survey will have 50 drug pairs. The survey questions will be framed in the following form: "Let's say a child has to be on adderall every day, and by mistake they get inderal." The respondents score "How bad is it to get inderal by mistake? How bad is it to not get the adderall?" The principal investigator has recruited pediatricians from around the country to participate and fill out the LASA survey.

To measure the error rates of the final list of medication pairs, the team will review patient medication histories and diagnostic data. The team has successfully obtained the Medicaid data for this component of the evaluation and has removed all duplicate entries. Further, they have identified a Food and Drug Administration file that contains cross-references for brand name drugs with their corresponding generic names, allowing the electronic linkage of drugs that are the same but have different names.

Grantee's Most Recent Self-Reported Quarterly Status (as of December 2010): Progress is on track in some respects but not others. About 65 to 80 percent of the milestones are being met, but there is a viable plan for achieving the others, and the team is staying close to schedule. The process of developing the final list of drug pairs and developing the surveys has required more time than originally planned, however the project team expects to meet target date for data collection completion. Project spending is on track.

Preliminary Impact and Findings: The project has no findings to date.

Strategic Goal: Develop and disseminate health IT evidence and evidence-based tools to improve the quality and safety of medication management via the integration and utilization of medication management systems and technologies.

Business Goal: Knowledge Creation

---

* *AHRQ Priority Population*