

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

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<b>Organization:</b>	Medical University of South Carolina
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**Summary:** Look-alike, sound-alike (LASA) medication errors occur when a patient receives an incorrect medication because its name is spelled 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 documented or understood well.

This study is identifying pediatric medications that are at highest risk of causing child harm through LASA errors and refining a method for “flagging” individual prescriptions as potential errors and creating screening alerts. A modified Delphi approach with a panel of practicing general pediatricians is being used 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)**

**2011 Activities:** The project used a Delphi process to identify the LASA list of medications. An online survey facilitated the Delphi process, presenting 50 drug pairs to each of the 38 physician survey recipients. The survey questions were 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 are asked: “Please score the severity of the potential harm that might occur from not getting Adderall. Also, please score the severity of potential harm from getting Inderal by mistake.” Dr. Basco and his research team have recruited pediatricians from around the country to participate and fill out the LASA survey. The third round of surveys were completed by physicians and in early 2012, the research team will complete the cluster analyses on third-round rankings in order to determine which pairs to include in the estimate of the frequency-of-substitution errors.

To measure the error rates of the final list of medication pairs, the research 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.

As last self-reported in the AHRQ Research Reporting System, project progress and activities are on track in some respects but not others. The project is somewhat behind schedule on the second aim to estimate frequencies of the potential LASA substitution errors, in part because of the time required to match generic and brand drug names. However, based on previously-done set-up work to develop a method for measuring frequencies of LASA substitution errors, the project team expects to meet milestones on schedule in 2012. Project spending is on target.

**Preliminary Impact and Findings:** Of the initial 1,784 LASA pairs, 917 were retained for the Delphi surveys. Participating physicians were able to identify pairs where the substitutions posed low potential harm (e.g. chlorpheniramine and cholestyramine), as well as pairs that represented high risk of harm for not receiving the intended drug (e.g. amiodarone and amantadine), high risk of harm for receiving the second drug in error (e.g. cetirizine and clonidine), and pairs where the potential harm was high from either not receiving the intended drug or from erroneously receiving the delivered drug (e.g. Tenex and Xanax).

The Delphi process was successful in identifying drugs that the participants felt were of high potential harm to a patient should a substitution occur.

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**Target Population:** Pediatric\*

**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

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*\* This target population is one of AHRQ's priority populations.*