

Sasha Lieberman, MD  
Pediatric Resident - PGY2

**Project Title:** Medication Use After Pediatric Hospital Discharge Among Families with Limited English Proficiency

**Principal Investigator:** Sumeet Banker, MD

## **Background/Rationale**

Studies have found that parents frequently make errors dosing children's medications,<sup>1 2 3 4</sup> often leading to preventable adverse drug reactions.<sup>5 6</sup> Studies in pediatric emergency care reveal that families face difficulties managing their children's medications after ED discharge.<sup>7 8</sup> Challenges include filling prescriptions, accurately dosing medications, and following prescribed regimens, particularly when treatment plans are more complex and caregivers have limited English proficiency (LEP).<sup>8</sup>

Individuals with LEP, whose predominant language is Spanish, represent nearly 10% of the U.S. population over the age of 5.<sup>9</sup> Prior studies have found that Spanish-speaking parents are more likely to make medication dosing errors.<sup>4 10 11</sup> Evidence suggests that both LEP and low health literacy among Spanish-speaking parents may play a role.<sup>4 11</sup> Moreover, Spanish-speaking families with LEP often receive discharge instructions in English,<sup>12 13</sup> or without a certified interpreter,<sup>14</sup> further increasing the risk of medication errors.

More studies are needed to understand medication use after inpatient pediatric hospital discharge.<sup>8 15</sup> Evidence shows that caregivers often overestimate their understanding of discharge instructions,<sup>16</sup> and have issues with prescribed medications after hospital discharge.<sup>17</sup> One study of English-speaking caregivers found that there is a high risk for medication errors after pediatric hospital discharge: 70% of caregivers did not know about medication side effects and key elements of medication adherence.<sup>18</sup>

Our study aims to build on prior work by investigating medication-related errors after hospital discharge at multiple sites among both English-and Spanish-speaking caregivers. We hypothesize that a higher proportion of Spanish-speaking parents will experience discharge medication errors than English-speaking parents. We also aim to explore barriers to medication continuation.

## **Study Objectives:**

This study aims to (1) investigate differences in medication-related errors among English-speaking and Spanish-speaking caregivers of children after pediatric hospital discharge, and (2) examine barriers to medication adherence after hospital discharge.

## **Methods:**

**Study Design:** Cross-sectional exposure-matched survey. English- and Spanish-speaking groups will be matched for insurance status (private, public, uninsured), class of discharge diagnosis, and medical complexity (number of hospital diagnoses, medications, and subspecialty follow-up appointments).

**Setting:** Multi-site study including two urban tertiary care children's hospitals (NYP-Morgan Stanley Children's Hospital, NYPH Cornell) and one urban community-based children's hospital (NYP-Queens)

**Study Population:** Participants will include English- and Spanish-speaking caregivers of children <18 years prescribed at least 1 oral medication after discharge from one of the three hospital sites. A target sample size of 310 participants was estimated using power calculations to detect an error difference of 70% vs 84% between language groups, achieving 80% power with a p-value <0.05. These error estimates are based on prior work.<sup>11 18</sup>

**Study Procedures:** Participants who meet inclusion criteria will be identified prospectively each week and called by telephone within 96 hours of hospital discharge by a member of the study team. Verbal consent will be obtained at the beginning of the phone call. Those who complete the consent process will be interviewed about their management of their child's discharge medications, potential barriers to medication use, and aspects of the discharge experience. Several survey questions are based on prior work.<sup>18</sup> All interviews will be conducted in English or in Spanish using a professional interpreter, as appropriate. Additional data on sociodemographic and hospitalization characteristics will be collected through electronic medical record (EMR) review and/or interviews, as applicable. All data collected through telephone interviews and EMR review will be securely stored using REDCap on password-protected electronic devices accessible only to study team members.

**Outcome Measures:** The primary outcome is the proportion of medication errors among English-and Spanish-speaking families after pediatric hospital discharge. Secondary outcomes include potential barriers to medication adherence.

**Statistical Analysis:** Descriptive statistics will be used for sociodemographic and clinical/hospital-level characteristics of our study population. We will calculate for each group the proportion of medication errors by error-type, and overall proportion of medication errors (defined as at least 1 incorrect answer on survey items regarding medication use). Chi-squared tests will be used to analyze differences in categorical variables between Spanish- and English-speaking groups. The Wilcoxon rank sum test will be used to compare continuous variables, the number of medication errors, between groups.

**Potential Benefits:** There is no anticipated direct benefit to study participants. However, results may benefit future patients with LEP by informing work to reduce medication errors and improve discharge procedures.

**Potential Risks:** Potential risks include risks to privacy and data confidentiality. All efforts will be made to minimize those risks as described above.

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