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### Antibiotic Adherence and Disposal Practices of Parents of Pediatric Patients

**Introduction:** Antibiotic use in children can lead to the development of resistance and colonization and/or infection with bacteria resistant to antibiotics. Vanderbilt Children's Hospital Antibiotic Stewardship Program has helped decrease unnecessary antibiotic use among children, and currently there are plans to expand the program to outpatient settings. The aim of this practicum is to augment the developing outpatient stewardship program by designing a study to examine the patterns of disposal of residual prescribed antibiotics and to quantify changes in nasopharyngeal bacterial resistance patterns associated with antibiotic use in children with acute respiratory infections (ARIs).

**Methods:** In the proposed pilot study, the goal is to enroll 25 children <5 years of age who are prescribed an antibiotic for an ARI. An in-person interview was developed in collaboration with sociologists with expertise in survey design. Caregivers of enrolled children will be interviewed on days 5 to 7 of antibiotic use to assess their understanding and disposal practices. The survey includes a combination of open- and closed-ended questions and results will be analyzed by the Vanderbilt Qualitative Research Core. Left over antibiotics will be measured and compared to the quantity prescribed and dispensed to assess adherence. Additionally, a multiplex molecular polymerase chain reaction (PCR) will be utilized to test for antibiotic resistance genes in samples from children's nasopharynx obtained before and after antibiotic use. Pre- and post-resistance genes will be compared with McNemar's chi-squared testing using STATA 15.1.

**Results:** The Vanderbilt Institutional Review Board has approved this study and enrollment has begun.

**Conclusion:** This study will improve understanding of parents' adherence to antibiotic prescriptions for their children, disposition of residual antibiotics, and changes in nasopharyngeal bacterial resistance patterns associated with antibiotic use, and in turn, inform developing outpatient antibiotic stewardship programs.

