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## Medication Errors in the Home: A Multisite Study of Children with Cancer

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## MEDICATION ERRORS IN THE HOME: A MULTISITE STUDY OF CHILDREN WITH CANCER

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### ABSTRACT

**Context:** As treatment for many illnesses shifts from the hospital to the home, medications previously managed by nurses are now managed by patients and their families. Oral chemotherapy and other cancer-related medications are commonly administered to children with cancer at home by their parents.

**Objective:** To describe the types of errors occurring in the home medication management of children with cancer.

**Design:** In a prospective observational study at three pediatric oncology clinics in the Northeast and Southeast US, patients undergoing chemotherapy and their parents were recruited from 11/2007-4/2011. We reviewed medical records and checked prescription doses. A trained nurse visited the home, reviewed medication bottles and directly observed administration. Two physicians independently made judgments regarding whether an error occurred and its severity. Overall rates of errors were weighted to account for clustering within sites.

**Results:** For 92 patients, we reviewed 963 medications and observed 242 medication administrations. We found 72 medication errors. Four errors led to significant patient injury. An additional 40 errors had potential for injury: 2 were life-threatening, 13 serious and 25 significant. Error rates varied between study sites (40 -121 errors per 100 patients); the weighted overall rate was 70.2 errors per 100 patients (95%CI: 58.9-81.6). The weighted rate of errors with injury was 3.6 (1.7-5.5) per 100 patients and with potential to injure the patient was 36.3 (29.3-43.3) per 100 patients. Errors occurred most often in medication administration (e.g.: failure to change doses as instructed), prescribing, and labeling (e.g.:

wrong frequency). Errors less often involved chemotherapy than other medications. Clinicians were unaware of 82% of the errors in their patients' homes.

**Conclusions:** In a multisite study of outpatient pediatric cancer care, medication errors were common. Rates of preventable medication-related injuries in this outpatient population were comparable or higher than that found in studies of hospitalized patients.