Background

- Medication errors are an avoidable source of morbidity and mortality to patients.
- Pediatric patients, with whom weight based calculations are necessary, are particularly vulnerable to serious adverse effects.
- In every 100 medical errors results in an adverse event; for every 1 medical error detected there are 100 undetected medical errors.
- Of those errors that produced adverse events, 79% of them occurred during drug ordering.
- Attendings and residents make medication dosage errors in equal proportions.
- In pediatric emergency departments, incorrect dosage is the most common error, accounting for approximately 35% of errors.

Hypothesis

- Through the use of a Microsoft Excel-based medication calculator we will be able to reduce the number of pediatric medication errors, as determined by Patient Safety Reports (PSRs).

Method

- A cohort study using a Microsoft Excel-based Pediatric Dosing Calculator designed to aid in weight-based medication dosage calculations.
- This calculator was mandated to be used when ordering pediatric medications.
- PSRs related to pediatric medication errors were monitored for 12 months prior to the implementation of the calculator and for 7 months following implementation.

Results

- During the 12 months prior to the use of the pediatric dosing calculator, there were 9 PSRs recorded in 15,787 patient visits.
- Since implementation, only 1 PSR was documented, which occurred within the first week of use.

Discussion

- Our Pediatric Dosing Calculator decreased the rate of pediatric medication errors by a factor of 4.4.
- This decrease does not meet the definition of statistical significance (p < 0.05).
- Further trending of data will likely yield statistically significant data.
- Our method using PSRs to identify pediatric medication errors is a limitation of our quality improvement initiative.
- There are approximately 100 medical errors for each PSR written, thus PSRs serve as a surrogate for the number of actual medication errors.

Conclusion

- This project was successful in reducing the overall number and rate of pediatric medication errors and has the potential to prevent serious and potentially fatal pediatric dosing errors.

References