Results of a study to determine the frequency of and risk factors for errors in automated compounding of i.v. medication doses at a pediatric hospital are presented” Dang et al (2016).

Abstract:

Purpose: Results of a study to determine the frequency of and risk factors for errors in automated compounding of i.v. medication doses at a pediatric hospital are presented.

Methods: Data compiled by the hospital’s automated i.v. compounding workflow management system over a 12-month period were analyzed. A descriptive analysis was conducted to characterize intercepted errors by frequency and type. Multivariate regression analysis via a backward stepwise procedure was performed to identify notable risk factors for i.v. compounding errors.

Results: Among the 421,730 i.v. doses evaluated, there were 3,101 documented errors (an overall error rate of 0.74%). The automated system intercepted 72.27% of the errors, mainly those containing an incorrect drug or diluent. The remaining 27.73% of i.v. compounding errors, primarily dose preparation in the wrong volume (21.51%) or damage to the final product (0.93%), were identified during final inspection by a pharmacist. The logistic regression model showed that four factors were significantly (p < 0.05) associated with an increased risk of compounding errors: dose preparation during the morning shift (relative risk [RR], 1.84; 95% CI, 1.68–2.02) or on a Sunday (RR, 1.28; 95% CI, 1.11–1.47), preparation of doses for use in critical care units (RR, 1.17; 95% CI, 1.07–1.28), and technician versus pharmacist compounding (RR, 1.17; 95% CI, 1.04–1.32).

Conclusion: Analysis of error reports generated by an i.v. compounding workflow management system at a large pediatric hospital over one year found an overall rate of detected errors of 0.74%. Four factors were identified as significant predictors of increased error risk.
Reference:


doi: 10.2146/ajhp150278