

## **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, 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:

Dang, Y., Lin, A.C., Hinge, J., Huang, G., Altaye, M., Maynard, H., Mayhaus, D. and PenM, J. (2016) Risk factors for i.v. compounding errors when using an automated workflow

management system. American Journal of Health-System Pharmacy. 73(12), p.887-893.

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