PDA Dose Calculator Slashes NICU Drug Errors

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Old Greenwich, Conn. A PDA-based drug dose calculator system brought about a marked reduction in medication errors at a university’s neonatal intensive care unit, Dr. M. Kabir Abubakar reported a meeting of the Eastern Society for Pediatric Research.

The error reduction, from 1.77 per 100 orders to 0.66 per 100 orders, occurred within a 12-month period after Georgetown University Hospital’s NICU mandated that all staff use the Neofax drug database system. The improved performance was all the more remarkable because it occurred during a period of rapid growth in the hospital’s neonatal and perinatal departments, with the number of NICU drug orders almost tripling from the previous year.

According to Dr. Abubakar, of Georgetown’s division of neonatology, medication errors are a significant contributor to neonatal morbidity in the NICU setting. Neonates are highly vulnerable, and a misplaced decimal point in a dose calculation can have huge clinical implications.

As part of its ongoing quality improvement efforts, MedStar Health—the hospital system that owns Georgetown—put up the funds to provide PDA-based Neofax dose calculators to all NICU physicians, residents, fellows, nurse-practitioners, and dispensing pharmacists. Following a training period, staff was required to use the PDA for all NICU drug orders.

Pharmacists and bedside nurses cross-checked all physician dose calculations using the same system.

It took about 3 months to get everyone trained and compliant with the system,” said Dr. Abubakar in an interview. “There was some resistance, of course, but the bigger problem was that initially a lot of people were forgetting or losing their PDAs. Eventually, we had to install them in stationary places by every four or five NICU beds.

In 12 months, the Georgetown University Hospital team was able to reduce its total medication error rate from 1.77 to 0.66 per 100 orders.

The ultimate payoff, in terms of reduced errors, was tremendous. In the 12 months following adoption of the system, the Georgetown team was able to reduce its total medication error rate from 1.77 to 0.66 per 100 orders. Prescription error dropped from 1 per 100 orders to 0.3 per 100.

There was a 62% reduction in the number of 10-fold dosing errors, that is, errors of decimal point placement, in the year following implementation of the system.

Dispensing and administration errors were also reduced, although the baseline numbers for these types of errors were fairly low.

The total number of drug orders at the NICU increased from 13,597 in the year prior to adoption of the PDA system to 31,680.

“The hospital system had a growing number of perinatologists, so our unit was seeing a big increase in the number of patients, and consequently, an increase in the number of drug orders,” Dr. Abubakar said at the meeting.

“MimyX was a registered trademark and Research in Dermatology was a trademark of Stiefel Laboratories, Inc.

REFERENCES:


3. Revitalis TM is a registered trademark and Research in Dermatology is a trademark of Stiefel Laboratories, Inc.

4. MimyXTM Cream is available in a 70 gram tube, NDC 0145-4200-01

5. MimyX is a registered trademark and Research in Dermatology is a trademark of Stiefel Laboratories, Inc.