



ASHP Foundation News Release

Bar Code Medication Administration Systems Worth the Expense in NICUs *Study shows use of BCMA in NICU leads to significant decrease in preventable ADEs*

BETHESDA, Md. (June 23, 2009) — The right timing, an opportunity for early funding and the teamwork of a neonatologist and a hospital pharmacist: These were the ingredients that came together to make possible a ground-breaking study of a bar code medication administration (BCMA) system in a neonatal intensive care unit (NICU) that showed a 47% decrease in preventable adverse drug events (ADEs) in infants. Now, the study has resulted in two articles that have or will soon appear in major medical journals.

“Effectiveness of Medication Barcode Scanning in a Neonatal Intensive Care Unit,” was conducted over a 50-week period by Frank H. Morriss, Jr., M.D., M.P.H., and Paul Abramowitz, Pharm.D., and colleagues at the University of Iowa, with funding from the ASHP Research and Education Foundation. The study involved the implementation of a BCMA system in the University of Iowa Children’s Hospital 36-bed NICU, and tracked more than 92,000 medication doses administered to 958 patients. There were three phases: Researchers identified the number of preventable ADEs that occurred before the technology was implemented, after it had been installed for half of the NICU beds, and once installation on all beds had occurred. An ADE was defined as harm or an unintended negative effect from a medication.

In March 2009, the *Journal of Pediatrics* published the research team’s study. Later this year, *Healthcare Quarterly* will publish a follow-up to this study that focuses on the nurses’ involvement.

The idea for the study evolved when Dr. Morriss, a member of the Division of Neonatology, alerted Dr. Abramowitz, the hospital’s Director of Pharmacy, that he was interested in doing a research study in medication safety, an area of great interest to both men. The hospital had just approved the implementation of a BCMA system, and Dr. Abramowitz wanted to measure the effectiveness of the system. Dr. Morriss offered the hospital’s NICU as the site of the study. The team then applied for and received funding through the ASHP Foundation.

“There had been some studies of BCMA systems, but they showed medication error rates, and not adverse events or actual harm to patients,” says Dr. Abramowitz. “Our predominant goal was to demonstrate that the BCMA system could reduce harm. The NICU was the perfect setting for our study because the incidence of ADEs has been shown to be relatively high in the NICU, and the consequences of ADEs can be so significant in that patient population.”

“NICUs are always looking for ways to improve, and patient safety is very important to us,” says Dr. Morriss. “We recognized this as an opportunity to study BCMA without computerized prescriber order entry. We could look at the effect of a BCMA system alone on patient safety. This was a rigorous examination of BCMA in reducing patient harm, and it leaves no doubt that it works. A BCMA system is

an expensive thing to install, but this study proves that the results are worth the expense. I hope that it will convince hospital executives to support BCMA implementation.”

The team’s article, “Effectiveness of a Barcode Medication Administration System in Reducing Preventable Adverse Drug Events in a Neonatal Intensive Care Unit: A Prospective Cohort Study,” appeared in the March 2009 issue of the *Journal of Pediatrics*.

For more information about this study, visit www.ashpfoundation.org/publishedresearch.

About the ASHP Foundation

The ASHP Research and Education Foundation was established in 1968 by the American Society of Health-System Pharmacists as a nonprofit, tax-exempt organization. The mission of the Foundation is to improve the health and well-being of patients in hospitals and health systems through appropriate, safe and effective medication use. The Foundation provides leadership and conducts education and research activities that foster the coordination of interdisciplinary medication management leading to optimal patient outcomes. Emphasis is given to programs that will have a major impact on advancing pharmacy practice in hospitals and health systems, thereby improving public health.

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