

## From the Editors: Improving Drug Administration and Intravenous Fluid Administration

**Kimberly Cimarelli, RPh. Pharmacy Supervisor**  
Member, Children's Hospital Safety and Quality Committee

In November 2009 the Penn State Hershey Medical Center switched from the Baxter pumps to the Alaris PCA (patient controlled analgesia) pumps and the Children's Hospital switched its syringe pumps from Medfusion pumps to the Alaris syringe pumps.

Alaris intravenous pumps are known as intelligent infusion devices or "Smart Pumps". Because intravenous medications are more likely to cause harm if given incorrectly, "Smart Pumps" help to provide a double check for manual calculations. Various dose, rate, and concentration alerts also provide a safety mechanism to assure programming errors and miscalculated doses are recognized.

### Congratulations

The Safety & Quality Committee would like to congratulate the following members of the Children's Hospital family for their swift and appropriate action to prevent or limit patient harm

Gretchen McCullough, R.N.  
Erin Quimby, RN

As part of the pump software, there are libraries that are programmed for each specific unit. The Children's Hospital has a NICU, Pediatric, and Pediatric Critical Care library. Each of the libraries has a set of Guardrails which are safety measures that are programmed into it for that specific unit. The information in the Guardrails was developed by pharmacy and was approved by the Pediatric Subcommittee and P & T Committee. The information for each medication includes the dosing units, soft min/soft max dose limits, syringe versus large volume parenteral, soft min/soft max duration limits, initial duration, concentration units, and soft min/soft max concentration limits.

New medications and all information pertaining to medications already in the Alaris pumps are maintained by pharmacy. All updates to the Alaris pumps must be approved by the P & T committee. We believe that the transition to this new system will help our nurses administer medication more effectively and safely that was possible previously. In addition to the administration of fluids and medications, these pumps can

be integrated with our electronic medical record system. In the future, for each patient, the volumes infused will be directly transferred into our electronic medical record. This will improve patient care by having more up-to-date charting as well as by eliminating the occasional errors associated with the manual transfer of information.

## Improving Patient Handoff Communication – A View of the Future

**Dr. Aaron Knudson Med/Peds Resident**  
**Kathleen Megnin Millay, BA, RN Clinical Quality Analyst**

It is widely recognized that effective communication is vital to the provision of excellent medical care. Root cause analysis of sentinel events related to communication breakdowns has shown that half of these events occur at transitions of patient care between providers. The Physician Handoff Communication Team was formed as part of the institutional patient safety goal to improve communication and teamwork at Penn State Hershey Medical Center. Under the leadership of Dr. Greg Caputo and Dr. Chris DeFlicht, this team was assembled with broad base representation at the resident and attending level from Surgery, Internal Medicine, Family and Community Medicine and IT.

The team was charged with evaluating the current state of affairs regarding the quantity and quality of handoffs and creating guiding principles for handoff communication. These principles were to be based both on our own organizational goals and Joint Commission recommendations. In conjunction with this goal the committee utilized our electronic medical record to create a hand-off communication/documentation tool to help facilitate communication between providers. This process is being piloted and refined on the Medicine and Surgical services and the Institution is being exposed to the new process through multiple educational forums. The fundamental concepts of a clinically appropriate handoff include:

- Direct verbal communication between providers, face to face or via telephone
- Interactive dialog without distraction with the opportunity for questions and discussion
- Transfer of written clinical information via a documentation tool

The future expansion of the handoff process will proceed to all inpatient services and into the outpatient areas including the Children's Hospital. The ultimate goal is to achieve effective

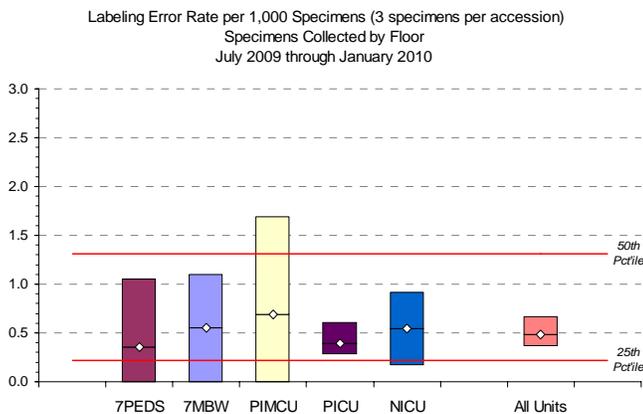
handoff communication in all care settings for every patient, every time.

## Laboratory Errors, Current Status Within the Children's Hospital

Michael Bongiovanni, MD

While the quality of laboratory test results depends upon accuracy and precision of the testing process, there are other equally important factors that contribute to quality. Two of these are specimen identification and specimen contamination.

The laboratory has tracked instances of possible specimen misidentification for many years, and has reported the raw number. This year we have been able to turn these data into rates and compare ourselves to national benchmarks. During the current year, Children's Hospital there have been a total of 34,248 laboratory specimen collections of which 23 were possible specimen misidentifications; for a rate of 0.48 per 1,000 specimen collections. This puts the Children's Hospital inpatient units in the second quartile nationally, with the first quartile being best performance.



Types of possible specimen misidentification include unlabeled specimens which may or may not be accompanied by a requisition form, specimens in which the label does not match the requisition, and specimens with errors on the label. The most concerning occurrences are those where the specimen and requisition are complete and match, the laboratory performs and reports test results and then we are notified that no specimen was collected on that patient.

Factors that contribute to misidentification include:

- Labels and materials needed for specimen collection not available at the bedside.
- Hand-offs of specimens from collector to another person for labeling.
- Wrong patient's labels present at bedside or in room.
- Labeling specimens after collection, away from bedside.

The second factor affecting quality is specimen contamination. The laboratory tracks instances of possible specimen contamination. Again, the number of instances is small in comparison

to the millions of tests reported by the laboratory. As the proper denominator for these is not clear, we have not been able to turn these data into rates. During the current fiscal year there have been 106 instances of possible specimen contamination. These are usually associated with specimen collection from lines, and there are specific patients where difficulty of collecting specimens increases the chance of contamination.

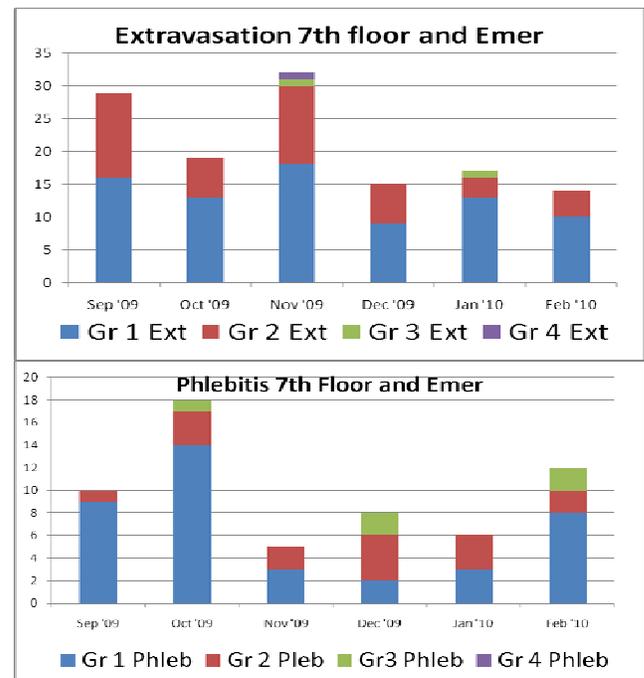
While we are pleased to be doing so well, we continue to work with all units within the Children's Hospital to reduce our errors still further.

## Occurrence Reporting

Steven J. Wassner, MD

We continue to keep a record of occurrence reporting within the Children's Hospital. For this issue of the Town Hall Newsletter I would like to look at one specific area of occurrence reporting, that of IV infiltration/extravasation.

Last August we started our current program to both limit the number and the severity of IV infiltration within the Children's Hospital. This involved the development of new tools, better integration with the pediatric surgical services as well as the education of multiple physician and nursing teams regarding the placement and securing of IVs as well our new approach to the observation, documentation and treatment of IV problems. The following graphs are collated from IV Assessments filled out hourly by the nurses



From the data, it does appear that IV extravasation and possibly phlebitis rates have decreased over the past several months both in total number and in severity. We would like to thank all of our clinicians for their for their efforts so far and for their continued work in this area.