PENNSTATE HERSHEY Children's Hospital
PENNSTATE HERSHEY Milton S. Hershey Medical Center
Quality and Safety Committee
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From the Editors

Michele Smith, BSN, RN
For the Penn State Children's Hospital Quality and Safety Team

Providing excellent care to our patients and their families occurs daily throughout the Children's Hospital. You only have to look around the corner to see the excitement of a mother who is finally taking her baby home for the first time after 1 ½ years in the PICU/PIMCU, see a premature infant delivered too early finally get to go home, or talk to the parents who state what miracle workers we have here in our hospital to realize all of the great care we provide throughout our institution. However, we are not infallible. We are human and realize mistakes do occur. Our goal is to minimize these errors and put processes into place to reduce and prevent future occurrences. We now review all of the occurrences throughout the Children's Hospital. Over the past year, we have seen an increase in our occurrence reporting so we can track and trend issues as they arise, break down barriers, and put safety measures in place.

We encourage you to bring your concerns and issues forward to our committee. We want you to help us in our pursuit of ensuring a safe environment where our colleagues can provide excellent pediatric care to those patients and their families whom we have the privilege to serve.

NICU Quality Assurance/Quality Improvement Programs

By Mitchell J. Kresch, M.D., F.A.A.P.

The robust quality assurance and quality improvement programs in the Division of Newborn Medicine include several initiatives focused on population-based outcomes and case-based anecdotal reviews of morbidity and mortality. All deaths in the NICU are reviewed. The focus of the morbidity and mortality review is to elucidate any lessons learned or processes that can be improved. Since 40-45% of all NICU admissions are infants transferred from referring hospitals in the central Pennsylvania region, a separate NICU transport QA committee meets monthly to review data, review processes and develop improvements in processes that are based on quality indicators which trigger reviews of specific cases.

There are 3 initiatives to improve outcomes of major morbidities that are compared to benchmarks in the Vermont-Oxford Neonatal Network, of which the Penn State Hershey Children's Hospital NICU is a member. The first initiative, developed in 2006, is to reduce the incidence of chronic lung disease (bronchopulmonary dysplasia, BPD). Using a tool known as the Value Compass, processes were identified that contribute to lung inflammation and BPD. Based on an extensive review of the literature, potentially better practices were identified so that causative processes and factors can be reduced or eliminated. The potentially better practices include an emphasis on non-invasive ventilation, updated respiratory care guidelines, limiting exposure to hyperoxia by setting upper limits on pulse oximeters at 95%, reducing exposure to the oxidant stress from blood transfusions with the development of strict PRBC transfusion guidelines, using vitamin A to help prevent BPD, and fluid restriction of infants with hyaline membrane disease in the first 3-5 days of life. A number of PDSA cycles have been performed to see if these potentially better practices were being implemented.

Since implementation of the potentially better practices, we have seen a 60% reduction in the incidence of BPD in very low birth weight infants (figure).

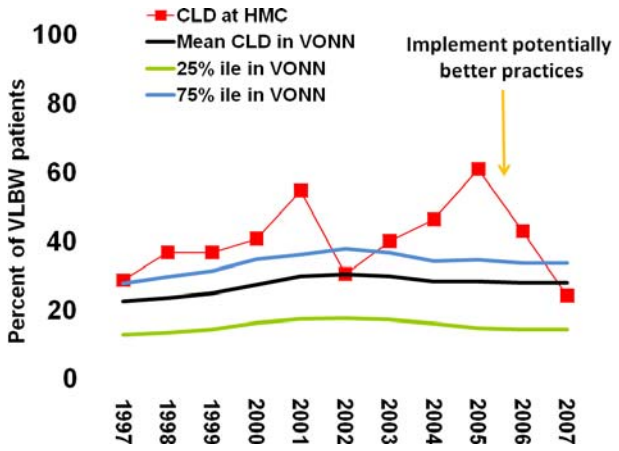


Figure. Since implementation of potentially better practices the percentage of VLBW infants with BPD has decreased from well above the 75th percentile of the Vermont-Oxford Network to below the mean for the Vermont-Oxford Network.

The other initiatives to improve outcomes are 1) to reduce nosocomial infections and 2) to improve nutritional support of VLBW infants. The processes on which we have focused include audits of hand washing, development of standard protocols for insertion of PICC's and changing dressings of PICC's. To improve nutritional support, we have focused on early introduction of trophic feeds, optimal use of TPN, use of colostrum, and fortification of human milk.

Pediatric Quality & Safety, the Year in Review

Dr. Steven Wassner
For the Quality and Safety Team

A full listing of all the Children's Hospital quality and safety projects that have taken place over the past year would fill several pages. Some major projects such as the influenza vaccination program, our attempts to decrease catheter-related blood stream infections, increasing occurrence reporting throughout the Children's Hospital and the Pediatric Rapid Response Team have all been discussed in previous newsletters. I would instead, like to highlight several other areas where quality improvement has already made a difference in the care we provide.

Endocrinology –Instead of hospitalizing all newly diagnosed children with DM for their initial education the division has developed a comprehensive program for the outpatient education of these are patients. Over the past year 40/46 newly diagnosed patients who presented without ketoacidosis received there and to her education on an outpatient basis and 29/40 patients who initially presented with ketoacidosis had the majority of their education conducted after rapid discharge. In addition to decreasing or eliminating hospitalization, outpatient education is a more effective approach to helping both children and their families become comfortable with their condition. Congratulations to the entire endocrinology team for their hard work in planning and bringing this program on board.

IV infiltration – This is a major problem within the Children's Hospital. Our young and fragile patients are more likely to have serious consequences from IV infiltrations. While this project started in the Children's Hospital, it has spread to the entire Medical Center and is bringing about earlier recognition of IV infiltrates, more effective treatment to prevent tissue damage and better coordination between Pediatrics and Plastic Surgery to prevent long-term damage when these problems occur. Even though our work is not yet complete, it is clear that just bringing this problem to everyone's attention has already improved our care in this area. We hope to make it even better.

Weighing in – While many families want their child's weight in pounds, our hospital runs on the metric system (kilograms). Converting between the two can lead to serious mistakes such as the administration of twice the correct dose of medication. To prevent this, we have changed all the scales to read only in kilograms; made changes in Cerner to prevent entering the wrong weight and are developing an ongoing monitoring system to document our progress. Thanks to Biomedical Engineering, the Clinical Information and Cerner teams for their help.

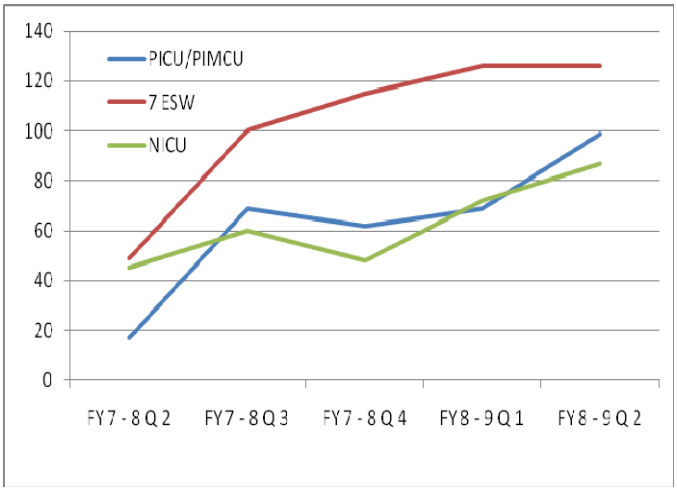
These are just a few of the many projects that we have tackled this year, we look to you for more help and ideas as we move forward to another year of quality and safety improvements.

Occurrence Reporting, a Cooperative Approach

Gloria Gingrich, RN
Pediatric Clinical Performance Specialist

As I monitor Children's Hospital occurrence reports I continue to learn just how complex our system really is. Examining almost any occurrence is like peeling back a flower and reveals how many different parts there are to each and every interaction. For example, if a child receives the wrong dose of a single medication, there are many possible causes to consider. Was the order written correctly into Cerner, did the medication look-alike or sound-alike another medication, was there appropriate dose-range checking, was the Pyxis machine stocked correctly, was the nurse over-extended and assigned too many children to care for and so on and on. Preventing these problems requires the interaction and collaboration of multiple groups. As we work through each occurrence we find that we need to access the knowledge and expertise of additional people. Policies to need revised, PowerChart documentation needs to be improved and as always, the three E's, education, education and education all need to be implemented. Once these changes occur, we still need to continue our monitoring efforts to be sure that we have achieved our goals.

We (and every other hospital) are still at the very beginning of this process. Fixing problems depends upon identifying them either after they happen or even better, before they occur, at the "near miss" stage. If you or someone on your team prevented an error from actually happening, you can be sure that it's happened before and unless you take the time to fill out an occurrence report, will surely happen again.



Looking at occurrence reporting for the past several quarters this graph clearly shows that we are getting better at reporting occurrences throughout the Children's Hospital. We are pleased to report this to you and look forward to working with you.