Rainbow Babies & Children's Hospital

The Quality Improvement Initiative provided Rainbow Babies & Children's Hospital (Rainbow) the opportunity to develop a practice model that would expand its intensive care expertise to Rainbow's other patient floors, including its Cystic Fibrosis Unit, surgical floors and cancer floors.

Rainbow set up Rapid Response teams tailored to each individual floor, ensuring that teams that are best suited for the medical diagnosis are available 24/7. This ensures that any preventable crisis will be addressed by the most knowledgeable team.

The hospital's family and patient centered care model allows parents to engage in the Rapid Response teams' daily rounds and further engages them in the process so that they are alerted to developing problems and can access the team before a crises occurs. For the past 15 years, Rainbow has empowered families and bedside caregivers to learn as much about their child's illness as possible and to understand early warning signs.

In a critical situation, nurses on patient floors are authorized to make quick transfers into the ICU with no wait times. This protocol ensures that the child can have all the technology and medical advancements that an ICU offers. The result is a seamless response to preventing a medical crisis and expediting critical care that will provide the best possible outcome for the child.

Rainbow relies on government support to sustain this and other programs. Rainbow’s Division Chief of Pediatric Critical Care and Medical Director of our Pediatric Intensive Care Unit, Dr. Lia Lowrie, insists that, “We need the State's support to mandate care for children no matter the setting.” Medicaid reimbursements are significant to the majority (52 percent) of patients at Rainbow. “Rainbow’s doors are open to anyone seeking care, and the State’s aid helps us continue to provide medical care to Northeast Ohio's children.”

Toledo Children's Hospital

Through the Ohio Children's Hospital Association's Quality Improvement Collaborative Initiative, Toledo Children's Hospital formalized a process that had been in place for many years and implemented a communications technique as part of the Pediatric Rapid Response Team process. This communication technique—Situation, Background, Assessment, Analysis, and Recommendation (SBAR) is a formal communications tool that allows caregivers to transmit information about a patient’s status from one to another in a very efficient and effective manner. As the organization implements change in other programs and services, it will continue to extend this new process hospital-wide.

As a result of the QIC initiative, Toledo Children's Hospital learned a great deal about how its clinicians communicate within the system and created mechanisms to track results of the Pediatric Rapid Response Team that that weren't in place when the process had been initiated. Toledo Children's Hospital will continue reviewing the components that have been implemented and translating them to other areas that may benefit from the formalized communication technique.
March 17, 2008.

Little Chance was born February 13, 2006, and just a week later exhibited signs of a cold. The following days brought several visits to his doctor’s office and Chance was ultimately admitted to Nationwide Children’s Hospital on March 9 with a diagnosis of respiratory syncytial virus (RSV). RSV infects almost all children at least once and most of the time this virus only causes minor coldlike symptoms. However, for some babies infection can be more dangerous and some may have difficulty fighting an RSV infection once they become infected.

When Mary Duncan, R.N., began her shift caring for Chance the day after he was admitted to the hospital, she became concerned with his pulse drops, congestion and increasing difficulty in breathing, even after suctioning. Alarmed at his blood test results, Mary activated the Assessment and Consultation Team (ACT), which is the rapid response team at Nationwide Children’s Hospital. The ACT members responded immediately to Chance’s bedside and made the decision to take on this work themselves and contracted with the Ohio Hospital Association and Applied Health Services to handle the administrative functions of the study. Through these efforts, Ohio’s children’s hospitals are leading the way in health care quality improvement. Ohio’s children’s hospitals are the best of the best. All Ohio Children’s Hospital Association (OCHA) member hospitals are ranked first in their class in at least one aspect of pediatric health care, all six are recognized as national leaders in clinical care for children, and all have Level III Neonatal Intensive Care Units (the highest designation available). These hospitals treat children from all 88 counties in Ohio, from all 50 states in the nation, and from dozens of countries across the world. And, because they are the best, Ohio’s children’s hospitals are committed to improvement science to become even better and lead the nation in quality of care for its youngest patients.

In a first-of-its-kind effort to save children’s lives by improving quality in a meaningful, measureable way, OCHA and its six member hospitals created the Ohio Children’s Hospital Association Quality Improvement Collaborative in 2006 to promote improved quality of care at children’s hospitals. This is the first time that a statewide group of children’s hospitals has come together in a collaborative manner on this type of project. While there have been recent efforts throughout the nation to tackle the issues of patient safety and quality improvement, none have involved a statewide network of children’s hospitals working together for the cause. OCHA and its members made a decision to take on this work themselves and contracted with the Ohio Hospital Association and Applied Health Services to handle the administrative functions of the study. Through these efforts, Ohio’s children’s hospitals are leading the way in health care quality improvement.

**CODE BLUE…**

In medical terminology, a “code” is an event where the patient’s breathing or heart stops, and a team of providers rushes to the scene to try to revive the patient. Other terms for “code” are cardiac arrest or respiratory arrest.

### Rapid Response Teams— a protocol for prevention

After reviewing and considering several different approaches to quality improvement, the Collaborative, in a study funded by OCHA and the member hospitals, chose as their first project to focus on a measure that demonstrated how quality could directly impact the saving of children’s lives—preventing cardiac and respiratory arrests— or “codes.”

For this particular initiative, the Collaborative focused on preventable codes outside of the neonatal and pediatric Intensive Care Units. While some codes are not preventable—such as those resulting from a seizure—in other cases, a code may be prevented by early treatment to improve a deteriorating situation. The Collaborative focused on identifying situations in which codes could be prevented, and establishing a protocol to follow in these situations.

A total of 180 cases were identified by the six participating hospitals between January 1, 2004, and September 30, 2007. The distribution of these cases by type of arrest is displayed below.

<table>
<thead>
<tr>
<th>Type of Arrest</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Respiratory Arrest — Inadequate ventilation requiring assistance</td>
<td>130</td>
</tr>
<tr>
<td>2. Cardiac Arrest — Pulselessness or had inadequate perfusion</td>
<td>6</td>
</tr>
<tr>
<td>3. Both Respiratory and Cardiac Arrest</td>
<td>44</td>
</tr>
</tbody>
</table>

Out of these 180 cases:

- 142 cases occurred in general inpatient rooms outside of the ICU.
- More than 70 percent of children’s lives were saved and they survived to be discharged from the hospital.
- 107 of the 180 cases were deemed non-preventable, leaving 73 cases of preventable cardiac or pulmonary arrests—cases in which quick action can save children’s lives.

### Stabilizing baby C.T.

Baby C.T., a 6-week infant who presented to the emergency department at Cincinnati Children’s Hospital Medical Center, had a two-day history of cough and increasingly having to work hard to breathe. The infant was determined to have bronchiolitis and was admitted to the acute medical inpatient unit.

Just a couple of hours after admission, nurses doing an assessment found signs of respiratory distress, including head bobbing, nasal flaring and grunting with retractions. The heart rate and respiratory rate were high. Oxygen saturation was very low.

The nurse calculated a Pediatric Early Warning Score (PEWS) using data obtained from vital signs and the infant’s behavior, which was latching. The score was an eight, which automatically triggered the nurse to initiate the Medical Response Team (MRT) to the patient’s bedside.

The infant was assessed by the MRT, which consists of an intensive care unit (ICU) fellow, nurse and respiratory therapist. Through the collaboration of the MRT and unit care providers, the infant was stabilized and transferred to the ICU in a controlled manner.
helping a teen breathe

Dayton Children’s has been caring for a 15-year-old young man with a history of significant asthma, whose disease had been not responding to routine protocols for management of asthma. The pediatric pulmonary team elected to try a newer drug, Xolair, in an attempt to control his symptoms and improve his quality of life. However, Xolair could have some significant side effects initially, so the drug was given to the young man on three occasions in the Almost Home short stay unit at Dayton Children’s. He was also prescribed medications to decrease any side effects.

Each time Xolair was prescribed, the patient experienced shortness of breath, increased work of breathing and general anxiety. Each time these side effects occurred, the nurse caring for him quickly called the resident on duty and then the Pediatric Response Team was activated. In all three situations, the patient was administered oxygen by mask and additional medications to manage his respiratory distress. He was not admitted to the intensive care unit and was able to remain on the Almost Home unit all three times.

His mother reported that they were extremely pleased with the quick reaction of the Pediatric Response Team at Dayton Children’s.

The Pediatric Response Team was able to provide an additional assessment of the patient, prescribed treatment and prevented a transfer to an inpatient unit. Overall, the Pediatric Response Team significantly reduced the patient’s anxiety and provided effective and efficient care.

While this particular initiative has made solid, tangible improvements to date—it is only the beginning of an exciting journey.

By implementing a “Rapid Response Team” protocol in their facilities, participating children’s hospitals reduced incidences of these preventable cardiac and respiratory arrests by more than 20 percent. And, the study found that the longer the protocol was in place, the better the results. One Ohio children’s hospital that has been implementing the protocol for three years showed a more than 40 percent decrease.

This quality initiative has further empowered the bedside caregivers at participating hospitals to quickly harness the expertise of a multidisciplinary team and have a direct impact on each affected child’s life. Each hospital created a process that enabled patient families to call upon the Rapid Response Team by a protocol based on the Rapid Response Team model for bedside caregivers to assess the patient’s status, determine or request a recommendation, and then follow immediate steps for obtaining review of the situation in a timely manner (30 minutes or less) by an interdisciplinary team of clinicians. Further, some hospitals created a process that enabled patient families to call upon the Rapid Response Team when they felt their child was in need of assessment. Involving the families is based on the premise that no one knows a child better than his or her parents. A parent’s intuition is a powerful tool to help health care providers ensure a child’s needs are met.

In addition to the tangible achievement of preventing life-threatening situations for patients, the Collaborative’s efforts realized several benefits for the participating hospitals, their clinicians and the patients’ families, including:

- Increased customer satisfaction;
- Improved cooperative efforts, internal communication and accountability among hospital staff;
- Identification of areas to improve the Rapid Response Team model moving forward; and
- A culture change at the institutions that helped empower care givers that are at the bedside treating the patients every day.

By providing a framework for process comparison, best practice identification, and consistent definitions for measuring achievements, the Collaborative has improved the care for Ohio’s children and has created a network of quality leaders at Ohio children’s hospitals that can serve as a rich resource for future quality improvement initiatives.

Ryan, a longer a candidate for hospice

Ryan was diagnosed in April 2004 with a spinal cord tumor that spread to his brain. He underwent several surgeries, followed by radiation and chemotherapy. He lost all motor function, but has worked to regain most of the use of his arms and legs. His unbreakable spirit and determination have inspired countless numbers of people. This little boy has shown us all how precious life is and never to take a single thing for granted. He is a warrior and a hero. Twice he has been placed under hospice care—given only days to weeks to live. And twice he has beaten the odds. Ryan continues his hard work every day.

Ryan is an example of a Rainbow patient who benefits from the careful watch of Rainbow’s Rapid Response team. Ryan’s mom brought her son to Rainbow Babies & Children’s Hospital to undergo halo traction treatment, a surgery that will straighten his spine and help him to walk upright. Ryan had been treated at another children’s hospital and bounced between pursuing surgery or radiation until Ryan developed pancreatitis and complications from the condition landed him in hospice care. Ryan beat the odds, as he would again when St. Jude’s in Memphis placed him in hospice care for cancerous brain tumors. His mother’s search for the right place for Ryan, brought her back to Ohio. She comments on the difference in the family’s stay at Rainbow, and her new feeling of confidence in his medical team. “While I focus on today for my son, it is the Rainbow team that focuses on his future.” She knew she wanted the best available care for her son, “and it just happened that it was pretty close to home.”

Hospital Participation—putting a protocol to work

With the same goal in mind and process parameters for creating the Rapid Response Teams, each participating hospital adapted the Rapid Response Team model to fit within its own patient care environment and culture. All of the hospitals included an internal education program, such as training, signage or employee recognition. The following pages outline how each hospital approached the process in its own unique way and how their approach made a difference in the lives of their patients.
To reduce Code Blue alarms at Akron Children’s Hospital, a house-wide, multi-disciplinary committee was formed to guide the development of a Medical Response Team (MRT), including its members, goals and clinical triggers.

While there are relatively few Code Blues called at Akron Children’s, this initiative was viewed as an opportunity to further enhance the care provided to patients and their families. MRT members were carefully selected to represent critical aspects of a patient’s care. The team members include a pediatric nurse practitioner, a PICU Clinical Coordinator or designee, and a Respiratory Therapy Clinical Coordinator or designee.

The MRT was implemented on November 1, 2006. To provide staff with a guide to situations in which an MRT could be called, a poster was created and distributed to key patient care areas.

To date, the MRT has been activated 24 times. Each of these activations is reviewed to determine how the organization can continue to modify and improve this process to better meet the needs of our patients and families. These reviews have provided the hospital with valuable feedback, resulting in several recommendations, including providing ongoing education to ensure the MRT fully integrated as a patient safety feature in the hospital’s care culture, proving ongoing education regarding when an MRT should be called and developing a tool to better identify and categorize at-risk patients to create a more formal response system.

The staff has indicated having the PRT easily accessible provides another mechanism for improved care and a level of comfort for families. The process, implementation and outcomes have been a success at Dayton Children’s.

Since the PRT team started, they have been activated approximately 25 times. The general pediatric critical care specialist, who monitors all inpatient resuscitations, also monitors all PRT activity and makes recommendations for change to care providers. A hospitalist, as well as two chief residents, each reviews the PRT documentation.

Since 2001, The Children’s Medical Center of Dayton had utilized a special response team for pediatric cancer and blood disorder patients. Given these patients could rapidly deteriorate, it was determined it was important for the intensive care team to be alerted quickly.

In 2006, Dayton Children’s formed a team of experts from medicine, nursing, respiratory care and pharmacy to review how to expand the existing response team to all inpatient and clinic areas. This new initiative took shape and included naming team members and expanding the current policy. The new pediatric response team (PRT) included an Intensivist, an ICU resident, an ICU staff nurse and a respiratory care practitioner.

The plan also called for the implementation of a new communication technique called SBAR (Situation, Background, Assessment Analysis, Recommendation). Printed on note pads and placed in patient care areas, the SBAR tool was utilized to provide assessment information to the responsible physician in a standardized format.

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