

# Mercyhealth NICU Transport: 50 Years of Excellence



Lauren Schwab

The Neonatal Intensive Care Unit at Mercyhealth in Rockford, IL is a 52 bed Level III unit that specializes in caring for the sickest infants. Celebrating 50 years this fall, it is also the most experienced NICU in the region. In December 1970, what started out as a 10-bed unit quickly grew as the need for more critical care became evident. By April 1977, the NICU moved to a second unit that could care for 24 infants. The third unit to be opened held 40 infants in 1990, and by 2009, a secondary NICU annex was opened to hold an additional 6 infants. In January 2019, the NICU, along with other pediatric and adult specialties, moved to their new home across town at Javon Bea Hospital on Riverside Boulevard. This new unit boasts private rooms, state-of-the-art facilities and equipment, and one of the nation's few Small Baby Units, a special unit designed specifically for infants born before 27 weeks gestation.

The NICU Transport team has also evolved over the last several decades. In the early 1970s, every nurse on the unit would function in the transport role, taking turns going out into the region to stabilize and transport the infants back to the NICU. The neonatologist would accompany the nurse on these missions. A dedicated team was formed in the early 1980s as more

specialized care was needed. This consisted of a registered nurse and a respiratory therapist. That team was very similar to the team which exists today. Experienced staff nurses would interview for the position and then undergo extensive training to master the advanced skills needed to manage the care and safe transport of the critically ill infants.

Prior to the inception of REACT, the team had to arrive at the outlying hospitals by any means available. The team always showed the dedication necessary to reach the infant, whether it was

by helicopter, ambulance, or the local funeral home's hearse. The NICU's very first transport flight was in a Coast Guard helicopter in 1973. Later, the team would fly in the Illinois State helicopter that was available for trauma care. The REACT program was started in 1987, and with it, better access to care across the region for the most critically ill patients, infants included.

The transport team, then and now, undergo yearly skills validations, trainings, and education, with additional training specific to the REACT helicopter. The team is trained to perform umbilical catheterizations, intubations, chest tube insertions, needle aspirations, administration of critical medications, among other advanced skills to stabilize and transport the most critical of infants. All of this training is necessary to ensure that the team of nurses and respiratory therapists are prepared to assume the care of and transport the infants in the region. The team has a specially made transport isolette equipped with a monitor, ventilator, and phototherapy, as well as other lifesaving equipment.

Javon Bea Hospital-Riverside is the Regional Perinatal Center, serving a 15 county region in northern Illinois and southern Wisconsin. The NICU transport team at Mercyhealth, with its 50 years of excellence, continues its commitment to serving the region.



## REACT and Pediatric transports



K. Jeromie Gass, NRP, CCEMT-P  
Flight Paramedic with REACT for four years

Every year, there are over three million pediatric hospitalizations. These admissions range from trauma to congenital defects. While some pediatric patients are brought to the hospital by their parents, there are children who need to be transported by ambulance or helicopter. These patients may be small in size, but the resources needed to provide care is great. From prehospital to interfacility pediatric transports, Mercyhealth's REACT transport team is here to provide these services to our smallest patients.

We are coming into RSV (Respiratory Syncytial Virus) season. Patients with this diagnosis may require respiratory support ranging from low flow oxygen to mechanical ventilation. In some areas, hospital and EMS staff have two options to deal with this—oxygen via nasal cannula/mask or intubation. While providing oxygen via mask or cannula is common practice to many, advanced pediatric airway protection is a high risk/low frequency procedure to many providers. REACT has added an additional noninvasive option, called a RAM cannula. The RAM cannula is an oxygen delivery device that can be used as an alternative approach to deliver positive pressure ventilation through the nose. While the use of the RAM cannula provides an additional option, there are times where intubation is the only option. Mercyhealth's REACT team is highly skilled in pediatric, advanced airways and carries the CMAC video laryngoscope. Emergency Medicine: 2019 Oct. 16 published a study by Kaji AH et

al regarding the use of video versus direct visualization in predetermined difficult pediatric airways. This study shows that first time successful intubation rates with video were significantly higher than direct (84% vs 74.5). The CMAC comes with different blades, which range from pediatric blades to adult blades. The REACT crew even carries the pediatric D Blade, a hyperangulated blade where less spinal manipulation is used to obtain a higher first time pass rate. (Journal of Anaesthesiology, Clinical Pharmacology, 2019 Oct.-Dec.).

Once airway management is obtained, proper ventilation is a key component in patient care. REACT utilizes the Hamilton T1 ventilator. This ventilator can ventilate patients as little as 500 grams. The Hamilton provides the crew with the option of pressure or volume ventilation and is also capable of providing noninvasive pressure modes including BIPAP and CPAP.

Another major factor is treating the pediatric population is hypothermia. Hypothermia increases infant and neonate morbidity and mortality. While providing care to our littlest patients we tend to forget that while we are comfortable with a room temp of 70 degrees, pediatric patients can quickly become hypothermic at this room temperature. When caring for these patients, providers must be mindful of this. With this concern, REACT crew members monitor our pediatric patient's temperature continually throughout the transport. Also, with smaller babies, we use the "baby pod". This is an enclosed, isolette-type transport device for patients under 5 kilograms. We are able to close the top (which is see-through) and place warming packs into the baby pod to help maintain body temperature.



## REACT and Pediatric transports (continued)

The REACT Transport Team consists of 5 flight nurses and 4 flight medics. The crew has an amazing 221 years of combined nursing and EMS experience and 121 years of flight experience. The Mercyhealth REACT flight crew are all instructors in ACLS, PALS, TNCC and ITLS, and are Neonatal Resuscitation Providers and AWHONN certified (fetal monitor certified) as well. The crew provides educational opportunities to a wide range of health care professionals, which include public outreach to the lay person rescuer, assisting in education for all levels of prehospital providers, nursing staff in hospitals and medical students.

The yearly education for crew members includes monthly meetings and quarterly high fidelity simulation labs. The skills labs are run by not only the chief flight nurse and medical director, but additional specialty medical directors. Examples include high fidelity OB/GYN, pediatric, cardiac and trauma simulations. Along with these simulations, the crew must maintain additional certifications in those specialties. The nurses are Certified Flight Registered Nurses and Prehospital Registered Nurses, while the paramedics are Flight Paramedic-Certified, as well as National Registry licensed. All crew members also hold licenses in Illinois and Wisconsin.

REACT is a Commission of Accreditation of Medical Transport System (CAMTS) certified flight program. The REACT program and crew go through a voluntary assessment for this standard every 3 years. This assures the care and safety that is provided each and every day is at the highest level.

Mercyhealth REACT is available 24 hours a day, 7 days a week for not only your pediatric transport needs, but also for your adult patients as well. In addition to pediatric critical care, we specialize in high risk obstetric, stroke, acute coronary syndromes, and trauma transports. The REACT crew is also trained in the use of the Impella device, the Intra-aortic Balloon Pump (IABP), extracorporeal membrane oxygenation (ECMO), pacemakers, fetal monitoring, ultrasound imaging, and ventilator management.

To contact REACT for education opportunities, schedule an event or class go to [mercyhealthsystem.org/mercyhealth-react-public-event-visits-hangar-tours/](https://mercyhealthsystem.org/mercyhealth-react-public-event-visits-hangar-tours/). To request REACT for a transport please call (800) MD-REACT (637-3228).



This photo was taken before the pandemic. Mercyhealth REACT encourages you to mask up, social distance, and get vaccinated.

## Prehospital Delivery



*Debb Webb, RN, CFRN, PHRN  
REACT Flight Nurse with REACT  
for 30 years*

There are about 3.9 million deliveries per year in the United States. Usually these deliveries occur with trained personnel in a controlled hospital setting. However, there may not be enough

time to get the mother to the appropriate facility. There is an increase in morbidity and mortality associated with unplanned pre-hospital deliveries. It is crucial for EMS to be familiar with appropriate delivery techniques and potential complications associated with out-of-hospital deliveries.

### Terms:

- Pelvic outlet: Bony ring of the pelvis where the fetus passes through. Size and shape can impact the ease of delivery.
- Uterus: Houses the fetus, placenta, amniotic sac and where the fetus grows and develops.
- Fundus: Dome top of the fetus, height can help determine to age of the fetus.

### Stages of Labor:

- Stage 1: Passage of mucus plug dilatation and effacement of cervix. Contractions will be strong occurring every 2 to 5 minutes. Strong urge to push. Crowning of head.
- Stage 2: Cervix is dilated to 10 cm, ends after delivery of fetus.
- Stage 3: Delivery of placenta.

### Complications:

Breech deliveries occur 3-4% of all deliveries.

- Frank: Hips flexed and knees extended (occurs 65% of breeched deliveries).
- Complete: Both hip and knees flexed against body.
- Incomplete: Feet or knees are the presenting part.
- DO NOT rush the delivery or pull on presenting part.
- Use and episiotomy (incision made in perineum), if necessary to deliver the head.
- Place finger in fetus mouth to flex neck and deliver the head. Free any excess cord for "slack".
- Check for umbilical cord wrapped around the fetus or prolapse.

### Umbilical Cord Prolapse:

- Don't push cord back into vagina.
- Use hand in vagina to keep the head or other presenting part from compressing cord.
- Place mom in knee/chest position or Trendelenburg.
- Put saline soaked gauze on exposed cord.

### Shoulder Dystocia:

- Turtle sign: Head of fetus is pushed out of vaginal opening then retracts.
- Pull mothers knees flexed and towards head.
- Put pressure on mother's bladder.
- Twist baby's torso (not head) intravaginally for better positioning and passage.

### Post Partum Hemorrhage:

- Defined as more than 500 cc of blood.
- As any type of hemorrhage, two large bore IV's, fluids as needed and monitor vital signs.
- Most common cause of hemorrhage is due to uterine atony. Massage uterine fundus. If necessary, do bimanual massage, one hand in vagina and other hand over abdomen and compress.

It is essential to be prepared with necessary equipment and personnel. Have a fully stocked OB delivery kit:

- PPE, masks, gown, gloves
- Towels
- Scissors
- Umbilical clamps x 2
- Bulb suction
- Oxygen
- Minimum of 3 caretakers—one for mom, baby and helper.

Deliveries occur so infrequently in the prehospital setting the initial efforts should be made to get the mother to the appropriate facility. However, there is not always time and for this reason its crucial for EMS to be familiar with infant delivery and its potential complications and how to treat them.