

Reducing the Incidence of Preterm Births and Decreasing the Length of Stay in our Neonatal Intensive Care Units

Preterm births resulting in Neonatal Intensive Care Unit (NICU) stays are expensive and cause lifelong morbidity. NICU stays average \$66,000 in Franklin County, Ohio and can cost in excess of \$2 million. Nationwide Children's Hospital is working to improve care, reduce NICU length of stay and ultimately cost of care through both prenatal prevention and postnatal interventions.



Prenatal Prevention

Nationwide Children's Hospital physicians are helping to lead a program called Ohio Better Birth Outcomes (OBBO), which brings clinicians and researchers together to coordinate prematurity prevention, along with community agencies and OB/GYN providers. OBBO has focused on five proven interventions to reduce the incidence of preterm births in Franklin County, Ohio:

1. **Progesterone Caproate Project (17P)** – provides prenatal therapy to pregnant women who have had a spontaneous preterm birth. Injections of 17 Alpha Hydroxyprogesterone Caproate (17P) have been shown to reduce recurrent preterm births by 35 percent.
2. **Central Ohio Scheduled Births Initiative (COSBI)** – is focused on reducing late preterm (36 to 39 weeks) elective deliveries without medical indication. Since September 2008, doctors scheduling preterm births in central Ohio's maternity hospitals have to complete a form stating the research for the preterm delivery, the term date for the baby and how that date was determined.
3. **Nurse Family Partnership** – partners a registered nurse with low-income first time mothers before the 28th week of pregnancy through the child's second birthday. The nurse provides home visits and follows a structured curriculum to help with prenatal health and support, and well child care.
4. **Safe Spacing** – addresses the fact that mothers have a 10 to 40 percent increased risk of future preterm birth if they conceive again within 18 months of delivery. Safe Spacing provides case management to help mothers wait 18 to 24 months between pregnancies.
5. **Teen Prenatal Clinic** – the newest OBBO program is focused on a population at greater risk for preterm births: teenage women.

To date, OBBO has seen a **50 percent reduction** in preterm births for the Nurse Family Partnership, and a **35 percent reduction** in late preterm births without medical indications through COSBI.

COSBI is part of a statewide Ohio Perinatal Quality Collaborative (OPQC). Across Ohio, the scheduled births initiative has, to date, **avoided approximately 250 NICU admissions and saved approximately \$10 million in annual Ohio health care costs.**

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Postnatal Interventions

Nationwide Children's is working on a major Quality Improvement initiative to reduce the length of stay for premature infants born more than 12 weeks early.

Small Baby Guidelines

The new Quality Improvement initiative builds on work already done by Nationwide Children's to implement small baby guidelines for infants born before 27 weeks gestational age. A study at the hospital has found that a unified approach to care of extremely premature infants in the first week of life resulted in improved patient outcomes and a decrease in the length of stay at the hospital:

- :: Infants treated using small baby guidelines were **discharged an average 13 days earlier** than infants not treated using a unified approach
- :: Infants treated using these guidelines also showed a **higher survival rate** without bronchopulmonary dysplasia (24 percent) and **without severe intraventricular hemorrhage** (65 percent), both of which are common complications that premature babies suffer.

Drug-addicted babies

By standardizing care and developing new care protocols for babies born with drug dependence or addiction (known as Neonatal Abstinence Syndrome), Nationwide Children's is showing preliminary results **more than halving the average NICU length of stay for these babies**, down from an average of 56.5 days in the first half of 2009, to an average of 24.3 days in 2010. This represents **a potential saving of \$2-3 million**.

Overall Length of Stay reduction

Combined with the OBBO prenatal intervention work, Nationwide Children's is seeing encouraging preliminary results in both extremely premature babies and babies born after 27 weeks gestation. Both **length of stay and mortality rates are going down**, which means that babies are spending less time in the NICU and survival rates are going up.

Next Steps

After beginning this Quality Improvement initiative at Nationwide Children's main campus NICU, improvements are now being rolled out to the hospital's other NICUs, housed within birthing hospitals in Columbus. Physicians and scientists are also drafting papers on specific components of the initiative to share in academic journals.