Children’s Hospitals and Clinics of Minnesota is the seventh-largest children’s health care organization in the United States, with 320 staffed beds at its two hospitals in Minneapolis and St. Paul. An independent, not-for-profit health care system, Children’s provides care through more than 14,000 inpatient admissions and more than 200,000 emergency room and other outpatient visits each year.

For referral, consultation, or questions about Children’s neonatal services, call:

Children’s Physician Access:
(866) 755-2121 or (612) 343-2121

Minneapolis NICU: (800) 636-6283
St. Paul NICU: (800) 869-1350

www.childrensmn.org
DELIVERING NEXT GENERATION CARE

As the region’s largest neonatal program, our vision is to achieve optimal outcomes for infants, through leadership in clinical expertise, compassionate care, technology, and research.

For higher order multiples, babies born prematurely, or those diagnosed with congenital anomalies and other infant disorders, Children’s provides the highest level of tertiary and quaternary infant care available in the region, built on a solid foundation of family-centered care. We believe an important element in achieving our program vision is the transparent sharing of quality and outcomes data. This booklet provides information about all aspects of the neonatal program, including outcomes data comparing Children’s to national and international programs, highlights in care, and comprehensive specialty services.

Children’s, Associates in Newborn Medicine, and Minnesota Neonatal Physicians, P.A., are proud to share this information with you.

Erik Hagen, MD
Medical Director, Children’s - St. Paul NICU
Medical Director, Neonatal Program,
Associates in Newborn Medicine

David Brasel, MD
Medical Director, Children’s - Minneapolis NICU
Medical Director, Neonatal Program,
Minnesota Neonatal Physicians, P.A.

Alan L. Goldbloom, MD
President and CEO,
Children’s Hospitals and Clinics of Minnesota
Children’s specializes in caring for multiples, babies with congenital anomalies, very premature and very low birth weight babies, and infants born with other complex diagnoses. We offer exceptional tertiary and quaternary care for babies, with survival outcomes among the best in the world.

Children’s neonatal program is the fourth-largest in the U.S., with more than 1,900 neonatal admissions per year. Our neonatal team includes highly-trained and experienced professionals from a full spectrum of medical specialties.

Families are integral members of our care team. Our family-centered care philosophy means that parents are invited to participate in daily medical rounds, sleep on site in private rooms, and participate in the long-term follow-up clinic after discharge.

“Children’s neonatal program has the best pediatric ancillary services you can find anywhere, from the pediatric subspecialists, nurses, and IV teams, to the lab and radiology care. When I talk to parents after their stay at Children’s, they invariably say they are 100 percent satisfied with the care they received.”

Naomi Palmer, MD, pediatrician, Partners in Pediatrics, Rogers, Minn.
Children’s neonatal team delivers some of the highest survival rates in national and international comparisons. We outperform the Vermont Oxford Network (VON) average for survival in all gestational age groups of very premature infants.

The 500+ team members of Children’s Neonatal Cornerstone Program include 22 neonatologists and 65 neonatal nurse practitioners, as well as highly-trained RNs, unit-based pharmacists, respiratory care practitioners, lactation consultants, neonatal dietitians, RN care coordinators, and others. A full spectrum of pediatric subspecialists is available within Children’s, from specialty surgeons and pediatric anesthesiologists, to geneticists and pain management specialists. A board-certified neonatologist is on-site 24 hours per day, seven days per week.

Our program has more than 1,900 inpatient admissions per year and a combined capacity of 127 beds. The program offers the most extensive Level IIIc services available in the Midwest. Level III and Level II capabilities are available in Minneapolis and St. Paul and the program/team also supports a 33-bed Special Care Nursery (Level II) at Abbott Northwestern Hospital in Minneapolis.

Some of the most significant innovations in neonatal care—including high-frequency ventilation, exogenous surfactant, hydrocortisone therapy, and mild systemic hypothermia—were tested at Children’s before becoming standards of practice in neonatal care. Since the 1970s, our research has been presented nationally and internationally through peer-reviewed journal articles and other venues. Children’s neonatologists are leaders in the American Academy of Pediatrics and serve as reviewers for Pediatrics, Pediatric Research, Journal of Perinatology, Critical Care Medicine, and other esteemed journals.

Children’s has been recognized annually as one of the top neonatal programs in U.S. News & World Report’s “America’s Best Children’s Hospitals” ranking. We are the only OptumHealth (United Resource Network) Neonatal Center of Excellence in Minnesota, a designation earned by meeting rigorous standards for evidence-based medicine, volumes, outcomes, and program capabilities. Children’s has been awarded “Magnet” designation by the American Nurses Credentialing Center, putting it in the top 4 percent of hospitals in the U.S. for nursing excellence.

<table>
<thead>
<tr>
<th>Year</th>
<th>Cases</th>
<th>ALOS (Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>1,760</td>
<td>20.86</td>
</tr>
<tr>
<td>2005</td>
<td>1,603</td>
<td>22.52</td>
</tr>
<tr>
<td>2006</td>
<td>1,734</td>
<td>21.79</td>
</tr>
<tr>
<td>2007</td>
<td>1,863</td>
<td>20.81</td>
</tr>
<tr>
<td>2008</td>
<td>1,920</td>
<td>19.68</td>
</tr>
</tbody>
</table>
In 2003, Children’s - St. Paul became one of the first NICUs in the country to transform its unit into an entirely private-room environment. Surveys at Children’s have consistently shown increased levels of family and staff satisfaction with the reduced levels of noise and stress in the private-room environment.

UNIT PROFILES

With more than 1,900 inpatient admissions annually, Children’s is the only neonatal program in the region with the extensive experience and distinctive technology to treat virtually any medical condition affecting newborns. It is Level IIIc, the highest care designation granted by the American Academy of Pediatrics for neonatal centers.

MINNEAPOLIS

<table>
<thead>
<tr>
<th>NICU</th>
<th>44-bed Level IIIc neonatal unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infant Care Center</td>
<td>26-bed Level II/III neonatal unit</td>
</tr>
<tr>
<td>Special Care Nursery (Abbott Northwestern Hospital)</td>
<td>33-bed Level II neonatal unit (staffed by Children’s NICU team)</td>
</tr>
</tbody>
</table>

ST. PAUL

<table>
<thead>
<tr>
<th>NICU</th>
<th>50-bed Level II/IIIc neonatal unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level II Unit</td>
<td>7-bed Level II neonatal unit</td>
</tr>
</tbody>
</table>
Children’s Neonatal Cornerstone Program offers a full range of diagnostic, medical, and surgical services, including:

- Cardiovascular evaluation and treatment
- Car seat consultations
- Case management
- Developmental assessment and therapy
- Diagnostic testing
  - Apnea testing
  - At-home apnea monitoring
  - Hearing screenings
  - Infant pulmonary function testing
  - Ophthalmologic and retinal services, including retinopathy screening
- Extra Corporeal Membrane Oxygenation (ECMO)
- Fetal diagnostics and surgery
  - Ex utero intrapartum treatment (EXIT) procedures
  - Fetal echocardiograms
  - Laser fetoscopy for twin-to-twin transfusion syndrome (TTTS)
- General and specialty surgical services
- High-risk delivery support
- Infant massage
- Lactation and infant feeding consultation
- Mild systemic hypothermia (MSH) for infants with hypoxic-ischemic encephalopathy (HIE)
- Multidisciplinary high-risk prenatal consultations
- Neonatal follow-up clinic
- Neonatal transport services
- Pediatric subspecialty consultations
- Psychosocial assessment, support, and referrals
- Respiratory support
  - Inhaled nitric oxide therapy
  - Noninvasive, conventional, and high-frequency ventilation
- Telephone consultations for physicians
- Video consultation/telemedicine capabilities

Children’s is a primary referral center for other NICUs in the region. Thirty-five percent of Children’s neonatal admissions are low birth weight (less than 2,500 grams) or very low birth weight (VLBW) infants (1,500 grams). In 2008, neonatal patients came to Children’s from nine states and 59 Minnesota counties.
The talent of more than 500 team members comes together to provide extraordinary care for fragile infants 24 hours a day, seven days a week. Our neonatal team members dedicate themselves to not only treating, but preventing complications of prematurity. The large volume of patients and families we care for provides a solid foundation of experience, and allows us to create programs and services that address the entire continuum of care from fetal diagnosis to long-term follow-up.

To prevent endotracheal intubation and chronic lung disease, Children’s uses noninvasive respiratory support, such as nasal continuous positive airflow pressure (CPAP), high-flow nasal cannula treatment, and nitric oxide therapy when possible and appropriate. When neonates are ready to leave the hospital, Children’s respiratory therapists are nationally certified as Child Passenger Safety (CPS) technicians to perform car seat evaluations and family education about securing neonates, ensuring a safe transition home.

Children’s diagnostic team members are highly-trained and experienced in working with the tiniest, most fragile infants. When possible, laboratory tests are performed at the bedside, using tiny samples of blood to obtain accurate results. Magnetic Resonance Imaging (MRI) studies are performed by pediatric radiologists, with the goal of minimizing or eliminating the use of sedation.

**NEONATAL TEAM MEMBERS**

- Anesthesiologists
- Care management specialists
- Chaplains
- Child life specialists
- Developmental specialists
- Discharge planners
- ECMO specialists
- Geneticists
- Home care specialists
- Lactation support specialists
- Neonatal dietitians
- Neonatal nurses
- Neonatal nurse practitioners
- Neonatologists
- Obstetricians
- Occupational therapists
- Pediatric pharmacists
- Perinatologists
- Physical therapists
- Respiratory therapists
- Social workers
- Speech therapists
- Subspecialists
- Surgeons
FAMILY SERVICES

At Children’s, families are integral members of the care team. Parents are invited to participate in daily medical rounds, are provided full access to their child’s medical records, may sleep on site in private rooms, and are welcome at their child’s bedside 24 hours a day. Patient/family surveys show that more than 90 percent of neonatal parents would highly recommend Children’s NICU for care.

Parents are encouraged to help provide care for their child through nurse-assisted feedings and diaper changes, kangaroo care (skin-to-skin contact between parent and child, which has been shown to improve outcomes among low birth weight babies), and lactation support.

Support services such as care management assistance, the parent-to-parent group (which allows current and former NICU parents to share their experiences), the sibling play area (where siblings can engage in supervised play and activities), and the long-term follow-up clinic are also available.

“We couldn’t be happier with the care and attention that not only the girls received, but we received. Staff members helped us bond with our girls while they were in the hospital. Nurses gave us every opportunity to bathe, feed, and be close to the girls. The doctors and nurses reassured us by answering all of our questions and made sure we understood each step of the way. We could rest and relax knowing our babies were well taken care of and loved. We feel very lucky that Children’s exists.”

- Jessica Peltz, mother of twins, Mound, Minn.
Among the infants defined as very premature, Children’s neonatal team delivers some of the highest survival and lowest complication rates in the world. Very premature infants, sometimes referred to as “micro preemies,” are those who are born between 22 and 29 weeks gestation and frequently weigh less than 1,500 grams at birth.

Quality improvement comparative data is compiled and analyzed by the Vermont Oxford Network (VON), which has the world’s largest collection of data on very premature and very low birth weight infants. Nearly 700 NICUs around the world have contributed data on more than 50,000 infants. At Children’s, VON data is used to evaluate and improve clinical performance, as well as educate and inform parents, physicians, and other health care providers.

In 2007, Children’s achieved higher survival rates compared to the VON average in every gestational age category. Children’s incidence of necrotizing enterocolitis (NEC) and nosocomial infections were lower than the VON average of gestational age.

Survival rates for premature infants improve significantly with increased gestational age and birth weight. Children’s survival rates exceed VON averages for all gestational age categories, with exceptional outcomes for neonates less than 24 weeks.
Premature infants are born with undeveloped blood vessels in the back of the eye/retina. Abnormal growth of these vessels results in a condition called retinopathy of prematurity (ROP). Mild ROP is common in VLBW and very premature infants. While it does not impair vision, it can cause nearsightedness or lazy eye. Severe ROP may cause blindness. Children’s has dedicated ROP teams at both the Minneapolis and St. Paul campuses to continuously monitor and treat this condition, ultimately improving outcomes.

NEC is an inflammation of the intestine that can result in long-term nutritional problems, bowel injury, systemic infection, and in severe cases, death. Children’s has a lower incidence of NEC compared to the VON averages for all gestational age categories.
Very premature infants are highly susceptible to hospital-acquired (nosocomial) infection, which can be associated with any bacterial pathogen including fungi or coagulase-negative staph. Children’s had fewer cases of nosocomial infections than the VON peer average in all gestational age categories.

Jonathan Engholm (18), born at 26 weeks
2 pounds, 2 ounces
Once the size of his teddy bear, Jonathan now plays football at St. John’s University, Collegeville, Minn.
When too many fragile blood vessels in the cerebral ventricles of the brain rupture, the resulting bleeding may create a condition called severe intraventricular hemorrhage (IVH). Severe IVH can lead to long-term developmental delays, hydrocephalus, and other disabilities. Compared to the VON average, Children's has a lower incidence of severe IVH in two out of three age categories.

### 2007 INCIDENCE OF IVH

<table>
<thead>
<tr>
<th>Gestational Age</th>
<th>Children's of MN</th>
<th>VON Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;24 Weeks</td>
<td>35.1%</td>
<td>38.6%</td>
</tr>
<tr>
<td>24 - 26 Weeks</td>
<td>23.2%</td>
<td>20.0%</td>
</tr>
<tr>
<td>27 - 29 Weeks</td>
<td>2.8%</td>
<td>6.0%</td>
</tr>
</tbody>
</table>

Katie Kenefick (20), born at 25 weeks
1 pound, 14 ounces
Katie during her sophomore year of college on a service trip in Guatemala.
PERINATAL PARTNERSHIP: QUALITY CARE. INDIVIDUAL APPROACH. HEALTHIEST POSSIBLE PREGNANCY AND BIRTH.

Minnesota Perinatal Physicians and Children’s collaborate to provide specialized care for high-risk obstetric patients and premature or sick newborns, all within the most active regional center of its kind in the Upper Midwest.

Minnesota Perinatal Physicians is one of the largest perinatal practices in the nation with 16 highly-experienced perinatologists, a nurse practitioner, and other experienced team members, including obstetrical nurses, genetic counselors, and ultrasound sonographers who are specially trained in maternal-fetal care.

The perinatal clinic offers comprehensive diagnostic services and medical/surgical care for a full range of fetal abnormalities, maternal health concerns and complications of pregnancy, and delivers more than 1,000 babies a year.

MATERNAL/FETAL SERVICES

- Diagnostic testing
- Fetal assessment
- Prenatal counseling
- Genetic counseling
- Comprehensive support services
- Expert consultations for families and physicians
- Postnatal care

FETAL THERAPIES

- Fetoscopic laser ablation therapy for twin-to-twin transfusion syndrome (TTTS)
- Ex-utero intrapartum treatment (EXIT)
- Amniocentesis
- Chorionic villus sampling (CVS)
- First trimester screening
- Cordocentesis (PUBS)
- Intrauterine fetal transfusions (IUFT)
- Amnio reductions
- Transabdominal amnioinfusion
- Fetal umbilical cord ligation
- Fetal shunt placement
PERINATAL CARE COORDINATION: SUPPORTING FAMILIES FROM PREGNANCY, DELIVERY, AND TRANSITION TO HOME

Children’s provides care coordination for patients expecting more than one baby, a baby with a congenital anomaly, and premature or sick newborns. Through advanced practice nurses, families are ensured a smooth transition from perinatal care and birth to neonatal care at Children’s.

SERVICES

• Guidance through the health care system
• Coordination of resources between hospitals, clinics, and providers
• Support through prenatal care, labor, delivery, and care of infants
• Postnatal follow-up care by providing referrals and answering questions

Jean Kummer, APRN, perinatal care navigator, works to provide consistent support and coordination to help families before, during, and after their hospital stay.
Children’s neonatal surgery team members provide tertiary and quaternary levels of care to neonatal patients with the fourth-highest level of patient acuity among Pediatric Health Information System (PHIS) hospitals. The program includes Minnesota’s first and largest extra corporeal membrane oxygenation (ECMO) program and is the only center in the region to offer fetal surgery capabilities. The full spectrum of board-certified, pediatric specialty surgeons includes anesthesiologists, cardiothoracic surgeons, and ENT surgeons.

- Children’s has one of the largest groups of pediatric surgeons in the country and performs more than 70 percent of the total surgical procedures on neonates in the seven-county metro region.

- Children’s performs the most surgical procedures on neonates weighing less than 1,500 grams among all PHIS peer hospitals.

**TOP NEONATAL SURGICAL PROCEDURES**

- Repair of congenital heart malformation
- Repair of newborn thoracic masses
- Repair of congenital diaphragmatic hernia
- Esophageal atresia with tracheoesophageal fistula (TEF)
- Bowel resection for necrotizing enterocolitis (NEC)
Our surgery teams consistently achieve some of the highest survival rates in the United States. For the period from 2004 to 2008, Children’s surgical mortality ratio was the seventh-lowest among the 42 PHIS hospitals.

The following charts use data from the PHIS database. A ratio of 1.0 indicates that mortality/length-of-stay was as expected, given the severity of illness treated. Ratios below 1.0 indicate the mortality/length-of-stay was lower than expected; in other words, lower scores are better.

Twins Rachel and Ailee arrived three months early weighing less than one pound each, and had heart surgery soon after. Today, they are thriving 7-year-olds.
A key to delivering next generation care is Children’s commitment to generating, teaching, and applying new knowledge. Some of the most life-saving innovations in neonatal care, including exogenous surfactant, high-frequency ventilation, mild systemic hypothermia, and hydrocortisone therapy, were tested at Children’s before being adopted nationally as standards of practice. There are typically more than 50 active research studies being conducted in Children’s Neonatal Cornerstone Program.

In addition to acting as principal investigators for many National Institute of Health-funded, randomized clinical trials, team members publish research through peer-reviewed journals, books, and medical conferences. Children’s neonatologists are reviewers for many prominent journals, such as the *Journal of Perinatology*, *Pediatric Research*, *Critical Care Medicine*, and *Pediatric Pulmonology*.

Children’s neonatal fellowship program, in conjunction with the University of Minnesota Medical School, Department of Pediatrics, is one of the oldest and most prestigious in the country, with two fellows accepted each year and a total of six fellows training at Children’s at any given time. In addition to providing hands-on neonatal care, fellows conduct neurophysiological and respiratory research for Children’s Infant Diagnostic and Research Center. More than 500 physicians have completed rotations at Children’s NICUs since the medical education program began in 1970.

“The neonatal fellowship program was attractive for a number of reasons. When I read about the program, I was impressed by how much research is being done here. Also, we see a large variety of conditions, and the patient acuity is high. The neonatologists have an enormous breadth and depth of experience, and I, as well as the patients, benefit tremendously from it.”

- Nicole Birge, MD, neonatal fellow at Children’s
Children's was a test site for exogenous surfactant in the late 1980s. In 1990, when the therapy was approved for general use, mortality from hyaline membrane disease decreased nationally by 40 percent. These once tiny NICU patients benefited from the application of Children's early surfactant research, and now in their late teens and early 20s, are living life to the fullest!

**PROGRAM HIGHLIGHT: LONG-TERM FOLLOW-UP CLINIC**

Infants born at less than 27 weeks gestational age, weighing less than 1,000 grams at birth, or having complex medical conditions (approximately 40 percent of Children's total neonatal patients) are invited to participate in Children's long-term follow-up clinic. The multidisciplinary clinic team coordinates care, conducts developmental testing and physical assessments, and creates a personalized developmental plan for each child. A detailed summary of this plan is provided to the family and the child's primary care provider. Family members can ask medical and developmental questions, and receive information on medical and community resources. Children's long-term follow-up clinic provides the largest database of long-term neonatal patient outcomes in Minnesota and sees more than 700 patients each year.
In the past, neonatologists could do little to treat perinatal asphyxia, which can cause hypoxic-ischemic encephalopathy (HIE)—a condition that can lead to seizures, cognitive defects, and up to 30 percent of cerebral palsy cases.

Today, clinical studies show mild systemic hypothermia (MSH), either in the form of head or whole-body cooling, may improve long-term neurologic outcomes in some infants with HIE when treatment occurs within six hours of birth.

Children’s was one of 24 medical centers internationally to participate in a four-year, randomized clinical trial to evaluate MSH therapy using the head cooling approach. Treatment consisted of temperature-controlled water circulating through a cap on the infant’s head, with the goals of lowering the brain’s temperature, slowing brain metabolism, reducing inflammation or swelling, and preventing the release of toxins that could lead to long-term damage. Study results showed that head cooling can reduce cognitive impairment in infants who experience moderate to severe brain damage during the birth process.

Recently, new studies have tested whole-body cooling using a cooling blanket. Several multi-center, randomized controlled trials (both published and soon-to-be-published) demonstrated that whole-body cooling also reduces cognitive impairments in infants with HIE. Because of these results, Children’s is offering MSH in both head and whole-body cooling formats until it has been shown which approach is most useful and cost-effective.

Neonatologist Robert Couser, MD, was the principal investigator for Children’s head cooling trials. “This is an evolving therapy, with ongoing studies,” says Dr. Couser. “It’s exciting to know there’s now an option beyond supportive care, if the infant receives the treatment fast enough. Any time a baby is born with perinatal asphyxia, contact Children’s NICU as quickly as possible, as the effective treatment window is only about six hours.”
Extracorporeal membrane oxygenation (ECMO) is a treatment for critically ill infants with cardiac and/or respiratory failure that is not reversible with other intensive care therapies. During ECMO, a mechanical blood pump and artificial lung assume the functions of the baby’s heart and/or lungs, allowing their organs a chance to recover. The treatment is most often used to treat severe lung conditions, overwhelming infections, and periods of poor heart function following cardiac surgery or primary myocardial dysfunction.

In part because of the small numbers of ECMO patients at any given hospital, ECMO programs typically participate in the Extracorporeal Life Support Organization’s (ELSO) international registry in order to pool data and compare outcomes. Because of the critical nature of the underlying condition of ECMO patients and the complexity of the treatment, mortality for ECMO patients is high. In those areas where peer performance is not met or exceeded, Children’s utilizes ELSO data to guide performance improvement efforts.

Children’s provides ECMO treatment in the neonatal intensive care unit and pediatric intensive care unit at Children’s - Minneapolis.

Children’s ECMO program has cared for more than 300 patients since 1985, and is the largest and oldest in Minnesota with volumes growing each year. In 2008, Children’s ECMO program was recognized nationally with the Extracorporeal Life Support Organization (ELSO) Award for Excellence in Life Support. The award recognizes superior performance in patient care, staff and physician training, education, collaboration, and communication.
When identical twins are monochorionic and diamniotic, they are at high risk for twin-to-twin transfusion syndrome (TTTS)—a condition where unbalanced perfusion occurs through shared placental vasculature. “We estimate that annually in Minnesota, about 30 to 40 sets of twins experience TTTS,” says Brad Feltis, MD, pediatric surgeon and surgical director of the Midwest Fetal Care Center. “If left untreated, usually neither infant will survive.”

In the past, TTTS was treated with serial volume amnioreduction, which often helps one baby survive. Now a new treatment for TTTS—fetoscopic laser ablation therapy—demonstrates significantly improved outcomes over prior methods. During fetoscopic laser ablation therapy, a tiny scope is inserted through the uterus to find the blood vessels connecting the two babies. A laser is then used to coagulate the shared vessels, thus providing each baby with its own circulation.

Recent data shows that with fetoscopic laser ablation therapy, there is a 75 to 90 percent survival rate of at least one twin and a 35 to 40 percent survival rate for both babies. Data also shows that survivors of the therapy have fewer neurological deficits than those treated by the previous method.

Fetoscopic laser ablation therapy is available at Children’s through the Midwest Fetal Care Center. Doctors aim to perform fetoscopic surgery between 18 and 26 weeks of gestation to help increase the babies’ chances of survival. “We recommend that all women carrying monochorionic and diamniotic twins get weekly ultrasounds because if the condition develops, the clock immediately starts ticking,” says Dr. Feltis. “The sooner we can perform the surgery after TTTS develops, the more effective the intervention is.”
The Midwest Fetal Care Center is one of only a handful of fetal medical/surgical centers of its kind in the United States, and the only one in the region to perform fetoscopic laser ablation therapy. The center offers:

- Comprehensive evaluation and diagnosis, including fetal echocardiograms, ultrasounds, and other diagnostic tests
- Consultations with pediatric subspecialists, including cardiothoracic surgeons, neurosurgeons, urologists, geneticists, ENT surgeons, neonatologists, and others
- Newborn and fetal surgery, including EXIT procedures and fetoscopic laser ablation therapy (laser surgery for TTTS and other conditions)
- Prenatal counseling, care coordination, and family support services

The Midwest Fetal Care Center is a collaboration between Children’s Hospitals and Clinics of Minnesota and Abbott Northwestern Hospital. Conditions treated include:

- Abdominal wall defects
- Cardiac disease
- Chest anomalies
- ENT anomalies
- Fetal tumors
- Gastrointestinal disorders
- Genitourinary problems
- Neurologic disorders
- Twin-related conditions, including TTTS

The Cassellius twins, a TTTS laser ablation therapy success story at the Midwest Fetal Care Center.
Children’s transport teams collaborate closely with referring hospitals, colleagues, and families to provide the fastest and safest possible transport care for more than 500 neonatal patients each year. Highly experienced transport teams consist of a neonatal nurse practitioner and a neonatal RN and/or a respiratory therapist, depending on the needs of the patient.

Team members are trained in neonatal resuscitation, stabilization, and transport with expertise in transporting neonates on nitric oxide therapy and high-frequency oscillation therapy, simultaneously. Transport is available via ambulance, helicopter, or fixed-wing plane—24 hours per day, seven days per week. Transport services are provided in collaboration with LifeLink.

After discharge, neonatal team members collaborate with referring hospitals to provide case reviews. Post-referral surveys support initiatives to advance improvement of the neonatal transport process.

In the 1970s, Children’s became one of the first NICUs in the U.S. to utilize neonatal nurse practitioners (NNPs) as members of the care team. The NNP role now includes patient care, delivery attendance, neonatal procedures, and staffing of all neonatal transports.
OUTREACH / CONTINUING MEDICAL EDUCATION

To help promote the highest quality of care for infants and children in the Upper Midwest, Children’s provides ongoing medical education, outreach services, telemedicine, and other resources to health professionals. The neonatal outreach team, which includes physician and nursing liaisons, meets regularly with health professionals to respond to needs and share resources.

**Physician outreach services:**

- “Ask a Children’s Specialist” links physicians with specialists for online non-urgent consultations
- Children’s Physician Access provides phone access to Children’s specialists
- Conferences
- Online Grand Rounds with Continuing Medical Education credit
- Perinatal/neonatal case reviews
- Policy and clinical pathway sharing
- Speakers bureau presentations on requested topics
- Mini-fellowships

**Nursing outreach services:**

- Certification courses, such as the S.T.A.B.L.E. and the Neonatal Resuscitation Program, presented at referral hospitals
- Mini-conferences on requested topics of interest
- Nursing care and skill development presentations
- Online nursing Grand Rounds presentations
- Policy and clinical pathway sharing
- Shadowing experiences with Children’s staff

**TELEMEDICINE**

Children’s specialists utilize telemedicine capabilities to provide rapid, remote interpretation of diagnostic echocardiograms and radiology images which are sent in from throughout the region.

Children’s neonatologists also have the ability to perform real-time, remote consultations for anticipated and unexpected high-risk deliveries via telemedicine at regional health care facilities. Web-based technology enables a neonatologist to work remotely with an attending physician to assess and guide an infant’s medical treatment and stabilization. After assessment and treatment, the local provider and the neonatologist can better determine whether care is best provided locally, or if a transfer to Children’s for more intensive care is indicated.
VISION FOR TOMORROW

As one of the largest and oldest neonatal programs in the nation, our vision is to achieve optimal outcomes for infants, through leadership in clinical expertise, compassionate care, technology, and research.

As part of achieving our vision, we are pleased to announce the expansion and enhancement of our neonatal facilities and program, including:

- **Development of a private room environment for the Minneapolis NICU.** More private family space will help create an ideal healing environment for nurturing tiny, fragile infants.

- **Preeminent Mother-Baby program.** Children’s and Allina Hospitals and Clinics are collaborating to create a Mother-Baby program that will provide the most advanced prenatal, perinatal, and neonatal care for mothers, babies, and their families throughout the region.

- **Complex care coordination.** Complex care requires detailed coordination. Children’s is committed to a multidisciplinary, family-centered care philosophy that supports care management throughout the continuum and allows families to become active, informed care partners.

- **Development of the Midwest Fetal Care Center.** Children’s, in collaboration with Abbott Northwestern Hospital, will offer the most advanced diagnostics and treatment available to both the mother and fetus before, during, and after the infant’s birth through new diagnostic and surgical capabilities in this fetal medical and surgical center.

“We are on the forefront of perhaps the most exciting evolution in the still relatively young field of neonatology. Traditional neonatal care, which focused on the unique physiology of children born prematurely, is shifting to advanced fetal care that includes in-utero diagnosis, fetal surgery, and gene therapies. There’s no end to the inroads Children’s can make to allow earlier and more effective intervention for these earliest of arrivals.”

- **David Brasel, MD, NICU Medical Director, Children’s - Minneapolis**

Children’s president and CEO, Alan L. Goldbloom, MD, and Youth Advisory Council members break ground at Children’s - Minneapolis, Oct. 2007.
Children's Hospitals and Clinics of Minnesota is the seventh-largest children’s health care organization in the United States, with 332 staffed beds at its two hospitals in Minneapolis and St. Paul. An independent, not-for-profit health care system, Children’s provides care through more than 14,000 inpatient admissions and more than 200,000 emergency room and other outpatient visits each year.

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