

The Fetal Care Center of Cincinnati

Designing a Center to Meet Advances in Medical Care

By John D. Bignaut, AIA, ACHA



Front Entry: The front entry establishes the separate identity of the adult center in a pediatric facility.

Fetal surgery is a relatively new and exciting field in practical medicine. The first open fetal surgery took place in 1981 at the University of California at San Francisco. It has progressed from a select group of pioneers to the more mainstream medical therapy that it is today. Providing facilities to house such advances in medical care challenges medical planners and designers to meet their special needs.

A case in point is the new Fetal Care Center of Cincinnati located at Cincinnati Children's Hospital Medical Center in Ohio, which opened in February 2006. It is the first dedicated fetal diagnosis and treatment unit in the United States.

Children's hospitals across the country are beginning to offer diagnostic fetal programs, but only about 20 offer treatment, and only a small number offer comprehensive programs with the full scope of treatment options.

Dedicated Unit

At Cincinnati Children's, the decision was made to combine the inpatient and outpatient components in order to cater to the mother and fetus's needs in a dedicated unit. The aesthetic of the unit needed to be distinct to establish an adult

identity in a children's environment. In addition, the inpatient and outpatient components of this small unit needed to be combined to provide a temporary home-away-from-home for mothers and families at a particularly stressful time in their lives.

The center houses two inpatient rooms with appropriate nursing support facilities. Critical items are located in immediate proximity while an adjacent nursing unit offers supplemental support. The outpatient component comprises two "nesting rooms" for mothers, two consultation rooms, an examination room and an ultrasound room. Nursing and administrative offices are located within the center as well as a conference room that supports telemedicine.

The Fetal Care Center of Cincinnati is a collaboration between Cincinnati Children's and two other hospitals from two different health systems—Good Samaritan Hospital (TriHealth) and University Hospital (Health Alliance). Both institutions have Level 3 obstetrical units, which is the model of care. These institutions will provide obstetrical nurses under the supervision of Cincinnati Children's personnel. They also have specialists who participate in diagnosis and treatment. In addition, mothers suffering complications will be transported for ongoing care to one of these adult hospitals.

The nesting rooms were included in the program to accommodate the special needs of diagnosing fetal abnormalities. The mother's initial visit takes a full day. During this visit the staff completes a comprehensive evaluation of the condition of the fetus. The only time the mother will have to leave the unit is for a fetal MRI; the size and complexity of this imaging modality precludes it from being included at the center. Apart from this, all other diagnostic procedures and consultations will take place at the center, from fetal ultrasound to laboratory services. During the course of the day the mother will meet with an array of specialists,



including a maternal fetal medicine specialist, geneticist, neonatologist and fetal/pediatric surgeon.

Depending on the issues involved she also may meet with specialists in the following fields: pulmonary, neurology, cardio-thoracic surgery, cardiology, anesthesia, nutrition, physical therapy or social work and chaplain.

A configuration that centralizes the diagnosis and post-intervention care process has a number of advantages.

A One-Stop Center

From the patient's point of view it offers a one-stop center that minimizes the confusion and stress of traipsing across the medical center to meet with all the specialists involved. By consolidating the evaluations into one day and conducting a coordinated team meeting with the family, the specialists ensure an informed and completely coordinated diagnosis. One of the primary goals of the Fetal Care Center is to provide as stress-free an experience as possible for the mother. By reducing stress for the mother and the family there is a consequent reduction of stress on the fetus.

From an operational point of view, the grouping of inpatient and outpatient functions together is ideal. It

Corridor: Changing flooring, wall colors and artwork, and adding crown molding helped to create an aesthetic suited to the adult population.

allows the specialized resources and equipment to be housed in one location. The fetal specialists can provide a continuum of care that places the patients' needs front and center.

The location of the inpatient rooms was carefully considered. The average length of stay for fetoscopic care is one to two days while open fetal surgery requires stays of two to five days. One-on-one nursing provided some leeway for considering alternate locations.

In the course of the planning for the Fetal Care Center, the team considered locating the inpatient beds in the ICU unit. Because the condition of the fetus often is critical this seemed to be appropriate. The typical ICU unit provides all the support services required for an obstetrics unit, but the appropriateness of housing adult mothers in a pediatric ICU raised major concerns. Ohio is the only state that does not have an Authority Having Jurisdiction for facility design, and so the regulatory aspects of this question could not be formally answered.

Another option was to house the

Patient Room: The patient rooms incorporate casework to conceal medical gases when not in use.

inpatient rooms in the Neonatal Intensive Care Unit. A project in the NICU was underway to provide private patient rooms, and two rooms could easily have been tailored to meet the needs of this population. But in the final analysis it was deemed highly inappropriate to house pregnant women with distressed fetuses in a unit filled with newborns.

Solution for Inpatient Beds

So the solution ultimately chosen provided the most appropriate location for the inpatient rooms—in a separate unit, distinct from the pediatric environment. The Fetal Care Center is located at the main Cincinnati Children's campus on the seventh floor of the clinical building that houses medical/surgical and multiple-specialty inpatient beds, as well as numerous outpatient clinics. The center is located adjacent to a nursing unit and has a dedicated entrance and reception desk to announce its separate identity as an adult-oriented facility. This goal of separateness was achieved while the advantages of being adjacent to a fully equipped nursing unit were realized.

The one disadvantage of the chosen location was that it is more remote from the surgery floor than either the ICU or the NICU. The Clinical Building is immediately adjacent to the Critical Care Building that houses surgery. It is connected to this building at all levels, and the clinicians determined that patient transport could be safely handled between the fetal operating room and the fetal surgery center.

This operating room was completed in July 2005 as part of a block of three, new integrated operating



rooms added onto the existing surgical suite. One of the larger operating rooms with an area of 698 square feet was chosen to accommodate fetal surgery. Multiple specialists share this operating room. The room is equipped so that two surgeries can be carried out simultaneously, one on the mother and one on the fetus. The large room size also accommodates such necessities as fetoscopic, ultrasound and echo equipment. In addition, there is an alcove with gases and a bassinets for the baby in the event of an emergency delivery.

The Fetal Care Center has operated for two years, running its diagnostic services out of a shared outpatient clinic and diverting all post-surgery patients to one of the two adult hospitals in the collaboration. This experience has underscored the need for a dedicated center.

Serving Patients From All Over

Another goal of the center is to serve a wide geographic network and this goal largely has been realized. Patients from across the country have come to Cincinnati Children's for treatment. The conference room in the center is equipped with audio/visual equipment to allow telemedicine and teleconferencing, which enables consultations at a distance.

The architectural challenge in designing the unit was to house the center in the clinical building using as much of the standard nursing unit layout as possible so that it could be converted into a standard

nursing unit in coming years. The interior design of the unit was a challenge. A separate entity with three collaborating institutions housing adults required a different environment from the surrounding pediatric facility. On the other hand the Cincinnati Children's personnel will be required to maintain the facility, so it needed to be designed in accordance with established interior standards for the medical center. The solution was to use products and design features from the Cincinnati Children's interior design standards as much as possible with a few deviations as required to establish the desired adult-oriented aesthetic.

The goal of the design team was to design a unit that will facilitate the goals of this specialty team and support its groundbreaking work in this new field. The opening of the Fetal Care Center of Cincinnati offers hope to expectant mothers with fetal problems over a wide region. It will provide a comprehensive program including initial evaluation, diagnosis, intervention and post-intervention care. ■



John D. Blignaut, AIA, ACHA, is a principal at GBBN Architects. He is a healthcare architect and manages healthcare operations for GBBN's offices in Cincinnati, Lexington,

Ky., and Beijing, China. He can be reached at jblignaut@gbbn.com.