



# Fetal Care Center

PHYSICIAN GUIDE



# Birth of a Center

The Cleveland Clinic has established a Fetal Care Center to help your patients achieve the best possible outcome when a pregnancy is complicated by a maternal, fetal or obstetric disorder.

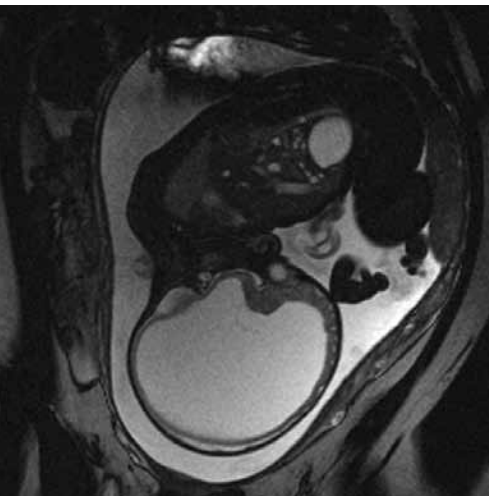
We serve Cleveland Clinic obstetric patients from Hillcrest Hospital, Marymount Hospital, Fairview Hospital, Huron Hospital and our family health centers, as well as patients referred by other obstetric providers. When fetal anomalies are detected, we offer interdisciplinary diagnosis and intervention at our Children's Hospital.

The Fetal Care Center affords tremendous flexibility for the referring obstetrician. You determine the extent of your patient's involvement. For more straightforward problems, we can provide definitive diagnosis and in utero intervention if needed, then refer your patient back to you for prenatal follow-up and delivery.

For more complex problems, we offer longitudinal, coordinated care provided by a core team of maternal-fetal medicine specialists, neonatologists, pediatric surgeons, pediatric radiologists, pediatric cardiologists and a fetal care nurse coordinator. Our Center streamlines access to virtually any maternal or pediatric subspecialist your patient may require. We collaborate closely with pediatric intensivists, pediatric anesthesiologists and pediatric congenital heart surgeons at Cleveland Clinic Children's Hospital.

## Prenatal Diagnostic Options

Accurate diagnosis optimizes obstetric outcomes. We offer first trimester screening, as well as conventional second trimester risk assessment. We also offer noninvasive high-resolution transabdominal and transvaginal ultrasound, color Doppler wave-form analysis and flow mapping, and fetal echocardiography. Our pediatric radiologists are skilled at performing and interpreting fetal MRI, which furnishes ultra-high resolution images of structural defects such as congenital diaphragmatic hernia, chest masses, CNS anomalies, facial clefts and a broad range of other fetal anomalies. The interventional diagnostic options available at our Fetal Care Center range from amniocentesis and chorionic villus sampling to fetoscopy, cordocentesis and placental biopsy. Cordocentesis, ultrasound-guided needle aspiration of fetal umbilical blood, allows for rapid genetic, biochemical or hematologic analysis. Placental biopsy is offered when fetal blood and amniotic fluid are unobtainable.



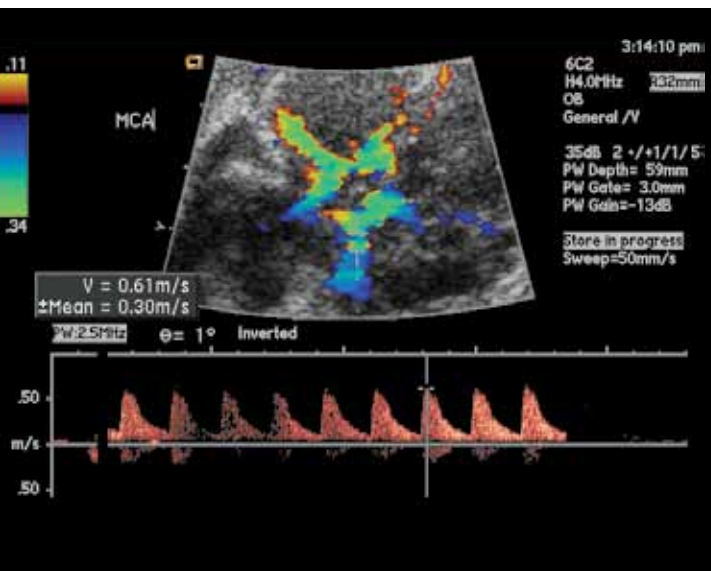
### HYDROCEPHALUS

This fetal MRI clearly shows massively dilated cerebral ventricles, but with preserved cortical mantle. When CNS anomalies such as hydrocephalus are suspected, we can direct patients to pediatric radiologists for fetal MRI and to a neonatal neurologist for consultation, then refer them back after definitive diagnosis to the primary obstetrician.

## Straightforward Interventions

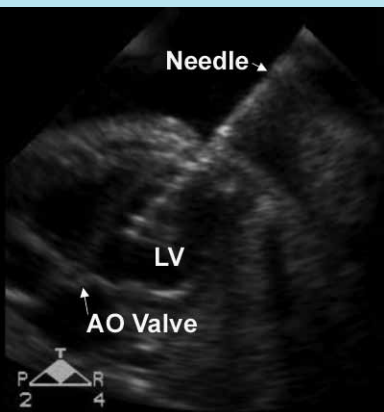
Once a problem is diagnosed, straightforward interventions such as intrauterine transfusion of specific blood products may be recommended.

To improve overall pregnancy outcome when assisted reproduction techniques result in multifetal pregnancy, we offer non-selective fetal reduction to safeguard the health of the other fetuses and mother. Should an anomalous fetus threaten the well-being of its healthy sibling, we can perform selective termination.



### FETAL ANEMIA

This detailed ultrasound using color Doppler wave-form analysis revealed severe fetal anemia as the cause of fetal heart failure after a mother was exposed to Fifth's disease (parvovirus B19) at 21 weeks. Cordocentesis confirmed the diagnosis, and intrauterine transfusion was performed. The mother was referred back to her obstetrician and delivered without complication.



## AORTIC VALVE STENOSIS

This four-chamber ultrasound view of the fetal heart and thorax shows needle insertion prior to percutaneous cardiac valvuloplasty. This minimally invasive intervention performed at 27 weeks improved in utero cardiac blood flow. After careful monitoring and delivery, the baby successfully underwent surgery for further congenital cardiac defects at 3 months of age.

## Sophisticated, Collaborative Care

For congenital heart disease, our maternal-fetal medicine specialists, pediatric cardiologists and pediatric fetal imaging specialists are at the cutting edge of minimally invasive fetal catheter interventions.

Their intrauterine percutaneous cardiac valvuloplasty technique is an extremely delicate procedure that corrects aortic valve stenosis, which can lead to left ventricular failure and hypoplastic left heart syndrome. After developing one of the first animal models for the procedure and working with industry to refine instrumentation, our Fetal Care Center specialists have successfully performed this procedure antenatally several times in humans. The intricate technique requires specialized anesthesia and cardiac imaging, plus carefully coordinated obstetrical and cardiac intervention. It has been performed successfully in fewer than 10 centers worldwide.



## Innovation: An Eye Toward the Future

We believe that minimally invasive procedures such as catheterization and fetoscopy represent the future of fetal intervention. Our interdisciplinary Center stimulates innovation to make the most promising interventions available to your patients. As we accomplished with in utero cardiac valvuloplasty, we aim to refine and develop new minimally invasive fetal interventions. Collaborations with scientists at the Cleveland Center for Stem Cell and Regenerative Medicine and the Genomic Medicine Institute on Cleveland Clinic's main campus support our development of gene and cell therapies to reverse or prevent disease.

## Support Services

Cleveland Clinic offers a holistic approach to care for families seen in the Cleveland Clinic Fetal Care Center, addressing physical, mental, emotional and spiritual health. We provide the personalized, high-tech, high-touch care we would want for our own family members. Besides medical and surgical experts, every family has access to specialists in bioethics, genetic counseling, integrative medicine, perinatal hospice, pediatric palliative care, pastoral care and perinatal grief counseling.

**To refer a patient to the Fetal Care Center,  
call 866.864.0430.**

# Cleveland Clinic Fetal Care Center Staff

## **Obstetrical Director**

Jeff Chapa, MD

## **Surgical Director**

John W. DiFiore, MD

## **Neonatology Director**

Sabine Iben, MD

## **Fetal Care Coordinators**

Donna Patno, CNM, DNP

Marcia Riegger, CNM, MSN

## **Maternal-Fetal Medicine**

Jeff Chapa, MD

Majida N. Jassani, MD

Amanda Kalan, MD

Fadi Khoury, MD

Robert Kiwi, MD

Amy Merlino, MD

Jules Moodley, MD

Kevin L. Muise, MD

Elliot Philipson, MD

Mohammad Rajabi, MD

Abdelaziz Saleh, MD

Yogesh Shah, MD

## **Neonatology Department**

Ricardo Rodriguez, MD,  
Chairman

## **Pediatric Surgery**

John W. DiFiore, MD

David Magnuson, MD

Federico Seifarth, MD

Oliver Soldes, MD

Anthony Stallion, MD

## **Pediatric Radiology**

Stuart C. Morrison, MD

Janet R. Reid, MD

## **Fetal Cardiac Imaging**

Francine Erenberg, MD

Richard Lorber, MD

Marcy Schwartz, MD

## **Pediatric Cardiology**

Gerald Boyle, MD, Chairman

## **Congenital Heart Surgery**

Constantine Mavroudis, MD

Robert Stewart, MD

## **Fetal/Pediatric Neurology**

Neil R. Friedman, MB ChB

## **Pediatric Neurosurgery**

Xiao Di, MD

Mark G. Luciano, MD, PhD

Violette Recinos, MD

## **Pediatric Nephrology**

Charles Kwon, MD, Chairman

## **Genetic and Metabolic Disorders**

Rocio Moran, MD

Vickie Zurcher, MD

## **Developmental Pediatrics/ NICU Follow-up**

Roberta Bauer, MD

Jennifer Peterson, MD

## **Pediatric Otolaryngology**

Paul R. Krakovitz, MD

## **Pediatric Craniomaxillofacial Surgery**

Michael Fritz, MD

Francis A. Papay, MD

## **Pediatric Critical Care**

Stephen Davis, MD,  
Chairman

## **Pediatric Anesthesia/ Pain Management**

Julie Niezgoda, MD

## **Pediatric Palliative Care**

Kathryn Weise, MD

## **Bioethics**

Ruth Farrell, MD

Kathryn Weise, MD

24 Hour Support  
866.864.0430

Referrals  
866.864.0430

## Maternal-Fetal Medicine Locations

### ASHTABULA COUNTY MEDICAL CENTER

2420 Lake Ave.  
Ashtabula, Ohio 44004

### BEACHWOOD FAMILY HEALTH AND SURGERY CENTER

26900 Cedar Road  
Suite 210 South  
Beachwood, Ohio 44122

### ELYRIA FAMILY HEALTH AND SURGERY CENTER

303 Chestnut Commons Drive  
Elyria, Ohio 44035

### FAIRVIEW MEDICAL CENTER

18099 Lorain Ave.  
Suites 320/345  
Cleveland, Ohio 44111

### HILLCREST MEDICAL OFFICE

6770 Mayfield Road, Suite 426  
Mayfield Heights, Ohio 44124

### INDEPENDENCE FAMILY HEALTH CENTER

5001 Rockside Road  
Crown Center II  
Independence, Ohio 44131

### MEDINA HOSPITAL

1000 E. Washington Street  
Medina, Ohio 44256

### MERCY MEDICAL CENTER

1330 Mercy Drive, Suite 506  
Canton, Ohio 44708

### STRONGSVILLE FAMILY HEALTH AND SURGERY CENTER

16761 SouthPark Center  
Strongsville, Ohio 44136

### LAKEWOOD HOSPITAL

#### Community Health Center

1450 Belle Ave., Suite 310  
Lakewood, Ohio 44107

### Westlake Medical Campus

850 Columbia Road, Suite 320  
Westlake, Ohio 44145

### WOOSTER FAMILY HEALTH CENTER

1739 Cleveland Road  
Wooster, Ohio 44691

### FETAL MRI AND FETAL CT:

Neonatology and  
Pediatric Surgery, Imaging  
and Specialty Consultations:

Cleveland Clinic  
Children's Hospital  
9500 Euclid Ave.  
Cleveland, Ohio 44195



## Cleveland Clinic

9500 Euclid Avenue, Cleveland, OH 44195

The Ob/Gyn & Women's Health Institute, one of 26 institutes at Cleveland Clinic, is designed to meet the unique and changing medical needs of women from adolescence to mature adulthood. The institute's team is expert in coordinated and supportive treatment of the problems that impact women's lives, from breast cancer to infertility, incontinence, pelvic floor disorders and more. Cleveland Clinic is a nonprofit, multispecialty academic medical center, consistently ranked among the top hospitals in America by *U.S. News & World Report*. Founded in 1921, it is dedicated to providing quality specialized care and includes an outpatient clinic, a hospital with more than 1,300 staffed beds, an education institute and a research institute.