The UCSF Fetal Treatment Center is a world leader in diagnosing and treating birth defects before delivery. Since 1981, UCSF has continued to be at the forefront of the most significant breakthroughs in fetal surgery and treatment.

Birthplace of fetal surgery

UCSF Medical Center has led or participated in many of the fetal treatment trials sponsored by the National Institutes of Health (NIH).

40+ years of experience

First in the world

UCSF Medical Center was the first institution in the world to successfully perform open fetal surgery.

650+ fetal surgeries and endoscopic fetal interventions since 1981

Pioneers

in the diagnosis and treatment of congenital anomalies before birth

10,000+ families cared for since 1981 from across the U.S. and around the world

UCSF Benioff Children’s Hospitals rank among the nation’s best in all 10 specialties assessed.

ucsfbenioffchildrens.org/fetaltreatment
### Highlights in fetal care

<table>
<thead>
<tr>
<th>1980s</th>
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<th>2000s</th>
<th>2010s</th>
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<td><strong>1981</strong></td>
<td>World’s first successful open fetal surgery</td>
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<td>Michael Harrison, MD, co-founds the International Fetal Medicine and Surgery Society (IFMSS), designed to promote the development and advancement of fetal diagnosis and therapy.</td>
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</tr>
</tbody>
</table>

### Conditions managed

- Agenesis of the corpus callosum
- Alpha thalassemia major
- Amniotic band syndrome
- Bowel obstruction
- Congenital diaphragmatic hernia (CDH)
- Congenital high airway obstruction syndrome (CHAOS)
- Comprehensive early anatomic evaluation
- Congenital heart disease
- Congenital pulmonary airway malformation (CPAM)
- Fetal anemia and thrombocytopenia
- Gastrochisis
- Hydrops fetalis
- Monochorionic twins
- Multiple anomalies
- Omphalocele
- Pulmonary sequestration
- Sacrococcygeal teratoma (SCT)
- Spina bifida
- Stem cell treatments
- Twin reversed arterial perfusion (TRAP) sequence
- Twin-to-twin transfusion syndrome (TTTS)
- Twin pregnancy complications
- Unequal placental sharing
- Urinary tract obstruction
- Ventriculomegaly
- And many others

### Beyond surgical intervention

Fetal magnetic resonance imaging (MRI) as an adjunct to enhance ultrasound in prenatal diagnosis

Second opinions for complex fetal cases

Co-management with referring providers to allow care close to home as much as possible

Advanced prenatal genetic testing and counseling, including whole genome sequencing

Multidisciplinary approach to supporting families including palliative care and bereavement team
Discoveries and inventions

Repairing simple anatomic anomalies in utero alleviates adverse physiologic consequences.

Tracheal occlusion creates lung growth.

Steroids can help stabilize CPAM size and thereby reduce the risk of progression to hydrops fetalis.

Arterio-arterial anastomoses are protective for twin-twin transfusion syndrome (TTTS).

Lung-to-head ratio (LHR), liver position and stomach position can be used as ultrasound markers to determine severity of congenital diaphragmatic hernia (CDH) in fetuses.

Harrison shunt for fetal lower urinary tract obstruction and effusions

Uterine stapling device for fetal surgery

Care team and specialists

Specialists from numerous disciplines provide fetal care at UCSF, including:

- Anesthesiologists
- Craniofacial surgeons
- Endocrinologists
- Genetic counselors
- Geneticists
- Maternal-fetal medicine specialists
- Neonatologists
- Neuroradiologists
- Nurse practitioners
- Pediatric cardiologists
- Pediatric cardiothoracic surgeons
- Pediatric nephrologists
- Pediatric neurologists
- Pediatric neurosurgeons
- Pediatric orthopaedic surgeons
- Pediatric otolaryngologists
- Pediatric surgeons
- Pediatric urologists
- Radiologists
- Registered nurses
- Social workers

50 specialists participate in weekly case conferences

100+ fetal specialists trained since 1981

2014
Tippi MacKenzie, MD, co-founds the International Fetal Transplantation and Immunology Society (FeTIS) to promote basic and translational research leading to development of fetal therapies.

2015
UCSF Center for Maternal-Fetal Precision Medicine founded

2017
First patient enrolled in FDA-approved clinical trial of fetal stem cell transplantation for alpha thalassemia major

2017
Participation in multicenter NIH-funded Clinical Sequencing Evidence-Generating Research (CSEF) consortium initiating fetal exome sequencing at UCSF

2017
Opening of the Alpha Thalassemia Patient Registry

2018
First patient enrolled in HyDROPS study to perform fetal exome sequencing and define genetic etiologies of fetal effusions

2020
First patient enrolled at UCSF as part of multicenter Renal Anhydramnios Fetal Therapy (RAFT) Trial

2021
First patient treated under FDA-approved protocol for in utero enzyme replacement therapy for lysosomal storage disorder
Fetal Treatment Center team

**Hanmin Lee, MD**
Pediatric surgeon  
Chief, Division of Pediatric Surgery  
Medical Director, Fetal Treatment Center

**Mary Norton, MD**
Perinatologist and clinical geneticist  
Co-Director, Center for Maternal-Fetal Precision Medicine

**Tippi MacKenzie, MD**
Pediatric surgeon  
Co-director, Center for Maternal-Fetal Precision Medicine

**Anita Moon-Grady, MD**
Pediatric cardiologist  
Medical Director, UCSF Fetal Cardiovascular Program

**Shabnam Peyvandi, MD**
Pediatric cardiologist  
Director, Healthy Hearts and Minds Program  
Associate Director, UCSF Fetal Cardiovascular Program

**James Anderson, MD**
Neonatologist  
Medical Director, Fetal Treatment Center, Oakland

**Erin Matsuda, DNP, RN, CPNP**
Director, Fetal Treatment Center

**Janice Scudmore, MSN, FNP-BC**
Manager, Fetal Treatment Center

Locations

The UCSF Benioff Children's Hospitals Fetal Treatment Center has two locations:

**UCSF Betty Irene Moore Women's Hospital**
1855 Fourth St., Second Floor, Suite A-2432  
San Francisco, CA 94158  
Phone: (800) 793-3887 (800-RX-FETUS)

**UCSF Benioff Children's Hospital Oakland**
Outpatient Center  
744 52nd St., Third Floor  
Oakland CA 94609  
Phone: (510) 428-3156

Leadership

UCSF is a founding partner of the following organizations:

- International Fetal Cardiac Intervention Registry (IFCIR)
- International Fetal Medicine and Surgery Society (IFMSS)
- International Fetal Transplantation and Immunology Society (iFeTIS)
- North American Fetal Therapy Network (NAFTNet)
- Rosenman Institute
- UCSF-Stanford Pediatric Device Consortium
- University of California Fetal Consortium (UCfC)