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MEDICAL COVERAGE GUIDELINES	**ORIGINAL EFFECTIVE DATE:**	**04/06/10**
SECTION: SURGERY	**LAST REVIEW DATE:**	**02/04/14**
	LAST CRITERIA REVISION DATE:	**05/17/11**
	ARCHIVE DATE:	

INTRAUTERINE FETAL PROCEDURES

Coverage for services, procedures, medical devices and drugs are dependent upon benefit eligibility as outlined in the member's specific benefit plan. This Medical Coverage Guideline must be read in its entirety to determine coverage eligibility, if any.

The section identified as "Description" defines or describes a service, procedure, medical device or drug and is in no way intended as a statement of medical necessity and/or coverage.

The section identified as "Criteria" defines criteria to determine whether a service, procedure, medical device or drug is considered medically necessary or experimental or investigational.

State or federal mandates, e.g., FEP program, may dictate that any drug, device or biological product approved by the U.S. Food and Drug Administration (FDA) may not be considered experimental or investigational and thus the drug, device or biological product may be assessed only on the basis of medical necessity.

Medical Coverage Guidelines are subject to change as new information becomes available.

For purposes of this Medical Coverage Guideline, the terms "experimental" and "investigational" are considered to be interchangeable.

Description:

Prenatally Diagnosed Malformations:
Most fetal anatomic malformations are best managed after birth. However, some congenital anomalies can be managed in utero. Fetal surgery involves opening the gravid uterus using either a traditional Cesarean surgical incision or single/multiple fetoscopic port incisions. The fetal abnormality is surgically corrected and returned to the uterus and the uterus is then closed.

INTRAUTERINE FETAL PROCEDURES (cont.)

Description: (cont.)

Twin to Twin Transfusion Syndrome (TTTS):
TTTS is a complication of monochorionic twin gestations. In this condition, blood passes disproportionately from one twin to the other through connecting blood vessels within their shared placenta. The recipient twin receives too much blood and responds by producing excessive amounts of urine. This causes the recipient twin to have too much amniotic fluid (polyhydramnios). The cardiovascular system overloads which may lead to heart failure. The recipient twin also becomes larger. The donor twin does not get enough blood resulting in decreased urination and a low volume of amniotic fluid (olighydramnios). The donor twin subsequently is smaller and may die from severe anemia.

Twin Reversed Arterial Perfusion (TRAP) Syndrome:
TRAP is a rare complication of monochorionic twin gestations. In this condition, an acardiac/acephalic twin receives its blood supply by reversed perfusion via the umbilical artery directly from the normally functioning twin. This added burden on the normal twin can lead to cardiac failure and fetal demise.

Fetoscopic Laser Therapy:
Treatment for both TTTS and TRAP. Selective ablation of the vascular anomalies to separate the two fetal circulations. Specific anomalies can be targeted using angiography, Doppler ultrasonography or direct fetoscopic visualization.

Mirror Syndrome:
A severe form of pre-eclampsia.

INTRAUTERINE FETAL PROCEDURES (cont.)

Criteria:

- Vesico-amniotic shunting for the treatment of urinary tract obstruction in a fetus is considered ***medically necessary*** with documentation of **ALL** of the following:

  1. Evidence of hydronephrosis due to bilateral urinary tract obstruction
  2. Progressive oligohydramnios
  3. Adequate renal function
  4. No other lethal abnormalities or chromosomal defects

- Open in utero resection of malformed pulmonary tissue or placement of a thoracoamniotic shunt is considered ***medically necessary*** with documentation of **ALL** of the following:

  1. Congenital cystic adenomatoid malformation **or** bronchopulmonary sequestration is identified
  2. Fetus is at 32 weeks gestation or less
  3. Evidence of **ANY** of the following:

     - Fetal hydrops
     - Placentomegaly
     - The beginnings of severe pre-eclampsia (i.e., the maternal mirror syndrome) in the mother

- In utero removal of a sacrococcygeal teratoma is considered ***medically necessary*** with documentation of **ALL** of the following:

  1. Fetus is at 32 weeks gestation or less
  2. Evidence of **ANY** of the following:

     - Fetal hydrops
     - Placentomegaly
     - The beginnings of severe pre-eclampsia (i.e., the maternal mirror syndrome) in the mother

INTRAUTERINE FETAL PROCEDURES (cont.)

Criteria: (cont.)

- In utero repair of myelomeningocele is considered ***medically necessary*** with documentation of **ALL** of the following:

  1. The fetus is at less than 26 weeks' gestation
  2. Myelomeningocele is present with an upper boundary located between T1 and S1 with evidence of hindbrain herniation

- In utero repair of myelomeningocele for the treatment of the following indications is considered ***experimental or investigational*** based upon:

  1. Insufficient scientific evidence to permit conclusions concerning the effect on health outcomes, and
  2. Insufficient evidence to support improvement of the net health outcome, and
  3. Insufficient evidence to support improvement of the net health outcome as much as, or more than, established alternatives, and
  4. Insufficient evidence to support improvement outside the investigational setting.

  These indications include, *but are not limited to:*

  - Fetal anomaly unrelated to myelomeningocele
  - Severe kyphosis
  - Risk of preterm birth (e.g., short cervix or previous preterm birth)
  - Maternal body mass index of 35 or more

- Fetoscopic laser therapy for twin-twin transfusion syndrome (TTTS) is considered ***medically necessary***.

- Fetoscopic laser therapy for twin reversed arterial perfusion (TRAP) syndrome is considered ***medically necessary***.

- Fetal surgery for all other indications not previously listed is considered ***experimental or investigational*** based upon:

  1. Insufficient scientific evidence to permit conclusions concerning the effect on health outcomes, and
  2. Insufficient evidence to support improvement of the net health outcome, and
  3. Insufficient evidence to support improvement of the net health outcome as much as, or more than, established alternatives.

  These indications include, *but are not limited to*:

  - Temporary tracheal occlusion for the treatment of a congenital diaphragmatic hernia
  - Treatment of congenital heart defects

INTRAUTERINE FETAL PROCEDURES (cont.)

Resources:

1. 4.01.10 BCBS Association Medical Policy Reference Manual. Fetal Surgery for Prenatally Diagnosed Malformations. Re-issue date 01/09/2014, issue date 03/15/1998.

2. 4.01.12 BCBS Association Medical Policy Reference Manual. Treatment of Twin-Twin Transfusion Syndrome with Amnioreduction and/or Fetoscopic Laser Therapy. Re-issue date 07/15/2004, issue date 12/15/2000.

3. Banek CS, Hecher K, Hackeloer BJ, Bartmann P. Long-term neurodevelopmental outcome after intrauterine laser treatment for severe twin-twin transfusion syndrome. *Am J Obstet Gynecol.* 2003 Apr 2003;188(4):876-880.

4. Johnson MP, Sutton LN, Rintoul N, et al. Fetal myelomeningocele repair: short-term clinical outcomes. *Am J Obstet Gynecol.* 2003 Aug 2003;189(2):482-487.

5. Kunisaki SM, Jennings RW. Fetal surgery. *J Intensive Care Med.* 2008 Jan-Feb 2008;23(1):33-51.

6. Lenclen R, Paupe A, Ciarlo G, et al. Neonatal outcome in preterm monochorionic twins with twin-to-twin transfusion syndrome after intrauterine treatment with amnioreduction or fetoscopic laser surgery: comparison with dichorionic twins. *Am J Obstet Gynecol.* 2007 May 2007;196(5):450.e451-457.

7. Lopriore E, Middeldorp JM, Sueters M, Oepkes D, Vandenbussche FP, Walther FJ. Long-term neurodevelopmental outcome in twin-to-twin transfusion syndrome treated with fetoscopic laser surgery. *Am J Obstet Gynecol.* 2007 Mar 2007;196(3):231.e231-234.

8. Moise KJJ. Maternal-fetal surgery for spina bifida: on the brink of a new era? *Am J Obstet Gynecol.* 2003 Aug 2003;189(2):311.

9. Pigula FA, Vida V, Del Nido P, Bacha E. Contemporary results and current strategies in the management of hypoplastic left heart syndrome. *Semin Thorac Cardiovasc Surg.* 2007 Fall 2007;19(3):238-244.

INTRAUTERINE FETAL PROCEDURES (cont.)

Resources: (cont.)

10. Quintero RA, Dickinson JE, Morales WJ, et al. Stage-based treatment of twin-twin transfusion syndrome. *Am J Obstet Gynecol.* 2003 May 2003;188(5):1333-1340.

11. Saura L, Castanon M, Prat J, et al. Impact of fetal intervention on postnatal management of congenital diaphragmatic hernia. *Eur J Pediatr Surg.* 2007 Dec 2007;17(6):404-407.

12. Senat MV, Deprest J, Boulvain M, Paupe A, Winer N, Ville Y. Endoscopic laser surgery versus serial amnioreduction for severe twin-to-twin transfusion syndrome. *N Engl J Med.* 2004 Jul 8 2004;351(2):136-144.

13. Ville Y, Hyett J, Hecher K, Nicolaides K. Preliminary experience with endoscopic laser surgery for severe twin-twin transfusion syndrome. *N Engl J Med.* 1995 Jan 26 1995;332(4):224-227.