Periviability

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This guideline has been updated to include recommendations for consideration of antenatal corticosteroids at 21 5/7 weeks when parents desire a trial of resuscitation.

Highlights

- A trial of resuscitation can be considered as early as 22 weeks 0 days. This requires MFM and Neonatology counseling to align with patient desires.
- Recommendations for use of antenatal corticosteroids, tocolysis, magnesium sulfate, latency antibiotics for preterm pre-labor rupture of membranes (PPROM), Group B Streptococcus prophylaxis, fetal monitoring and Cesarean delivery for fetal indications are provided for PFW and Ben Taub Hospital.

Overview

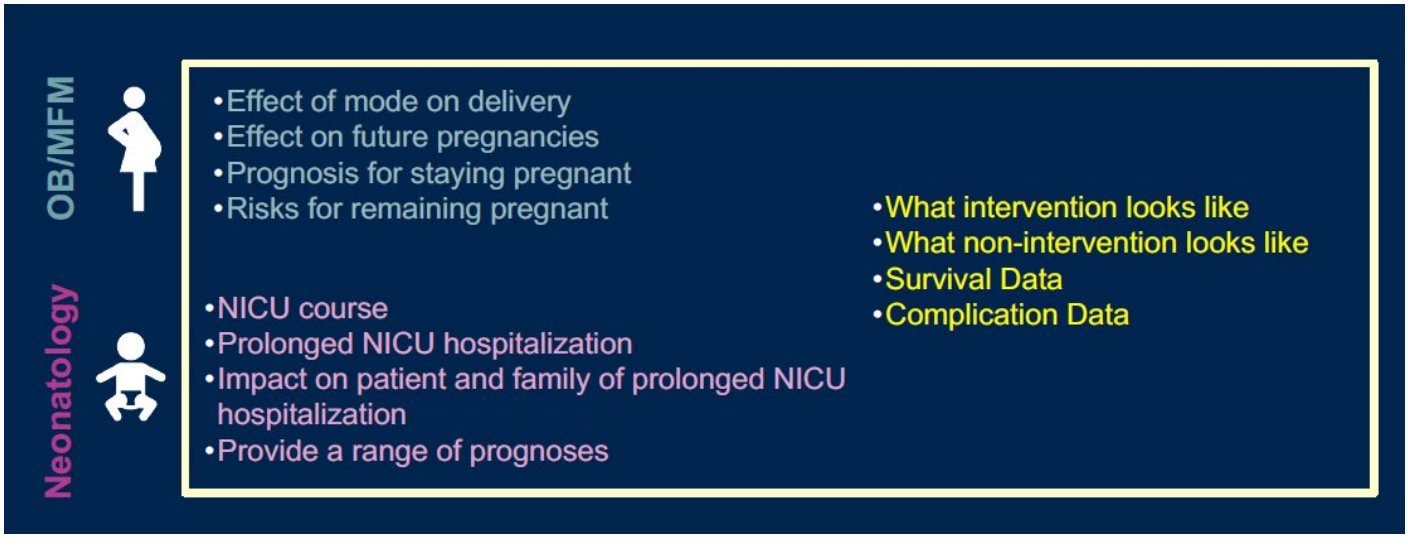
Recommendations for periviability management should address when to offer resuscitation or other interventions versus comfort care, with decisions guided by gestational age and available resources. The American College of Obstetricians and Gynecologists (ACOG) provides guidance on the use of antenatal corticosteroids, tocolysis, magnesium sulfate, latency antibiotics for preterm pre-labor rupture of membranes (PPROM), Group B Streptococcus prophylaxis, and cesarean delivery for fetal indications.[1] Additional considerations include the timing of fetal surveillance—such as initiation of non-stress testing—and best practices for periviability counseling. Effective management requires coordinated, multidisciplinary discussions among Obstetrics, Maternal-Fetal Medicine, and Neonatology**. This guideline offers an overview of key considerations for periviability management and highlights institution-specific recommendations at Texas Children's Hospital and Ben Taub Hospital.**

Definitions

Trial of Resuscitation: This applies to infants born between 22 0/7 and 23w6d. The "TOR" consists of intubation, ventilation, and surfactant. Chest compressions/epinephrine in the delivery room are not routinely pursued or offered.
Neonates born at 24 weeks and beyond will have a resuscitation that may consist of intubation, ventilation, surfactant, and chest compressions/epinephrine.

Joint MFM/OB and Neonatology Counseling Recommendations

Figure 1. Recommendations for joint OB/MFM and Neonatology Counseling



Considerations at **Texas Children's Hospital Pavilion for Women**

Texas Children's hospital and the Newborn Center base neonatology practice based on gestational age and individual clinical considerations, such as parental desires and additional comorbidities.

Table 2. Recommended interventions based on gestational age in periviable gestations

Gestational Age (weeks)	Approach to Resuscitation
< 22w0d	Comfort Care *
22w0d-23w6d	Comfort care and assessment for/trial of resuscitation offered (align with parent desires)*
≥24w0d	Resuscitation recommended*

*Practice guidelines are most appropriate for gestational age infants without significant complications or multiple anomalies. Individual practices and options may vary in the setting of multiple gestations, severe fetal growth restriction or other complications (i.e. Hydrops), and fetal anomalies.

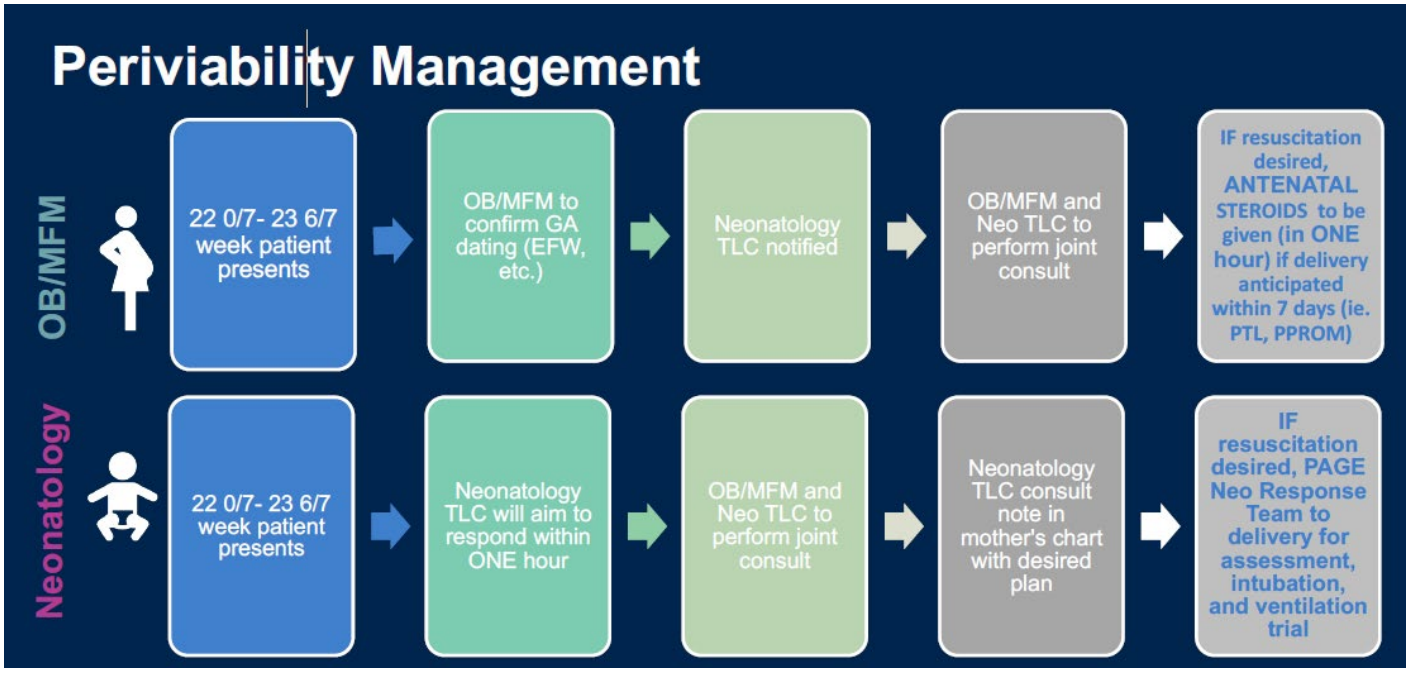
Table 3. Periviability Management Overview at TCH PFW

	Gestational Age			
	< 22 0/7 weeks	**22 0/7-22 6/7**	**23 0/7-23 6/7**	**≥ 24 0/7**
Antenatal Steroids	Not recommended*	*Recommend at 21 5/7 if TOR desired	Recommend if TOR desired	Recommended
Tocolysis to allow ACS administration	Not recommended*	*Recommend at 21 5/7 if TOR desired	Recommend if TOR desired	Recommended
Magnesium for neuroprotection	Not recommended*	Recommend if TOR desired	Recommend if TOR desired	Recommended
Cesarean Delivery	Not recommended	Not recommended for fetal indications	Consider for routine obstetric indications if TOR desired	Recommended for routine indications
Latency Antibiotics (PPROM)	Consider if delivery is not imminent	Consider if delivery is not imminent	Consider if delivery is not imminent	Recommended
Intrapartum Antibiotics for GBS	Not Recommended	Recommend if TOR desired	Recommend if TOR desired	Recommended
Fetal Monitoring (non-stress test or continuous fetal monitoring when indicated)	Not Recommended	Not Recommended	Consider if TOR desired	Recommended
Resuscitation or Comfort Care	Comfort care only	Comfort care and TOR offered; align with parental desires	Comfort care and TOR offered; align with parental desires	Resuscitation recommended unless other circumstances

TOR, trial of resuscitation

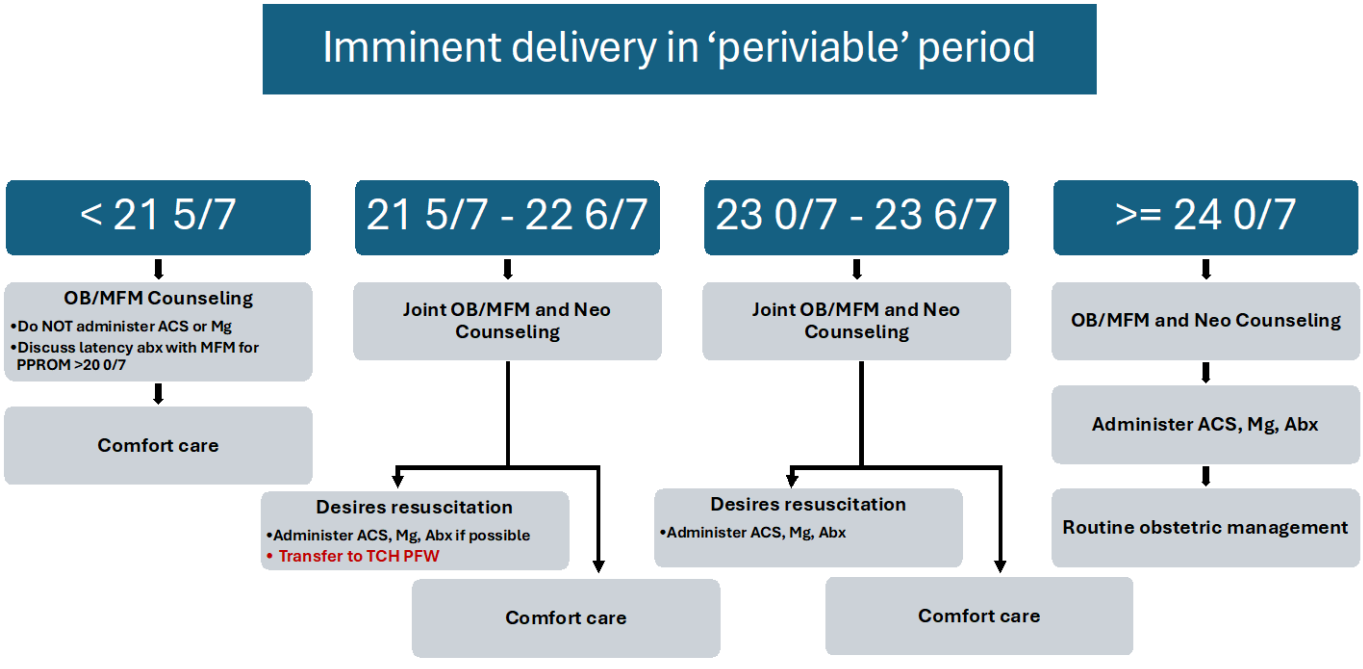
Subspecialist Workflow for Teams Caring for Pregnant Patients at Risk for Periviable Delivery 22w0d-23w6d

Figure 2. *Clinical workflow of periviability based on subspecialty*



Considerations at **Ben Taub Hospital**

Figure 3. Resuscitation Recommendations based on gestational age at BTH



***ACS**: antenatal corticosteroids; **Mg:** Magnesium sulfate; **Abx**: latency antibiotics or GBS prophylaxis*

**Practice guidelines are for most Appropriate for Gestational Age (AGA) infants without significant complications or multiple anomalies. Individual practices and options may vary in setting of multiple gestation, severe IUGR, fetal malformations/disorders, fetal hydrops, etc.*

Table 4. Periviability Management Overview at BTH

	Gestational Age			
	< 22 0/7 weeks	**22 0/7-22 6/7**	**23 0/7-23 6/7**	**≥ 24 0/7**
Antenatal Steroids	Not recommended*	*Recommend at 21 5/7 if TOR desired	Recommend if TOR desired	Recommended
Tocolysis to allow ACS administration	Not recommended*	*Recommend at 21 5/7 if TOR desired	Recommend if TOR desired	Recommended
Magnesium for neuroprotection	Not recommended*	*Recommend if TOR desired	Recommend if TOR desired	Recommended
Cesarean Delivery	Not recommended	Not recommended for fetal indications	Consider for routine obstetric indications if TOR desired	Recommended for routine obstetric indications
Latency Antibiotics (PPROM)	Consider if delivery is not imminent	Consider if delivery is not imminent	Consider if delivery is not imminent	Recommended
Intrapartum Antibiotics for GBS	Not Recommended	Recommend if TOR desired	Recommend if TOR desired	Recommended
Fetal Monitoring (non-stress test or continuous fetal monitoring when indicated)	Not Recommended	Not Recommended	Consider if TOR desired	Recommended
Resuscitation or Comfort Care	Comfort care only	Offer comfort care; **Transfer to TCH if TOR desired**	Offer comfort care; Consider TOR if desired	Resuscitation recommended unless other circumstances

TOR, Trial of Resuscitation

BTH Periviability Checklist Management Based on Gestational Age

Less than 21w5d

- ☐ On admission, OB/MFM to evaluate and confirm GA dating and EFW
  - Ultrasound for EFW should be performed by PGY 2 or higher level clinician
- ☐ Counseling in collaboration with OB/MFM attending
- ☐ Betamethasone and magnesium sulfate for fetal neuroprotection should NOT be administered <21 5/7
- ☐ Discuss need for latency antibiotics with OB/MFM Attending for PPROM (can consider at 20 0/7 if delivery is not imminent)
- ☐ Discuss plan for readmission (if applicable); if would desire trial of resuscitation <23w0d, consider admission to PFW
  - MFM should document a complete consultation so this can be included in the H&P done at PFW
  - Referral should be made for MFM Transfer of Care referral and put the indication as “previable PPROM, admit to PFW at ___ wks” – the online referral is best **https://www.texaschildrens.org/health-professionals/refer-patient/maternal-fetal-medicine**

- PFW will schedule patients in the office before their anticipated admission to do the H&P, orders, and delivery consents for direct admission to WSU. If that's not feasible, they will go to the WAC to then be admitted by one of the inpatient attendings.

21w5d-22w6d

- ☐ On admission, OB/MFM to evaluate and confirm GA dating and EFW
  - Ultrasound for EFW should be performed by PGY 2 or higher level clinician
- ☐ Neonatology to be consulted (ordered and called) **as soon as possible.** Most updated outcome and survival data from PFW/TCH should be utilized during consultation with parents.
- ☐ OB/MFM attending and Neonatology attending to perform collaborative consult together to determine patient goals for care/trial of resuscitation. If attending is not available, next highest fellow/resident should conduct consult.
  - Counseling should include need for transfer to TCH PFW if trial of resuscitation is desired.
- ☐ **If resuscitation is NOT desired**, postnatal assessment/care is managed by primary OB (Neonatology can provide support as needed)
- ☐ **If resuscitation is desired**,
  - Monitoring and mode of delivery counseling with OB/MFM. If MFM is not immediately available for in-person counseling, consult MFM back-up.
  - Antenatal steroids, tocolytics, antibiotics (GBS prophylaxis or latency), and +/- magnesium sulfate should be given at or after 21 5/7 weeks as soon as possible on arrival if delivery is anticipated within 7 days (e.g., preterm labor/advanced cervical dilation, PPROM)
    - Medication administration should not delay transfer out of facility. In the event that the patient transfers from OB Intake to another facility, magnesium sulfate may not be started at time of transfer.
    - **Transfer of care to TCH PFW should be initiated by OB/MFM attending**
      - Document patient stability for transport
      - MFM attending should call PFW MFM attending to discuss case (refer to schedule in QGenda). Plan of care discussions should remain attending to attending.
      - Neonatology fellow/attending should call TCH Neonatology team to discuss case
      - OB/MFM attending (in house attending) should then initiate transfer through Harris Health Transfer Center by calling 713-873-8601; place “ADT20” order in Epic prior to calling transfer center.
      - Once OB/MFM is connected to TCH PFW transfer center, request maternal transport via the TCH Kangaroo Crew (K-Crew will come to Ben Taub to transport patient to TCH PFW)
        - If K-Crew not available, the Transfer Center will coordinate a multi-disciplinary meeting to discuss alternative transport options, including L&D Attending (*39511), MFM Attending (call L&D *39511 to get contact number), Neonatology Attending (call Neo fellow *39210 to get contact number), Transport team members. Note that alternative transport companies may require transport with Obstetric and Neonatal physicians and this may be not possible at all times.

23w0d-23w6d

- ☐ On admission, OB/MFM to evaluate and confirm GA dating and EFW
- ☐ Neonatology to be consulted (ordered and called) **as soon as possible**
- ☐ OB/MFM attending and Neonatology attending to perform collaborative consult together; if attending is not available, next highest fellow/resident should conduct consult. See Figure 1.
  - *Consults that occur prior to 24 0/7 gestational age, should include information on what Trial of Resuscitation will look like at and after 24 0/7 gestational age.*
- ☐ If resuscitation is desired, monitoring and mode of delivery counseling with OB/MFM
- ☐ If resuscitation is desired, antenatal steroids, tocolytics, and magnesium should be given at ≥22 5/7 weeks as soon as possible on arrival if delivery is anticipated within 7 days (ie. PTL/PPROM)
  - Delivery to be performed in OR due to proximity to NICU for stabilization and resuscitation

- If resuscitation is NOT desired postnatal assessment/care is managed by primary OB (Neonatology can provide support as needed)

24w0d

- On admission, OB/MFM to evaluate and confirm GA dating and EFW
- Neonatology to be consulted (ordered and called) **as soon as possible**
- OB/MFM attending and Neonatology attending to perform collaborative consult together; if attending is not available, next highest fellow/resident should conduct consult. See graphic 1.
- Antenatal steroids, tocolytics, magnesium, antibiotics should be given as soon as possible on arrival if delivery is anticipated within 7 days (ie. PTL/PPROM)
- Delivery to be performed in OR due to proximity to NICU for resuscitation (<32 0/7)

Delivery room recommendations

- Neonatology to be PAGED and present at delivery if resuscitation is desired
- Early intubation and ventilation trial; additional resuscitation based on individual circumstances
- Admit to NICU

Appendix

Sample Smartphrases for OB/MFM Counseling at BTH (.cmdperiviableconsult)

22 0/7 - 22 6/7 weeks

I counseled @NAME@ and her partner extensively on the management of a periviable infant, potential clinical scenarios, and the risks, benefits and alternatives to different management strategies. I counseled on the neonatal morbidity and mortality at this GA and that survival may be associated with life-long morbidity. I explained that a trial of resuscitation (TOR) is not offered at Ben Taub prior to 23w0d, however it is offered at TCH PFW as early as 22w0d, so transfer is an option if desired. After counseling, @NAME@ expressed that she would want transfer to TCH PFW for TOR beginning at 22w0d, so we notified the Neo team and returned for joint counseling together regarding management and prognosis of TOR at 22 weeks (see their note for full details). After joint counseling, @NAME@ confirmed her desire for transfer to TCH PFW for trial of resuscitation. She understands that she may deliver prior to transfer or en route and that comfort care would be the management after delivery in that case. I counseled her that prior to transfer, we will administer BMZ for fetal maturity, tocolysis, magnesium sulfate for fetal neuroprotection, and antibiotics for GBS prophylaxis/latency for PPROM.

Regarding mode of delivery, I counseled the couple that cesarean delivery does not improve fetal outcome prior to 23 weeks. For this reason, cesarean delivery prior to 23 weeks would only be considered for maternal benefit, for example, in the setting of uterine rupture and/or hemodynamic compromise from placental abruption. I explained that cesarean delivery would not be offered for malpresentation or FHR abnormalities, so FHR monitoring is not performed prior to 23 wks. I counseled the couple that even at 23w0d - 23w6d, neonatal resuscitation is still considered a trial that the parents can decline, thus FHR monitoring does not have to ensue if they would not want a cesarean delivery for fetal indications prior to 24w0d. I explained that resuscitation is the expectation at or after 24w0d.

23 0/7 - 23 6/7 weeks

I counseled @NAME@ and her partner extensively on the management of a periviable infant, potential clinical scenarios, and the risks, benefits and alternatives to different management strategies. I counseled on the neonatal morbidity and mortality at this GA and that survival may be associated with life-long morbidity. I explained that a trial of resuscitation (TOR) can be offered as early as 23w0d at Ben Taub Hospital if desired. After counseling, @NAME@ expressed that she would want TOR, so we notified the Neo team and returned for joint counseling together regarding management and prognosis of TOR at 23 weeks (see their note for full details). After joint counseling, @NAME@ confirmed her desire for trial of resuscitation. I counseled her that we will administer BMZ for fetal maturity, tocolysis, magnesium sulfate for fetal neuroprotection, and antibiotics for GBS prophylaxis/latency for PPROM.

Regarding mode of delivery, I counseled the couple on the risks and benefits of FHR with cesarean delivery for FHR abnormalities. I explained that the purpose of FHR monitoring is to monitor for signs of fetal distress and intervene if present, which could include emergency cesarean delivery. I counseled them on the likelihood of a classical cesarean delivery at this GA and of the significance that would have on all future pregnancies, including, but not limited to, risk of uterine rupture and plan for pre-labor cesarean delivery in all pregnancies as well as increased morbidity and risk of PAS with multiple repeat cesarean delivery. I further counseled the couple that an emergency cesarean delivery would likely require GETA, so @NAME@ would not be awake when her baby is born and it is possible that her baby may pass away before she wakes up from surgery. Alternately, if the couple chose not to consider cesarean delivery for fetal indications, we would forgo FHR monitoring and there was potential for stillbirth/intrapartum demise.

I counseled her that management options for threatened periviable birth at this GA includes: 1) BMZ for fetal maturity (and tocolyisis/neuroprotection, as indicated), FHR monitoring, Neo assessment for resuscitation, and cesarean delivery for fetal indications. I explained that there is a high likelihood for classical

hysterotomy when cesarean delivery is performed at a periviable gestational and that classical incision mandates repeat cesarean delivery with all future pregnancies due to increased risk of uterine rupture; 2) expectant management with no FHR monitoring, no cesarean delivery, Neo assessment at delivery. I explained that both options are associated with risk of fetal/neonatal demise.

TOLAC

Regarding mode of delivery, I counseled the couple that cesarean delivery does not improve fetal outcome prior to 23 weeks. For this reason, cesarean delivery prior to 23 weeks would only be considered for maternal benefit, for example, in the setting of uterine rupture and/or hemodynamic compromise from placental abruption. I explained that cesarean delivery would not be offered for malpresentation or FHR abnormalities, so FHR monitoring is not performed prior to 23 wks. I also counseled her on the risk of uterine rupture of ~1% after 1 previous cesarean delivery. We discussed potential clinical scenarios in which MOD counseling may be readdressed with her, including, but not limited to, peri-viable latent vs advanced active labor and PTL beyond the periviable GA period. I discussed the possibility of PTL that arrests and that a period of expectant management during PTL may afford pregnancy prolongation, up to weeks, if labor arrests, vs proceeding with repeat cesarean delivery at the first sign of cervical change. If, however, she progresses to advanced PTL, such as 8 cm, where delivery is inevitable, she may be offered cesarean delivery at that time. Based on our discussion, she desires TOLAC, but understands that MOD counseling may be readdressed with her, depending on the clinical picture at the time.

References

References

1. American College of O, Gynecologists, Society for Maternal-Fetal M. Obstetric Care consensus No. 6: Periviable Birth. *Obstet Gynecol*. Oct 2017;130(4):e187-e199. doi:10.1097/AOG.0000000000002352
2. ACOG Practice Advisory: Use of Antenatal Corticosteroids at 22 Weeks of Gestation. 2021;