The 2016 NICHD Maternal Fetal Medicine Units Network "Antenatal betamethasone for women at risk for late preterm delivery" (ALPS) study demonstrated significant benefit for neonates at risk of being born in the late preterm period (34 0/7 weeks to 36 6/7 weeks of gestation).(Gyamfi-Bannerman et al., 2016) There was a lower incidence of respiratory support in the first 72 hours of life and fewer severe respiratory complications in the betamethasone group. There was, however, an increase in the incidence of neonatal hypoglycemia in the betamethasone group.

Outcome	%	RR (95% CI)
Decreased incidence of the following in the betamethasone group:		
• Composite neonatal respiratory support in the first 72 hours of life*	11.6 vs. 14.4 %	0.80 (0.66-0.97)
• Severe respiratory complication composite†	12.1 vs. 8.1 %	0.67 (0.53-0.84)
Increased incidence of the following in the betamethasone group:		
• Neonatal hypoglycemia	24.0 vs. 15.0 %	1.60 (1.37-1.87)
*Primary outcome: composite neonatal respiratory support in the first 72 hours of life (CPAP or high – flow nasal cannula for at least two consecutive hours, supplemental oxygen with an FiO2 ≥ 30% for at least 4 consecutive hours, mechanical ventilation, stillbirth or neonatal death, or ECMO. † Severe respiratory complication composite: CPAP or high-flow nasal cannula for ≥ 12 continuous hours or FiO2 ≥ 30% for ≥ 24 continuous hours.		

ACOG recommends one course of betamethasone at 34 0/7 to 36 6/7 weeks (if not previously administered) for patients who have a high probability of delivery occurring in the late preterm period. This is defined as one of the following:

- Preterm labor with cervical dilatation > 2 cm.
- Spontaneous rupture of membranes.
- Hypertensive disease of pregnancy with high likelihood of delivery occurring ≤ 36 6/7 weeks.
- Other individualized situations with a high probability of delivery ≤ 36 6/7 weeks (examples: prior myomectomy or classical incision, intrauterine growth restriction, oligohydramnios, placenta previa or accreta, or nonreassuring fetal testing not requiring immediate delivery).

Exclusion criteria

- Prior antenatal corticosteroid course.
- Immediate delivery anticipated (ex: advanced cervical dilation >8 cm).
- Non reassuring fetal testing requiring immediate delivery by cesarean section.
- Unstable maternal status requiring immediate delivery by cesarean section.

Special Considerations

1. **Diabetes:** Patients with pregestational diabetes were not included in the ALPS study because of concern for unblinding. Fetal pulmonary maturity may be delayed in women with diabetes(Piper & Langer, 1993), and thus, these neonates may benefit from late preterm betamethasone. Hyperglycemia above baseline should be anticipated and treated for up to 5 days after the last dose.
2. **Chorioamnionitis:** Administer the first dose of betamethasone and proceed with delivery as indicated without delay.
3. **Severe pre-eclampsia:** Administer the first dose of betamethasone and proceed if there are no indications for immediate delivery (nonreassuring fetal testing or abnormal Doppler studies, persistent CNS symptoms, elevated creatinine, pulmonary edema, seizures, SGA, severe hypertension unresponsive the therapy). Otherwise wait until administration of the second dose to start the induction of labor.
4. **Multiples:** Multiples were not included in the ALPS study but may benefit from late preterm betamethasone administration if the above criteria are met.
5. **Fetal anomaly:** Unless considered to be lethal, a fetal anomaly is not a contraindication if the above criteria are satisfied.

Glucose monitoring

The increased rates of neonatal hypoglycemia in the betamethasone group were likely due to maternal hyperglycemia from the betamethasone administration. Therefore, APEC recommends the following:

- Maternal blood glucose testing (finger stick glucose) 24 hours after each dose and daily up to 3 days after the last dose.
- Significant hyperglycemia (>200 mg/dL; taking into consideration the timing of the last meal), especially intrapartum, should be treated to lower the risk of neonatal hypoglycemia. This may require an insulin administration.
- Notify neonatal/pediatric team of antenatal corticosteroid administration at delivery as the neonate will require monitoring for hypoglycemia.

References

ACOG (2016). Antenatal corticosteroid therapy for fetal maturation, committee opinion #677. *The American College of Obstetricians and Gynecologists.*

Gyamfi-Bannerman, C., Thom, E., Blackwell, S., Tita, A., Reddy, U., Saade, G., & al., e. (2016). Antenatal betamethasone for women at risk for late preterm delivery. *N Engl J Med*.

Piper, J., & Langer, O. (1993). Does maternal diabetes delay fetal pulmonary maturity? *Am J Obstet Gynecol, 163 (3 Pt 1)*, 783-786.