# ANTENATAL STEROIDS FOR WOMEN AT RISK OF PRETERM DELIVERY

**CHOICE OF AGENT**:

Two regimens of antenatal glucocorticoid treatment have evolved and are effective for accelerating fetal lung maturity

1. Betamethasone (two doses of 12 mg given intramuscularly 24 hours apart) preferred agent if available.

2. Dexamethasone (four doses of 6 mg given intramuscularly 12 hours apart).

**GESTATIONAL AGE AT ADMINISTRATION**:

1. Administration of steroids for patients with threatened and imminent periviable birth **at less than $22^{0/7}$ weeks** is not recommended.

2. Administration of steroids for patients with threatened and imminent periviable birth **between $22^{0/7}$ and $23^{6/7}$ weeks** can be considered after counseling by both MFM and NICU based on existing evidence.[1-4]

3. All fetuses **between $24^{0/7}$ and $33^{6/7}$ weeks** of gestation at risk of preterm delivery should be considered candidates for antenatal treatment with corticosteroids regardless of membrane status (intact or ruptured).

4. In women with a singleton pregnancy **between $34^{0/7}$ and $36^{6/7}$ weeks** who are at high risk for preterm birth within next 7 days (and before $37^{0/7}$ weeks of gestation), we recommend treatment with a course of betamethasone (without tocolysis) provided they meet eligibility criteria.

    a. Inclusion criteria:
        i. Singleton pregnancy
        ii. Gestational age at presentation between $34^{0/7}$ and $36^{6/7}$ weeks
        iii. High probability of delivery (any one of the following):
            1. Preterm labor with intact membranes and at least 3 cm dilation or 75% effacement
            2. Delivery expected by induction of labor or cesarean section in no more than 7 days, as deemed necessary by the provider.
            3. May consider if delivery expected to occur within 12 hours
            4. May also consider in patients with fetal anomalies

    b. Exclusion criteria:
        i. Any prior antenatal steroids during the pregnancy
        ii. Candidate for stress dose steroids
        iii. Caution with multiple gestation (twins, etc.)
        iv. Fetal demise
        v. Maternal contraindication to betamethasone
        vi. Pregestational and gestational diabetes
        vii. Chorioamnionitis
        viii. Non-reassuring fetal status
        ix. Lack of gestational-dating on ultrasound before 32 weeks for a women with known LMP or before 24 weeks of gestation for those with unknown LMP

**RESCUE THERAPY:**

1. If delivery does not occur within 7 days from the first course of steroids, patient is less than $34^{0/7}$ weeks, and delivery is imminent then a single course of rescue steroids is indicated.

2. Rescue therapy consists of a single repeat course of betamethasone (2 doses of 12 mg IM given 24 hours apart - preferred agent) or dexamethasone (4 doses of 6 mg IM given 12 hours apart).

3. We continue to support the conclusions of the 2000 NIH consensus conference that weekly courses of antenatal glucocorticoids should not be used outside of randomized controlled trials

4. If the initial complete course was dexamethasone and rescue therapy is indicated, the preferred agent will be betamethasone (if available).

**ADDITIONAL NOTES:**

1. The decision to use antenatal corticosteroids should not be altered by fetal race or gender or by the availability of surfactant replacement therapy.

2. Optimal benefit begins 24 hours after initiation of steroid therapy and lasts seven days.

3. In complicated pregnancies where delivery prior to $34^{0/7}$ weeks of gestation is likely, antenatal corticosteroid use is recommended unless there is evidence that corticosteroids will have an adverse effect on the mother or delivery is imminent.

**FHR CHANGES AFTER THERAPY:**

1. Transient fetal heart rate (FHR) and behavioral changes that typically return to baseline by four to sevens days after treatment.

2. The most consistent FHR finding is a decrease in variability on days 2 and 3.

3. Fetal breathing and body movements are also commonly reduced, which may result in a lower biophysical profile (BPP) score or nonreactive nonstress test (NR-NST).

4. Maternal perception of fetal movement is not affected.

5. Given these observations, the possibility of transient fetal changes associated with antenatal steroids should be considered within the total clinical picture when assessing a fetus for possible delivery because of a nonreassuring fetal evaluation (NR-NST or low BPP score) within a few days of glucocorticoid administration.

References:

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7. Gentle SJ, Carlo WA, Tan S, Gargano M, Ambalavanan N, Chawla S, Bell EF, Bann CM, Hintz SR, Heyne RJ, Tita A, Higgins RD; Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) Neonatal Research Network. Association of Antenatal Corticosteroids and Magnesium Sulfate Therapy With Neurodevelopmental Outcome in Extremely Preterm Children. Obstet Gynecol. 2020 Jun;135(6):1377-1386. doi: 10.1097/AOG.0000000000003882. PMID: 32459430; PMCID: PMC7278037.