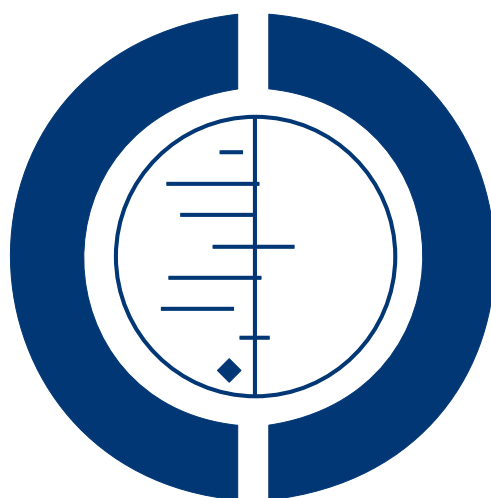


# Different corticosteroids and regimens for accelerating fetal lung maturation for women at risk of preterm birth (Review)

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[Intervention Review]

# Different corticosteroids and regimens for accelerating fetal lung maturation for women at risk of preterm birth

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## ABSTRACT

### Background

Despite the widespread use of antenatal corticosteroids to prevent respiratory distress syndrome in preterm infants, there is currently no consensus as to the type of corticosteroid to use; nor the dose, frequency or timing of use or the route of administration.

### Objectives

To assess the effects of different corticosteroid regimens for women at risk of preterm birth.

### Search strategy

We searched the Cochrane Pregnancy and Childbirth Group's Trials Register (January 2008).

### Selection criteria

Randomised and quasi-randomised controlled trials of antenatal corticosteroid regimens in women at risk of preterm birth.

### Data collection and analysis

Two authors assessed trial quality and extracted the data independently.

### Main results

Ten trials (1089 women and 1161 infants) were included. Dexamethasone decreased the incidence of intraventricular haemorrhage compared with betamethasone (risk ratio (RR) 0.44, 95% confidence interval (CI) 0.21 to 0.92; four trials, 549 infants). No statistically significant differences were seen for other primary outcomes including respiratory distress syndrome, bronchopulmonary dysplasia, severe intraventricular haemorrhage, periventricular leukomalacia, perinatal death, or mean birthweight. Results for biophysical parameters were inconsistent, but mostly no important differences were seen for these, or any other secondary outcome except for neonatal intensive care unit (NICU) admission. In one trial of 105 infants, significantly more infants in the dexamethasone group were admitted to NICU compared with the betamethasone group (RR 3.83, 95% CI 1.24 to 11.87).

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Oral dexamethasone compared with intramuscular dexamethasone increased the incidence of neonatal sepsis (RR 8.48, 95% CI 1.11 to 64.93) in one trial of 183 infants. No statistically significant differences were seen for other outcomes reported.

In one small trial of 69 infants comparing betamethasone acetate and phosphate with betamethasone phosphate no differences were seen for any of the outcomes reported.

#### **Authors' conclusions**

Dexamethasone may have some benefits compared with betamethasone such as less intraventricular haemorrhage, although perhaps a higher rate of NICU admission (seen in only one trial). Apart from a suggestion from another small trial that the intramuscular route may have advantages over an oral route for dexamethasone, few other conclusions about optimal antenatal corticosteroid regimens were able to be made. Trials of commonly used corticosteroids are most urgently needed, followed by trials of dosages and other variations in regimens.

## **PLAIN LANGUAGE SUMMARY**

### **Corticosteroid treatments before early birth for reducing death, lung problems and brain haemorrhage in babies**

Babies born early are at risk of death, lung problems (respiratory distress syndrome) and bleeding of the brain (intraventricular haemorrhage). Corticosteroids are given to the mother to help stop these problems occurring and there is high-quality evidence that they are effective in preventing many of these problems. These drugs work by maturing the baby's lungs before birth. There are different types of corticosteroids and they can be given in different ways and in different doses. Since there is no clear or agreed best type or dose, hospitals may vary in how they give this drug.

Most trials have compared the two most commonly used corticosteroids before early birth, dexamethasone and betamethasone. In this review of ten trials, nine trials compared dexamethasone and betamethasone; and one trial compared two different ways of giving dexamethasone. We found that dexamethasone and betamethasone showed similar results, although there was less bleeding of the brain (but perhaps more frequent admission to the neonatal intensive care unit) for dexamethasone compared with betamethasone. On the basis of one trial, giving dexamethasone by injection (intramuscularly) may be better than giving the drug to the mother by mouth. We need more studies to establish which is the best drug and which is the best way to give it, and babies in these trials need to be followed up over a long period to monitor any effects on child and adult development.