

# ADMINISTRATION OF ANTENATAL CORTICOSTEROIDS

## A Key Intervention to Reduce Mortality and Morbidity Associated with Prematurity

### The Causes and Results of Preterm Birth

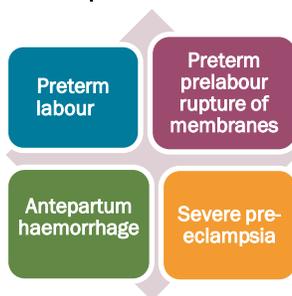
Babies born before 37 weeks gestation are considered preterm babies. Preterm birth (PTB) is the biggest killer of babies worldwide, causing more than 1 million deaths per year. Of babies born preterm, survivors may experience lifelong health challenges such as impaired brain development, impaired learning ability and compromised physical health.<sup>1</sup>

#### Why is prematurity important?

- Prematurity is on the rise globally
- MDG 4 of reducing child mortality by 2015 can only be achieved by addressing prematurity
- 1.1 million deaths are due to preterm complications, 75% of which are preventable

When a baby is born preterm, the baby faces numerous challenges, including difficulty feeding and maintaining body temperature, and can develop serious complications, principally, respiratory distress syndrome (RDS), a condition in which the baby has difficulty breathing because the lungs are underdeveloped. Use of antenatal corticosteroids (ACS) reduces the severity and mortality of RDS and should be administered to every pregnant woman who is less than 34 weeks<sup>1</sup> and has a condition that increases the possibility of a preterm delivery.<sup>1</sup>

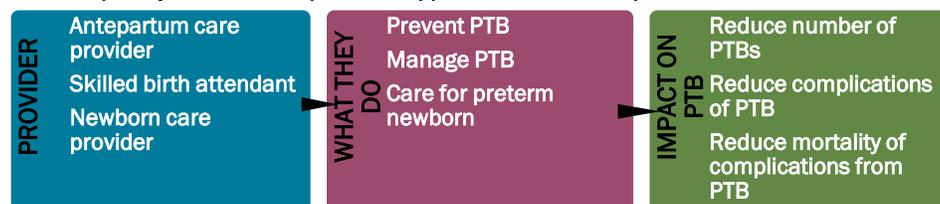
#### 4 conditions that can lead to preterm birth



Preterm birth has multiple causes. Many risk factors are known, but some cases of preterm birth have unclear causes. The **four main conditions** that lead to preterm birth include: preterm labour, preterm prelabour rupture of membranes, antepartum haemorrhage, and severe pre-eclampsia. Any one of these four conditions should prompt a provider to initiate administration of ACS.

Much global attention is now directed at combating prematurity following the publication of *Born Too Soon*, a 2012 report detailing the first-ever comprehensive global statistics on prematurity. Preterm births are a complex global problem requiring investment in prevention, management and treatment from all sectors of society.

#### Multidisciplinary collaborative perinatal approach to reduce impact of PTB



Although babies are born preterm in every country, there exist gross inequalities in the survival rates between babies born in high-income versus low-income countries because of limited access to appropriate care in low-income countries. Antenatal corticosteroids have been identified as a high-impact, effective and appropriate intervention to improve survival of preterm babies. However, in low- and middle-income countries, where morbidity is greatest, ACS coverage rates are estimated to be extremely low.<sup>1</sup> Subsequently, ACS is one of the thirteen underutilized commodities identified by the UN Commission on Life Saving Commodities for Women and Children.<sup>2,3</sup>

### What Are Antenatal Corticosteroids?

Corticosteroids are a class of medicine given to a mother who appears to be at risk of delivering her baby early, meaning, before 34 completed weeks of gestation. When this drug is given to the woman, it accelerates lung development of the fetus while the baby is still in the womb. If the baby has more mature lungs at birth she/he is less likely to suffer from RDS, and thus, more likely to survive. Antenatal corticosteroids have been used since 1972 to decrease the risk and severity of RDS and increase the survival of preterm babies. This

<sup>1</sup> There is some evidence of benefit when ACS are administered for pregnancies up to 37 completed weeks. This recommendation is currently under review.

medication is highly effective and has very few side effects at the dose used in the management of threatened preterm birth.

FAQ	ANTENATAL CORTICOSTEROIDS
<b>What it is</b>	Dexamethasone injection 6 mg is the preferred ACS. Betamethasone can also be used. <i>(See below for alternative regimen.)</i> <sup>4</sup>
<b>How it works</b>	Speeds fetal lung maturity through the increased production of natural surfactant.
<b>How it helps</b>	Preterm babies do not have enough surfactant, which helps the lungs expand, and therefore commonly develop RDS. By giving corticosteroids to the mother 48 hours before a baby's birth, the steroids will help the fetus produce more surfactant and suffer less from severe RDS.
<b>Who should get it</b>	Any mother who is less than 34 completed weeks of pregnancy and has one of the four conditions (preterm labour, preterm prelabour rupture of membranes, antepartum haemorrhage, severe pre-eclampsia) that increase her risk of preterm delivery.
<b>How it is given</b>	4 injections of dexamethasone 6 mg. The first dose is given immediately upon determination that the woman has one of the conditions that increases her risk of pre-term delivery. The second, third and fourth injections are given every 12 hours thereafter. <i>(See below for alternative regimen.)</i>
<b>When it is given</b>	Immediately upon identification of one of the four conditions that lead to preterm delivery. The maximum benefit comes 48 hours after the first injection. However, even shorter, or incomplete, regimens can be beneficial. Since the precise time of delivery can rarely be predicted, the medication should be initiated immediately when a condition leading to preterm birth is identified.
<b>Who should administer it</b>	The decision to give ACS is typically made by a skilled birth attendant (SBA). The injection can be administered by personnel trained to give injections.

Alternative regimen: Betamethasone 12 mg injection given intramuscularly 24 hours apart for two doses

### How Effective Are ACS?

When mothers receive ACS for threatened preterm birth, studies show an approximate decrease of 35% in the number of babies who develop respiratory distress syndrome, a 30% decrease in the number of babies needing extra breathing support through assisted ventilation machines, a 45% decrease in babies with cerebral haemorrhage and a 30% decrease in the number of babies who die.<sup>5</sup>

### What Is Required to Implement a Programme for Administration of ACS?

Administration of ACS can be implemented into existing programs of essential and emergency obstetric care. Their use should be widespread because they are inexpensive, highly available and relatively easy to implement in a low-resource health system. To implement a programme that includes ACS administration, health systems need:

- Clear national policies and clinical guidelines that are understood and used at all levels of the health care system.
- Dexamethasone/Betamethasone on the WHO Essential Medicines List for the indication of fetal lung maturity. The WHO List of Priority Life-Saving Medicines for Mothers and Children already reflects these medications for ACS use.<sup>6</sup>
- Inclusion of ACS as a management intervention for threatened preterm birth in the scope of work of each skilled birth attendant qualified to give ACS.
- Consistently available ACS.
- Human and resource capacity to ensure service delivery.
- Effective monitoring systems to support ACS implementation.

### Conclusions

Antenatal corticosteroids are a proven technology that is inexpensive and an appropriate intervention to reduce mortality and morbidity associated with prematurity in low-, middle- and high-income countries. ACS are under-utilized in low- and middle-income countries but this can change through collaborative efforts between policymakers, healthcare professionals and communities and have lasting impact on the survival of many more babies worldwide.

<sup>1</sup> *Born Too Soon: The Global Action Report on Preterm Birth*, 2012. World Health Organization.

<sup>2</sup> *UN Commission on Life-Saving Commodities for Women and Children*, 2012. World Health Organization. (<http://www.unfpa.org/public/home/publications/pid/12042>).

<sup>3</sup> Lawn, J., et al. *Antenatal corticosteroids for the reduction of deaths in preterm babies. A case study prepared for the United Nations Commission on Commodities for Women's and Children's Health*, 2012.

<sup>4</sup> The American College of Obstetricians and Gynecologists, 2011. Committee Opinion: Antenatal Corticosteroid Therapy for Fetal Maturation. *Obstetrics & Gynecology* 2011; 475(117), pp. 422-424.

<sup>5</sup> Roberts, D., Dalziel, S. Antenatal corticosteroids for accelerating fetal lung maturation for women at risk of preterm birth. *Cochrane Database of Systematic Reviews* 2006, Issue 3. Art. No.:CD004454. DOI: 10.1002/14651858.CD004454.pub2.

<sup>6</sup> Priority life-saving medicines for mothers and children, 2012. World Health Organization. ([http://apps.who.int/iris/bitstream/10665/75154/1/WHO\\_EMP\\_MAR\\_2012.1\\_eng.pdf](http://apps.who.int/iris/bitstream/10665/75154/1/WHO_EMP_MAR_2012.1_eng.pdf)).