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 newborns worldwide, causing more than one 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.1

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 preterm1 and has a condition that increases the chance of delivery within the next seven days.1

Four conditions that can lead to preterm birth
- Preterm labor
- Preterm prelabor rupture of membranes
- Antepartum hemorrhage
- Severe pre-eclampsia/eclampsia

While some preterm births happen without a clear reason, there are four main conditions that are known to lead to preterm birth, including: preterm labor, preterm prelabor rupture of membranes, antepartum hemorrhage and severe pre-eclampsia/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.

Although babies are born preterm in every country, there are gross inequalities in their survival rates between high-income and low-income countries because of limited access to appropriate care in low-income countries. Administration of antenatal corticosteroids – particularly dexamethasone – has 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.1 Subsequently, ACS is one of the thirteen underutilized commodities identified by the UN Commission on Life Saving Commodities for Women and Children.2,3

What Are Antenatal Corticosteroids?
Corticosteroids are a medication given to a mother with an increased likelihood of imminent preterm birth to help accelerate fetal lung development. Babies with more mature lungs at birth are less likely to suffer from RDS, and thus, more likely to survive. ACS have been used in many countries since 1972 to decrease the risk and severity of RDS and increase the survival of preterm babies. ACS are highly effective and have very few side effects at the dose used in the management of threatened preterm birth.

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1 Beneficial effects have been observed at all gestational ages, however, evidence is conclusive when ACS are administered to women at risk of imminent preterm birth between 24+0 and 34+6 weeks gestation at hospital level. When accurate estimation of gestational age is difficult, it is recommended to administer ACS from 24 to 37 weeks. Country guidelines may differ on the recommended gestational age range for administration.
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<th>Antenatal Corticosteroids</th>
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<td>What it is...</td>
<td>Dexamethasone injection is the preferred ACS since it is a more widely available, less expensive drug. Betamethasone is equally effective and can also be used.</td>
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<td>How it works...</td>
<td>Speeds fetal lung maturity through the increased production of natural surfactant. Also has protective effect on cerebral and intestinal blood vessels.</td>
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<td>How it helps...</td>
<td>Preterm babies do not have enough surfactant, which helps the lungs expand, and therefore commonly develop RDS. Antenatal corticosteroids help the fetus produce more surfactant and suffer less from severe RDS. ACS also reduces the chance of intraventricular cerebral hemorrhage and necrotizing enterocolitis.</td>
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<td>Who should get it...</td>
<td>Any mother who is preterm and has one of the four conditions (preterm labor, preterm prelabor rupture of membranes, antepartum hemorrhage, severe pre-eclampsia/eclampsia) that increase her chance of preterm delivery.</td>
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<td>How it is given...</td>
<td>Dexamethasone (or betamethasone) 24mg IM in divided doses. A schedule of 12mg IM every 12 hours x 2 is recommended for ease of administration but other regimens are also acceptable. The first dose is given immediately upon determination that the woman has one of the conditions that increases her risk of imminent preterm birth.</td>
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<td>When it is given...</td>
<td>Immediately upon identification of a condition that can lead to preterm birth. Maximum benefit is seen 48 hours after the first injection. Short or incomplete regimens, however, can still be beneficial. Since the precise time of delivery can rarely be predicted, dexamethasone should be initiated immediately when a condition leading to PTB is identified.</td>
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<td>What the precautions are...</td>
<td>There are no absolute contraindications to ACS. However, delivery should not be delayed to complete the ACS course in cases where it is necessary for the safety of the mother or fetus, such as chorioamnionitis or eclampsia. Additional insulin may be required in women with diabetes, and women on chronic steroids may need a stress dose of their steroids at the time of delivery.</td>
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<td>Who should administer it...</td>
<td>The decision to give ACS is typically made by a skilled birth attendant. The injection can be administered by personnel trained to give injections.</td>
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How Effective Are ACS?
When mothers receive ACS for threatened preterm birth, studies show about a 35% decrease in the number of babies who develop RDS, a 30% decrease in the number of babies needing external ventilator support, a 45% decrease in the rate of cerebral hemorrhage and a 30% decrease in the number of babies who die.5

What Is Required to Implement a Program for Administration of Dexamethasone?
Administration of dexamethasone can be integrated into existing programs of essential and emergency obstetric care. Use should be widespread because it is inexpensive, highly available and relatively easy to implement in a low-resource health system. Dexamethasone for the indication of promotion of fetal lung maturity was recently added to the 18th WHO Essential Medicines List (2013).6

To implement a program that includes administration of dexamethasone, health systems need:
- Clear national policies and clinical guidelines that are understood and used at all levels of the health care system.
- Inclusion of dexamethasone in the scope of work of every skilled birth attendant as part of the management of threatened preterm birth.
- Consistent availability of dexamethasone.
- Human and resource capacity to ensure service delivery.
- Effective monitoring systems to support monitoring of the coverage of use of dexamethasone.

Conclusions
Use of antenatal corticosteroids is a proven therapy that is inexpensive and appropriate to reduce mortality and morbidity associated with prematurity in low-, middle- and high-income countries. ACS are often under-utilized, but this can change through collaborative efforts between policymakers, healthcare professionals and communities and can have lasting impact on the rate of survival of newborns worldwide.

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