Antenatal corticosteroids in adequately equipped facilities in low-resource settings

The use of antenatal corticosteroids for the prevention of morbidity and mortality in preterm neonates is one of the clearest advances made in obstetric care over the past 50 years. The earliest evidence synthesis showing a reduction in mortality after administration of antenatal corticosteroids in newborn babies is immortalised in the logo of the Cochrane Library,1 and it is now the standard of care for women at risk of imminent preterm birth (<34 weeks of gestation) in high-income countries. However, there has been extensive debate on the suitability of antenatal corticosteroids in the context of low-resource settings,2 with several notable concerns, including their use in health facilities with minimal or no neonatal intensive care facilities and in settings where accurate information on gestational age is unavailable to ensure that antenatal corticosteroids are targeted appropriately.

Two multi-country randomised controlled trials have been conducted across low-income and middle-income countries (LMICs) to assess whether dexamethasone (a low-cost antenatal corticosteroid) leads to improved outcomes in preterm neonates. In the first trial, researchers assessed the effectiveness of an intervention designed to increase use of antenatal corticosteroids at all health-care levels in seven sites across six LMICs.3 Although use of antenatal corticosteroids was higher in the intervention group than in the control group, there was no evidence of a decrease in mortality in newborn babies below the fifth birthweight percentile and an indication of harm was observed, with higher rates of overall neonatal mortality and of maternal puerperal sepsis in the intervention group. However, the WHO ACTION-I trial was stopped early for benefit.4

In secondary and tertiary health-care settings meeting WHO’s minimal criteria for pregnancy dating and neonatal care,5 use of antenatal corticosteroids was associated with reduced mortality and morbidity in preterm neonates, without an effect on risk of maternal infection.

In The Lancet Global Health, the WHO ACTION Trial Collaborators6 present an economic analysis building on data from the WHO ACTION-I trial from 29 hospitals across Bangladesh, India, Kenya, Nigeria, and Pakistan.6 The authors provide robust evidence that use of antenatal corticosteroids administered in accordance with current WHO guidance is cost-saving compared with no treatment across all five countries, and should be funded within existing health budgets. The cost difference between the intervention group and the control group ranged from US$–53 681 (95% uncertainty interval –113 822 to 2394) per 1000 woman–baby units in Kenya to $–1778 (–13 878 to 9483) per 1000 woman–baby units in Nigeria. For this study, an extensive dataset on costs incurred from hospital admission to the trial’s primary endpoint (28 days postnatal to capture all neonatal deaths) was collated. The differences both between and within countries in the costs were notable; for example, the cost of administering one course of antenatal corticosteroids varied from US$5·48 in Bangladesh to $53·05 in Kenya. Given this huge variation in costs, these results are clearly context-specific, limiting generalisability beyond the settings included in this study. Nevertheless, an important output from this study is a tool provided in the Article’s appendix, which allows relevant stakeholders to modify inputs to assess the cost-effectiveness of antenatal corticosteroid use for a specific setting.

Some important questions still remain. First, although the WHO ACTION Trial Collaborators6 found that implementing an ultrasound-based assessment at admission to estimate gestational age in women with previously unknown gestational age did not prevent the intervention from being cost-effective,6 access to ultrasonography remains an important barrier to administration of antenatal corticosteroids in many settings.7 Widening access to antenatal ultrasonography should be regarded as a key component of programmes to reduce morbidity and mortality in preterm neonates.

Further exploration of the cost-effectiveness of antenatal corticosteroid administration in settings where ultrasonography is implemented de novo, rather than supplementing existing facilities as in this study, will be necessary to understand the effects, and cost-effectiveness, of antenatal corticosteroid administration in low-resource sites.

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targeted to women who are most likely to benefit, while
minimising exposure to neonates who are ultimately
delivered at term? Use of antenatal corticosteroids
has been observed to be associated with reduced
birthweight and increased risk of hypoglycaemia and
neurodevelopmental disorders in exposed neonates
born at term. In the WHO ACTION-I trial, 70% of
participants delivered within 7 days of antenatal
corticosteroid administration and over 90% delivered
before 37 weeks of gestation, consistent with effective
targeting. In designing interventions to increase
access to antenatal corticosteroids, it is important to be
mindful of avoiding the substantial overtreatment that
occurs in many high-income settings.

In LMICs, there is an urgent need for effective
interventions to reduce the risks associated with preterm
birth. The WHO ACTION Trial Collaborators provide
convincing evidence that appropriate administration of
antenatal corticosteroids in LMICs is a cost-effective intervention that can save many lives when
implemented in adequately resourced health facilities; however, policy makers must carefully consider local
context, resourcing, and necessary cointerventions (eg,
antenatal ultrasonography) to scale-up access.

We declare no competing interests.

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