

# Brief Note on Pregnancy Haemoglobin screening

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## Description

Anaemia testing during pregnancy is common in both low and high-income countries, and it usually begins with the initial (first antenatal) appointment. Screening may include looking for risk factors and clinical features of anaemia in the history, as well as point-of-care testing or laboratory assessment of the full blood count with or without iron parameters from a venous sample. The question of which of these offers the most reliable and cost-effective assessment remains unanswered. This review will provide an overview of the literature on the use of haemoglobin as a screening tool for anaemia in pregnancy, as well as the implications for clinical care, resource allocation, and national and international policy.

Anaemia in pregnancy is widely acknowledged to be associated with significant morbidity and mortality (if severe) for the mother, independent of other factors. Anaemia has also been linked to negative outcomes for the developing baby, such as low birth weight and premature delivery. This relationship has been shown to be non-linear implying that both low and high haemoglobin levels are detrimental to fetal growth and health. This calls into question the safety of routine iron supplementation without first testing for anaemia or iron deficiency.

Poor diet and food scarcity in vulnerable groups, such as pregnant women, exacerbate nutritional anaemias such as iron, B12, and folate deficiency, all of which cause a drop in haemoglobin. Although each micronutrient serves a specific purpose, multiple deficiencies tend to congregate within individuals, acting synergistically to increase disease burden. Iron supplementation alone is unlikely to result in anaemia resolution in these patients.

With an estimated 576-740 million infections, hookworm infections contribute significantly to the high prevalence of anaemia in Sub-

Saharan Africa and Southeast Asia Pooled estimates from randomised controlled trials of de-worming and concurrent iron supplementation strategies demonstrating improvements in mean haemoglobin concentration across Sub-Saharan Africa show clear benefits. As a result, the current WHO recommendation for preventive chemotherapy (de-worming) includes using single-dose albendazole (400 mg) or mebendazole (500 mg) as a public health intervention for pregnant women living in areas where both anaemia and soil-transmitted helminth infections are considered endemic, after the first trimester.

Haemoglobin disorders disproportionately affect populations in LMICs, particularly in Africa and South East Asia, where 18.2 and 6.6 percent of the populations, respectively, carry a significant haemoglobin variant, affecting more than 7 percent of pregnant women worldwide. The safety of iron supplementation in pregnant women with hemoglobinopathies, especially at high doses, is unknown, though some limited data suggests iron overload is unlikely.

Distinguishing the underlying causes of anaemia necessitates clinical observation and costly laboratory testing, both of which are beyond the scope of many regions in LMIC settings. Haemoglobin is still widely used as a pregnancy screening tool for anaemia. In the United Kingdom, haemoglobin drops are most commonly caused by iron deficiency, so current guidelines recommend oral iron therapy as first-line treatment. Iron supplementation alone is unlikely to reduce anaemia prevalence in LMICs.

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