| E1 | Trimester-specific patterns of gestational anaemia and associations with neonatal outcomes in Ghana |

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This presentation will focus on outlining the proposed methodology and protocol adopted in my study. The study aims to investigate the relationship between anaemia during each trimester of pregnancy and adverse neonatal outcomes in Ghana. Anaemia in pregnancy remains a critical global health challenge, affecting half of all pregnant women in Ghana (GSS and ICF., 2024). Anaemia in pregnancy is defined by World Health Organization as blood haemoglobin concentration below 110g/L. This condition represents a crucial form of undernutrition, limiting the optimal intrauterine environment during pregnancy. Although research has established the relationship between pregnancy-related anaemia and adverse neonatal outcomes, such as low birth weight and prematurity (Gluckman et al., 2016), less is known about the association between anaemia across pregnancy trimesters and these adverse neonatal outcomes. Adverse neonatal outcomes have become increasingly common and may increase the lifelong risk of non-communicable diseases like diabetes, cancers, and cardiovascular diseases for the infant as they transition into adulthood. Therefore, identifying and comprehending the timing of anaemia's contribution to neonatal outcomes during pregnancy is vital for designing targeted health strategies for healthy populations.

This research is informed by the Developmental Origin of Health and Diseases model. I will employ a retrospective observational cohort design that will utilise 953 mother-baby dyads from a Ghanaian hospital. Descriptive and logistic regression analyses will be applied in this study. I am currently working on AUTEC and GHS-ERC approvals before commencing data collection in Ghana.

The study hypothesises that anaemia in the first, second and third trimesters of pregnancy is associated with adverse neonatal outcomes including low birthweight, small-for-gestational age, stillbirth, and preterm babies. Anaemia prevalence in the first pregnancy-trimester is anticipated to be higher, followed by second and third trimesters. The study will inform policy development and guide decision-making to strengthen clinical and public health practices.

Keywords
Anaemia; Pregnancy; Gestational anaemia; Neonatal outcomes; Adverse birth outcomes

References

Ghana Statistical Service (GSS) and ICF. (2024). *Ghana demographic and health survey 2022*. Accra - Ghana & Rockville-Maryland - USA: GSS and ICF. https://www.statsghana.gov.gh/gssmain/fileUpload/pressrelease/Ghana%20DHS%202022%20FINAL.pdf

Gluckman, P. D., Buklijas, T., & Hanson, M. A. (2016). *The epigenome and developmental origins of health and disease* (C. S. Rosenfeld, Ed.). Elsevier Science and Technology. https://ebookcentral.proquest.com/lib/aut/reader.action?docID=4011881