

**A descriptive study of umbilical cord clamping practices by midwives,
obstetricians and other medical staff in Zambia**

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Doctor of Philosophy

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Certificate of Original Authorship

I, Bupe Mwamba declare that this thesis is submitted in fulfilment of the requirements for the award of Doctor of Philosophy, in the School of Nursing and Midwifery/ Faculty of Health at the University of Technology Sydney.

This thesis is wholly my own work unless otherwise referenced or acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

This document has not been submitted for qualifications at any other academic institution.

“This research is supported by the Australian Government Research Training Program.”

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Date: 25th February 2022.

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Format of the thesis

Chapter One: The presentation of the thesis will start with the introduction, background, context, significance and overview of the study.

Chapter Two outlines the literature review that was undertaken to inform the development of the study.

Chapter Three presents the theoretical underpinnings and the overview of the methods.

The following three chapters also include a detailed section on the different methods used in each phase of the study.

Chapter Four presents Phase 1, which was a survey that determined cord-clamping practices by midwives, obstetricians and other maternity health care workers.

Chapter Five presents Phase 2, which was the review of a series of umbilical cord clamping guidelines and an analysis using the AGREE II tool.

Chapter Six presents Phase 3, which explored the motivation to delayed cord clamping practices among midwives who are the majority of maternity care workers in Zambia. This chapter also presents the Zambian perspective on implementation of innovations in maternal, newborn and child health from interviews with key informants.

Chapter Seven ends the thesis. The chapter discusses an integration of all the findings, which is followed by a section explaining the strengths and limitations of the study. The chapter finishes with a series of recommendations and the conclusion.

Appendices: Each appendix is a supplement document to the thesis.

References: The reference list has been generated using the recommended reference guide, which is Harvard UTS.

I declare that I received assistance with the final editing of the thesis from a copyeditor. This was supported by UTS and did not alter the substance or findings.

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Abstract

Title

A descriptive study of umbilical cord clamping practices by midwives, obstetricians and other maternity care workers in Zambia.

Background

Delayed cord clamping, defined as clamping of the umbilical cord at 1 to 3 minutes after birth, has benefits, plays a vital role in improving haematological outcomes in infants and may reduce the lifetime risk of anaemia. The World Health Organization recommends delayed cord clamping. Implementation of this recommendation and diffusion of delayed cord clamping into clinical practice in Zambia is unknown.

Aim

The purpose of this thesis was to explore umbilical cord clamping practices by midwives, obstetricians and other maternity care workers working in Zambia.

Method

An explanatory sequential mixed method study was conducted with three phases. Phase 1 used an online survey to explore the cord clamping practices by midwives, obstetricians and other maternity care workers across Zambia. Phase 2 collected and analysed guidelines that informed cord clamping practices from 100 birth units across Zambia. Phase 3 was a qualitative study with midwives and key informants from the Ministry of Health using semi-structured interviews. The qualitative data were analysed using the Theoretical Domain Framework.

Results

In the survey, delayed cord clamping was reported to be practised in term healthy newborn babies by 40% of the 239 survey respondents. Half the respondents (51%) said they did not have guidelines to inform cord-clamping practice. In Phase 2, seven different guidelines were analysed. Of these, three provided information on delayed cord clamping while the other four emphasised immediate cord clamping. In Phase 3, the motivation to delayed cord-clamping practice by midwives was because of the identified benefits for babies. Key informants from the Ministry of Health identified the benefits that come with delayed cord clamping as the reason for its implementation.

Conclusion

Delayed cord clamping was identified as a challenge especially with few guidelines and a lack of dissemination. Immediate cord clamping was still prevalent. In order to bring about change, adopters need information to make an informed decision to embrace the new practice. There is a need for a national guideline on delayed cord clamping, which should be developed and disseminated through information sharing. Informal and formal information sharing about delayed cord clamping by prior adopters may result in practice change.

Implication for practice

The insights from this study will formulate strategies to increase the diffusion of delayed cord clamping in birth units across Zambia. A national guideline on delayed cord clamping, education and dissemination through education may result in change in birth units.

Keywords

Delayed cord-clamping practice, immediate cord clamping, midwives, obstetricians, benefits, risks, anaemia.

List of abbreviations

AIDS	Acquired Immunodeficiency Syndrome
AMTSL	Active management of the third stage of labour
CI	Confidence interval
DCC	Delayed cord clamping
DHS	Demographic Health Survey
DIC	Disseminated intravascular coagulation
dL	Decilitre
EM	Enrolled midwife
EmONC	Emergency Obstetrics and Newborn Care
ENC	Essential Newborn Care
g	Grams
g/L	Grams per litre
GNMCZ	General Nursing and Midwifery Council of Zambia
Hb	Haemoglobin
Hct	Haematocrit
HIV	Human Immunodeficiency Virus
ICC	Immediate cord clamping
IDT	Innovation Diffusion Theory
IQ	Intelligence quotient
JBI	Joanna Briggs Institute
LMIC	Low and middle income countries
MAZ	Midwives Association of Zambia
mg	Milligrams
mg/dL	Milligrams per decilitre
min	Minutes
mL	Millilitres
mL/kg	Millilitres per kilogram
MOHZ	Ministry of Health Zambia
MTCT	Mother to child transmission
NICU	Neonatal intensive-care unit
OSCE	Objective structured clinical examination
PC	Pulsation cessation

PMTCT	Prevention of mother to child transmission
PPH	Post-partum haemorrhage
RCT	Randomised controlled trial
RM	Registered Midwife
RNM	Registered Nurse Midwife
RR	Risk ratio
sec	Seconds
TDF	Theoretical Domains Framework
UNICEF	United Nations Children's Emergency Fund
WHO	World Health Organization
ZAGO	Zambian Association of Gynaecologists and Obstetricians
µg	Micrograms
µmol	Micromole