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Investigating Preterm Care at the Facility Level: Stakeholder Qualitative Study in Central and Southern Malawi

Austrida Gondwe[1,2] · Alister Munthali[3] · Per Ashorn[4] · Ulla Ashorn[4]

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Abstract *Objectives* Malawi is estimated to have one of the highest preterm birth rates in the world. However, care of preterm infants at facility level in Malawi has not been explored. We aimed to explore the views of health stakeholders about the care of preterm infants in health facilities and the existence of any policy protocol documents guiding the delivery of care to these infants. *Methods* We conducted 16 in-depth interviews with health stakeholders (11 service providers and 5 policy makers) using an interview guide and asked for any existing policy protocol documents guiding care for preterm infants in the health facilities in Malawi. The collected documents were reviewed and all the interviews were digitally recorded, transcribed and translated. All data were analysed using content analysis approach. *Results* We identified four policy protocol documents and out of these, one had detailed information explaining the care of preterm infants. Policy makers reported that policy protocol documents to guide care for preterm infants were available in the health facilities but majority (63.6 %) of the service providers lacked knowledge about the existence of these documents. Health stakeholders reported several challenges in caring for preterm infants including lack of trained staff in preterm infant care, antibiotics, space, supervision and poor referral system. *Conclusions* Our study highlights that improving health care service provider knowledge of preterm infant care is an integral part in preterm child birth. Our findings suggests that policy makers and health decision makers should retain those trained in preterm new born care in the health facility's preterm unit.

Keywords Policy and guidelines · Preterm care · Health facilities · Malawi

Significance

These findings are important to the field of public health because they highlight the current situation about the care of preterm infants in some of the health facilities in Central and Southern Malawi. The findings can be used by public health researchers and policy makers to improve maternal and child health outcomes, especially in preterm infant care.

Introduction

Globally, South Asia and sub-Saharan Africa account for approximately two-thirds of the 15 million preterm newborns that are born annually and over three-quarters of the world's newborn deaths is due to preterm birth complications [1]. Most of these newborns (>80 %) are born between 32 and 37 weeks of gestation and could be saved with simple care, such as warmth, feeding support and provision of antibiotics [2, 3]. Other priority interventions

✉ Austrida Gondwe
austridag@gmail.com

1 iLiNS Project, College of Medicine-Mangochi, University of Malawi, Zomba, Malawi

2 Department of International Health, University of Tampere, Tampere, Finland

3 Centre for Social Research, Chancellor College, University of Malawi, Zomba, Malawi

4 Department for International Health, University of Tampere and Department of Paediatrics, Tampere University Hospital, University of Tampere School of Medicine, Tampere, Finland

addressing infant care include extra care for sick and small newborns, skilled care at birth, neonatal resuscitation, Kangaroo Mother Care (KMC) and infection prevention [4–6]. Additionally, the World Health Organisation (WHO) recommends affordable and essential newborn care (ENC) practices (clean cord care, thermal care, and initiating early and exclusive breastfeeding) for handling preterm birth [4]. However, the uptake of these low cost interventions in many low-income countries (LICs) remains relatively low [7].

In LICs, several challenges in relation to quality of care in health facilities are well documented (i.e. lack of equipment, supplies and drugs, outdated clinical protocols and staff shortages) [8]. To help parents and health professionals in the management of preterm births, various guidelines have been developed and approved by many scientific societies in various countries [9]. Additionally, recognising low birth weight (LBW) infants and distinguishing the ones who are preterm are essential first steps in prioritizing care for the highest risk infants [3].

Malawi is one of the countries estimated to have the highest preterm birth rate in the world [7]. However, there is limited evidence to show how preterm births are handled at the health facility level in Malawi. A literature review reveals few studies that have investigated care of preterm infants at health facilities in Malawi other than one recent study which looked at provider attitudes and knowledge of preterm birth [10]. Therefore, an in-depth understanding of health stakeholders' experiences about current preterm infants care is significant in improving care of preterm infants, and consequently infant health at health facility level. The aim of this qualitative study was to explore views of preterm infant care among health stakeholders and investigate if there were any policy protocol documents guiding service providers to care for these infants at the facility level. The findings from this study will inform health decision makers and policy makers in Malawi on the current care practices of preterm infants in health care facilities.

Methods

Study Location

This study was conducted in the Central and Southern regions of Malawi. In the central region, the study focused on five policy makers who were from the Ministry of Health headquarters office, health developmental partners and one non-governmental organization (NGO) that are currently working on infant health activities. For the purpose of this study, "policy makers" imply those health stakeholders who are not providing clinical care in the health facilities but are partners to Ministry of Health (MoH) and are currently involved in infant health activities. These policy makers are also responsible for developing health protocol documents and providing technical support. In Malawi, there are three levels of health care: primary, secondary and tertiary, and this study included health facilities from all three levels [11]. In the southern region, the study focused on 10 health facilities in 5 districts. These districts were Mangochi, Zomba, Blantyre, Chiradzulu and Mulanje.

Sampling and Data Collection

We used purposeful sampling to select health stakeholders in 10 health facilities (Table 1) and 5 health stakeholder offices. The health facilities included 2 government health centres, 2 Christian Health Association of Malawi (CHAM) health centres, 2 district hospitals, 2 CHAM hospitals and 2 central hospitals. The 5 health stakeholder offices were: the Ministry of Health headquarters (Reproductive Health Unit), Save the Children International, World Health Organisation, United Nations Population Fund and United Nations Children's Fund. The health stakeholders in the health facilities were service providers working in the clinical care of preterm infants.

We used semi-structured interviews with open-ended questions to collect data. We conducted 16 face to face in-depth interviews with health stakeholders of whom 11 were service providers in the health facilities and 5 were policy makers from health stakeholder offices. Detailed characteristics of health stakeholders are reported in Table 1. Although we pre-planned the number of interviews, we also considered saturation point. The issues discussed with policy makers included their knowledge about existing policy protocol documents which guides the management of preterm infants in health facilities, their role in preterm infant care, and associated challenges with preterm infant care. We discussed with service providers how they and other service providers cared for preterm infants, if they had policy protocol documents to guide them in the care of preterm infants, recognition of preterm infants and challenges in caring for these infants. Interviews took approximately 40–60 minutes.

Originally, the plan was to interview three people at each health facility as follows: the in-charge of the postnatal ward, the service provider in the postnatal ward, and the matron. During the pilot, we found that the service provider working in the postnatal ward was the most appropriate person to interview. The findings from the pilot study showed that service providers were managing preterm infants without guidance from policy protocol documents but revealed that they encouraged extra warmth for preterm infants. One researcher experienced in qualitative research conducted all the interviews. These interviews

Table 1 Background characteristics of key health stakeholders

	(n = 16)
Policy makers	
Department of Health (Reproductive health unit)	1
Non-governmental organisation	1
Developmental partners	3
Health care facilities	
Central hospital (Zomba and Queens-Blantyre)	2
CHAM hospital (Mulanje mission and Malosa)	2
District hospital (Chiradzulu and Mangochi[a])	3
Government health centres (Lungwena, Namwera)	2
CHAM health centres (Nkoche and Malindi)	2
Sex	
Male	1
Female	15
Age	
Years in range	24–58 years, median age 37.5

[a] In one district hospital, we interviewed two service providers because they were both interested to take part in the discussion

were conducted either in *Chichewa* or English based on the interviewees' preference. *Chichewa* is Malawi's most widely spoken local language.

We actively searched for any existing policy protocol documents by asking health stakeholders to share a copy of the documents that guided service providers to care for preterm infants in the facilities. The documents reviewed were only those that were confined to Malawi health care system and were approved by Ministry of Health, Malawi. In this study, policy protocol documents are defined as any systematically written statements that set clear direction to assist service providers about specific care for preterm infants.

The interviews were digitally recorded and transcribed verbatim. We translated the Chichewa transcripts into English. The first author systematically read and re-read through the transcripts looking for patterns. We analyzed all data using a content analysis approach [12], identifying emerging themes in categories and sub-categories. The first author compiled a summary of the main findings and shared with other authors who agreed on the results.

One investigator reviewed all the identified documents and abstracted the following information: recognition of preterm infants, management of preterm labour, management of preterm infants, facility management of sick preterm infants and recommendations for home care. The first author made a summary table of the findings and shared with other authors for comments until a consensus was reached.

Ethical Consideration

Ethical approval was obtained from the College of Medicine Research and Ethics Committee (COMREC) in Malawi. All participants received written and detailed verbal information about the aim of the study and the procedure of data collection during the time of booking appointments with interviewees. Participants consented verbally to participate in the study and also accepted that the interviews should be digitally recorded. We did not compensate participants for their participation in the study. We assured all participants that the information discussed through interviews will remain anonymous and person information will not be identified with any of the results.

Results

Existing Policy Protocol Documents on Facility Care for Preterm Infants

Table 2 presents a summary of the findings from the 4 policy protocol documents identified from health stakeholders on the management of preterm infants. All documents had information on management of preterm infants. For instance, the 'National Sexual and Reproductive Health and Rights' (SRHR) policy had one statement under the theme of **Maternal and Neonatal Health** describing that '*Kangaroo mother care shall be routinely used in the management of premature infants*'. The second document that described the care of preterm infants in detail was the 'Malawi National Guidelines for Kangaroo Mother Care' developed in 2005 and revised in 2009. This document described care for LBW and preterm infants at different levels of health care including referral procedures, discharge criteria, re-admission, and recommendations for

Table 2 Summary of policy protocol documents identified from policy makers on preterm care

Document name	Document type	Key points discussed on preterm care
National and sexual reproductive health rights (SRHR)	Policy	KMC shall be routinely used for managing preterm and low birth weight infants
road map for accelerating the reduction of maternal and newborn mortality and morbidity in Malawi	Road Map	Documents percentages of newborns that receive ENC, including neonatal resuscitation, percentage of health facilities with newborn resuscitation services, skilled birth attendant at birth, document number of health facilities providing KMC
Malawi national guidelines for Kangaroo mother care	Guideline	Explains the importance of KMC, eligibility criteria for admission of infants on KMC in the health facilities, referral procedures, Initiation of KMC at community level, KMC position and nutrition, care of the baby during KMC, discharge and follow up
Evaluation of kangaroo mother care services in Malawi	Report	Scaling up of KMC facilities by facility numbers, progress with KMC implementation and KMC facilities, services and practices

home care. The other two documents namely: 'Road Map for Accelerating the Reduction of Maternal and Newborn Mortality and Morbidity in Malawi' and an 'Evaluation Report of Kangaroo Mother Care Services in Malawi' also had information on both maternal and newborn care, including Essential Newborn Care (ENC) such as thermal care, feeding support and infection prevention.

Policy Makers Views on Care for Preterm Infants

All (5) policy makers reported that there was SRHR policy protocol document and quoted its policy statement that '*Kangaroo mother care shall be routinely used in the management of premature infants'*. The policy makers further reported that there was no separate policy other than SRHR document, addressing care for preterm infants at health care facility level in Malawi. Additionally, policy makers reported that copies of the SRHR policy were distributed to all health facilities in Malawi. One of the policy makers explained how KMC was conducted in practice. *'KMC involves the mother carrying the newborn baby skin to skin tight in-between her breasts wrapped with a piece of cloth. This helps to keep the baby warm and encourages breastfeeding, so that preterm and LBW infants can easily gain weight'* (Policy-Maker—Lilongwe). However, one (20 %) of the policy makers further reported that in the previous years, much attention was on maternal health and preterm birth was rarely mentioned during antenatal care.

Service Provider's Views on Care for Preterm Infants

Primary Levels and Secondary Levels

Seven (63.6 %) of the service providers in health centres and district hospitals reported lack of knowledge of the existing policy protocol documents that could guide them to properly manage preterm infants. Probing on how they provided care for these infants, they reported to use knowledge gained through their nursing training period, meetings, and workshops. However, one (9.1 %) of the service providers expressed concern that even knowledge gained through workshops was not well utilized in many health facilities because of how service providers were allocated in the hospital wards. As asserted by one service provider, *'Sometimes there is one person selected to attend a training or workshop on KMC but you find that the person is no longer working in the postnatal ward to manage preterm infants. In this way, it does not help because the information is not well utilised'*. (Service provider - District Hospital).

Tertiary Level (Central and CHAM Hospitals)

All (4) of the service providers working in tertiary level facilities reported awareness of the existing documents and was already implementing KMC for LBW and preterm infants, as recommended in the SRHR policy and the national KMC guideline. Service providers in these facilities also reported to advise mothers/guardians of preterm infants to breastfeed often and keep the infants warm. However, none of them had a copy of the existing documents and they reported that the policy protocol documents were kept somewhere in other offices. As one of them narrated, '*We have the policy and some guidelines on preterm care, but we have them in the other offices…, but when we are looking for information, we usually try to find out wherever they are'*. (Service provider—Central Hospital).

Challenges in Caring for Preterm Infants in Health Facilities

Table 3 presents a summary of challenges that health stakeholders had reported, and some of the cross cutting

Table 3 Summary of reported challenges for caring preterm infants

Policy makers
Lack of timely supervision to all healthy facilities due to logistics problems
Less budgeting towards preterm infant health than other areas at the district level to buy antibiotics
Many service providers failing to utilise the available policy protocol documents with information on care of preterm infants
Health centres
Insufficient resources (no heaters, incubators, staff and space)
Poor transport system for referring preterm infants to other hospitals
Lack of proper coordination between referral hospitals and health centres
Lack of knowledge on preterm care
Mothers to preterm infants failing to take advice from service providers on caring infants
District hospitals
Few/no incubators, non-functioning heaters
Lack of follow up on discharged preterm infants
Misallocation of trained staff in preterm care to other hospital wards
No antibiotics and oxygen supply
Poor attitude among some service providers towards survival of preterm infants
Lack of trained staff on preterm care
Central Hospital/CHAM hospitals
Lack of follow up on discharged preterm infants
Fewer staff, incubators and space compared to number of preterm infants

challenges in the health facilities were shortage of staff, space, and antibiotics. Challenges reported in district hospitals and health centres were almost similar and are grouped under primary/secondary level while those reported in Central and CHAM hospitals are presented under tertiary level. Policy makers reported their own challenges (Table 3).

Primary and Secondary Levels

In these facilities, (63.6 %) of the service providers reported similar challenges, such as poor referral system, lack of coordination, lack of follow up system, oxygen supply, non-functional heaters, lack of knowledge on preterm care, and space to initiate KMC. In addition, there was an attitude problem among some of the service providers that a preterm infant would not survive. The service provider said, *'As nurses, we also should accept that sometimes we have bad attitude …by just looking at the preterm baby and see how it looks, we say but is this one going to survive? Instead of either instructing the mother on what to do or checking on the baby you just stay, that the mother will come and ask, we sometimes have a problem as well'*. (Service provider—District Hospital).

Three (27.3 %) of the service providers described work load as the main limiting factor to properly manage the preterm infants. One of them highlighted, '*You find yourself that you did not sleep the whole night, and the following morning you are also on duty doing antenatal care, working in the maternity and other areas… and yet there is a mother with a preterm infant who needs constant supervision, so it becomes difficult because you are tired and there is a lot of work'*. (Service provider—Health Centre).

Few service providers (27.3 %) felt challenged because some women were reported too poor to afford linen to cover their preterm infants. In addition, two (18.2 %) of the service providers reported that low education amongst the majority of mothers made care for preterm infants difficult because most mothers would not follow instructions from service providers but rather listen to their guardians on caring for their preterm infants.

Tertiary Level

The service providers felt that the number of resources per preterm infant contributed more to the difficulty in caring for these infants, rather than the availability of such resources. One service provider explained: *'Most of the times we have a lot of preterm infants and the beds for these infants are few that sometimes we combine three or four of them on one bed which can also cause infections. If there is any way of helping, we could appreciate additional beds and heaters'* Service provider-CHAM hospital.

Additionally, service providers explained that there was no follow up system if preterm infants were discharged to their respective homes.

Policy Makers

Three (60 %) of the policy makers reported logistics problems that limited them to conduct timely supervision to health facilities. One (20 %) of the policy makers reported that preterm birth was not an area of focus until recently due to an alarm from the 2012 'Born Too Soon' report on preterm birth. Another explained that there was little attention on the issue of managing preterm infants at district level resulting into less budgeting towards preterm infants. However, three (60 %) of the policy makers described that there was an attitude problem among some of the health workers as they were not willing to learn from colleagues and utilise the available policy protocol documents to guide them on appropriate care. For instance, policy makers described providing enough support, including trainings and materials to health workers on care for preterm infants, but when monitoring them, care was not conducted as expected. Although shortage of staff was widely acknowledged by the 5 policy makers interviewed, one (20 %) of them felt that duty allocation, especially in the health centres, accelerated the problem because service providers wanted to have long off duty hours. The policy maker elaborated, *'In some of the health centres it is really difficult for one person to be committed to many activities, but sometimes there are two or three people and they give each other* 1 *week duty allocation day and night so that they can be off duty for a longer time which is tiresome and makes them ineffective'*. (Policy Maker—Lilongwe).

Discussion

In this study, we found that most (63.6 %) of the service providers were not aware about the existence of the policy protocol documents to guide them on care of preterm infants in their health facilities. Additionally, the identified documents lacked detailed information on how service providers would recognise preterm infants and information that could guide them to determine appropriate care for these infants. Lawn et al. [3, 6] suggests that recognition of LBW and distinguishing which ones are preterm are essential first steps in prioritizing care for the highest risk infants. Furthermore, the documents did not have information on the management of preterm labour which could improve the health outcome of preterm infants [13].

Our study reveals that primary knowledge of care for preterm infants tends to vary among health facilities. For instance, the majority (63.6 %) of the service providers in district and health centres lacked knowledge of preterm infant care, which suggests that there is a lack of training in preterm infant care based on the available policy protocol documents. Another study similarly found that for almost 78 % of the guidelines, more than 10 % of the physicians were not aware of their existence [14]. In Kenya and Uganda, it was also found that there were no protocols guiding appropriate care for preterm infants in the health care facilities and that no hospital had clinical management guidelines for common causes of serious illness in infants [15, 16].

Furthermore, our findings suggest that there is a gap between the recommended simple care for preterm infants [13] and what is relevant for health care facilities to care for these infants. In our study, KMC was not promoted in some health care facilities due to lack of knowledge of how to implement it and lack of space. Similarly, in Uganda, service providers lacked adequate KMC rooms for preterm care in the health care facilities [16]. Challenges in relation to space imply that KMC may not suit all health care facilities in Malawi. Others have also noted that KMC remains unavailable at-scale in most low income countries [2, 5]. However, evidence shows that if KMC is initiated in good time it reduces neonatal mortality with approximately more than half, unlike the incubators and standard care [17, 18].

Specific problems such as lack of timely supervision to health facilities are important because they can help to identify areas which need further improvement in the management of preterm infants. In fact, lack of resources such as essential antibiotics, space, poor referral system, shortage of staff and lack of follow-up system are not unique to this study. Some additional studies have documented the same findings, including poor infrastructures in many low resource settings [19, 20]. Others have suggested that giving proper resources for health workers can enable them to provide good quality services [15].

In our study, poor attitudes among service providers who reported that the death of preterm infants is inevitable can affect the health outcome of these infants. Thus, changing service providers' attitudes in this area is crucial because history of neonatal care in high income countries shows that the major reduction in deaths occurred before neonatal intensive care was established [3]. We did not find any study specifically reporting negative attitudes towards care for preterm infants. However, a study which investigated parents and health professionals attitudes towards KMC for preterm infants showed that the majority of the mothers felt positively about KMC but professional staff considered KMC to be sub-standard care and that it increased staff workload [21]. Other studies suggest that training in general improves the provider's knowledge and level of confidence [22, 23].

Basic care practices such as warmth [1] for managing preterm infants was promoted in all health facilities we visited in this study. The main strength of this study is that we triangulated our data by using in-depth interviews and sourced existing documents on preterm care so that we could compare the two in addressing our research question. This study was conducted within the following limitations: we did not discuss the contents of the existing documents with the policy makers to obtain a true picture of the gaps that exists in these documents about care of preterm infants in the health care facility in Malawi. In addition, we had a good representation of central hospitals as we included 2 out of the 4 hospitals in Malawi, but other facilities such as health centres, district hospitals and CHAM hospitals were under represented, therefore our results cannot be generalised to all health facilities in Malawi.

Conclusion

Despite policy makers' acknowledgement of the available policy protocol documents that could guide care for preterm infants at facility level, majority (63.7 %) of the service providers lacked knowledge on how to properly care for these infants. Improving service providers' knowledge on care of preterm infants is an integral part in providing appropriate care for preterm infants at the facility level. Our study suggests that policy makers and health decision makers should retain those trained in preterm new born care in the health facility's preterm unit.

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