

Roles and responsibilities in newborn care in four African sites

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Abstract

OBJECTIVES To explore roles and responsibilities in newborn care in the intra- and postpartum period in Nigeria, Tanzania and Ethiopia.

METHODS Qualitative data were collected using in-depth interviews with mothers, grandmothers, fathers, health workers and birth attendants and were analysed through content and framework analyses.

RESULTS We found that birth attendants were the main decision-makers and care takers in the intrapartum period. Birth attendants varied across sites and included female relatives (Ethiopia and Nigeria), traditional birth attendants (Tanzania and Nigeria), spiritual birth attendants (Nigeria) and health workers (Tanzania and Nigeria). In the early newborn period, when the mother is deemed to be resting, female family members assumed this role. The mothers themselves only took full responsibility for newborn care after a few days or weeks. The early newborn period was protracted for first-time mothers, who were perceived as needing training on caring for the baby. Clear gender roles were described, with newborn care being considered a woman's domain. Fathers had little physical contact with the newborn, but played an important role in financing newborn care, and were considered the ultimate decision-maker in the family.

CONCLUSION Interventions should move beyond a focus on the mother–child dyad, to include other carers who perform and decide on newborn care practices. Given this power dynamic, interventions that involve men have the potential to result in behaviour change.

keywords Newborn, neonatal, roles, behaviour, immediate newborn care, Africa

Introduction

Reductions in neonatal mortality rates have been slower than reductions in child mortality rates, and the slowest progress has been in African countries [1]. 2.9 million newborns still die each year with 73% of deaths occurring in the first week of life [2]. Improving care in labour, during birth, in the first week of life and for small and sick babies is likely to have the greatest impact on mortality [3]. Interventions to improve immediate newborn care such as drying, warmth, hygienic care and immediate breastfeeding are thought to be particularly cost-effective [4]. Such interventions rely on behaviour change, but little is known about the mechanisms of behaviour change for newborn care practices [5].

Child health interventions have traditionally focused on the mother–child dyad, with the wider family given

limited attention [6–10]. This has been attributed to a lack of understanding of cultural systems, social structures and collective values, and a belief that family members, such as grandmothers, are a negative influence on behaviours, incapable of changing their views [6, 7, 10]. Recently, there has been a realisation that we need to broaden interventions to include family members and other decision-makers in newborn care interventions [3, 4, 11]; for example, the Every Newborn Action Plan promotes the role of men and elderly female family members in newborn interventions, calling for the power of families and parents to be harnessed [3].

The need to involve family members in newborn care interventions is supported by existing studies from sub-Saharan Africa. Studies have found that grandmothers and other female relatives often play a key role in newborn care as advisors, decision-makers and

caregivers, especially for first-time mothers. These family members often being present during the first days and weeks of the child's life to provide help and support to the mother [6, 7, 10, 12–19]. Several studies have noted the role of fathers in providing finances for birth preparedness and delivery, and their role in decision-making [7, 11, 12, 20, 21]; however, their role in the actual care of the newborn may be minimal and in some settings their role in decision-making is symbolic [7, 12]. Only a few studies reported on the role of birth attendants, who are responsible for immediate newborn care in some settings, including giving the baby its first bath [15, 22].

Most of the studies described above did not specifically focus on roles and responsibilities for newborn care and did not explore whether roles change over the newborn period or by newborn care behaviour. The importance of formative research for understanding such issues, and for intervention design, is well recognised [20]. This study describes roles and responsibilities in relation to newborn care in four African sites. The multisite nature of this qualitative study is unique and allows for cross-site comparisons to identify themes that may be similar across settings and those that are likely to be context specific.

Methods

We collected qualitative data in four African sites with high neonatal mortality rates, which varied in terms of healthcare utilisation, ethnicity, educational levels and infrastructure. The sites were Ekiti State in south-west Nigeria, Borno State in north-east Nigeria, the Oromia region of Ethiopia and the Lindi and Mtwara regions of Tanzania.

Data were collected between July and November 2011, from four typical communities in each site. Communities were purposively sampled to reflect differences within sites in access to health facilities, ethnicity and geography. In Tanzania, data collection was limited to the control communities of an ongoing newborn care trial, as behaviours may have been modified in the intervention communities [23]. Ethics boards in the UK and the study sites approved the study, and written informed consent was obtained from all participants.

Data were collected from mothers, grandmothers, fathers, health workers, and birth attendants through newborn care narratives and in-depth interviews (IDIs). Interviews were not conducted with formal birth attendants in Ethiopia, as family members more commonly acted as birth attendants in that context. Collecting data from several respondent groups ensured we captured a

range of views and allowed for triangulation. Sample sizes were driven by the concept of saturation sampling and thus differed in each site, and they are shown in Table 1.

Data were collected as part of a wider study exploring the potential for emollient therapy in African settings, which included examining who conducts and influences newborn care practices. Content of the interviews included asking mothers to narrate what happened during and immediately after birth including who cared for the baby in the first hours and weeks of life, with specific probes about key newborn care practices. Other respondent groups were asked to describe their role in newborn care.

Data collection was standardised across sites through the use of a study and training protocol and through site visits by the study coordinator. Interview guides were developed by the research team and adapted for each site through pre-testing. Three to four trained interviewers collected data in the local language using semi-structured guides. Interviews lasted between 30 and 90 min and took place in the respondent's house or workplace. Respondents were identified by community informants, snowball sampling and word of mouth. They were purposively sampled to ensure that respondent ages, parities, sex of child, place of delivery, educational level, ethnicity, socio-economic status and religion reflected site variability. Interviews were audio-recorded and interviewers took field notes. The notes and recordings were used to write expanded notes in Microsoft Word [24]. Expanded notes included verbatim quotes, interviewer reflections and comments on the interview. During data collection, teams held regular reflective team meetings and interviewers were given constructive feedback after reviewing their

Table 1 Respondent groups and sample size

Respondents	Sample size			
	Ekiti	Borno	Tanzania	Ethiopia
Newborn care narratives with mothers who delivered in the last 3 months	21	20	20	16
In-depth interviews with families of children under 1 year of age				
Mothers	16	16	16	12
Grandmothers	12	12	12	9
Fathers	8	8	8	8
In-depth interviews with health workers and birth attendants who delivered babies in the last year				
Health workers	8	8	8	8
Birth attendants	12	12	12	0

expanded notes and listening to a sample of the audio recordings. Emerging themes and missing areas were identified during data collection through a ‘pre-analysis’ exercise. This process also included the identification of areas/respondent groups where saturation had been achieved.

Data were analysed by a team including site leaders, interviewers and the principal investigator. Transcripts were read for familiarisation, and the analysis team jointly coded 2–3 interviews. This enhanced conceptual thinking and increased coding rigour [25]. Teams then individually coded the same interview and discussed the codes to improve coding standardisation. A coding template was then developed in NVivo, and teams proceeded to code all the data. A code book was developed and modified as inductive codes emerged. Teams held regular meetings to discuss and check their coding. In addition to the NVivo coding, a framework analysis was conducted to aid in comparing and contrasting the narrative findings [26].

Results

As we found that the roles and responsibilities for newborn care changed over time, our findings are presented in three sections. First the intrapartum period is described, followed by the first days or weeks of life, and finally the later newborn period.

The intrapartum period

In all sites, immediate newborn care was conducted by the person attending the delivery. In Borno, Nigeria, deliveries were usually attended by a female relative or traditional birth attendant (TBA); in Ethiopia, a female relative; in Ekiti, Nigeria, a health worker or a spiritual birth attendant; and in Tanzania, a health worker or TBA. These people were responsible for initial cord care, whether the baby was dried and wrapped and where the baby was placed immediately after delivery, while the mother was usually not involved in the decision or the care practices. Where other family members were present during the intrapartum period, but were not in charge of the delivery, they often played supporting roles in newborn care such as providing water or holding clothes. The following quotes illustrate the roles of the birth attendants:

‘It is a tradition that she [TBA] should do it, at the end she will be rewarded because it is her duty to do it and she knows how to do it and it is her profession’ [40-year-old Nigerian Borno mother].

‘What she is doing is to take the gauze and wipe gently the blood which is on the face of the baby, the other places she leaves them without wiping’ [28-year-old Tanzanian health worker].

They [family members] just placed a cloth on the baby without wrapping him until the placenta was delivered. The placenta took about one hour to expel’ [38-year-old Ethiopian mother].

Mothers sometimes influenced intrapartum behaviours of TBA, spiritual birth attendants and health workers by providing items such as razor blades, clothes and items to clean or put on the skin of the baby. For facility deliveries, some care providers dictated what was bought either by providing a list or using their own items:

‘It is what I will allow them to bring here in preparing for the delivery of their babies. I am the one that tell them the types of baby things they are expected to buy’ [33-year-old Nigerian Ekiti Spiritual birth attendant].

The mother was often considered too tired to participate in newborn care immediately after delivery; therefore, after the cord was cut, the care of the newborn remained with the TBA, spiritual birth attendant, health worker or female relatives. It was rare for the mother to be given the baby before the placenta was delivered in any site. Among facility or spiritual birth centre births in Tanzania and Ekiti, the baby was sometimes away from the mother for some time while the mother remained in the labour room or was bathing:

‘After she had her bath the nurses bought the baby back to her and she started breastfeeding. ... One hour after delivery’ [30-year-old Nigerian Ekiti mother],

and tasks such as bathing of the baby were sometimes performed in the mother’s absence:

‘When she was out of the bathroom she found her baby had already been bathed and her mother in law already wrapped him in a blanket’ [19-year-old Tanzanian mother].

In Nigeria, early bathing was near universal, but in Tanzania and Ethiopia, bathing was often delayed. Delayed bathing provides an example of a practice that was sometimes against the wishes of the mother, demonstrating the lack of power mothers have in some circumstances:

‘I actually wanted my baby to be bathed; all the other children were bathed immediately. ... I asked

them to bathe my baby...the baby comes out with something dirty, he has to be bathed... these women [who attended her delivery] got education from the health facility... refused to bathe my baby immediately' [38-year-old Ethiopian mother].

The newborn period

In the two sites with some frequency of facility deliveries (Tanzania and Ekiti, Nigeria), the care of the newborn after the intrapartum period varied. In Ekiti, the spiritual birth attendant or health worker often remained in control of decisions about the newborn until they were discharged from the facility, while in Tanzania, the baby was usually left in the care of other female relatives until discharge. Discharge was usually the same day as delivery in Tanzania and the day after delivery in Ekiti. For those who delivered at home, and once discharged from the facility, new mothers were expected to need the help of female relatives for the first days or weeks after delivery:

'After delivery she had no strength, that caused her sister to help out... after the ninth day she started bathing the baby herself' [36-year-old Tanzanian mother].

After this time, mothers were expected to take full responsibility for caring for the baby:

'When the baby was delivered, it was the TBA who did everything for us before she left. Afterwards my younger sister stayed with me for 7 days...afterward I did everything myself' [27-year-old Nigerian Borno mother].

We found some exceptions in this practice, especially in Ethiopia and Tanzania, when relatives lived some distance away or were busy

'I had to make myself strong and bathe my baby since my mother-in-law does not come daily' [22-year-old Ethiopian mother].

The female relative taking on this helper role usually bathed and dressed the baby, cared for the cord and performed other related tasks such as massaging the baby. They also cooked and cleaned and did other chores. They provided help for varied amounts of time, but commonly for less than a week. In Borno, the maternal grandmother often played this role, while in Ekiti and Ethiopia, it was the paternal grandmother. In Tanzania various relatives took on the helper role, including grandmothers, aunts and sisters. In all sites, first-time

mothers received help for a much longer period, so they could learn how to care for the baby. They may first assist in the activities and then perform them under supervision:

'This is her first child so she has to learn from her how things are being done. It was from her mother-in-law she would gather experience of how to care for her future children' [22-year-old Nigerian Ekiti mother].

Grandmothers and older women were viewed as knowledgeable and skilled 'the big advisor', with a self-belief that they knew how to do things properly. They were generally trusted by the mothers due to their experience, and because they were perceived as wanting the best for the family

'She trusts her [grandmother], because she has lived many years and her mother can never advise her to do something bad due to the fact that she bore her' [36-year-old Tanzanian mother].

In Nigeria their role was particularly strong with examples of mother's wishes being ignored:

'My mother ... massaged my baby very well, all my effort to stop her was to no avail... By the time she did it for about two to three days the baby has got used to being thrown up and down and the crying started reducing gradually' [57-year-old Nigerian Ekiti health worker].

Most women in the sites had at least one contact with a health worker during pregnancy, although this was less common in Ethiopia. Health workers were considered an important and trusted source of advice:

'The information from the hospital is reliable' [20-year-old Nigerian Ekiti mother],

and in Tanzania, their advice was cited as a key reason that babies were no longer bathed immediately after delivery. A few mothers raised issues relating to health worker versus family advice:

'The nurse is educated ...on the other hand ... she trust her grandmother advise ... she knows more things and has a lot of experience' [28-year-old Tanzanian mother]. ...

'I trust both the family as well as the health workers' advice, because all the advice that family members tend to give me are true. and also I know health workers are professional in their field' [31-year-old Nigerian Borno mother].

Role of men

Men were actively excluded from the delivery room across all sites and generally were only allowed to see the newborn once it had been cleaned and wrapped or dressed:

'A husband does not see a labouring mother while she is delivering; it is the law of our culture' [30-year-old Ethiopian mother].

Only in Ekiti, and among the Bura ethnic group in Borno, did men play any role in the delivery or intrapartum period, as they were given the placenta to bury:

'A nurse wrapped the placenta with her stained clothes and put aside for her husband to come and take it home to bury. She said that is their custom for the father of the child to bury the placenta immediately after the delivery' [20-year-old Nigerian Ekiti mother].

Men were knowledgeable about newborn care, but caring for newborns was seen as women's work across all sites

'Men do not interfere with women work in this community as such, care of the cord or circumcision wound are purely women's business' [56-year-old Borno father].

Men usually did not participate at all in care, especially when trusted female relatives were helping:

'I don't have to give her any advice... my mother... is always with my wife to care for the baby' [35-year-old Nigerian Ekiti father].

Few fathers handled the newborn, with both fathers and mothers expressing concern over men's competence:

'Most fathers are very afraid of the newborn... their bones are so light that they [fathers] can not carry them... When the baby reaches 3 months... fathers can help' [32-year-old Tanzanian father].

A minority of fathers reported that they sometimes assisted with care activities. The assistance generally took the form of heating water for baths, filling/clearing baths or holding the towel during bath time. As head of the household, men were viewed as having the ultimate authority

'If he is interested... he can force his wife' [37-year-old Nigerian Ekiti mother],

and there were a small number of examples where men used this authority to influence newborn care:

'He stated emphatically that he did not allow her to massage the baby because the baby does not have enough energy to withstand such rigorous activities' [33-year-old Nigerian Ekiti father].

More commonly fathers reported 'reminding' women to perform practices such as breastfeeding regularly, but this was not corroborated in the mother interviews.

In all sites men, as the head of the household, had the responsibility of providing money for the purchase of items for the baby. This was usually in response to requests, and men played little role in decision-making about what was bought:

'It is my responsibility to provide resources for the things needed but she is the one that goes to the market to purchase the items' [30-year-old Ethiopian father].

In Ekiti and Ethiopia, the mother usually did the actual purchasing, but in Borno, Kanuri women had restricted mobility and fathers actually purchased items that the mother requested. In Tanzania, preparations were not always made before delivery, and female relative or the father often bought items after delivery:

'When the baby is just born, fathers they just stay near the house waiting to be told what they need for the baby... they are advised by the mothers or the elder person... the father just go and get it for them' [32-year-old Tanzanian father].

Discussion

Despite the varied contexts in which the research was conducted, we found remarkable similarities in the roles and responsibilities for newborn care. Roles and responsibilities varied over the newborn period. In the intrapartum period, the delivery assistant was responsible for most activities, whether this was a TBA, family member or skilled attendant. In the early newborn period, when the mother is deemed to be resting, female family members assumed this role. The mothers themselves only took full responsibility of newborn care after a few days or weeks. The early newborn period was protracted for first-time mothers, who were perceived as needing training on caring for the baby.

The Every Newborn Action Plan states that families can and should ensure that practices such as warmth and early breastfeeding occur [3]. Our findings suggest that mothers' abilities to negotiate changes in intrapartum care is minimal for facility births, but may be possible for TBA deliveries if the mother has something tangible to give the birth attendant. Where facility deliveries occur

with some frequency, our findings confirm that improving quality of care is a missed opportunity [27], as health workers can ensure practices such as skin to skin care and delayed bathing occur while they are in control of the mother and baby. That said, while counselling mothers on these practices may have a limited effect on behaviour, the wider literature suggests that it remains important to consult mothers and involve them in interventions. A patient-centred approach is an essential component of quality of care [28], and where health worker and family views on practices are conflicting, efforts need to be made to reconcile this tension so that families are not left feeling alienated or anxious.

Our findings support the need to broaden interventions to engage the wider family in a meaningful way, especially for first-time mothers who may have very little power over newborn care but who may be open to new practices. We found that health workers were trusted sources of advice, but that for some mothers, elder females were even more trusted. Where the advice of elder relatives was not trusted, some mothers gave examples where activities had been carried out against their wishes and where challenging the practices of elder women was deemed impossible. Other studies have found that mothers can feel helpless trying to implement practices that are not endorsed by their mother-in-law, even when the mother-in-law's beliefs are contradictory to health workers advice [10].

We also found that some birth attendants and experienced female relatives endorsed new practices such as delayed bathing. This suggests that relatives such as grandmothers, who are often perceived as barriers to change [6], can be receptive to new practices. This finding is supported by a study in Senegal that actively involved grandmothers, and found that their views changed rapidly and that their involvement in interventions enhanced behaviour change in that context [6]. Utilising the influence of elder women to enhance behaviour change, rather than ignoring their views, could garner behaviour change more effectively.

Our study found that men play a key role in newborn care as financial providers and had good knowledge of newborn care behaviours. They otherwise play a limited role in direct care. Our findings confirm those from a study in Ghana that found that physical and social spaces related to newborn care were closed to men, that men were perceived to lack the ability to care for the newborn and had little physical contact with the baby, but as head of the family, they were often the symbolic decision-maker and the financial provider [12]. As the head of the household, fathers in our study sites were viewed as having the ultimate decision-making power, although this

was rarely exercised in relation to newborn care practices. The increasing emphasis of male involvement in newborn care, as exemplified in the Every Newborn Action Plan [3], has the potential to ensure that family finances are allocated to newborn care. It could also modify the role of fathers from symbolic to actual decision-makers. Given the ultimate decision-making power of fathers this may have the potential to result in behaviour change. The extent to which families would be receptive to such an intervention remains to be explored, and care must be taken to ensure that interventions to involve men do not result in the disempowerment of female family members.

During this study, we took several steps to maximise data quality; however, some potential for reporting bias remains. This may be especially true for fathers who are culturally given limited space in the newborn care sphere and who may be reluctant to admit to playing an active role in newborn care. Their reported lack of a role was, however, supported by women's description of what happened in first hours and days of life, where husbands were rarely mentioned. Other study limitations are that Boko Haram activities impacted on data collection in Borno and limited quality assurance activities. This may have impacted on data quality from that site. In each site, data were collected from four communities, although a range of respondents were interviewed. The similarity of themes between sites suggests that the findings may reflect cross-cultural contexts, however, as with all qualitative research care must be taken when transferring findings to settings that are significant culturally or ethnically different from the study sites.

References

1. Dickson KE, Simen-Kapeu A, Kinney MV *et al.* Every Newborn: health-systems bottlenecks and strategies to accelerate scale-up in countries. *Lancet* 2014; **384**: 438–454.
2. Lawn JE, Blencowe H, Oza S *et al.* Every Newborn: progress, priorities, and potential beyond survival. *Lancet* 2014; **384**: 189–205.
3. WHO. *Every Newborn: An Action Plan to end Preventable Deaths*. World Health Organization: Geneva, 2014.
4. Mason E, McDougall L, Lawn JE *et al.* From evidence to action to deliver a healthy start for the next generation. *Lancet* 2014; **384**: 455–467.
5. Kumar V, Kumar A, Darmstadt GL. Behavior change for newborn survival in resource-poor community settings: bridging the gap between evidence and impact. *Semin Perinatol* 2010; **34**: 446–461.
6. Aubel J, Toure I, Diagne M. Senegalese grandmothers promote improved maternal and child nutrition practices: the

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- guardians of tradition are not averse to change. *Soc Sci Med* 2004; **59**: 945–959.
7. Aube J. The role and influence of grandmothers on child nutrition: culturally designated advisors and caregivers. *Matern Child Nutr* 2012; **8**: 19–35.
 8. Pelto G. Taking care of children: applying anthropology in maternal and child nutrition and health. *Hum Organ* 2008; **67**: 237–243.
 9. Gupta ML, Aborigo RA, Adongo PB *et al.* Grandmothers as gatekeepers? The role of grandmothers in influencing health-seeking for mothers and newborns in rural northern Ghana. *Glob Public Health* 2015; Jan 30:1-14. [Epub ahead of print]
 10. Bezner Kerr R, Dakishoni L, Shumba L, Msachi R, Chirwa M. “We grandmothers know plenty”: breastfeeding, complementary feeding and the multifaceted role of grandmothers in Malawi. *Soc Sci Med* 2008; **66**: 1095–1105.
 11. Hill Z, Manu A, Tawiah-Agyemang C *et al.* How did formative research inform the development of a home-based neonatal care intervention in rural Ghana? *J Perinatol* 2008; **28**(Suppl 2): S38–S45.
 12. Dumbaugh M, Tawiah-Agyemang C, Manu A, ten Asbroek GH, Kirkwood B, Hill Z. Perceptions of, attitudes towards and barriers to male involvement in newborn care in rural Ghana, West Africa: a qualitative analysis. *BMC Pregnancy Childbirth* 2014; **14**: 269.
 13. Iliyasu Z, Kabir M, Galadanci HS, Abubakar IS, Salihu HM, Aliyu MH. Postpartum beliefs and practices in Danbare village, Northern Nigeria. *J Obstet Gynaecol* 2006; **26**: 211–215.
 14. Shamba D, Schellenberg J, Hildon ZJ *et al.* Thermal care for newborn babies in rural southern Tanzania: a mixed-method study of barriers, facilitators and potential for behaviour change. *BMC Pregnancy Childbirth* 2014; **14**: 267.
 15. Tawiah-Agyemang C, Kirkwood BR, Edmond K, Bazzano A, Hill Z. Early initiation of breast-feeding in Ghana: barriers and facilitators. *J Perinatol* 2008; **28**(Suppl 2): S46–S52.
 16. Thairu L, Pelto G. Newborn care practices in Pemba Island (Tanzania) and their implications for newborn health and survival. *Matern Child Nutr* 2008; **4**: 194–208.
 17. Moyer CA, Aborigo RA, Logonia G *et al.* Clean delivery practices in rural northern Ghana: a qualitative study of community and provider knowledge, attitudes, and beliefs. *BMC Pregnancy Childbirth* 2012; **12**: 50.
 18. Aborigo RA, Moyer CA, Rominski S *et al.* Infant nutrition in the first seven days of life in rural northern Ghana. *BMC Pregnancy Childbirth* 2012; **12**: 76.
 19. Engmann C, Adongo P, Aborigo RA *et al.* Infant illness spanning the antenatal to early neonatal continuum in rural northern Ghana: local perceptions, beliefs and practices. *J Perinatol* 2013; **33**: 476–481.
 20. Byaruhanga RN, Bergstrom A, Tibemanya J, Nakitto C, Okong P. Perceptions among post-delivery mothers of skin-to-skin contact and newborn baby care in a periurban hospital in Uganda. *Midwifery* 2008; **24**: 183–189.
 21. Waiswa P, Kemigisa M, Kiguli J, Naikoba S, Pariyo GW, Peterson S. Acceptability of evidence-based neonatal care practices in rural Uganda - implications for programming. *BMC Pregnancy Childbirth* 2008; **8**: 21.
 22. Hill Z, Tawiah-Agyemang C, Manu A, Okyere E, Kirkwood BR. Keeping newborns warm: beliefs, practices and potential for behaviour change in rural Ghana. *Trop Med Int Health* 2010; **15**: 1118–1124.
 23. Penfold S, Manzi F, Mkumbo E *et al.* Effect of home-based counselling on newborn care practices in southern Tanzania one year after implementation: a cluster-randomised controlled trial. *BMC Pediatr* 2014; **14**: 187.
 24. Halcomb EJ, Davidson PM. Is verbatim transcription of interview data always necessary? *Appl Nurs Res* 2006; **19**: 38–42.
 25. Barry CA, Britten N, Barber N, Bradley C, Stevenson F. Using reflexivity to optimize teamwork in qualitative research. *Qual Health Res* 1999; **9**: 26–44.
 26. Gale NK, Heath G, Cameron E, Rashid S, Redwood S. Using the framework method for the analysis of qualitative data in multi-disciplinary health research. *BMC Med Res Methodol* 2013; **13**: 117.
 27. Darmstadt GL, Kinney MV, Chopra M *et al.* Who has been caring for the baby? *Lancet* 2014; **384**: 174–188.
 28. World Health Organization. *Quality of Care: A Process for Making Strategic Choices in Health Systems*. WHO: Geneva, 2006.

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