International Journal of Health Care Quality Assurance

Health providers' perception of quality of care for neonates in health facilities in a municipality in Southern Ghana

Kokui Elikplim Pomevor, Augustine Adomah-Afari,

Health providers' perception of quality of care for neonates in health facilities in a municipality in Southern Ghana

Received 23 April 2016
Revised 8 June 2016
Accepted 13 June 2016

Kokui Elikplim Pomevor
St Dominic Hospital, Akwatia, Ghana, and
Augustine Adomah-Afari
Department of Health Policy, Planning and Management, School of Public Health, College of Health Sciences, University of Ghana, Accra, Ghana

Abstract

Purpose – The purpose of this paper is to assess available human resources for neonatal care and their skills, in order to explore health providers' perceptions of quality of neonatal care in health facilities in Ghana.

Design/methodology/approach – Data were gathered using qualitative interviews with health providers working in the maternity and paediatric wards and midwives; direct observation; and documentary review at a regional hospital, a municipal hospital and four health centres in a municipality in a region in Southern Ghana. Data were analysed using thematic framework through the process of coding in six phases to create and establish meaningful patterns.

Findings – The study revealed that health providers were concerned about the number of staff available, their competence and also equipment available for them to work more efficiently. Some essential equipment for neonatal care was either not available or was non-functional where it was available, while aseptic procedures were not adhered to. Moreover, personal protective equipment such as facemask, caps, aprons were not used except in the labour wards where staff had to change their footwear before entering.

Research limitations/implications – Limited number of health providers and facilities used, lack of exploration of parents of neonates' perspective of quality of neonatal care in this study and other settings, including the teaching hospitals. The authors did not examine issues related to the ineffective use of IV cannulation for neonates by nurses as well as referral of neonates. Additionally, the authors did not explore the perspectives of management of the municipal and regional health directorates or policy makers of the Ministry of Health and Ghana Health Service regarding the shortage of staff, inadequate provision of medical equipment and infrastructure.

Practical implications – This paper suggests the need for policy makers to redirect their attention to the issues that would improve the quality of neonatal health care in health facilities in Ghana and in countries with similar challenges.

Social implications – The study found that the majority of nursing staff catering for sick newborns were not trained in neonatal nursing. Babies were found sleeping in separate cots but were mixed with older children. The study suggests that babies should be provided with a separate room and not mixed with older babies.

Originality/value – There seemed to be no defined policy framework for management of neonatal care in the country's health care facilities. The study recommends the adoption of paediatric and neonatal care nursing as a specialty in the curricula of health training institutions. In-service trainings should encompass issues related to management of sick babies, care of preterm babies, neonatal resuscitation and intravenouscannulation, among others.

Keywords Healthcare, Quality of care, Health providers, Neonatal nursing, Neonates, Quality neonatal care

Paper type Research paper

International Journal of Health Care Quality Assurance
Vol. 29 No. 8, 2016
pp. 907-920

0952-6862
DOI 10.1108/IJHCQA-04-2016-0055

Introduction

Out of the four million babies who die within 30 days of birth or the four million who are still-born each year, 98 per cent are in developing countries (Lawn *et al.*, 2005). Each of the major causes of neonatal mortality (prematurity, infection and asphyxia) leave many survivors with lifelong disabilities or morbidities (Wall *et al.*, 2009). Africa has the highest risk of about 41 neonatal deaths per 1,000 live births with the Sub-Saharan Africa regions of Eastern, Western and Central Africa having between 40 and 46 neonatal deaths per 1,000 live births (World Health Organisation, 2006).

Even though the neonatal mortality rate in Ghana reduced from 43 per 1,000 live births in 2003 to 31 per 1,000 live births in 2008, the current rate is still unacceptably high (GSS, 2009). Currently, some policies are encouraging women to attend antenatal clinics and deliver in hospitals (Ministry of Health, 2011). However, other challenges confronting health institutions are eroding the gains resulting from these new policies (Ministry of Health, 2011). While births with a skilled attendant increased by 12 million from 2000 to 2010, quality of care in health facilities has not kept pace (Addo-Yobo, 2010). Currently, there is no defined policy framework for neonatal health care as a specialty in Ghana. Health professionals are usually at a fix as to what to do in their efforts at delivering quality neonatal care. However, no study has taken this into account (Addo-Yobo, 2010). To achieve a reduction in neonatal mortality will require the provision and use of up-to-date/state of the art health facilities and equipment. However, these are currently, lacking in most of the public health institutions (Addo-Yobo, 2010). Meanwhile, most researchers in developing countries have focussed on home care practices to the neglect of institutional care challenges of delivering quality neonatal care (Neogi *et al.*, 2012). Neogi *et al.* (2012) suggest that this situation creates the need for more research to be carried out in the area of institutional care delivery in developing countries.

Generally, this study sought to assess the current state of neonatal care in hospitals and health centres in a municipality and a region of Southern Ghana. We assessed available human resources for neonatal care and their skills, in order to evaluate health providers' perceptions of quality neonatal care in these health facilities. This paper suggests that there is the need for policy makers to provide specific policy framework and adequate neonatal care facilities in the country; and curricula developers to introduce neonatal care as a specialty in heath training institutions.

Literature review

Availability of personnel and skills in neonatal care

Ghana suffers from a human resource crisis in neonatal care in the health sector (Addo-Yobo, 2010). This is in spite of the existence of three medical schools, with paediatrics as a recognised post-graduate specialty. There are not more than five qualified neonatologists in Ghana. Overall, the few paediatricians and neonatologists are found only in higher level health facilities like Korle-Bu and Komfo Anokye Teaching Hospitals (Ministry of Health, 2011). Newborn care is part of the curriculum and responsibility of midwives and physicians, who receive basic training in the theory and practice of newborn care. Even as nurses constitute the largest cadre of health professionals in Ghana, many of them are challenged by neonatal diagnosis and neonatal care (Addo-Yobo, 2010). Paediatric staff ratios are inversely related to mortality rates (Neogi *et al.*, 2011). Opondo *et al.* (2009) suggested that investments directed towards recruiting, enhancing the competencies and retaining the nursing personnel to work with high motivation levels in neonatal units will go a long way to improving neonatal outcomes.

Equipment and supplies (availability of technologies)

Neogi *et al.* (2011) reported that shortage of basic equipment and supplies such as resuscitation equipment, oxygen delivery systems and feeding tubes at a Special Care Baby Unit in Uganda and Afghanistan contributed to poor perinatal care. English *et al.* (2004) noted that district hospitals in Kenya, lacked between 30 and 83 per cent of items considered crucial for the provision of care to the sick neonate. Kumar *et al.* (2009) suggested that having the essential equipment and supplies for neonatal resuscitation can prevent some neonatal deaths due to birth asphyxia (inadequate oxygen), a major cause of death in newborns. Heating devices such as radiant warmers and incubators are necessary for preventing hypothermia in newborns (particularly low-birth weight babies).

Care processes

Aseptic techniques undertaken by staff and visitors to the neonatal wards are an important way of reducing the incidence of hospital acquired infections in the wards (Cohen *et al.*, 2003). Staff hand hygiene before and after examination will go a long way to reduce hospital acquired infections not only between patients of the same ward, but also between health providers (Silvestri *et al.*, 2005). Collins (2008) argues that one neonate to a cot promotes faster recovery, reduces hospital stay and thus reduces cost to the patient and above all advances good quality care. Undesirable drug events such as adverse drug reactions and medication errors may be up to three times more common in children than in adults (Wong *et al.*, 2009). Wong *et al.* (2009) note that most potentially reported adverse drug events are dosing errors and errors involving intravenous (IV) drug administration.

Conceptual perspective

Quality of care

Donabedian (1988) explains that quality of care is the application of medical science and technology in a manner that maximises its benefit to health without correspondingly increasing the risk. Based on Donabedian's (1988) framework, we developed a conceptual framework for quality of neonatal care to explain the findings of our study. The complex nature of quality is widely acknowledged (Raven *et al.*, 2011, 2012). Quality can be considered using different conceptual frameworks, which can guide healthcare providers, managers and policymakers to improve health service quality. Three models most commonly used and most clearly defined are perspective, characteristics and systems models. We focussed on the characteristics model in this study (Donabedian, 1980; Maxwell, 1992).

Characteristics model

This model sees quality of care as comprising different characteristics such as access to care, which could be geographical, financial or organisational; equity and effectiveness, among others (Maxwell, 1992; Raven *et al.*, 2011, 2012). Maxwell (1992) describes the characteristics of healthcare quality and notes that these can vary in importance depending on the type of healthcare being provided (Raven *et al.*, 2011, 2012). Donabedian (1988) explains that a process of quality assurance may examine just one of these characteristics or multiple characteristics. Comprehensive assessments of quality of care follow the classical approach suggested by Donabedian, which encompasses measures of structure, process and outcome.

Structure indicates the characteristics of the resources in the health delivery system (number of qualified staff, functioning equipment, number of road worthy vehicles, policy guidelines and management systems). Process involves an examination of what is actually done to and for the patient. Process measures include waiting time, examining patients properly and appropriateness of treatment. The outcome relates to how to measure the effects of care. Outcome measures include mortality, patient satisfaction, coverage and attendance levels (Donabedian, 1988). The lack of appropriately trained staff, incorrect treatment, poor staff attitude, delay in referral, poor cooperation and interpersonal relationships between health providers as well as inadequate supplies and equipment are evident in many resource poor settings (Wall *et al.*, 2009). All these can affect the outcome of the care provided.

Methods

The study was conducted using qualitative research approach between May and June 2013.

Study sites

The study was conducted in a municipality, which also serves as a regional capital in a Southern region of Ghana. It is one of the 275, metropolitan, municipal and district Assemblies in Ghana. The population of the municipality was about 188,630; and the ratio of males to females was 47.5: 52.5 as at 2010 (Ghana Districts, 2013). One regional hospital, a municipal hospital, and four health centres where deliveries are performed were purposively selected for the study. These six health facilities were established between 1960 and 2005. All the health centres are run by a medical assistant who is supported by a midwife, one or two community health nurses, enrolled nurses and in some places a laboratory technician and a dispensing technologist. The municipal hospital is a 150 bed hospital and provides laboratory, blood transfusion services, x-ray, obstetrics and paediatric as well as surgical and medical services. The regional hospital is a 240-bed capacity government owned ultra-modern referral hospital and provides specialised health services to the people in this Southern Ghana region and beyond.

Study design and research participants

Purposive sampling technique was used to select research participants and health facilities for data collection (Creswell, 2013). In total, 15 staff were available and willing to participate in the study. They included 11 staff of maternity and paediatric wards at the regional and municipal hospitals, and four midwives from the four selected health centres. Majority of them were between the ages of 55 and 60 and thus nearing their retirement. In total, 12 were midwives, two were trained nurses and one was a medical officer. Four had more than ten years working experience, seven had between five and ten years working experience and four had less than five years working experience.

Interviews, direct observation and documentary review

Data were collected using qualitative interviews, direct observation and documentary review (Creswell, 2013). The interviews were conducted using a semi-structured interview format, which was designed to find answers to the following questions:

(1) Do adequate and skilled human resources exist for neonatal care delivery in the municipality?

(2) Are there available equipment and care processes for neonatal care delivery in the municipality?

This enabled the researchers to understand their main duties on the ward, perceptions of quality of care and any difficulties faced in carrying out their duties. Interviews were conducted until saturation of data were reached where there was no additional new information afterwards (Creswell, 2013). Each interview lasted approximately 10-20 minutes and was conducted in the English and Ewe languages. The interviews were recorded using a tape recorder to provide a basis for subsequent analysis. Using direct observation (Trochim, 2000) facility infrastructure such as special ward for care of sick neonates, availability of neonatal intensive care units and capacity were observed and responses checked against facility records. We observed activities in the health facilities; especially in the paediatric and maternity wards; to ascertain the availability of equipment and care processes using a checklist. Documentary reviews (Creswell, 2013) also involved assessment of case notes on completion of basic items adjudged to be essential in the management of a sick neonate. These included: records of birth weight, Apgar score, gestational age, temperature, respiratory rate, haemoglobin level, heart rate and also mothers records of HIV screening, maternal blood group and Rhesus factor, in the maternity and paediatric wards contributing to neonatal care at the municipal and regional hospitals.

Data analysis

Thematic analysis was used in the process of data analysis through coding in six phases to create and establish meaningful patterns. These phases were familiarisation with data, generating initial codes, searching for themes among codes, reviewing themes, defining and naming themes and producing the final report (Attride-Stirling, 2001). The audio taped interviews were first of all transcribed verbatim and were synchronised with the notes. These were then read through several times to obtain an overall feeling. For each transcript, significant phrases that pertained to availability of staff, skills in neonatal care, availability of equipment and care processes as well as opinions of health providers on neonatal care were identified. The results were then incorporated into an in-depth description of quality of care for neonates in the facilities.

Triangulation of methods

Triangulation of methods used involved the in-depth interviews with health providers at the health facilities, observation of care provided to neonates and documentary review of records of sick babies. This involved comparing data from different methods and comparing the perspectives of people from different points of view (Creswell, 2013). To reduce reflexivity, the researchers were aware of potential prejudices and thus, attuned in order to collect significant data that was truthful. The researchers' own experiences from practising as health workers for considerable period of years in Ghana's health sector were brought to bear on the discussion in this study. The Ethics Review Committee of Ghana Health Service granted approval for the study. Confidentiality of participants was maintained and codes have been allocated to interviewees where they are quoted. HP: means health provider.

Findings

Five main themes emerged some of which were further categorised into sub-themes. The main themes are: availability of staff, skills in neonatal care, lack of equipment, inappropriateness of treatment of neonates and availability of protocols. These have been presented in relation to the objectives of the study.

Adequate and skilled human resources for neonatal care

Availability of staff

Availability of specialised staff in neonatal care is critical to the delivery of quality of care. We noticed that in the regional hospital where even though special wards existed for neonates and premature babies, they were not in use and so babies were mixed with older children. According to the staff, this was due to limited number of staff available in the hospital, especially for the neonatal unit:

> […] We have a problem of shortage of staff, which is why we have not been able to use the prematurity and neonatal wards […] (HP-14).

Staff of other facilities visited expressed worry over the severe shortage of key health personnel like nurses and doctors. Consequently, the care given to neonates was affected:

> […] How can we give quality care to the neonates when we have only one nurse on night duty managing the ward? – It is very difficult […] (HP-7).

Observations on the wards revealed that babies after delivery were received and immediate newborn care was provided by other staff like community nurses or enrolled nurses. In some places, health aides, who had received little or no training on how to provide neonatal care and were not included in any in-service training programmes, were supporting where there was one midwife on duty. This was creating some difficulties for such midwives who should have been working with a full staff compliment:

> […] I am alone here so while I do all deliveries, the community health nurses help with the baby whilst I attend to the mother […] (HP-3).

We observed that the number of staff available for managing sick neonates was few or inadequate. For instance, there was only one paediatrician and one trained paediatric nurse in each hospital. However, the few midwives and nurses who had stayed long on the paediatric wards were helping. Other staff trained as psychiatry nurses, community health nurses and health assistants were also assisting. The problem of inadequate staff was echoed and re-echoed by all staff in the health facilities.

Skills in neonatal care (in-service training of staff)

Quality neonatal care will be enhanced if the facilities have skilled personnel. Nonetheless, the staff working in the neonates' wards had shortage of specialised skills in neonatal care. Most of them had received basic training in neonatal care as part of their training in school. Some expressed timidity at managing neonates until they had gone for in-service training on neonatal resuscitation. This had implications for provision of care:

> […] I went for a workshop on helping babies breathe and it has equipped me a lot […] Until then I was a bit timid, but now I know how to do it […] (HP-6).

The commonest newborn problems encountered were birth asphyxia, prematurity, neonatal sepsis and jaundice. However, some health personnel, especially the new nurses had not had the opportunity to go through some of the in-service programmes on neonatal care. This could affect their approach to quality of care:

> […] I did my national service here, but have personally not been to any training […] Sometimes, they organise workshops in the hospital, but the elderly ones go and brief us afterwards […] (HP-11).

Most ward in-charges were also seen busily attending to patients, putting in IV lines, serving medications, supervising the junior/young nurses who were on rotation and inexperienced. Some staff were concerned about yearly rotation of staff at the paediatric ward as this was hampering quality of neonatal care:

> […] Every year they reshuffle the nurses […] I think that neonates are precious - so those nurses attending to them have to be trained on the job and maintained […] (HP-6).

Indeed, when new staff are posted to the ward, it takes some time for them to get use to of the activities and processes. For example, new nurses will have to get accustomed to dosing regimens for premature babies and neonates, setting of IV lines and other specialized care for neonates. Some nurses were also of the opinion that they needed training in how to care for the neonates:

> […] It is not all of us who know how to calculate the feed, for example, give 60ml every 3 hours or 60ml every hour and sometimes we have to put the baby on IV fluid […] We need people to come educate us and let us understand […] (HP-10).

Obviously, the health providers were not comfortable with administration of IV fluids and also calculation of feeds for the neonates.

Availability of equipment and care processes for neonatal care

Lack of equipment

All facilities visited had functional weighing scales. Ambu bags (bag and mask) were available on all the wards of the regional hospital. These were of appropriate sizes for both premature and term babies and were functional. The municipal hospital had Ambu bags on both maternity and paediatric wards, but there was no size available for preterms. However, out of the four health centres visited, only two had a functional and appropriate size Ambu bag for term neonates. None of the health centres had Ambu bag for preterm babies. Other equipment available on the wards included pulse oximeter. However, oxygen delivery systems were inadequate. At the regional hospital, there was only one oxygen point for the preterm ward. There were some glucometers and two phototherapy machines available. There were also six non-functional warmers and a non-functional radiant warmer:

> […] The warmers are not functional; sometimes they overheat […] (HP-13).

The municipal hospital did not have phototherapy machines. Most of the staff confirmed that essential equipment needed for neonatal care such as equipment for regulating IV fluids, were not available:

> […] My problem is regulation of fluids – we don't have equipment that will give a particular drop rate […] (HP-5).

All the staff interviewed at the hospitals said there were no incubators for managing premature babies. There were no bedside laboratory facilities such as centrifuge and bilirubin meters for checking of quick haemoglobin and bilirubin levels for anaemic and jaundiced babies. Due to lack of equipment for neonates, some staff had to improvise with blue light in addition to early morning sunbaths. Staff, especially in the health centres, reported many ways in which they improvised in order to provide care for the neonates. However, the absence of essential equipment and subsequent improvisation by staff had serious consequences for quality of neonatal care:

> […] The ambu bag is not functioning so if there is a need for resuscitation, I do mouth to mouth resuscitation for the baby […] (HP-12).

> […] The ambu bag is too big for the neonates so I improvise […] ahah […] [Laughing] with the voltic bottles I prepared myself […] (HP-3).

> […] We don't have incubators, we improvise, we sometimes use hot water bottle for the premature babies […] (HP-11).

Apart from the risk to the health worker, the babies were also at risk of acquiring all sorts of infections from some of these procedures.

Inappropriate treatment of neonates

Instances of inappropriate treatment provided were observed. These have very serious implications for quality of care.

Overdose and underdose of fluids and medications. Due to lack of dosiflows and perfusers, correct administration of IV fluids for the neonates was difficult. Administration of IV fluids was done with adult giving sets. Therefore, it was difficult to regulate the amount of fluids a particular neonate needed:

> […] We don't have fluid regulator so we are using the adult giving sets […] Sometimes, by the time you turn your head, the fluid is finished […] (HP-13).

Overdose and underdose of medication were common as most clinical records of neonates reviewed showed errors in the treatment plan. At the municipal hospital, there was no paediatrician. Hence, physician assistants and a medical officer were managing the neonates. While this is sometimes frustrating for other health workers, its negative effects on quality neonatal care could be enormous:

> […] We don't have a specific treatment plan, we don't have a paediatrician - we have different doctors who come with different treatments: it is really difficult […] (HP-5).

As a result, staff at the municipal hospital prefer to refer neonates to the regional hospital where there was one paediatrician.

Referral. Most of the centres visited did not have an ambulance for emergencies, including referrals. Therefore, when babies are referred, they are transported in a taxi, most often not accompanied by any staff:

> […] We don't have a neonatal unit so we refer all our premature babies to the regional hospital […] (HP-4).

When babies are transferred unaccompanied by any staff, some mothers may decide even not to go. Inexperienced mothers may panic when complications such as seizures occur. This could also result in delays in receiving care and could prolong hospital stay as the child also acquires new infections during the transfer.

Aseptic procedures on the wards. All facilities visited did not have any aseptic procedures for staff and visitors entering the wards. We observed that neither mask nor cap was worn before entering the wards. However, staff and patients' relatives were required to change their footwear before entering the labour wards. Mothers were also allowed to sit with their sick neonates similar to what happens to mothers with older children. They call this rooming-in. This seeming lack of protocols for entering the wards was attributed to the way the wards have been structured:

> […] We do not have specific protocols for entering the neonatal ward, but we don't allow visitors and sick staff to enter the wards […] (HP-9).

We observed that staff were not able to wash their hands in between caring for older children and the neonates due to work overload. However, while neonates slept in their separate cots in the facilities, premature babies were given a separate room. This conforms to quality of care standards for neonates.

Availability of protocols

At the health centre level, the newborn corner would have the following: two bags and mask (Ambu bags) of appropriate sizes for term and premature babies, bulb syringe and weighing scale. Protocols for resuscitation of newborns included Apgar scoring, danger signs to look out for; to ensure prompt referral to hospitals. At the district, municipal and regional hospitals, the newborn corner would have the following: two Ambu bags of appropriate sizes for term and premature babies, bulb syringe, weighing scale, suction tube and machine, pulse oximeter, oxygen and radiant warmer.

We observed that all health facilities visited had several posters, protocols and guidelines on the pregnant woman and older children. The most common protocols and posters for post neonates included malaria treatment guides, tuberculosis and HIV. These were also available in some maternity units. There was only one protocol (Apgar scoring on the baby in the labour wards). However, one facility did not have any protocol(s) on the baby in the labour ward. Most of the protocols were on Apgar scoring and breastfeeding. Meanwhile, three facilities had protocols on the resuscitation algorithm. Indeed, the municipal hospital had even gone to the extent of binding several protocols on almost all emergencies of both pregnant women and older children but had not included the neonates. Nonetheless, there was one protocol on Apgar scoring. In the paediatric ward of the regional hospital, there was one protocol on medication dosing in preterm babies. There is no gainsaying that protocols are essential as they serve as a quick reference for the health worker: they become very handy during emergencies. However, their absence or inadequacy also creates problems for quality neonatal care.

Discussion

Availability of personnel and skills in neonatal care

Just as described in the quality of care model, the findings of the study revealed that health providers were concerned about the number of staff available, their competence and also equipment available for them to work more efficiently and function effectively. Similar finding has been documented elsewhere (Raven *et al.*, 2011, 2012). Our study identified that all staff had complained of workload, limited number of staff for neonatal care similar to other studies (Opondo *et al.*, 2009). Unique to this study was the non-utilisation of prematurity and neonatal wards in the regional hospital as a result of inadequate staff.

Due to inadequate staff numbers, medications for neonates were not administered as scheduled. Likewise, in some cases too, sick neonates were kept with sick mothers on the maternity wards. There is the risk of aspiration during breastfeeding or cup feeding. There is a need to consider the suggestion that neonates need to be managed separately, so that special treatment they require could be given them in order to improve their care (Hashim and Guillet, 2002).

Evaluation of quality of care by providers also places emphasis on competence of staff (Neogi *et al.*, 2011). We found that whilst they did not have trained paediatrics available, the majority of nursing staff catering for sick newborns were not trained in

neonatal nursing. Besides this, it was found that the basic neonatal training component in the nursing course was not significant. Ward aides were also involved in routine care of neonates, especially when only one midwife was on duty. Most of them were not competent. There was, therefore, increased risk of the baby developing hypothermia/infection, which might consequently lead to death. This finding is consistent with the observation that neonatal deaths could be as a result of improper use of equipment and procedures (Kumar *et al.*, 2009) and by extension unskilled health staff.

Therefore, as an interim measure, more staff should be trained on the job and maintained to improve the quality of neonatal care since neonatal nurses are not presently available. It was evident that in-service training programmes improved the morale of staff to manage neonates. This is in line with the findings that training is a must for any health professional that may be present at a delivery (Plaat, 2008). Most in-service training programmes were on neonatal resuscitation and kangaroo mother care, which were mainly organised for midwives. Continuous professional development courses should include care of sick neonates to enable staff improve their skills. This will enable staff who had not undergone any training on managing neonates have a first-hand information and thus improve their skills. This is consistent with primary health care recommendations (WHO and UNICEF, 1978).

Availability of equipment and care processes of neonatal care

Another important aspect in assessment of quality of care is the availability of equipment for neonatal care (English *et al.*, 2004). However, we observed that phototherapy machines, bedside centrifuge and bilirubin meters were not available for the care of sick neonates. Where bag and mask equipment were available, they were mostly non-functional, as were the warmers. Due to lack of incubators and dosiflows, dosiflows administration of fluids for neonates was a challenge. Our finding is consistent with the findings of English *et al.* (2004) and Opondo *et al.* (2009). We contend that protocols and guidelines on neonatal care will enhance safety in the use of medicines and hence, promote quality care. We found that whilst most of the staff had problems with calculation of feeds for babies, neonatal protocols were hardly available for care of sick babies. This confirms the argument that neonatal care has been neglected (Van den Broek and Graham, 2009).

Aseptic techniques

Several studies have demonstrated the cost benefit ratio and positive effects of simple hand washing for preventing transmission of pathogens in health facilities (Collins, 2008). Our findings showed that aseptic practices such as washing of hands in between patients were not usually observed by staff. This confirms the observation that hospitals with low nurse staffing levels tend not to adhere to hand washing practices (Collins, 2008). Furthermore, the use of personal protective equipment (PPE) such as face masks, caps was not practiced by staff. We argue that hand washing and use of these PPE would further enhance safety and prevent an outbreak as was the case when the paediatric ward of Korle Bu Teaching Hospital had to be closed down following an outbreak of Methicillin-Resistant *Staphylococus aureus* in which three children were reported dead (Ghananewslink, 2012).

Some researchers note that one baby per cot reduces the incidence of cross infection and promotes good quality care (Silvestri *et al.*, 2005). We observed that babies slept one each in a cot. Though this was a good practice in the facility, its benefits could be

obviated by the negative practice of mixing babies with older children in the same cubicle or shifting babies to the corridor where a lot of people passed, including parents and visitors. Since such unprofessional acts could result in serious health hazards, it was important that staff received additional training on infection control practices to prevent outbreaks in hospitals as documented (Pallás *et al.*, 2008).

Conclusion

This study had the objective to assess problems associated with neonatal care delivery in health facilities in Ghana. We conclude that there was a problem of inadequate staff and that most of the few who were available were not familiar with the care of sick neonates. They admitted they needed on-the-job training to improve their skills in that aspect.

Implications for policy and practice

Key findings of this study will be useful and important in effecting change in the provision of neonatal care for newborns most especially, sick newborns. Changes in the provision of care for neonates may involve change in policy direction and organisational as well as clinical interventions to ensure satisfactory, continuous and consistent care. One startling revelation of the study was that there seemed to be no defined policy framework for management of neonatal care in the country's health care facilities. Every health centre and hospitals that carry out deliveries should have a newborn corner and appropriate equipment. Our study suggests that babies should be provided with a separate room and not mixed with older babies. A tertiary centre should have facilities for specialised care of newborns. Neonatal units and neonatal intensive care units should be built for neonates. Barnett *et al.* (1970) demonstrated the feasibility of admitting mothers to the premature nursery without increasing the risk or occurrence of infection, or disrupting the organisation of the care of the infants.

Facilities managing neonates should have paediatricians, neonatologists and neonatal nurses just as there are specialties in psychiatry, ophthalmology, among others. Paediatric and neonatal nursing should be added to the curriculum of nurses. In-service training programmes should encompass issues related to management of sick babies, care of preterm babies, neonatal resuscitation, IV cannulation, especially for new doctors and nurses who graduate every year. There is the need for policy makers to redirect their attention to these issues in order to improve the quality of neonatal health care in health facilities in Ghana and other countries with similar challenges.

Contribution to methodology and theory

This qualitative study addressed a gap in the literature by exploring the experience of care providers on the complex issue of quality of neonatal care. This study makes significant contribution to knowledge in the area of research methodology by triangulating different research methods within the same qualitative research methodology. The deficiencies in each of the methods were assuaged by the other. This is the first time that the Donabedian (1988) quality of care framework has been applied to such a study in this municipality. Our study makes contribution to theory by its effective application of the characteristics model to enhance understanding of perspectives of health providers who believe that quality of neonatal care meant availability of adequate, skilful staff and equipment.

Limitations

Any generalisation of the findings of this study to other health facilities in the country is rather difficult. Apparently, this research was limited in scope as it was conducted only in few selected health facilities in the municipality. The study may possibly suffer a bias because the participants were interviewed on the premises of the health facilities, where they provided care. Due to the short duration of the study, the researchers were not able to observe as many neonatal resuscitation procedures as possible. Additionally, we could also not seek the perspectives of management of the municipal and regional health directorates or policy makers of the Ministry of Health and Ghana Health Service regarding the shortage of staff, inadequate provision of medical equipment and infrastructure. There was methodological limitation relating to the use of only qualitative research methods. However, qualitative research findings can be generalised to theoretical prepositions (Patton, 2002).

References

Addo-Yobo, E.O.D. (2010), "Neonatal survival in Ghana – challenges and way forward", available at: dspace.knust.edu.gh:8080/xmlui/handle/123456789/549 (accessed 5 November 2012).

Attride-Stirling, J. (2001), "Thematic networks: an analytic tool for qualitative research", *Qualitative Research*, Vol. 1 No. 3, pp. 385-405.

Barnett, C.R., Leiderman, P.H., Grobstein, R. and Klaus, M. (1970), "Neonatal separation: the maternal side of interactional deprivation", *Pediatrics*, Vol. 45 No. 2, pp. 197-205.

Cohen, B., Saiman, L., Cimiotti, J. and Larson, E. (2003), "Factors associated with hand hygiene practices in two neonatal intensive care units", *The Pediatric Infectious Disease Journal*, Vol. 22 No. 6, pp. 494-499.

Collins, A.S. (2008), "Preventing health care-associated infections", in Hughes, R.G. (Ed.), *Patient Safety and Quality: An Evidence-Based Handbook for Nurses*, Agency for Healthcare Research and Quality, Rockville, MD, pp. 547-575.

Creswell, J.W. (2013), *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*, 3rd ed., Sage Publications, Thousand Oaks, CA.

Donabedian, A. (1980), "Methods for deriving criteria for assessing the quality of medical care", *Medical Care Review*, Vol. 37 No. 7, pp. 653-698.

Donabedian, A. (1988), "The quality of care", *JAMA: The Journal of the American Medical Association*, Vol. 260 No. 12, pp. 1743-1748.

English, M., Esamai, F., Wasunna, A., Were, F., Ogutu, B., Wamae, A., Snow, R.W. and Peshu, N. (2004), "Assessment of inpatient paediatric care in first referral level hospitals in 13 districts in Kenya", *The Lancet*, Vol. 363 No. 9425, pp. 1948-1953.

Ghana Districts (2013), "Repository of Ghana districts", available at: www.ghanadistricts.com/districts/?news&r=7&_=116 (accessed 9 May 2013).

Ghananewslink (2012), "Deadly bacteria caused closure of children's ward", available at: www.newsghana.com.gh/deadly-bacteria-caused-closure-of-childrens-ward (accessed 20 December 2012).

GSS (2009), *Ghana Demographic and Health Survey 2008*, Ghana Statistical Service, Accra.

Hashim, M.J. and Guillet, R. (2002), "Common issues in the care of sick neonates", *American Family Physician*, Vol. 66 No. 9, pp. 1685-1693.

Kumar, V., Shearer, J.C., Kumar, A. and Darmstadt, G.L. (2009), "Neonatal hypothermia in low resource settings: a review", *Journal of Perinatology*, Vol. 29 No. 6, pp. 401-412.

Lawn, J.E., Cousens, S., Zupan, J. and Lancet, N.S.S.T. (2005), "4 million neonatal deaths: when? where? why?", *Lancet*, Vol. 365 No. 9462, pp. 891-900.

Maxwell, R.J. (1992), "Dimensions of quality revisited: from thought to action", *Quality in Health Care*, Vol. 1 No. 3, pp. 171-177.

Ministry of Health (2011), "Independent review health sector programme of work 2010: Ghana", available at: www.nhis.gov.gh/_Uploads/dbsAttachedFiles/1.doc (accessed 6 February 2013).

Neogi, S.B., Malhotra, S., Zodpey, S. and Mohan, P. (2011), "Challenges in scaling up of special care newborn units-lessons from India", *Indian Pediatrics*, Vol. 48 No. 12, pp. 931-935.

Neogi, S.B., Malhotra, S., Zodpey, S. and Mohan, P. (2012), "Does facility-based newborn care improve neonatal outcomes?: a review of evidence", *Indian Pediatrics*, Vol. 49 No. 8, pp. 651-658.

Opondo, C., Ntoburi, S., Wagai, J., Wafula, J., Wasunna, A., Were, F., Wamae, A., Migiro, S., Irimu, G. and English, M. (2009), "Are hospitals prepared to support newborn survival?: an evaluation of eight first-referral level hospitals in Kenya", *Tropical Medicine and International Health*, Vol. 14 No. 10, pp. 1165-1172.

Pallás, C.R., De-la-Cruz, J., Del-Moral, M.T., Lora, D. and Malalana, M.A. (2008), "Improving the quality of medical prescriptions in neonatal units", *Neonatology*, Vol. 93 No. 4, pp. 251-256.

Patton, M. (2002), *Qualitative Research and Evaluation Methods*, Sage Publications, Thousand Oaks, CA.

Plaat, F. (2008), "Neonatal resuscitation – the team needs a leader", *AVMA Medical & Legal Journal*, Vol. 14 No. 2, pp. 43-45.

Raven, J.H., Hofman, J., Adegoke, A. and van den Broek, N. (2011), "Methodology and tools for quality improvement in maternal and newborn health care", *International Journal of Gynaecology and Obstetrics*, Vol. 114 No. 1, pp. 4-9.

Raven, J.H., Tolhurst, R.J., Tang, S. and Van Den Broek, N. (2012), "What is quality in maternal and neonatal health care?", *Midwifery*, Vol. 28 No. 5, pp. e676-e683.

Silvestri, L., Petros, A.J., Sarginson, R.E., de la Cal, M.A., Murray, A.E. and van Saene, H.K.F. (2005), "Handwashing in the intensive care unit: a big measure with modest effects", *Journal of Hospital Infection*, Vol. 59 No. 3, pp. 172-179.

Trochim, W.M. (2000), *The Research Methods Knowledge Base*, 2nd ed., Atomic Dog Publishing, Cincinnati, OH.

Van den Broek, N.R. and Graham, W.J. (2009), "Quality of care for maternal and newborn health: the neglected agenda", *BJOG: An International Journal of Obstetrics & Gynaecology*, Vol. 116 No. S1, pp. 18-21.

Wall, S.N., Lee, A.C., Niermeyer, S., English, M., Keenan, W.J., Carlo, W., Bhutta, Z.A., Bang, A., Narayanan, I., Ariawan, I. and Lawn, J.E. (2009), "Neonatal resuscitation in low-resource settings: what, who, and how to overcome challenges to scale up?", *International Journal of Gynecology & Obstetrics*, Vol. 107, Supplement, pp. S47-S64, doi.org/10.1016/j.ijgo.2009.07.013.

WHO and UNICEF (1978), "Primary health care: report of the International Conference on Primary Health Care. Alma-Ata USSR", available at: www.whqlibdoc.who.int/publications/9241800011.pdf (accessed 11 November 2012).

Wong, I.C.K., Wong, L.Y.L. and Cranswick, N.E. (2009), "Minimising medication errors in children", *Archives of Disease in Childhood*, Vol. 94 No. 2, pp. 161-164.

World Health Organisation (2006), *WHO Report 2006: Global Tuberculosis Control: Surveillance, Planning, Financing*, World Health Organization, Geneva.

About the authors

Dr Kokui Elikplim Pomevor, is currently, a Senior Medical Officer at the St Dominic Hospital, Akwatia, Eastern Region, Ghana. She holds an MPH Degree from the School of Public Health, University of Ghana, MB, ChB, BSc Human Biology from the School of Medical Sciences, Kwame Nkrumah University of Science and Technology. She had her internship at the Komfo Anokye Teaching Hospital and has attended other career related courses both within and outside Ghana. Dr Kokui Elikplim Pomevor is the corresponding author and can be contacted at: kokuiel@yahoo.com

Dr Augustine Adomah-Afari, is currently, a Lecturer in Health Policy, Planning and Management, School of Public Health, College of Health Sciences, the University of Ghana. He received both MA and PhD from the Sheffield Business School, Sheffield Hallam University – UK. He had also Graduated from the University of Ghana Business School with both BSc (Admin) and MBA. He worked as a Health Services Administrator (District and Regional Hospitals-Ghana); Senior Health Services Administrator (HASS/GHS); Consultant (PHRplus-Ghana); and Administrator (Manor & Castle Development Trust Ltd – UK). His research interests include health system reforms; health financing, policy, planning and management; relationship marketing; human resources management; and community-based organisations.