ORIGINAL ARTICLE

First experiences of accrediting district hospitals for excellence in newborn care in KwaZulu-Natal, South Africa: Successes and challenges

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ABSTRACT

Objective: Providing quality health care is what all health facilities seek to achieve. Accreditation of health services are used to assess and improve the quality of health care in different settings. This study describes experiences of developing and conducting accreditation for excellence in newborn care in district hospitals in KwaZulu-Natal (KZN), South Africa following a 3-year programme of support to all nurseries in KZN.

Methods: A facility review was conducted in district hospitals in KZN to evaluate the quality of care provided to newborn babies to accredit hospitals in newborn care. Multiple tools were used to assess different components of care from different perspectives, including record reviews, assessment of staff skills and interviews with mothers. Awarding accreditation was based on scores achieved in various domains, which contributed to an overall score. Compliance with key priority indicators was required for accreditation to be awarded.

Results: Overall scores for accreditation ranged between 57%-93%. Mothers reported high levels of satisfaction with care received. Record reviews identified shortfalls in care provided, and skills assessments showed poor resuscitation skills in labour wards in some hospitals. Of 39 district hospitals, eight were awarded silver and five were awarded gold accreditation status.

Conclusions: This accreditation of newborn care provides a workable model for undertaking accreditation in district hospitals and can be used by managers to identify and address shortfalls in care. Regular accreditation would support ongoing quality improvement (QI) in neonatal care and such a process could be applied to other aspects of care in health facilities.

Key Words: Accreditation, Newborn, Neonatal, Quality of care, Quality assurance, Hospitals

1. INTRODUCTION

There is a substantial global burden of neonatal mortality, which accounts for 46% of all deaths among children under five years. Although most pregnancies result in the birth of healthy normal infants at term, a proportion of pregnancies result in maternal illness, preterm delivery, or difficulties with labour and delivery. As a result, some newborns require special care and expert knowledge to minimize mortality and morbidity.[1,2] As well as increased mortality, inadequate newborn care may result in a substantial lifelong burden of disability and neuro-developmental impairment. However, there are proven, effective interventions available to prevent many of these deaths,[2] and currently international efforts are being made to end preventable neonatal deaths through

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improved quality of care during childbirth and the neonatal period.[3] New targets have been set to reduce global neonatal mortality to below 10 per 1,000 live births by 2035.[4] Strengthening health systems to improve quality of postnatal care is essential to reaching these neonatal targets.

In South Africa, between 11,000 – 13,000 newborn babies die every year,[5] many of these deaths are from potentially preventable causes. Most births, as well as most neonatal deaths, occur in district hospitals.[5] With long distances to travel to the referral hospitals, district hospitals provide the care for many sick newborn infants. The South African national perinatal morbidity and mortality committee (NaPeMMCo) has identified improved management of asphyxia and premature babies as key priorities to improve neonatal outcomes, and substantial efforts have been made to improve neonatal care in district hospitals, to ensure that required resources are available and that good quality of newborn care is provided in all district hospitals. However, inadequate resources still contribute to preventable newborn deaths in district hospitals.[5]

Although all health facilities seek to deliver good quality health care, this can be difficult to define. Quality is a complex and multi-faceted concept that comprises of a number of elements including technical competence, accessibility, effectiveness, interpersonal skills, efficiency, continuity of care and safety. In order to achieve this, the health facility and health care practitioner have to provide safe, effective, patient-centered, timely, efficient and equitable care at all times. A number of different approaches can be used to monitor and improve quality of care in health care settings, including quality assurance (QA), a process of ensuring that health outcomes meet pre-determined established standards of care. Quality improvement (QI) is another approach and involves developing interventions to improve quality in order to reach pre-determined standards. Therefore, QA can be said to identify problems and QI systematically corrects them. Both approaches have been shown to be successful in improving aspects of quality in healthcare.[6–9]

QA helps health managers define clinical guidelines and standardise procedures, thus making concrete steps towards improving quality of care. QA promotes confidence, improves communication and improves understanding of what is needed, within the health system, to improve quality of care. QA gives health workers opportunities to excel, achieve recognition, improve their status, thus improving job satisfaction and motivation. It provides the health team with tools to measure current performance and demonstrate improvements. By using existing staff and systems, QA activities can improve quality of health care without substantial additional resources.[10]

Accreditation is a self-assessment and external review process that can be used by healthcare organisations to assess their level of performance in relation to established standards and to implement ways to continually improve. Accreditation is considered a component of QA,[11] and has been used in many countries to regulate large health systems like hospitals, health facilities, health services,[12] or individual programmes within health systems for example blood transfusion services,[13] baby friendly hospital services,[14] youth friendly reproductive services or obstetric care.[3] While there are opposing views about the effectiveness of accreditation programmes,[15] many authors suggest accreditation increases staff satisfaction, provides positive change in organizational culture and improves staff awareness around the quality health care.[16–18]

In this paper we present the experiences of developing and conducting an accreditation for excellence in newborn care in KwaZulu-Natal (KZN), South Africa.

2. METHODS

We conducted a facility review in all 39 district hospitals in KZN to evaluate the quality of health care provided to newborn babies with the objective of accrediting the hospitals for excellence in newborn care.

2.1 Setting

KZN is one of nine provinces in South Africa and has a population of approximately 11 million people. At the time of the study, there were 39 district hospitals, 10 regional hospitals and two tertiary hospital in KZN providing care to newborn babies. This paper focusses on district hospitals.

In our setting, a district hospital receives referrals from, and provides generalist support to, primary health care clinics and community services within a sub-district. District hospitals have between 30-300 beds, a 24-hour emergency service and an operating theatre, and are often located in isolated areas. District hospitals are defined by the package of services provided and although many district hospitals are small and located in isolated areas, several large urban hospitals are designated as district hospitals. As a result, district hospitals in KZN vary from very small hospitals with fewer than 1,000 deliveries annually and a small number of neonatal beds (2 high care, 2 intermediate care and 2 KMC), to large hospitals with over 6,000 deliveries per annum with a large neonatal unit (4 high care, 8 intermediate care and 5 KMC).

Neonatal care in district hospitals is delivered by generalist medical practitioners, and is supported regularly by outreach from specialist paediatricians from regional or tertiary hospitals. On the neonatal unit, care is provided by registered

nurses, enrolled nurses and nursing assistants under the guidance of an advanced midwife, who is a nurse with specialist midwifery training that includes neonatal care, and a medical officer who may also be responsible for another ward. Neonatal services provided at this level include basic care of small and sick newborns, as well as high care services: resuscitation and stabilization of sick newborns after delivery; respiratory support via headbox, nasal prongs or CPAP; intravenous therapy; nasogastric feeds; phototherapy; 1^{st} and 2^{nd} line antibiotics and other basic medications; and kangaroo mother care (KMC). However, intensive care, including ventilatory support, is not provided at district hospitals, but at regional referral hospitals, often located several hours away.

2.2 Norms and standards

The accreditation process was designed to assess the quality of care provided to newborn infants. A variety of different data collection methods and assessment tools were used to capture the complex nature and multiple elements required to assess quality of care in the neonatal unit. These tools were based on norms and standards for newborn care that define the beds numbers and designation, equipment, staffing and resources required at each facility, based on the level of care and the size of the catchment population. Norms and standards for neonatal care in KZN were initially developed by the KZN DoH, in 2003/4 and updated every 2–3 years, according to local and international standards.[19] The allocated number of beds for each hospital was based on numbers of deliveries in the catchment area reported in the District Health Information System (DHIS), with three neonatal beds allocated per 1,000 deliveries, divided equally between high care, intermediate care and KMC beds, with a minimum of two of each. Norms for equipment, adequate and trained staff and supplies were based on the number of beds allocated.

2.3 Accreditation design

The accreditation process followed a 3-year period of development and support to assist nurseries to meet the established norms and standards. The accreditation was designed to act as an encouragement for hospitals to comply with the norms and standards as results from the accreditation were to be publicized on the KZN DoH website allowing all district hospitals to compare their performance against other hospitals. A Premiers Service Excellence award was created for the best performing hospital.

A series of tools were developed based on the Donebedian model of assessing health care quality,[20] which consists of three aspects of care, namely input, process and outcomes. These were grouped into domains/clinical areas, namely: neonatal unit; labour ward; postnatal ward; KMC unit; resuscitation services; support services; staffing; systems; monitoring and evaluation; clinical record audits; skills assessments; maternal interviews. In total 14 tools were developed and the information obtained was used to generate scores for each of the domains assessed, all of which contributed to a composite score.

2.3.1 *A pre-assessment tool*

A pre-assessment tool was developed for the district hospital to use in preparation for the accreditation visit. The neonatal unit manager was expected to undertake the pre-assessment one week prior to the accreditation.

2.3.2 *A facility assessment tool*

A facility assessment tool was developed with multiple indicators covering: infrastructure and equipment, aspects of care; essential resources; systems to ensure effective management of the unit and team work; specific care in the labour ward, neonatal unit, postnatal ward, KMC ward, etc.; monitoring and evaluation of quality of care and mortality reviews. Table 1 shows examples of indicators included in the facility assessment tool for each domain. These indicators were assessed either by direct observation or as reported by managers in the facility.

2.3.3 *Three structured clinical audit tools*

Three structured clinical audit tools were developed to assess quality of care provided to a premature infant < 1,500 grams at birth, a sick term infant and a well term infant, based on guidelines for neonatal care.[21] Clinical care was assessed by a record review of the clinical notes from two discharged infants in each category. Criteria for assessment included the documentation of: maternal antenatal information; the infant's condition at delivery; essential care given at delivery; admission assessment; ongoing management; and monitoring of the infant's condition. Specific management of conditions in premature or sick term infants such as sepsis, respiratory distress, anaemia, jaundice, hypoxic ischaemic encephalopathy etc. were assessed against recommended care. Discharge or transfer summaries were also reviewed.

2.3.4 *Seven skills assessment tools*

Seven skills assessment tools were developed to evaluate health workers ability to carry out important procedures for neonatal care which included: neonatal resuscitation in the labour ward and neonatal unit; first examination of the newborn; assisting a mother to breastfeed; initiating KMC; setting up CPAP; and intubation by the doctor. All skills assessments tools were based on newborn care training materials. Skills assessments were conducted on randomly selected staff members on duty on the day of the visit.

2.3.5 *Two maternal interview guides*

Two maternal interview guides were developed for mothers in the postnatal ward and in the neonatal unit. Mothers were asked about routine care provided at delivery, support received from health workers, and information, knowledge and skills provided to mothers. Mothers' satisfaction and perceptions about their treatment were also explored.

Table 1. Examples of indicators used in the facility assessment tool

Facility assessment tool	
Domain	**Examples of indicators assessed**
Infrastructure in the neonatal unit	**Positioning of the neonatal nursery**: structural requirements, separate from maternity ward, no through traffic, strict access control, single access point. **Temperature and lighting:** ambient temperature maintained, recorded daily, low or dimmable lightening, window blinds in situ. **Hand washing facilities:** hand basin on entry to neonatal nursery, hand basin for every 6 beds, tiled splash backs, elbow control taps, etc. **Beds**: for general care, high care and kangaroo care with adequate spacing between beds. **Neonatal equipment** is available and functioning e.g. diagnostic sets, scales, baby warmer, heat shield, head box, etc. **Services and equipment** for each beds e.g. oxygen points, medical air points, incubators, ICU cribs, stethoscopes, monitors, etc. **Work areas** are available e.g. nurses station, storage cupboards, equipment store, dirty utility area, etc. **Managemen**t is aware of the infrastructure inadequacies and there is a 5-year plan in place to address them.
Maternity Unit	**Lodger facilities for mothers:** Mothers accommodated and do not reduce postnatal maternal bed numbers, adequate number of beds, table and chairs for meals, ablution facilities, etc. **KMC facilities:** with adequate space, table and chairs for meals, ablution facilities, resuscitation area etc. **Well-baby nursery**: a minimum of 4 beds, close proximity to neonatal nursery, glass wall for observation, temperature controlled, etc. **Management** is aware of the infrastructure inadequacies and there is a 5-year plan in place to address them.
Resuscitation	**Resuscitaire** with suction, oxygen, tubing, neonatal resuscitator, monitor and probe and portable oxygen cylinder available in the *labour ward, theatre, neonatal nursery, out patients department, KMC ward and postnatal ward.* All resuscitaires and equipment are checked daily using standardized checklist and this is recorded.
Support services	**Consumables**: for respiratory care (CPAP circuits, ET tubes, nasal cannula, humidifiers, oxygen tubing, suction and suction tubing, catheters, venturi masks etc; IV and bloods (blood giving sets, IV cannula, syringes, umbilical catheters, lancets, etc.) strapping and dressings; NG tubes; Infection prevention items (cleaning cloths, gloves, paper towels etc.); and monitoring (disposable BP cuffs, cardiac leads, saturation probes, etc.) **Linen** e.g. incubator sheets, baby blankets, towels, caps, KMC wraps, etc. **Sterile packs** e.g. umbilical catheterization packs etc. **Pharmaceuticals**: e.g. antibiotics, respiratory drugs, prepared solutions, vacolitres etc. **Laboratory items** e.g. blood collection bottles and tubes, urine specimen bottles etc. Availability of a blood gas machine.
Staff	**Adequate number of permanent staff** in: neonatal nursery staff on day duty; neonatal nursery staff on night duty; KMC unit on day duty and KMC unit on night duty. **Staff are trained in resuscitation**: OM trained, 50% of maternity and neonatal staff trained to resuscitate a baby. **Staff are trained in neonatal care:** OM trained, 2 professional and 2 enrolled nurses trained in neonatal care guidelines. **Staff are trained in KMC:** 1 professional nurses trained. **Designated staff that do not rotate from the neonatal unit to other clinical areas:** 50% of maternity and neonatal nursery staff are allocated to the unit longterm. There is a designated OM. There is a designated doctor responsible for the neonatal and KMC units, ward clerk allocated and general orderly/cleaner and multidisciplinary team available.
Statistics	DHIS and PPIP (perinatal problem identification programme) data recorded monthly for 2 years. Perinatal mortality meetings held Perinatal death audited by doctors and nurses and recorded electronically. Submitted to district and province.
Systems	**Policies and guidelines available and easily located:** newborn care chart book, standard operating procedures, and protocols. **Standardized recording of** clinical records for each baby, facility based records e.g. admission, discharge, death records etc. **Standardized ward based records for** equipment maintenance, service contracts, procurement registers. **Standardized processes for r**egular management meetings for doctors and nurses; structured handover (checklists) between shifts and referral systems etc. **Support services systems**: 24-hour mobile X-ray service, emergency pharmacy, 24-hour laboratory service, functional dedicated obstetric ambulance service and donor milk system.
Labour ward care	**Care given according to guidelines** for maternity care e.g. Partograms used to monitor labour, delayed cord clamping, etc.
Postnatal care	**Care given to babies in postnatal ward according to guidelines**: establish breastfeeding, nursed skin-to-skin, vital signs monitored etc.
KMC care	**Care given to babies during KMC: 24-hour KMC:** Nursed skin-to-skin, attached correctly, feeding supervised, KMC register, etc.
Neonatal care	**General care:** daily doctors ward rounds, weekly case discussion with outreach specialist etc. **Thermal care:** babies under radiant warmers nursed under plastic, functional temperature probes, reflective covers for probes, etc. **Emergency care:** suction and oxygen units ready for use, resuscitation equipment available, monitor alarms functional etc. **Neurodevelopmental care:** Non-nutritive sucking, incubators covered, low sound levels, babies "nested", etc. **Infection control:** general cleanliness, handwashing practices met, hazardous waste discarded at source etc. **Fluids and feeds:** IV fluids are administered via an infusion pump, umbilical lines correct depth on X-ray, etc. **Skin care:** hydrocolloid dressing applied beneath all strapping, aqueous cream and Vaseline available at each bed etc. **Jaundice care:** angled phototherapy lights, lights are changed every 1,000 hours, "special blue" lights used, eyes covered, nappy open etc. **Respiratory care:** Oxygen controlled by venturi/oxygen blender, saturation monitor, functional CPAP available and ready for use etc . **Death and dying care**: counselling, support and care before, during and after death.
Monitoring and evaluation	**Audits:** monthly audits record, infection control audit, hand washing audits, clinical audit, action plans developed/implemented etc. **PPIP/DHIS:** causes of deaths identified, avoidable factors identified, action plans developed, progress reported at meetings, etc. **Quality improvement:** one multidisciplinary QI project annually, 6 monthly reporting of project, baby friendly hospital accreditation maintained etc.

3. ACCREDITATION VISIT

3.1 Preparation

3.1.1 *Training of assessors*

Each hospital was assessed by an external team of assessors and a hospital team of assessors (see Table 2). A list of accreditation assessors was prepared in partnership with the DoH, participants included managers and clinicians responsible for paediatric or maternity services at all levels: outreach paediatricians from regional hospitals; district paediatricians and paediatric nurses; district and provincial maternal child and woman's health managers. All participants were informed of the accreditation process and requested to be available for training and for accreditation visits, both within their district and as external assessors in other districts.

A one-day training in use of the accreditation tools was conducted for all assessors before the start of accreditation to ensure that these were clear, understandable and used consistently. A pool of 42 assessors were trained in August 2015.

3.1.2 *Preparation for the accreditation visit*

Two team leaders (DN and RD) led all accreditation visits in the 39 hospitals. They prepared for, and undertook initial visits together to ensure that the process was applied consistently. On the day of the accreditation one team leader led the accreditation in each hospital.

KZN DoH notified each district hospital of the date of the accreditation visit with instructions about who should participate and how to conduct the pre-assessment. Accreditation tools were e-mailed to the hospital one week prior to the accreditation date.

3.2 The accreditation visit

Accreditation was conducted by equal numbers of internal assessors (from within the hospital or district), and external assessors, (from another district or the KZN DoH provincial office). Internal assessors were included to ensure staff responsible for quality of neonatal care in that facility were directly involved in the assessment process so they could understand the shortcomings in order to facilitate ongoing improvements directly after the accreditation process. External assessors were included to provide continuity across sites, and an objective assessment. Internal assessors were paired with external assessors to reduce bias. Roles of assessors and activities conducted during the visit are shown in Table 2.

Table 2. Roles of assessors involved in the accreditation

Activity	Responsible person	Tool used during the accreditation	Site implemented
Introductions to hospital management and explanation of the visit	Accreditation team leader		Hospital meeting room
Pre-assessment	Nurse manager with responsibility for the neonatal nursery (internal assessor)	Pre-assessment tool	Prior to accreditation visit
Facility assessment	Accreditation team leader (external assessor) and nurse manager with responsibility for the neonatal nursery (internal assessor)	Facility assessment tool	Neonatal unit Labour ward KMC unit Postnatal ward
Record reviews	Outreach Paediatrician (external assessor) and the hospital doctor in charge of the neonatal nursery (internal assessor)	Clinical audit tools: Premature infant Sick term infant Well infant	Neonatal unit Postnatal ward
Staff skill assessments	District DoH maternal and child health manager (external assessor) and a senior professional nurse working in the neonatal nursery (internal assessor)	Initial assessment post-delivery tool Neonatal resuscitation in the labour ward tool First examination of the newborn tool Assistance with breastfeeding tool Kangaroo mother care tool Neonatal resuscitation in the neonatal nursery tool Nasal CPAP tool	Neonatal unit Postnatal ward KMC unit Labour ward
Maternal interviews	District DoH maternal and child health manager (external assessor) and a senior professional nurse working in the neonatal nursery (internal assessor)	Maternal interview guide for mother of baby in neonatal nursery: Maternal interview guide for mother in the postnatal ward:	Neonatal unit Postnatal ward
Scoring of performance	Team leader	Scoring tool	
Feedback to managers and staff Final report	Team leader		Hospital meeting room

3.3 Scoring and awarding accreditation status

All indicators contributed equally to the score for the domain in which it was located. Scores for the domain were calculated (see Table 3) and every domain contributed to the overall score for the hospital.

Accreditation status was awarded based on a number of different criteria. In order to be awarded accreditation status the hospital had to achieve certain overall scores, domain scores and sub-minimum scores and comply with certain critical items (see Table 4). Critical items were included to ensure that hospitals receiving accreditation reached an acceptable standard of care in several designated priority areas.

Table 3. Example of scoring tool for individual domains/clinical areas

A. Input indicators	
Infrastructure:	
• Neonatal unit:	%
• Maternity unit & hospital:	%
• Resuscitation:	%
Support services:	%
Staffing:	%
B. Process Indicators	
Statistics:	%
Systems:	%
C. Output indicators	
Care:	
• In the labour ward	%
• In the postnatal ward	%
• In the KMC	%
• In the neonatal nursery	%
Clinical record audits:	%
Skills Assessments:	%
Maternal Interviews:	%
Monitoring and Evaluation:	%
TOTAL SCORE	%

4. RESULTS

All 39 district hospitals in KZN were visited to assess the hospital for excellence in newborn care between September 2015 and March 2016.

4.1 Facility review results

The average overall score for the facility review was high (77.8%) and ranged between 57.1%-92.6%. Scores for individual domains ranged between 9% for maternity unit infrastructure, and 100% for resuscitation and statistics. Table 5 shows the number of hospitals who achieved low and high scores during the facility review.

Table 4. Critical items and criteria for achieving graded accreditation status

Scoring requirements	Silver accreditation	Gold accreditation	Platinum accreditation
Total Score:	Total score: 50%	Total Score: 65%	Total Score: 80%
Sub minimums:			
All indicators must score > 35%	One (1) indicator per domain > 60%.	Eight (8) indicators must score > 60%	Twelve (12) indicators must score > 60%.
Critical items:			
1. Human resources	There must be a dedicated doctor that does not rotate for 6 months. 50% of nurses should not rotate out the nursery.	The Operational Nurse/Sister in charge must have an appropriate qualification	The numbers of nurses per shift must meet the norms for beds allocated in that nursery
2. Infection prevention and control	Handwashing facilities are appropriate	There is hand spray at each bed	Beds are correctly spaced with no overcrowding
3. Resuscitation	There is a functional resuscitaire and trolley available in labour ward, theatre and neonatal nursery	There is a functional resuscitaire and trolley available in labour ward, theatre and neonatal nursery	There is a functional resuscitaire and trolley available in labour ward, theatre and neonatal nursery
4. Respiratory Support	Nil	A functional Nasal CPAP is available and used	In and out surfactant therapy is available and used
5. Quality improvement	Nil	Record and infection control audits are conducted monthly	Clinical audits are conducted annually
6. Mortality	Nil	Nil	10% institutional reduction targets in NMR, PCI have been met

4.2 Clinical audit results

We reviewed a total of 152 infant records from the 39 hospitals; 75 premature infants, 39 sick newborn infants and 38 well newborn infants. In some hospitals, records from infants discharged from the hospital were unavailable. Scores achieved ranged from 41%-95% for premature infants, 41%-

94% for sick newborn infants, and 62%-94% for well newborn infants. No hospital scored below the subminimum of 35% for clinical audit. Three hospitals scored below 50% for premature infants and three hospitals scored below 50% for sick full term infants. The two main reasons for poor scores for care of premature infants was the failure to appropriately record and manage respiratory distress and neonatal jaundice. For example, there was no evidence that oxygen saturations were monitored continuously, that appropriate oxygen saturation was maintained or chest x-rays done for premature newborns with respiratory distress. In addition, management of jaundice was often poor because the severity of jaundice was not assessed correctly, phototherapy not commenced timeously, and the baby's blood group and Coombs was not assessed. For sick term infants reasons for poor scores was the lack of recording of maternal antenatal information and lack of recording essential newborn care on admission, including failing to record having given the infant Vitamin K and chloromycetin eyedrops. From the record reviews it was not possible to determine if the care was not provided or whether the documentation was poor.

4.3 Skills audit results

In total, 194 skills assessments were undertaken, 39 assessments of first newborn examination, 70 for resuscitation of the newborn, 37 for KMC initiation, 37 for assisting a mother to breastfeed, and 11 for initiation of CPAP.

While overall scores achieved for skills assessments were above 50% in all district hospitals, some district hospitals scored below 50% for individual skills assessments. Overall, resuscitation skills were the most deficient: six hospitals scored less than 50% and two hospitals less than 35% for resuscitation in the labour ward. In two hospitals staff lacked adequate skills to put the baby in the KMC position, and in two hospitals staff were unable to assist the mother with breastfeeding. In the 11 hospitals where staff were asked to demonstrate initiation of CPAP two performed inadequately.

Table 5. Scores achieved by hospitals in each domain/clinical area

Domain/clinical area	Number of hospitals who scored < 35% (Did not reach the sub-minimum for accreditation)	Number of hospitals who scored between 36%-49% (No accreditation status)	Number of hospitals who scored between 50%-64% (Score allowed for silver accreditation status)	Number of hospitals who scored between 65%-79% (Score allowed for gold accreditation status)	Number of hospitals who scored ≥ 80% (Score allowed for platinum accreditation status)
Neonatal unit	0	1	6	9	23
Maternity Unit	5	5	12	9	8
Resuscitation	2	2	7	13	15
Support Services	0	0	10	6	23
Staffing	0	0	2	13	15
Statistics	0	0	1	6	32
Systems	1	2	8	11	17
LW care	1	0	5	10	23
PN care	0	0	8	6	25
KMC care	0	1	5	6	27
NN care	0	2	7	10	20
M&E	5	7	6	8	13
Clinical Audits	0	0	3	27	9
Skills assessment	0	0	4	18	17
Maternal interviews	0	0	5	12	22
Overall score	0	0	5	13	21

4.4 Maternal interviews

In total, 159 interviews were undertaken, 66 with mothers with a baby in the neonatal unit and 93 with mothers in the postnatal ward.

Overall, high scores were achieved from mother interviews in the neonatal unit (mean 87.7%, range 50%-100%). Across all hospitals, mothers with babies in the neonatal unit felt they had been treated with care and respected (94.0%) and health workers had explained what was wrong with their baby (93.9%). A small number of mothers felt that the equipment used for their baby had not been explained to them (19.6%) and a third of mothers did not know how to identify a change in their baby's condition (30.3%).

Similarly high scores were achieved for interviews with mothers in the postnatal ward (mean 80.3%, range 37.5%-100%). Most mothers reported having skin-to-skin contact with their baby after delivery (98.2%), and had initiated breastfeeding within 1 hour (88.1%). A third of mothers (33.3%) said they had not been taught how to care for the cord after delivery, and almost half of mothers (45.1%) said they had not been

told how to identify signs of illness in their baby.

4.5 Accreditation status

The average overall score for all 39 hospitals was 77% (range 57.1%-92.6%). The scores achieved for each domain/clinical areas during the accreditation are shown in Table 5.

There were 10 district hospitals that could not be considered for any accreditation because they failed to achieve a minimum of 35% or above over all domains. These included three district hospitals that received a sub-minimum score in two domains. The most common reasons for scoring below 35% were poor infrastructure in the maternity units, and inadequate monitoring and evaluation activities (compliance with clinical audit requirements).

The remaining 29 district hospitals achieved an overall score > 50% with no domain scores below 35%, and on this basis could be considered for accreditation. However, only 13 hospitals were awarded accreditation because the remaining hospitals were not compliant with the critical key priorities. The most common reasons for failing to comply with critical indicators were failure to comply with requirements for handwashing (9 hospitals), failure to have functional resuscitaires in all areas (5 hospitals) and doctors rotated from the neonatal unit more frequently than every 6 months (5 hospitals).

Eight district hospitals were awarded silver accreditation status and five received gold accreditation status. No hospital was awarded platinum accreditation status. Awarding of accreditation included both urban hospitals (5) and rural hospitals (8), as well as both large and small hospitals.

5. DISCUSSION

This accreditation for excellence in newborn care provides a workable model for undertaking accreditation for quality of care in district hospitals. District hospitals are key to the reduction of neonatal mortality in our setting since most deliveries and most newborn deaths occur in district hospitals, where care is provided without on-site specialist support. This setting is similar to many other district hospitals in low-to- middle income countries and could be useful as a methodology for improving newborn care. Our methodology used a variety of innovative methods to assess quality of care from different data sources and from different perspectives, using both internal and external assessors to encourage involvement of local staff as well as providing consistency of the assessment process across hospitals. This process could be adapted to other clinical areas, and could potentially be a strong tool for improving quality of care in many aspects of care.

A strength of this methodology was that we used a variety of tools, in addition to the basic facility review often used by other authors, to assess the multi-dimensional aspects of quality of care, thus providing a more comprehensive picture of care provided in district hospitals. Availability of appropriate infrastructure and equipment is the foundation to providing quality care, particularly for neonatal care, where expensive, high tech equipment is required. However, this alone is not enough to ensure clinical guidelines are effectively implemented, and similar to other authors there have been ongoing challenges in achieving the required clinical skills and comprehensive adherence to available guidelines.[22] Clinical audits, skills assessments and maternal interviews allowed assessors to evaluate the care provided themselves, rather than just relying on what is being reported by health workers. The use of maternal interviews added the important, and often neglected, dimension of patient satisfaction to the assessment.

The use of a large pool of assessors, which including a broad range of managers and clinicians with responsibility for neonatal care, from every level of the health system, ensured that this process was inclusive. Using assessors in facilities in other districts, outside of their usual area of responsibility, allowed for interaction of assessors with their peers in the clinical setting, and may have encouraged peer-to-peer learning between internal and external assessors in facilities, on-going development of all assessors therefore strengthening the service. Implementation of accreditation created awareness of the importance of newborn care, highlighted opportunities for improvement, and created momentum and advocacy around this important and challenging area of paediatric care. For many hospitals, it also opened communication between clinicians in the nursery and the management team in the facility.

A number of challenges were identified during this accreditation process. One concern was with the scoring system that we used. We found that, at times, this scoring approach did not provide an accurate picture of the quality of care, in particular, most hospitals scored high for their overall score despite major gaps in some clinical areas. The use of critical key items worked well in identifying important shortfalls in the care provided and ensuring that these were included in the decision on awarding of accreditation. There is a danger that hospitals who provide good care in some areas may be accredited despite poor performance in important aspects of clinical care. In the future, we suggest an adaptation to the scoring system to include weighting of indicators according to the importance of a particular indicator for the provision of high quality newborn care.

Another limitation was in assessing all the many aspects of quality of care and, although we approached this accreditation hoping to identify many of them, we must acknowledge we were not able to assess them all. While a retrospective approach of record reviews gives a glimpse of the care provided, we cannot be sure that the lack of care was not as a result of poor documentation, or conversely whether documented care was actually given. We also relied on reports of local managers to assess some aspects of quality and it is possible that local managers may have provided inaccurate responses to questions relating to their hospitals. We chose to use a large number of assessors, each participating in a small number of assessments for logistical reasons and to promote inclusivity. It is therefore likely that assessments were not consistent across sites. A better methodology would have been to observe the care provided, but logistically this would be extremely challenging. Additionally, a smaller more consistent team of assessors would have assured more consistent scoring but would have been logistically challenging and would have decreased buy-in and development of assessors for future accreditation.

Other challenges experienced were primarily logistic given the large distance covered, other work commitments among assessors, and the additional resources required including transport and accommodation for assessors. Support by senior managers at the KZN DoH was critical to the success of accreditation by ensuring that assessors were released from their other commitments to participate, but the accreditation for the whole province was labour intensive, taking senior DoH and CRH staff out of the services and often away from home, for long periods of time.

Despite this, accreditation for excellence in newborn care provided a platform to identify shortfalls in the care given in both individual hospitals and in the province as a whole. Accreditation allowed hospitals across a broad geographical area to be directly compared in terms of their compliance with norms and standards. The accreditation raised awareness of the standards required in neonatal care in line with the provincial plan to standardize care and systems for providing neonatal care throughout the province. It increased awareness of the differences between facilities and strengthened linkages between hospitals and districts. Individual hospitals were able to effect immediate small changes which contributed to improved quality of care both in the short term but the long term improvements may only be evident over time. Provincial-wide shortfalls allowed for strategic decisions to be made at a higher level, which has the potential to contribute to overall improvements in neonatal mortality and morbidity in KZN, and ultimately in SA. Similar to the findings of Sharma et al.,[3] who supported the concept of long-term investment in the work force and strengthening of neonatal care through focused investment for improving quality of care we support a regular accreditation assessment to build on such improvements, and to encourage sustained improvement in the quality of care.

6. Conclusions

As a QA technique, accreditation for excellence in newborn care achieved what it was set out to do, namely to identify the care given to newborn infants in district hospitals with the purpose of accrediting the hospital for excellence in newborn care. The methodology used can be used in other hospitals to assess newborn care, but could also be adapted to other areas of the hospital for the purpose of ongoing QA and accreditation.

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Conflicts of Interest Disclosure

The authors declare they have no conflicts of interest.

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