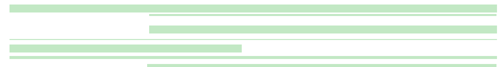
IMPLEMENTATION OF ESSENTIAL NEWBORN CARE



Essential Newborn Care: Implementation

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INTRODUCTON AND OUTLINE

Improving newborn care in your facility, district and province, requires change agents and leaders who have the vision, dedication and determination to nurture the implementation of essential newborn care. The commitment of management is a key factor for mobilising the necessary resources.

The intended purpose of introducing essential newborn care is to ensure that there are competent maternal and neonatal health care providers who are able to provide appropriate newborn care services in a well-functioning health system.

Once a vision of the desired service has been developed the situation assessment will help to identify what needs to be done. Identify small but significant activities you can do NOW whilst planning and mobilising resources for medium and long term interventions.

Five steps to achieving essential newborn care are outlined below together with suggestions from the experience of the LINC team and others who have been working to improve newborn care. We encourage you to adapt the tools and ideas provided or develop your own and start improving newborn care. We trust our experience will be useful to you.

The steps for improvement are summarised in table 1

Step 1: Set up a team

Step 2: Assess the situation

Step 3: Develop an action plan

Step 4: Implement the action plan through

Strengthening the health care environment

Strengthening healthworker competencies

Step 5: Track progress and undertake accreditation assessments

LEVEL OF IMPLEMENTATION	Single facility	District level	Provincial level and above
Step 1: Set up a team			
Leadership for process and planning	Focal person, to work with a medical or nursing management to lead the process and planning	District / regional paediatrician in place to provide leadership	Province to appoint a lead paediatrician and neonatal nurse to lead the process
Core group for implementation	Involve core role players to implement, nursing and clinical manager, responsible maternity and paediatric doctors and nurses	Regional paediatrician and neonatal nurse to work with district managers to from core group	Develop a core group of provincial paediatricians, neonatal nurses, managers and external experts to lead the process. Appoint a team of assessors and accreditors
Developing a vision for newborn care	Develop a vision for how newborn care should be by sharing ideas, visiting other sites	District to develop a shared vision, by workshops, visits, benchmarking	Develop a shared vision by listening to all, visiting, benchmarking
Advocacy for action	Share the vision to create awareness of need for change	Advocate to all relevant role players for change	Advocate to head of health, hospital managers, etc Advocate for financial and human resources
Step 2: Assess the situation			
Adapting norms and standards	Review available national and provincial norms and standards and revise them based on vision for newborn care		
Develop tools and process to assess the situation	Tool for self-assessment and arrange for external assessment	Based on norms and standards develop tools and arrange to asses newborn care in stages, adapt LINC, WHO or SNL tools	
Current status of births, admissions and deaths	Births in clinics, hospital and at home, LBW rates, admission, deaths and cause of death	For district and province review births, LBW rate, admissions, deaths, cause of death to have baseline of situation and priority areas for intervention	
Assess the services and facilities	Services and facilities for Resuscitation, Routine care and care of sick and small newborns	Assess all services and facilities and equipment at each district and provincial facility. Review current provincial plans for facility improvement and up-grading	
Assess the staffing and staff development	Assess staffing, rotation and competencies	Assess and compare staffing at facilities. Determine no. of Neonaal nurses and paediatricians required. Assess pre-service neonatal training and advanced neonatal training	
Assess the quality of care provided	Do a care audit based on standard guidelines	Arrange a record review or care assessment on key conditions on a sample of records	
Compile the data and undertake advocacy	Compile the data at each step and undertake advocacy for change	Compile and determine data and undertake advocacy for change	
Steps 3: Develop an action plan			
Set priorities and develop a phased action plan	Develop an action plan; prioritise activities to immediate actions, medium and long term action.	Set up priorities, and put in place immediate actions, and then a plan for medium and long term work	Determine priorities and ensure support for short term plans whilst working on long term plans e.g upgrading facilities

Steps 4: Implement the action plan			
1. Strengthening the health care environment			
Ward set up and processes	Re-arrange wards and facilities to create suitable NNU	Mobilise resources for refurbishment and establishment of regional hospital neonatal units Draw up plans for the services	
Inpatient newborn care unit	Set up NNU, with guidelines and job aids	Develop provincial records, set up provincial standards for NNU	
KMC unit	Re-arrange and organise KMC	Provincial standard for KMC	
At time of birth	Organise service	Ensure facilities and equipment for neonatal resuscitation	
Routine care	Put policies in place	Policies in place for rooming in and caring for well babies	
Staffing, equipment	Shift and retain staff and don't rotate staff	Determine norms for staffing and equipment and mobilise resources to achieve norms.	
Referral and transport	Strengthen neonatal transport	Provincial neonatal ambulance service	
2. Strengthen health worker competencies			
Review guidelines	Review guidelines and standing orders	Review provincial guidelines for routine care and care of the and sick baby care	
Assess key barriers to implementation	Assess key barriers to implementation	Assess barriers to implementation	Teams facilitates removal of barriers
Assess training needs	Assess needs	Assess provincial training needs, and identify resources for training	
Implement training if needed	Start with HBB and in-service training	Develop provincial and district training capacity of in-service and pre-service training	
Clinical supervision and audit	Commence supervision	Develop supervision and audit tools	
On site facilitation, mentoring	Work with one site facilitators and mentors	Regional Paediatrician to visit district facilities	Put in place district teams
Step 5: Track progress and undertake accreditation assessments			
Inputs	Human and financial resources	District team in place	Number of district teams, regional and tertiary human resources
Process	Advocacy Action plans	Action Plans Teams in place Visits to facilities Equipment and facility needs identified	Equipment needs Transport needs Training needs
Outputs	Norms and standards Guidelines Tools used Number of health workers trained	Norms and standards Trainings conducted Referral and transport policies Neonatal ambulance in place	Provincial job aids
Outcome	Facilities accredited for newborn care Well equipped and staffed facilities Date properly collected	Quality of training No of facilities accredited Referral patterns Ambulance response times	Accreditation
Impact	Neonatal mortality rates Perinatal mortality rates Admissions percentages and case fatality rates	Neonatal mortality rates Perinatal mortality rates Admissions percentages and case fatality rates	Neonatal mortality rates Perinatal mortality rates Admissions percentages and case fatality rates

STEP 1: SET UP A TEAM

Set up a team in the province, in each district and each facility with responsibility for the implementation of essential newborn care.

LEVEL OF IMPLEMENTATION	Single facility	District level	Provincial level and above
Step 1: Set up a team			
Leadership for the process and planning	Focal person to work with medical and nursing management and to lead the process and planning	District / regional paediatrician in place to provide leadership	Province to appoint a lead paediatrician and neonatal nurse to lead the process
Core group for implementation	Engage with hospital staff who are key to implementation. Nursing manager and clinical manager, responsible maternity and paediatric doctors and nurses	Regional paediatrician and neonatal nurse to work with district managers to form a core group at district level	Develop a core group of provincial paediatricians, neonatal nurses, managers and external experts to lead the process. Appoint a team of assessors and accreditors
Developing a vision for newborn care	Develop a vision for how newborn care should be provided by sharing ideas, visiting other sites	District to develop a shared vision, by workshops, visits, benchmarking	Develop a shared vision by listening to all, visiting, benchmarking
Advocacy for action	Share the vision with a broader group in the facility to create awareness of need for change	Advocate the need for change to all relevant role players	Advocate to head of health, hospital managers, etc Advocate for financial and human resources

LEADERSHIP FOR THE PROCESS AND PLANNING

Health systems are complex and there are institutional cultures* as well as individual cultures and barriers to navigate until the institution adopts a culture of change. A culture of change exists when the key players in the environment are open to new possibilities to improve patient care. People begin to think more creatively about apparent insurmountable barriers. (*A culture is the attitude and behaviour that are characteristic of a particular group or organisation.)

On site facilitation by visiting health workers can provide the necessary leadership and technical expertise to district hospitals that do not usually have specialists or specialist nurses on their staff establishment. These facilitators should ideally be members of a district specialist team, who are chosen to be the drivers of change. In addition to technical expertise in neonatal clinical care and health system development they must show leadership skills. The facilitator must invigorate momentum and help the team to attempt to meet the time lines. When progress is slow and frustration or despondency threaten to set in the facilitator must maintain the morale of the team. Ideally the facilitator should identify an individual in management (the CEO or clinical manager, or nursing manager) in maternity and in the neonatal unit including a doctor who will share this responsibility for sustaining enthusiasm. These individuals may be termed site leaders.

Facilitators should also be mentors. Training, policies, guidelines and action plans alone don’t address the many challenges that are associated with improvement and change in service-delivery. Implementing

Essential Newborn Care requires a long-term commitment and ongoing support through advice, shared responsibility, collective accountability and advocacy with and for those introducing and providing it.

Leadership may be provided by an individual or a small team. The leadership must have credibility in terms of technical expertise in the area of essential neonatal care. For this reason the leadership will usually be or include a clinician with experience and interest in this field.

A provincial paediatrician or any healthworker with technical expertise in newborn care and health systems improvement is well placed to lead the improvement process. It is very important that they receive support and backing from the province or region.

A district specialist team, including the paediatrician and paediatric and neonatal nurse can provide leadership in the district. They will work with each hospital to improve care at facility level.

CORE GROUP FOR IMPLEMENTATION

One of the first task of the leader is to identify a core group at province, district and facility level to implement essential newborn care.

In the province the core group may include the director or Manager of Maternal and Child Health, a paediatrician or neonatologist from the province, tertiary and regional hospitals and neonatal nurses. If you do not have the required expertise, look outside your province or district for paediatricians and neonatal nurses to assist on a part time basis. The implementation requires assessment, ongoing support, training and accreditation. A reference group that includes extermal members who can do the assessment and accreditation are useful.

> *The LINC team consisted of technical experts who visited a district for one week a month, to do assessments, provided training, and conduct support visits. They were key to the improvement of neonatal services in facilities. They assited with norms and standards, policies and guidelines. While fulltime staff are ideal, if you don't have them make a plan to get external assistance.*

A core group at a district includes the district maternal and child health team, MCWH, and paediatrician and neonatal nurses from the district.

At hospitals the core group may include the clinical and nursing managers, a doctor and professional nurse responsible for newborn care.

DEVELOPING A VISION FOR NEWBORN CARE

To develop a vision is to anticipate how something will be, and to share that vision is to paint a picture in peoples minds of what you want to achieve. The provincial paediatrician or expert team may help develop the vision. Take provincial, district and facility managers to visit other neonatal units, and explore what they would like their services to look like. There may be different perceptions of what newborn care is and should be in a particular area. In rural hospitals staff in the facilities and district may not have seen a Neonatal ICU or a Kangaroo mother care unit.

ADVOCACY FOR ACTION

Share your vision for newborn care services, with senior management in order to mobilise resouces for the next implementation steps.

The LINC team held a series of district workshops for key role players where we discussed the importance of newborn care, the elements of newborn care, and painted a picture of the service required. E.g. What is KMC why is it so important and effective.

Hospitals went back and advocated for further services. Some of them mobilised their core group to go and benchmark at another hospital nearby. Others recruited a neonatal nurse or doctor to help them develop their service.

Advocacy should continues until all health workers in maternity know why it is important to improve newborn care and want to get involved in it themselves, and management mobiises resources for you to act.

Resources useful for advocacy include:

1. Improving newborn care in South Africa: lessons learned from the LINC. This Unicef booklet outlines what LINC in Limpopo Province did to improve newborn care. It is especially useful for managers at district, province and the facilities to see what can be done in a rural province and to learn from the experience. Som of the vignettes from ordinary health workers will help to inspire other healthworkers to improve care.

2. Workshops by the LINC team in the district. LINC ran a seriesof 3 workshops in each district. The programme is in the CDROM.

3. Advocacy presentations that can help you introduce newborn care to managers and health professsionals.

4. Helping Babies Breathe is an important basic newborn care resuscitation programme, an advocacy leaflet is attached.

5. KMC advocacy material

6. Breast feeding advocacy material

These resources are located in the Appendix and CDROM under “RESOURCES FOR ADVOCACY”

STEP 2: ASSESS THE SITUATION

Step 2: Assess the situation		
Adapting norms and standards	Review available national and provincial norms and standards and revise them based on vision for newborn care	
Develop tools and a programme to assess the situation	Tool for self-assessment and arrange for external assessment	Based on norms and standards develop tools and arrange to assess newborn care in stages, adapt LINC, WHO or SNL tools
Current status of births, lbw, admissions and deaths	Births in clinics, hospital and at home, LBW rates, admission, deaths and cause of death	For district and province review births, LBW rate, admissions, deaths and cause of death to have baseline of situation and priority areas for intervention
Assess the services and facilities	Assess services and facilities for resuscitation, routine care and care of sick and small newborns	Assess all services and facilities and equipment at each district and provincial facility. Review current provincial plans for facility improvement and up-grading
Assess the staffing and staff development programme	Assess staffing, rotation and competencies	Assess and compare staffing at facilities. Determine the number of neonatal trained nurses and paediatricians to support neonatal improvement and training. Assess pre-service neonatal training and advanced neonatal training
Assess the quality of care provided	Do a care audit based on standard guidelines	Arrange a record review or care assessment of the management of key conditions for a sample of records
Compile the data and undertake advocacy	Compile the data at each step and undertake advocacy for change	Compile and determine data and undertake advocacy for change

A baseline assessment of selected indicators of newborn care in the province, in each district and facility can be compared with the agreed vision for future newborn care. This will form the basis on which an implementation strategy will be planned.

ADAPTING NORMS AND STANDARDS

Recommended standards are outlined in Chapter 2. These may be adapted to align with the vision for the province, district and facilities. The norms and standards that have been adopted will be used to measure the current service and plan the future service. The norms and standards should be reviewed and adapted as the newborn care service develops.

> *When Limpopo started planning services the number of tertiary and secondary beds required seemed unbelievably high, but as the district hospitals have developed their services and beds there has been an increasing recognition of babies in need of level II and III care to the point that level II and III resources have been overwhelmed.*

DEVELOP TOOLS AND A PROGRAMME TO ASSESS THE SITUATION

The LINC team found it useful to provide facilities with a basic self-assessment tool to conduct their own assessment. This assessment tool was used by facilities to identify problems and draw up an action plan. The LINC team then conducted a more detailed assessment. This provided a more specific second assessment that could be used to compare newborn services at different facilities.

A comprehensive assessment tools is attached for adaptation and use. (Appendix 1)

There are a numerous elements to a detailed assessment. An assessment may take more than a day to complete and it may be necessary to visit a facility repeatedly to complete an assessment.

An assessment tool for districts and province summarises information from each facility to aid district and provincial planning. (Appendix 2)

CURRENT STATUS OF BIRTHS, LBW, ADMISSIONS AND DEATHS

The following information should be collected and compared with the adapted norms and standards:

- The number of deliveries in the hospital/s, clinics in the catchment area. The number of born before arrivals deliveries and other home births that have been recorded at these facilities.
- The number of low birth weight babies and their distribution by weight bands (eg. 1000 -1499 grams).
- The number of babies admitted to the neonatal unit.
- The reasons for admission to the neonatal unit. Are these appropriate indications? Are some avoidable?
- The number of stillbirths and the number of early and late neonatal deaths.
- The causes of the stillbirths and neonatal deaths.
- The birthweight of the babies that died.
- The place of death.

The following sources may be consulted for information:

- PPIP data
- DHIS data
- Check that the data on PIP and DHIS have been accurately recorded and are congruous
- Maternity records may be used to crosscheck this data
- The neonatal admission book
- The paediatric admission book. Were any neonates (<28 days) admitted to the paediatric ward? If so what was the reason for the admission and the outcome of the admission?

ASSESS THE SERVICES AND FACILITIES

The services and infrastructure available for newborns in the province and at each facility should be assessed.

At facility level

Assess the routine care.

- Readiness of labour ward and theatre for basic and advanced neonatal resuscitation
- Babies are kept skin to skin with their mother and breast feeding initiated within 30 minutes.
- Well babies room in with their mothers and receive and support is provided for breastfeeding
- Routine preventive care is provided and documented in the maternity care chart and road to health booklet
- PMTCT is provided to the mother and baby.
- When medically indicated formula is safely prepared and discretely administered.

The neonatal unit service and the facilities and equipment should be assessed.

- The norms are provided. Assess whether the services and infrastructure are appropriate for the level of care that is required.
- Is there oxygen and medical air in the neonatal unit? For units that provide or will provide CPAP the oxygen and medical air sources must be able to provide the required pressure for the CPAP device.
- Assess the care provided in the neonatal unit. A clinical audit form and record review are part of the assessment tool.

The **comprehensive facility situation assessment tool** will guide this process.

At provincial level

- Collate the information from facilities
- Assess what the district and provincial plans are for infrastructure development and hospital revitalisation.

  Are there facilities that require improvement or are scheduled for improvements? Have the requirements of the neonatal services been adequately addressed in the plans? Do they meet the agreed norms and standards?
- Assess the tertiary and regional neonatal services. Are there enough beds and good care.
- Assess the neonatal transfer and transport in the province.

The provincial **newborn assessment tool** can be adapted for this purpose.

ASSESS THE STAFFING AND STAFF DEVELOPMENT PROGRAMME

At facility level assess the staff numbers and background training and experience in newborn care.

- Do staff rotate regularly or are they allocated only in the neonatal unit?
- What plan is in place for staff development at each facility?
- Do staff members have the core neonatal competencies?

At provincial level assess the provincial staffing for newborn care at the tertiary service, the regional services, the hospital and maternity services.

In the provincial office:

- Who is responsible for newborn care?
- Does this person have authority to act?
- Who provides technical assistance?

Tertiary and Regional care

- How many neonatologists are there?
- How many paediatricians?
- How many neonatal nurses?
- What is the plan to attract and retain paediatricians and neonatologists?
- What is the plan to train neonatal nurses?
- What training takes place in the province?
- Is this sufficient for the needs of the province?

ASSESS THE QUALITY OF CARE PROVIDED

Assess what guidelines and policies are in place to manage newborns at facilities and in the province.

In the province:

- What guidelines are in place for the province?
- Has there been a process of developing provincial guidelines based on the National standard treatment guidelines?
- Are policies in place for
    - Baby Friendly Hospital Initiative (BFHI)
    - Rooming in of babies with mothers
    - Lodger mother facilities

- Referral
- Transport of newborns

At facilities

- Are the neonatal guidelines in place?
- Are they up to date and used?

Conduct a clinical audit of the implementation of the guidelines. The clinical audit tool is part of the assessment. This may be used to determine if guidelines are being followed. A person conversant with the standard clinical guidelines should conduct the audit.

The LINC team has developed a record audit to assess the quality of clinical care. For each major clinical condition there is an assessment which gives a score for the care provided against the standard care required for that condition. A score of > 80% is regarded as good care, 60 – 80% acceptable care, and < 60% unacceptable care. The person conducting the assessment should be conversant with the standard care and would usually be a paediatrician or experienced doctor or neonatal nurse. These tools are attached. Teams are encouraged to learn from sites with experience of the assessment process.

COMPILE THE DATA AND UNDERTAKE ADVOCACY

Compile the collected data and write a report. Ensure that managers and health workers receive the report. Focus first on the strengths and then outline what needs to be done.

Conduct advocacy around the issues that need to be dealt with, for example:

- Visit a facility where a certain aspect of care is good, e.g the KMC.
- Have a discussion about a contentious newborn care topic
- Invite an outside speaker to talk about an aspect of newborn care

STEP 3: DEVELOP AN ACTION PLAN

Steps 3: Develop an action plan			
Determine your goal for improvement in neonatal mortality	Determine a goal for the perinatal and neonatal outcomes in your facility	Determine a goal for neonatal outcomes in hospitals in each district	
Set priorities and develop a phased action plan	Develop an action plan; prioritise activities for immediate action, medium and long term action.	Set up priorities, and put in place immediate interventions, then plan for medium and long-term activities.	Determine priorities and ensure support for short erm plans whilst working on long term plans e.g upgrading facilities.

DETERMINE YOUR OVERALL AIM

Based on the perinatal and neonatal data you collected determine a goal for the improvement of perinatal and neonatal outcomes. These should be short terms goals (1 year) and long term goals next 3 – 10 years.

e.g

	Current level	Target for next year	Target for 3 years	Target for 10 years
NNMR	18	12	10	
NNMR >1000g	14	10	8	
ENMR	15	12	10	
LNMR	3	2	2	
NNMR (BW>2500g)	6	5	4	
NNMR (BW 2000g – 2499g)	40	25	20	
NNMR (BW 1500g – 1999g)	200	120	50	
NNMR (BW 1000g – 1499g)	500	300	150	
NNMR (BW < 1000g)	800	600	400	
% admissions to neonatal unit	10%	15%	15%	
For regional hospital % admissions from DH	2%		5%	
For district hospitals % transfer outs			5%	

SET PRIORITIES AND DEVELOP A PHASED ACTION PLAN

Identify the issues that require action. Prioritise them by importance. Categorise planned responses to each issue into immediate, medium and long-term interventions. Issues that may need interventions include:

- Advocacy
- Protocols and policies
- Labour ward resuscitation
- Postnatal ward care

- Medical Staffing
- Nursing Staffing
- Staff development
- Neonatal unit facility
- Equipment and supplies
- Infection control
- Quality of neonatal care
- Neonatal referral and transport

Plan immediate, medium and long-term interventions for each problem. Consider using the following format:

- Problem
- Intervention/s required
- Steps to be taken
- Person responsible
- Time frame
- Resources required
- Person responsible for monitoring intervention

At facility level begin with changes that can be made immediately and do not require significant additional resources. For example under facility, the problem may be inadequate space. Rearranging the nursery layout and removing unnecessary furniture and equipment may help. While waiting for provincial protocols other guidelines may be temporarily adapted.

Below is an example of an initial action plan from a district hospital.

Problem	Activity required	Steps to be followed	Person/s responsible	Time line	New resources required
1. Lack of information about neonatal care in community and hospital	Advoacy meeting with maternity staff, doctors and management Advocacy meeting with clinic nurses and IMCI HHCC groups	Plan meetings with management	N.S	1 month	Catering for community meeting
2. Inadequate numbers of professional nurses	Need dedicated staff 2AMW + 4 Prof. Nurses	-Discuss rescheduling of allocation -Draw training schedule & present it to supervisor	T. N Matron T M R. M T. N	3 August	
3. Lack of policies on referral	Develop referral policy to and from clinics and to regional hospital	-Discuss with unit manager -Meet with regional hospital -Meet with PHC -Draw up policy -Meet with all role players to implement plociy	T. N	3 July	None
3. Protocols	Get appropriate written policies. Distribution & implementation of policies	-Discuss with unit Manager -Meeting with all staff nurses & doctors . -Discussion & formulation of protocols -Proper filing of protocols	N. T N. J		LINC charts Standard treatment guidelines PEP manual Notes on newborn care

An example of a blank action plan is part of the Situation Assessment tool

At provincial level set priorities and set targets for immediate, medium and long-term activities;

1. For Provincial coordination and support
2. For Provincial policies and protocols
3. For Provincial tools and job aids
4. For Tertiary services
5. For development of Regional services
6. For training
7. For equipment and supplies
8. For accreditation and monitoring

STEP 4 IMPLEMENT ACTION PLAN

Steps 4: Implement action plan			
1. System strengthening			
Ward set up and processes	Re-arrange wards and facilities to create suitable NNU	Mobilise resources for refurbishment and establishment of regional hospital neonatal units Draw up plans for the services	
Inpatient newborn care unit	Set up newborn care units, with guidelines and job aids	Develop provincial records, set up provincial standards for NNU	
KMC unit	Re-arrange and organise KMC	Provincial standard for KMC	
At time of birth	Organise service	Ensure facilities and equipment for neonatal resuscitation	
Routine care	Put policies in place	Policies in place for rooming in and caring for well babies	
Staffing and equipment	Determine standards and shift and retain staff	Determine standards for staffing and equipment and mobilise resources to achieve standards.	
Referral and transport	Strengthen transport for neonates from clinics and to referral hospital	Provincial neonatal ambulance service	
2. Strengthen skills to implement standard guidelines and protocols			
Review guidelines	Review provincial guidelines and standing orders for facility.	Review provincial guidelines for routine care and care of the and sick baby care	
Assess key barriers to implementation	Assess key barriers to implementation	Assess barriers to implementation	Team facilitates removal of barriers
Assess training needs	Assess needs	Assess provincial training needs, and identify resources for training	
Implement training if needed	Start with HBB and in-service training	Develop provincial and district training capacity of in-service and pre-service training	
Clinical supervision and audit	Commence supervision	Develop supervision and audit tools	
On site facilitation, mentoring	Work with on site facilitators and mentors	Regional paediatrician to visit district facilities	Put in place district teams

Implementation must be approached with the understanding that improvement of a service is a continuous process that must continue for the lifetime of that service. Because it requires a collective and unified effort the degree to which effective implementation occurs will depend on skilful leadership and the willingness of all role-players to respond positively to the challenges created. Persistence, compromise, adaptation and enthusiasm are among the characteristics that the team will need to display.

Having completed the assessment and action plan the process of implementation needs to be set in motion. Although a time line forms part of the action plan it is likely that deadlines and targets will be revised depending on circumstances at the particular facility.

The frequency of on-site facilitation will depend on the need, the availability of the team and the resources. Ideally monthly visits allow for on-site facilitation as well as in-service training and individual clinical mentoring. If possible, the facilitator should attend the perinatal review meetings, and should plan to do so by arranging visits on the days when the meetings are being held. This forms part of the clinical teaching and audit process.

1. SYSTEM STRENGTHENING

The system is the environment in which the healthcare worker provides care for the newborn. The importance of an efficient and ergonomic system is often overlooked to the serious detriment of staff productivity and satisfaction. Careful attention should be given to the facility in terms of space, lighting, workflow and physiological needs of the staff. The equipment should be properly maintained and adhere to the agreed standards. Staffing should be adequate and there should be an appropriate ambulance service in support.

In addition it is important that every newborn in the service area should be able to access the range of services available. This entails planning for all deliveries not only those that occur at facilities. There is a need for community engagement.

A facilitator or mentor from a district team may provide support for implementation, otherwise the resources that are available in this package or elsewhere may be useful.

COMMUNITY ADVOCACY

Communicate with the community about essential newborn care service, what is important, important messages to keep newborns healthy, how to use the service. Identify problems the community has with the service, cultural beliefs and practices that are good or possibly harmful. Community buy in is vital to maximizing the impact of the newborn service. Ensure an on-going communication channel with the community.

WARD SET UP AND PROCESSES

Standards for a neonatal ward have been provided. If the existing ward does not meet the recommended standards consider innovations that improve efficiency while motivating for a new ward or alterations. Can the incubators be re-arranged, or the nursing station re-positioned? Are there problems with infection control? Are there small structural changes that can be made at minimal cost? Is there an alternative space where equipment may be stored when it is not in use?

INPATIENT NEWBORN UNIT

Provincial level: Set up provincial standards for inpatient newborn care units. Develop a plan to ensure appropriate neonatal units at all levels of the service.

Identify job aids and tools required in the province, for example newborn admission book, newborn records and observation charts, discharge and transfer forms, posters. Attached are examples of job aids from Limpopo and other provinces. These may be used to assist with the development of provincial job aids.

At facility level adopt standards and ensure that there are appropriate daily routines in the neonatal ward. The provincial newborn admission book, newborn patient record, observation charts and standard guidelines for care should be available in the facility.

KMC UNIT

Establish standards for KMC units and work towards implementing these at each hospital. If no KMC facility exists identify a space (albeit temporary) for KMC. Most district hospitals in Limpopo have used a cubicle in the postnatal ward.

Set up the KMC unit and make it as homely as possible. Recruit help to make duvet covers. Request reading materials, motivate for a TV, DVD. Make baby wraps for the KMC mothers. Involve the staff and the community.

Several of the Limpopo KMC units have sewing projects, one makes dolls, another duvet covers. This keeps the mothers and staff occupied and motivated.

AT THE TIME OF BIRTH

The labour ward must be adequately prepared to receive the baby. This includes providing for the possibility of neonatal resuscitation. A warm dry surface or resuscitaire must be available in the birthing area and an advanced resuscitation trolley should be on site or nearby. Suction, oxygen and a bag, valve, mask device should be on-hand and regularly checked, preferably before each delivery. A clock with an alarm set at 1 minute, 5 minutes, 10 and 30 minutes, if possible, will promote accurate monitoring of the newborn baby.

There should be appropriate job aids to support care at birth such as basic neonatal resuscitation charts, apgar chart, hand-washing charts and breastfeeding charts.

ROUTINE CARE IN POSTNATAL WARD OR WELL BABY CARE

Most babies room in with their mothers in the postnatal ward. They require monitoring and care as does the mother. If needed make changes to the postnatal ward to accommodate the baby with the mother. Review the policy, practices and procedures. Communal bathing and practices that keep babies separate from their mothers should be stopped. Besides the benefits to the mother and baby, this will free up more space. The baby should be attended to together with the mother. Help the mother to establish breastfeeding, to recognise that the baby is well and to identify early signs of possible illness.

STAFF AVAILABILITY/ROTATION

Explore problems related to frequent staff rotation. Is it the result of a management decision, pressure from the union or do midwives not want to stay in the neonatal unit or maternity? Identify the root cause and work on finding and retaining staff that want to provide newborn care.

Is the staff establishment insufficient and are there vacant posts? Address these problems with management.

EQUIPMENT

Equipment norms and standards, and specifications are attached. Ensure that there is an equipment book in the neonatal unit to keep track of all equipment purchased and how it is functioning. Buying robust equipment and teaching health workers how to correctly use the equipment will extend its life. Some equipment requires dedicated consumables and the supply and affordability of these should be assessed before making an equipment purchase.

TRANSFER AND REFERRAL

Agree on referral policies for the clinics and between hospitals in the province. These should be communicated to all together with a system for reporting and monitoring disagreements or confusion. Set up and prioritise neonatal transport in the province so that babies can be competently transported to the appropriate level of care.

SUPPORT SERVICES

Work with the laboratory, radiology, dieticians, audiologists, physiotherapist and other support services on aspects of care that need improvement.

2. STRENGTHEN SKILLS TO IMPLEMENT STANDARD GUIDELINES AND PROTOCOLS

The care newborns receive is dependent on the experience, knowledge and skills of the health workers. In this regard the health workers act as a team and there should be a balanced spread of abilities across the whole staff complement.

2.1 REVIEW EXISTING GUIDELINES AND STANDING ORDERS WITH KEY USERS

Review the guidelines and protocols that are in use at facilities in the district and province.

Some guidelines that may be adapted for use are listed below and may be found on the attached CD ROM. Facility protocols are not essential if an acceptable standard national guideline has been adopted. The guideline should be acceptable to all the key role players at facilities and in the province so that mutual understanding and consensus is achieved.

- Paediatric Essential Drug List and Standard Treatment Guidelines (South Africa)
- LINC Newborn Care Charts: Routine Care
- LINC Newborn Care Charts: Care of the Sick and Small Newborn
- LINC Newborn Care Guidelines
- Most tertiary hospitals have their own guidelines for example
    - Notes on Newborn Care UCT
    - Stellenbosch guidelines

2.2.ASSESS KEY BARRIERS TO IMPLEMENTATION OF STANDARD CARE

The key barriers to the implementation of guidelines should be assessed before initiating a training programme. The advocacy workshops and situation assessment will have identified a number of key barriers to implementation. A SWOT (strength, weaknesses, opportunities, threats) analysis will help to determine the barriers and opportunities for implementation.

	Helpful to achieving objective	Harmful to achieving objective
Attributes of the organisation	Strengths	Weaknesses
Attributes of the environment	Opportunities	Threats

Some of the barriers identified by the LINC team were:

- Rotation of staff in maternity, and in the neonatal unit. Some hospitals rotate staff frequently making it difficult for staff to be motivated, to learn guidelines and policies. Maternal and newborn care benefits when staff are permanently placed in the maternity or neonatal unit. Students and new staff may rotate through the unit. This is an opportunity to institutionalise good practice.
- Lack of availability of guidelines. Guidelines not displayed or available in casualty, maternity and neonatal unit.
- Lack of buy in to the protocols. Even when using provincial or national protocols these should be discussed with all the staff. Explain the rationale for the guidelines and where necessary draw up an adapted local protocol that will assist with implementation of the guidelines
- Guidelines may not be communicated to all doctors, including sessional and new doctors. Some doctors only look after newborns when they are on call, and are not aware of the guidelines. In small hospitals, standing orders for care of newborns by the nurses, with clear instructions for the doctors can facilitate implementation of the guidelines.
- There may be inadequate staff, equipment and facilities but this should not become an absolute barrier to implementation.
- The lack of continuous on-site support to promote the implementation of a new guideline can allow a reversion to old practises. This is particularly the case when the old practise is entrenched in the institutional culture.

2.3 ASSESS TRAINING NEEDS

Ensuring that doctors and nurses have the competencies to provide essential newborn care can be addressed through the training of motivated permanent staff. Newborn care competency requirements

should first be evaluated. *A competency is a blend of skills, abilities, and knowledge needed to perform a specific task.*

Identify the competencies required by different health workers, and plan training and learning to ensure that they are met. Acquiring and maintaining the competency requires the use of different teaching styles and reinforcement through practice and follow up. A programme of mentoring and support should parallel any training programme.

Basic neonatal resuscitation is a core competency for all health workers in maternity and neonatal. Helping Babies Breathe© is recommended as a course for all health workers. Where possible doctors, advanced midwives and neonatal nurses should attend an advanced neonatal resuscitation course.

The LINC charts and various LINC training packages were developed to address the competencies required to provide essential newborn care. These are basic competencies for newborn care that all staff working in maternity and the neonatal unit need to have. There are additional competencies that may be needed and other training packages such as the Perinatal Education Programme are alternatives that can build on the basic competencies.

At regional and large district hospitals that provide CPAP and high care, some of the nurses should have training in neonatal intensive care. Some tertiary centres offer this as a 1-year training training course at intervals.

Doctors in paediatric wards are encouraged to obtain a Diploma in Child Health. This will provide vocational growth and improve the local skills and knowledge in paediatric and newborn care.

Some important training and updates may be available as short courses or integrated into other courses. For example:

- PMTCT
- Breast feeding
- EPI
- Genetics

The list below identifies the competencies addressed by the LINC training package. It also lists the competencies required for different categories of staff. A blank chart is included in the appendix and each facility is encouraged to draw up a similar list.

COMPETENCIES REQUIRED IN NEWBORN CARE

Competency	Sub competency	MO	Paediatric MO	Advance midwife	Neonatal PN	Mid-wife	Neonatal EN/ENA	MSSN module and lesson number	Other material
Resuscitate the newborn at birth	Basic resuscitation	✓	✓	✓	✓	✓	✓		Helping Babies Breathe
	Provide Advanced resuscitation	✓	✓	✓	✓				NRP APLS PALS SAMA/FM
Provide routine care to newborns at birth									
	Provide routine care and triage in labour ward			✓	✓	✓	✓	M0	
	Assess the newborn after birth	✓	✓	✓	✓	✓		M0	PEP
	Provide routine care in postnatal ward	✓		✓	✓	✓	✓	M0	PEP
	Discharge and make a follow up plan	✓	✓	✓	✓	✓	✓	M0	
	Assess and support breastfeeding	✓	✓	✓	✓	✓	✓	M0	IMCI, Lactation management
Assess and classify the sick and small newborn	Assess and Classify need for emergency care	✓	✓	✓	✓	✓		M1, L2	
	Assess and Classify priority signs in newborns	✓	✓	✓	✓	✓		M1, L2	
	Assess abnormalities	✓	✓		✓	✓		M1, L3	PEP
	Assess local infections	✓	✓		✓	✓		M1, L3	PEP
	Assess risk factors	✓	✓	✓	✓	✓	✓	M1, L4	PEP
Provide supportive care to newborn to maintain homeostasis	Monitor, prevent, and manage hypothermia	✓	✓	✓	✓	✓	✓	M2, L5	PEP
	Monitor, prevent, and manage hypoglycaemia	✓	✓	✓	✓	✓	✓	M2, L7	PEP
	Provide safe Kangaroo Mother Care	✓	✓	✓	✓	✓	✓	M2, L5	
	Provide safe oxygen therapy	✓	✓	✓	✓	✓	✓	M2, L6	PEP
	Provide safe feeds and fluids to babies	✓	✓	✓	✓	✓	✓	M2, L8	PEP
	Safely transfer babies	✓	✓	✓	✓	✓	✓	M2, L10	
Diagnose and manage common specific newborn problem	Manage babies with respiratory distress	✓	✓	✓	✓			M2, L11	PEP
	Manage babies on CPAP	✓	✓	✓	✓			Additional Lessons	

	Manage low birth weight babies	✓	✓	✓	✓		✓	M2, L12	PEP
	Manage babies with infections	✓	✓	✓	✓			M2, L13	PEP
	Prevent and manage neonatal encephalopathy	✓	✓	✓	✓			M2, L15	PEP
	Prevent and manage neonatal jaundice	✓	✓	✓	✓	✓	✓	M2,L1 6	PEP
	Manage congenital abnormalities	✓	✓	✓	✓			M2,L1 7	PEP,
	Manage exposure to HIV, Tb and syphilis	✓	✓	✓	✓	✓	✓	M2, L18	PMTCT
Counsel mother to care for her newborn	Assess feeding and growth and counsel on feeding	✓	✓	✓	✓	✓	✓	M3, L19 L20, L21	IMCI Lactation management
	Counsel mother on care, when to return	✓	✓	✓	✓	✓	✓	M3, L22	
Ensure a clean, safe and friendly newborn environment		✓	✓	✓	✓	✓	✓	M2, L9	

Abbreviations
PEP: Perinatal education Programme
IMCI: Integrated Management of Childhood Illness
PMTCT:
NRP: Neonatal Resuscitation Programme
HBB: Helping Babies Breathe
MSSN: Management of Sick and Small Newborns

2.4 IMPLEMENT TRAINING

Suggested training and learning for different categories of health workers
Doctors:

- Diploma Child Health
- 2 day LINC training course
- Mother and Infant HIV course
- PMTCT training and updates
- Self study with Neonatal PEP

Professional Nurses

- Diploma in Advanced Midwifery
- Diploma in Neonatal Nursing
- LINC training for Professional nurses
- PMTCT training and updates
- Mother and Infant HIV course
- Lactation management / BFHI course
- Neonatal PEP course

Enrolled nurses

- LINC training course
- Lactation management / BFHI course

Below are some recommended training courses or programmes:

RESUSCITATION

HELPING BABIES BREATH (HBB)

HBB is a basic neonatal resuscitation training programme. It is highly recommended for all health workers in maternity and neonatal care. The skills learned should be reinforced through regular updates sessions or drills at each facility.

"Helping Babies Breathe® (HBB) aims to help meet Millennium Development Goal 4 targets for reduction of child mortality by addressing one of the most important causes of neonatal death: intrapartum-related events (birth asphyxia). HBB is an evidence-based educational programme that teaches an effective stepwise approach for successful resuscitation of the majority of infants not breathing at birth.

Helping Babies Breathe is designed to be coordinated with other interventions in a package selected to improve neonatal and maternal health. HBB can be used as the resuscitation component in courses teaching Essential Newborn Care and courses in midwifery skills. HBB can be used at all levels in the health system. It enables the extension of resuscitation training to first-level health facilities and health workers in resource-limited settings, where these skills are most lacking. It also can be used in higher-level health facilities, including tertiary facilities, where it complements, but does not replace, comprehensive resuscitation programs such as the Neonatal Resuscitation Program (NRP). Both HBB and NRP teach the same first steps in resuscitation, but NRP also includes the use of supplemental oxygen, chest compressions, intubation, and medications.

HBB uses a learner-centered educational methodology with emphasis on mastery of key skills. Pictorial, color-coded print materials and a low-cost, high-fidelity neonatal simulator engage learners and empower them to continue learning in the workplace. HBB encourages frequent practice, using job aids, simulators, and mannequins available in the workplace to maintain skills.

As an integral element of maternal and neonatal care, HBB can act as a catalyst for broader improvements in these services, particularly at the periphery of the health system.

Further advocacy and information about HBB, the training methods, and an implementation package are in the Resource section and CD ROM.

It is recommended that there should be 2 Helping Babies Breathe facilitators at each district hospital. These facilitators can run regular courses for maternity and primary health care staff. 4 – 6 participants can be trained in one day by a facilitator.

ADVANCED NEONATAL RESUSCITATION

Ensure that all advanced midwives, and senior doctors are trained in advanced neonatal resuscitation, and maintain their skill and accreditation for resuscitation. Several accredited courses are offered throughout the country and include the American Academy of Paediatrics courses the Neonatal Resuscitation Program (NRP), and the British Paediatric Association Course, Advanced Paediatric Life Support (APLS) course that includes neonatal resuscitation. ESMOE E includes a module on neonatal resuscitation.

ROUTINE CARE

All maternity staff provide routine care to newborns. This includes identifying risk factors and illness, supporting breastfeeding and providing routine preventive care. The care given is documented and information is provided to the mother. Routine care includes lactation management and PMTCT.

Training can be provided as part of in-service training or on an integrated 1 – 3 day training course that incorporates all the aspects of care including HBB.

A separate PMTCT and lactation management course may be offered in the district or province.

LINC provides charts on routine care of newborns with a learner module and training that can accompany the charts. Training may be provided as part of a course or as an in-service training module or as self – learning.

The Perinatal Education Programme has a module on Primary Newborn Care that covers routine care of the newborn.

LINC TRAINING

The LINC training is based on the principle that there are different styles and domains of learning and different methods engage different learners.

Adult learners bring prior knowledge and experience to the learning situation and new knowledge should be presented in a fashion that facilitates assimilation and integration. Different learners learn in different ways and training programmes need to include visual, auditory and interactive methods.

Adult learners are motivated by tasks perceived as meaningful. They are decision makers and self–directed learners. Presented with new information they benefit from opportunities to put it into practice through carrying out new tasks and competencies. This can be through simulations or appropriate workplace exposure with the oversight of a mentor if necessary.

LINC training incorporates:

- A needs assessment
- Pre-reading and additional reading
- Presentations
- Small group learning to allow for sharing of ideas, discussion and refocusing the learning on expressed learner needs.
- Visual demonstrations and practical sessions for the rehearsal of new skills.

The LINC Newborn Care Charts are designed as personal aids to guide the health worker in maternity and the neonatal unit in providing care for newborns. The training materials refer to the charts, and learners

are encouraged to have them open at all times during the course. This develops familiarity with the charts and provides a context for the guidelines.

Reading learner manual

The learner manual explains the charts and provides background information. The manual is read before the course, and summarized in class by the group. It can also be used for self-study. Sections can be read before coming to class, or individually for distance-based learning.

Introduction to Tools for newborn care

The manual introduces a number of tools that are used to facilitate the care that is provided to newborns. These include:

- Newborn record as part of the maternity chart
- Observation chart for newborn as part of maternity chart
- Newborn Admission Record for sick and small newborns
- Initial assessment form for sick newborns
- Admission / Discharge summary
- Weight, feeding and treatment summary
- Ballard score
- Fetal-infant growth chart for preterm infants
- Bilirubin charts
- KMC score chart
- HIE score chart
- Health worker notes
- Newborn Observation Chart

LINC training uses the charts developed for use in Limpopo. If different suitable charts are in use these may be used instead. The Limpopo charts are provided for adaptation.

Written case based exercises

Written exercises are interspersed in the manual. The written exercises usually refer to a clinical case and are used to reinforce the learning in the modules by theoretical application of the information to the assessment and care of a newborn. A separate exercise book is given to each participant. Facilitators have the answers to the exercises in their lesson plans.

Role-plays

Role-plays are used to explore counseling and interactions between health workers.

Visual learning

Powerpoint presentations or slide shows are used to demonstrate clinical signs and care. This reinforces learning such as the recognition of clinical signs. A number of videos are in development as an alternative to the power point presentation. This will enable easier self-learning and aid facilities that do no have experienced facilitators.

Clinical Session

The clinical sessions are conducted in the clinical area (Neonatal Unit and Postnatal Ward) and ensure that the participants see and practice clinical and procedural skills.

LINC CDROM

The CDROM contains the following

- LINC Course Director Guide
- LINC facilitator Guide and Lesson Plans
- LINC Management of Sick and Small Newborn Learner Manual and Workbook
- LINC Routine Care Learner Manual and Workbook
- LINC Power Point Presentation for training
- LINC tools for use in training
- LINC CPAP guideline and workshop
- LINC PPIP guideline and workshop

PERINATAL EDUCATION PROGRAMME (PEP)

This is a self-study, distance education programme. It does not require tutors, and the only cost is the purchase of the manuals. There are two relevant manuals for newborn care: Primary Newborn Care, and Newborn Care. The Primary Newborn Care manual is suitable for staff working in Clinics, Health Centres and Midwife Obstetric Units. The Newborn Care manual is for staff working in hospitals.

The quality of health care provided by nurses and doctors depends largely on their ability to access a high standard of both basic and continuing training. This is particularly important for health care workers in under-resourced, rural areas where educational support and opportunities for in-service learning are very limited. Traditional methods of centralised teaching with formal tutors and small classes often cannot be provided to meet their need as they are expensive, depend on adequate numbers of competent trainers and require participants to leave their place of employment. All these factors are major obstacles to improving the quality of patient care in many under-served areas of South Africa.

In order to address the challenges of better prevention, diagnosis and management of common and important medical conditions, a package of cost-effective and practical training methods is needed. This should include a system of self- study and co-operative, group learning to enable health care workers to take partial responsibility for their own education and professional growth. It is particularly important to provide a good background knowledge and understanding of the essential steps used in a protocol-driven approach to training and health care. Unless a participant knows why a step in management is important, they are unlikely to incorporate what they learn into their clinical practice.

A well-balanced programme of facilitated training should have components of both individual study and group learning as well as tutored exercises in clinical skills. In this way a limited number of trainers can manage many participants as each group only needs limited face-to-face teaching. With the emphasis on learning rather than teaching, traditional trainers become facilitators who encourage the development of self-confidence and competence.

The Perinatal Education Programme has presented appropriate learning material in maternal and newborn care for the past 20 years and has enabled both nurses and doctors, as well as medical and nursing students, to play an active role in their own learning process. Course books use a problem-based approach to address a wide range of topics and are helpful for both self-study and group discussions. Using a

question-and-answer format, together with case studies and management protocols, they provide a logical approach and clear understanding of all steps in patient care. Multiple choice tests before and after each chapter enables participants to monitor their own progress. Recently the learning material has also been made available on the internet for easy access. A number of prospective studies have documented the significant improvement in knowledge, clinical skills, attitudes and patient care practices when midwives and neonatal nurses use this self-help learning method to manage their own training programmes. The content of the Perinatal Education Care books has been incorporated into other parts of the Newborn Care package. It is strongly recommended that this becomes an essential part of neonatal education, especially in under-resourced settings.

More information on PEP is included in the Implementation Tool X on Training in the next section.

NEONATAL EXPERIENTIAL LEARNING

Neonatal Experiential Learning is an supportive comprehensive learning programme based on clinical governance structure. NELS utilises the Newborn Care PEP manual during a 2 week contact session. More information on NELS is provided in the additional resources section Chapter 4.

NEWBORN ICU TRAINING

Few universities currently offer Neonatal ICU training as the Nursing Council does not currently register the course. The skills provided in this course will benefit nurses at level 2 and 3 facilities and it is hoped that the council will soon register NICU training.

IMPLEMENT PRE-SERVICE TRAINING

Newborn care is required to be part of pre-service nursing and medical training. Province need to ensure that this is happening and that they are up to date.

CLINICAL MENTORING

Clinical mentoring as mentioned previously is an important part of learning and helping health workers who have been trained implement what they have learned.

3. MONITORING AND AUDIT

A system of monitoring and audit should be established at each facility. This will include

1. Supportive supervision
2. Clinical Audit
3. Perinatal Audit
4. Monitoring key newborn indicators

SUPPORTIVE SUPERVISION

Everybody who has some role in overseeing health care is responsible for supervising at least some part of the system. The clinical manager is responsible for clinical care in the hospital. He / she needs to be clear about what the requirements for newborn care are, to assess these and to make the necessary changes to ensure that the unit is able to function optimally. He / she, particularly, should be the chairperson of the perinatal review meetings, and take responsibility for checking that the action plans are being implemented.

The nurse manager ensures that there are adequate nursing staff and that the staff have the appropriate knowledge and skills to be able to provide a high quality of care. He / she needs to take responsibility, with the medical manager and other staff, for clinical audit of records and for assessing quality of care in the ward.

The facility CEO has overall responsibility for ensuring that all the requirements for providing quality care are provided. He / she needs to be advised by the clinical managers and clinicians on what is needed and what the outcome of evaluations are, so that appropriate action can be taken.

The doctor is responsible for the patient care on a day to day basis. He / she needs to evaluate carefully clinical outcomes – morbidity and mortality, looking specifically for avoidable factors / substandard care. He / she needs to act in an advisory capacity for other clinical managers, particularly in matters which affect the day to day patient care and the running of the ward.

All healthworkers with a supervisory function should strive to:

- Demonstrate the right way to perform tasks rather than pointing out errors
- Provide an enabling environment in which their junior colleagues feel free to use their own initiative rather than creating a controlling environment that, through the excessive use of directives, stifles initiative
- Promote the professional development of staff under their supervision
- Assume as much responsibility and accountability as is justifiable

CLINICAL AUDIT AND QUALITY OF PATIENT CARE

Clinical audit reviews how guidelines are implemented. There are a number of ways to perform clinical audits.

1. A paediatrician conducting ward rounds will review all aspects of the patient's care and immediately identify good and bad clinical practices and discuss these with the medical and nursing team. This audit requires an experienced clinician available for ward rounds.
2. Clinical audit form. A checklist of good practice, which can be applied to a number of patients at intervals to monitor compliance with guidelines. This may be useful for the clinical manager who may not be an expert in newborn care as an aid to identifying compliance with guidelines.
3. Record review. The LINC situation assessment and accreditation utilises a record review of patients who have been cared for in the neonatal unit. The care for each condition is scored against standard care for that condition. The scores are totalled and a percentage for standard

care for each condition is achieved. The record review must be conducted by skilled clinicians often from outside the facility.

PERINATAL AND NEONATAL MORTALITY AND PERINATAL REVIEW MEETINGS

The Perinatal Problem Identification Programme (PPIP) is a good tool for perinatal audit, and one endorsed for use by the Department of Health. It provides tools to assist in collecting baseline data and auditing the cause of perinatal deaths.

Perinatal review meetings should be held every month in each facility. The cause of a perinatal death must be assessed within 24 hours of the death.

ABOUT PPIP FROM (WWW.PPIP.CO.ZA)

PPIP WILL TAKE CARE OF THE NUMBERS, WHILE YOU TAKE CARE OF MOTHERS AND THEIR BABIES

The Perinatal Problem Identification Program (PPIP) is a tool to make your perinatal and maternal death audit easier. It does not do the audit for you, but it takes the tedious paperwork out of the process. The moment you enter the basic data, you can instantly do extensive data analysis, and even present your data in graphs and print reports - all with the press of a button.

Let there be no doubt: medical audit (and certainly perinatal and maternal death audit) is not a process that happens without dedicated individuals spending time and effort to make it happen. Furthermore, audit is a futile process if it doesn't 'close the loop' by changing the practice it is auditing. The purpose of audit is not the audit, or the figures, or the reports it generates, but the improvement of practice. If you do not intend to change the way you care for mothers and their babies, PPIP will do nothing for you. If, on the other hand, you want the quality of your care to be weighed and measured because you want to do better, PPIP will provide you with an instrument to make sense of your data without spending hours going through data sheets.

AUDIT SUPPORT PROVIDED BY PPIP

Medical audit includes a number of actions. PPIP makes sense of this process by providing you with three 'levels' of data entry:

DOING THE NUMBERS

PPIP allows you to collect numbers of deliveries, stillbirths, early and late neonatal deaths and maternal deaths. This allows the calculation of different rates (e.g. a perinatal mortality rate) and is used as denominator in various calculations. A selection of 'miscellaneous' data fields allows entry and analysis of specific detail, e.g. mode of delivery.

IDENTIFYING CAUSES

Each perinatal, neonatal and maternal death is entered in more detail. PPIP allows entry of basic demographic data, after which a primary obstetric cause of death and a final cause of death must be identified. Obviously these causes can then be analyzed in detail.

AVOIDABLE?

Lastly, PPIP allows for the identification of specific avoidable factors. These are incidents related to the actions of the mother or health care personnel, or the health care system, which may have altered the outcome of the specific case had it been managed differently. Again, these avoidable factors can be included in data analysis.

Further information about PPIP can be found on their website www.ppip.co.za

NEONATAL MORBIDITY AND SERVICES

Additional data and information is required to monitor the neonatal service. This includes

- The number and percentage of admissions to the neonatal unit and the reasons for the admission
- The trends in admissions
- Transfers in and out of the neonatal unit and outcome from transfers
- Neonatal transport response times and outcomes
- Number and nature of birth abnormalities
- Outcome of specific conditions

See the attached tools in Appendix 3, Neonatal registers and summary data

Step 5: Track progress and undertake accreditation assessments			
Input	Human and financial resources	District team in place	Number of district teams, regional and tertiary human resources
Process	Advocacy Action plans	Action Plans Teams in place Visits to facilities Equipment and facility needs identified	Equipment needs Transport needs Training needs
Output	Norms and standards Guidelines Tools used Number of health workers trained	Norms and standards Trainings conducted Referral and transport policies Neonatal ambulance in place	Provincial job aids
Outcome	Facilities accredited for newborn care Well equipped and staffed facilities Date properly collected	Quality of training No of facilities accredited Referral patterns Ambulance response times	Accreditation
Impact	Neonatal mortality rates Perinatal mortality rates Admissions percentages and case fatality rates	Neonatal mortality rates Perinatal mortality rates Admissions percentages and case fatality rates	Neonatal mortality rates Perinatal mortality rates Admissions percentages and case fatality rates

Progress should be monitored at facility, district and provincial level. The choice of indicators will vary according to the point of monitoring and unique circumstances. It is useful to aggregate indicators into the 5 categories shown in the table above. This will provide for a continuum of monitoring during implementation. An example of this process is provided in the table and subsequent discussion below.

An Accreditation System forms part of the LINC programme in Limpopo. It enables the implementation of the Newborn Care Initiative top be tracked and provides an incentive for participating facilities. This is described at the close of this chapter.

	Input	Process	Output	Outcome	Impact
Facility Level	Human and Financial Resources	Team in place at facility with change agent Action plans are drawn up in facility Advocacy workshops Community Health workers	Norms and standards for newborn care identified Guidelines in place Job aids in place and being used Number of health workers trained	Facilities accredited for excellent newborn care Well equipped facilities Improvement in newborn care noted on record reviews	Neonatal mortality rates Perinatal mortality rates Admission rates and case fatality rates
National, Provinical and District level	Team in place in x number of districts Advocacy programme	Action plans in place Number of teams in place Number of visits to facilities	Norms and standards and Guidelines in place Trainings conducted Appropriate transfer policies Neonatal ambulances in place No of functional regional hospitals	No of facilities accredited for excellent newborn care Response times Quality of training Improved referral patterns	Neonatal mortality rates Perinatal mortality rates Admission rates and case fatality rates
Means of verification		Number of teams in place Visit reports	Training reports	Record reviews Clinical Audit Accreditation visits Equipment audits	PPIP data DHIS Data Stats SA Data

INPUT INDICATORS

Monitor the budget and human resources for Essential Care. Have provinces and facilities allocated adequate resources for essential newborn care at province, district, regional and district hospital level?

- Has the hospital revitalisation programme included neonatal units?
- Has the province identified staff for neonatal improvement?
- Have the facilities identified staff to provide newborn care?
- Has the province identified district support teams or external facilitators and mentors?

PROCESS INDICATORS

This will depend on the plan that was drawn up but may include the following:

- Is the situation assessment complete, and communicated to relevant stakeholders?
- Has there been advocacy at community, health worker and management level?
- Have action plans been developed at each facility for immediate action, medium and long term activities?

OUTPUT INDICATORS

What are the results of action plans related to facilities, staffing, training?

- How many training courses were conducted and people trained?
- Have the norms and standards been completed and adopted by facilities?
- Are provincial guidelines in place?
- Is there a referral guideline and transport policy?
- Are other provincial job aids in place for example, admission book, newborn record, monitoring charts?

OUTCOME INDICATORS

Outcome indicators assess the outcome of actions in terms of quality.

- What is the quality of the training provided?
- What is the quality of patient care, is standard clinical care being provided at facilities?
- What is the response time of the neonatal ambulance?
- Are referral patterns appropriate?

This can be assessed by clinical audit, and community satisfaction. The accreditation system developed by LINC includes an assessment of the quality of the service provided.

IMPACT INDICATORS

The impact indicators measure whether the service has had an impact and achieved its objectives. If the objective was to decrease neonatal mortality trends in the neonatal mortality rates must be measured.

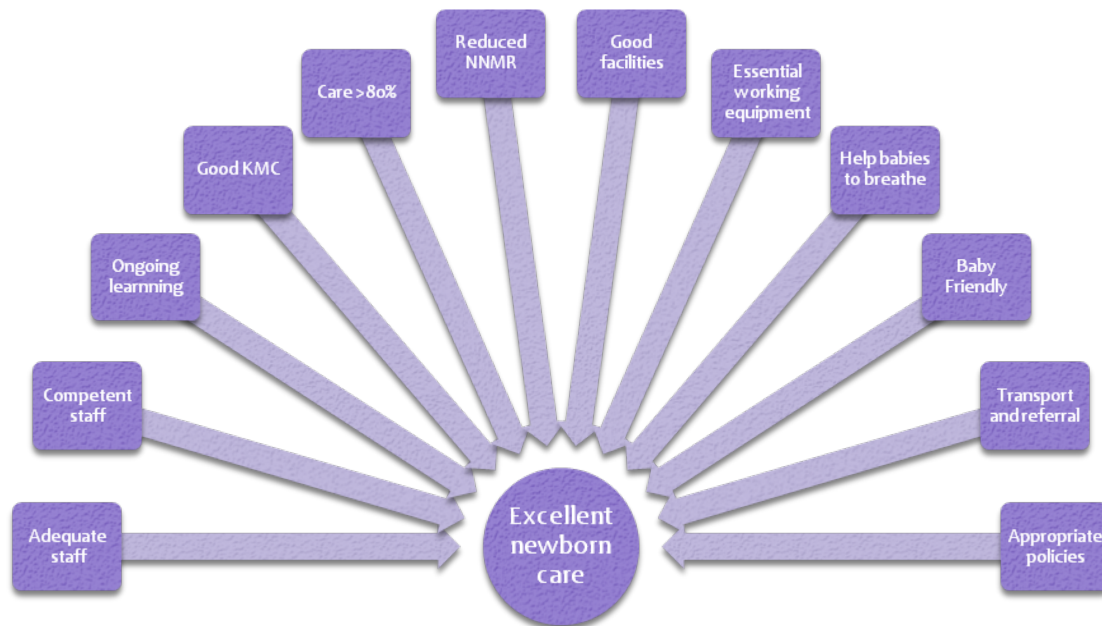
Impact indicators will not show the desired improvement if a project has not been implemented to scale, or if aspects of the implementation have been incomplete.

The impact measures for essential newborn care include:

- Neonatal mortality rate
- Intrapartum asphyxia rates (SB rates)
- Cause specific mortality rates

ACCREDITATION

The accreditation process in Limpopo was set up to motivate, monitor and reward hospitals for achieving the set norms and standards for neonatal services, and a set clinical standard for newborn care. The accreditation system includes a number of components



Accreditation assesses all aspects of newborn care.

In Limpopo Hospitals apply for accreditation once they are ready. A team consisting of external and internal members visit and assess facilities, services, staffing and newborn care. The latter is assessed by record review and clinical audit.

Hospitals that have achieved accreditation did so mostly because of good clinical care provided to newborns. Those that did not often had facilities and equipment in place but failed to provide an adequate level of clinical care.

In the first round of accreditation facilities achieved Silver, Gold and Platinum rankings according to the system described below. The intention is that these will be adjusted for the next round of accreditation.

Accreditation is valid for a period of 2 – 5 years.

The accreditation utilises the comprehensive situation assessment tools to assess facilities.

SILVER

Each of the items in the Hospital Visit check-list must be in place with a score of 65% plus

Criteria areas that are non-negotiable are:

- Check list scored 65% plus
- 12 steps to KMC implemented
- Admission records used

- Observation records used
- Oxygen monitoring
- Statistics available in the 1000 – 1999g birth weight
- Evidence that the neonatal mortality rate in this weight group is improving
- Level II facilities must have CPAP
- Patient records (quality of care) score more than 60%

GOLD

All the criteria as for Sliver

Additional items which are essential:

- Check-list scores 75% plus
- CPAP available and being used appropriately
- Multi-parameter monitoring
- Infusion pumps
- Decreased mortality rate in 1500 – 1999g birth weight group to less than 50 / 1000
- Ability to interpret the perinatal statistics
    - ● Patient records (quality of care) score more than 70%

PLATINUM

All of the criteria for Silver and Gold

Additional essential items are:

- Check-list scores 85% plus
- In-service training for staff in the hospital
- Out-reach to the District – clinics
    - hospitals
    - training
    - perinatal audit meetings

Patient records (quality of care) score more than 80

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