Neonatal Encephalopathy Audit

It is an established practice that all stillbirths and neonatal deaths are audited at the facility where the delivery has taken place

In addition all cases where the infant survives but is diagnosed as having neonatal encephalopathy must be audited. These are the cases which often result in litigation against the Department of Health years later.

The following steps are recommended for conducting an audit of a neonatal encephalopathy (NE) case:

- There must be assessment of the antenatal, intrapartum and neonatal care
- In facilities where the obstetric care and the neonatal care are managed by different departments, then there should be a joint process of audit where both departments review and discuss the case together
- Available information must be collected to ensure an accurate account of the details of the case:
    - The medical and nursing staff involved in the care of the patient, particularly the intrapartum care (including the delivery) and early neonatal care, must provide verbal or written accounts of what happened
    - The clinical case records (including maternity case record, neonatal records and all investigation results including scan reports, CTGs and lab tests) must be reviewed and secured for future reference
    - The baby's mother (who will probably still be an in-patient or a "boarder" mother) should be interviewed to obtain her perspective on what happened and how she and her baby were managed during her admission, particularly during labour and just after delivery
- The review of the case should involve a senior member of both medical and nursing staff from the obstetric and neonatal units at the facility to ensure there is adequate insight in interpreting the case
- The audit should attempt to identify the most likely cause of the NE
- The audit must identify any obvious avoidable factors that could have contributed to the NE. Such factors can be classified as patient behaviour-related, and health service-related. The health service-related factors can further be classified as either administrative, or health care worker-related.
- Where avoidable factors are identified, particularly health service-related factors, there should be an action plan drawn up to address these factors, with a view to eliminating these factors in future cases and thereby preventing similar cases of morbidity from occurring.

- Once the audit has been conducted, and there is consensus about the likely cause of the NE and about any avoidable factors, then a meeting should be held with the mother of the baby and any other appropriate family members to explain what has happened to the baby. Before an audit has been conducted, care should be taken in communicating with the mother, so as not to give speculative or wrong information which will later have to be retracted.

- There must be follow up of the action plan to ensure that the actions are in fact implemented. A follow up report can be given at the monthly perinatal mortality meeting. To ensure that the action plan is followed through, it is recommended that one member of the audit team is given the responsibility of keeping track of progress with the action plan and reporting back on it.

- A summary of the audit for each case, including the action plan follow up, must be documented and kept for future reference.

- The following attached documents will facilitate the audit process:

    - Guide to review of obstetric risk factors and care in cases of NE

    - Encephalopathy clinical audit: Neonatal

Guide to review of obstetric risk factors and care in cases of NE

Information required in this form may be obtained from the staff who managed the case, from the case notes, ward registers, or from talking to the mother or other family members:

Name of baby: _____ DOB:_____ Birth weight: _____

Singleton or twin?_____ If a twin, what type of twin pregnancy _____

Place of birth: _____Mode of delivery: _____

Best estimate of gestational age at birth:_____ According to:_____

Apgar score 1min_____5min_____10min_____15min_____20min_____

Outcome of neonate: ENND / LNND/ Discharged/Transferred out

Maternal details

Name of mother: _____ Case number_____

Age:_____ Parity: _____ Booked: Yes No

In auditing a neonatal encephalopathy case, it is important to assess the following factors which may be relevant to determining the cause of the neonatal encephalopathy

Factor	√ or x or ?	Comments
Smoker		
Alcohol use		
Other recreational drug use		
List prescribed drugs used in pregnancy		
List non-prescribed medications used in pregnancy including herbal medications		
Known HIV positive before pregnancy		
HIV infection diagnosed during this pregnancy		

Syphilis test positive during pregnancy		
List any maternal infections during pregnancy (e.g UTI, gastro enteritis, “flu”, skin rash, vulval ulcers or warts, vaginal discharge, TB, chest infections, unexplained pyrexia, etc)		
Features of intra-uterine infection (eg persistent lower abdominal pain without other cause)		
Maternal malnutrition (MUAC <23cm)		
Obesity		
Diabetes		
Hypertension (list category)		
Maternal anaemia (list lowest Hb level)		
Pre-labour rupture of membranes (ROM) at term >12 hours		
Pre-term Pre-labour ROM		
Any possible antenatal sentinel event (eg maternal collapse, antepartum haemorrhage)		
Evidence of IUGR		
Polyhydramnios		
Any fetal anomalies detected on scan		
Were fetal movements monitored by the mother after 28 weeks? Were they good?		
Was there any evidence of fetal		

distress before labour?		
Was the active phase of labour prolonged (1st stage)?		
Was the second stage of labour prolonged?		
Was the fetal heart checked every 2 hours in the latent phase of labour?		
Was the fetal heart checked every 30 minutes during the active phase of labour?		
Was the fetal heart checked after every second contraction in the 2nd stage of labour?		
Did the fetal heart rate monitoring in labour suggest fetal distress? If so, when?		
Was the liquor meconium stained? If so thickly or thinly?		
Was the liquor offensive smelling?		
List any drugs administered to the mother during labour		
Was the delivery difficult, either vaginally or at CS?		
Was there a cord around the neck at delivery? If so, was it tight?		
Was there any sentinel event during labour (eg. cord prolapse, rupture of the uterus, abruptio, shoulder dystocia, high spinal anesthetic)		
Were there any congenital abnormalities evident at birth		

Were there any fetal/neonatal injuries evident at birth?		
Were there any obvious umbilical cord or placental abnormalities evident at birth?		

Summary of case (briefly narrate details of the case)

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<u>Neonatal Details</u>

Use the "Encephalopathy Clinical Audit – Neonatal" form to evaluate your management of the neonate and to document avoidable factors in the neonatal care.

List Avoidable factors that could have contributed to the encephalopathy

_____
_____
_____
_____

_____

_____

MODIFIABLE FACTORS IDENTIFIED Following audit identify any modifiable factors present:	
MODIFIABLE FACTOR	**PRESENT**
ADMINISTRATION ASSOCIATED	
Inadequate facility or equipment in neonatal unit/nursery	
Neonatal ICU bed unavailable	
Lack of neonatal transport	
Other-Stipulate:	
MEDICAL PERSONNEL ASSOCIATED	
Neonatal resuscitation inadequate	
Neonatal care: Inadequate assessment of SARNAT/THOMPSON scores	
Neonatal care: Poor determination of diagnosis	
Neonatal care: Inadequate management plan for seizures	
Neonatal care: Inadequate management plan for respiratory support	
Neonatal care: Inadequate management plan for fluid management	
Neonatal care: Inadequate monitoring	
Delay in referring patient to tertiary or regional facility	
Other-Stipulate:	
Was this encephalopathy avoidable?	

<u>Likely Cause of NNE</u> (circle the appropriate option and provide details)

This should be determined after joint assessment and discussion of the case by the obstetric and neonatal teams, taking into account obstetric factors (see list above) and neonatal findings

- HIE (labour-related):
- Infections:
- CNS anomalies/ genetic syndrome:
- Vascular:
- Metabolic:
- Neonatal abstinence syndrome
- Other: _____

Avoidability (this assessment should only be done after the joint discussion between obstetric and neonatal teams). This refers to the care the health service provided, not to patient-behaviourrelated factors. Choose one of the options below

1. There was no substandard care. The neonatal encephalopathy could not have been avoided.
2. There was substandard care but this did not impact on the neonatal outcome. The neonatal encephalopathy could not have been avoided.
3. There was substandard care which might have impacted on the neonatal outcome. The neonatal encephalopathy could possibly have been avoided, or its severity reduced
4. There was substandard care which definitely impacted on the neonatal outcome. The neonatal encephalopathy could definitely have been avoided, or its severity reduced.

Action Plan

Action plan follow-up to be done and presented at next perinatal meeting by: _____

Action	Responsible person	Time frame	Follow up