KWAZULU-NATAL PROVINCE
HEALTH
REPUBLIC OF SOUTH AFRICA

CLINICAL AUDIT: ENCEPHALOPATHY (MATERNAL)

Date:		Unit:	

Definition:

Neonatal encephalopathy (NNE) is a disorder of brain dysfunction presenting with a wide spectrum of clinical signs. Features include:

- Altered level of consciousness (hyperalert /irritable/lethargic/ difficult to arouse)
- Abnormal tone
- Abnormal primitive reflexes
- Seizures (abnormal posturing/staring/blinking/yawning)
- Difficulty in initiating and maintaining respiration (respiratory distress/abnormal breathing pattern /weak or absent cry/ apnoea).

It is a leading cause of morbidity and mortality and consequent litigation.

Purpose:

An audit needs to be completed by nursing and medical teams from obstetrics and paediatrics/neonates. It is aimed at improving neonatal outcomes by identifying substandard care and planning actions to correct this care in future.

Method:

1. All encephalopathy cases must be audited.
2. Ensure an action plan is drawn up monthly.

Not applicable (NA):	Does not apply to the unit or individual assessment.
Non-Compliant (NC):	Not documented or not done
Compliant (C):	Fully compliant

	ANTENATAL CARE	NA	NC	C	COMMENT
1.	Received antenatal care				
2.	Antenatal history documented				
3.	Blood Pressure documented at every visit				
4.	Foetal movement assessment documented at every visit				
5.	Poor maternal weight gain identified				
6.	Risk factors identified. i.e. medical conditions; anaesthetic, previous pregnancy and lifestyle factors				
7.	Mother appropriately referred to higher level of care				
	ANTENATAL CARE Totals:				

	PRE HEALTH FACILITY LABOUR	NA	NC	C	COMMENT
8.	Time labour commenced documented				
9.	Any challenges with accessing health facility documented				
10.	Time of arrival at health facility documented				
11.	Time of 1st assessment documented				
12.	Foetal movements in previous 24hrs documented				
	PRE HEALTH FACILITY LABOURTotals:				

	LABOUR-1st Stage -Assessment	NA	NC	C	COMMENT
	Latent phase-cervix <4cm dilated				
13.	Admission assessment done				
14.	Mother monitored in a health facility during latent phase				
15.	Maternal temp, RR, HR & BP assessed 4 hourly				
16.	Uterine contraction and fetal heart rate assessed 4hrly				
17.	Vaginal examination performed at least 4 hourly				
18.	Prolonged latent phase >8hrs identified				
19.	If delay confirmed-cephelo-pelvic disproportion (CPD) and fetal distress excluded				
20.	"Stretch and sweep" of cervix performed and membranes ruptured				
21.	Augmentation commenced (Transferred if necessary)				

LABOUR-1st Stage cont.		NA	NC	C	COMMENT
Active phase-cervix ≥ 4cm dilated					
22.	Time of commencement of active 1st stage documented				
23.	Partograph commenced				
24.	Maternal heart rate, BP, respiratory rate assessed hourly				
25.	Maternal temperature assessed 4 hourly				
26.	Urine volume and presence of protein and sugar assessed				
27.	Fetal heart rate assessed half-hourly, before & after contractions				
28.	If baseline FHR increases or decelerations present frequency of observation increased and MO informed				
29.	Colour and odour of the liquor assessed 2 hourly				
30.	Frequency, Length and Strength of contractions assessed half hourly				
31.	Vaginal examination performed 2 hourly				
32.	Presence of caput succedaneum & moulding assessed				
33.	Palpation of the abdomen documented				
34.	Descent of foetal head assessed				
LABOUR-1st STAGE ASSESSMENT Totals :					

Pain management					
35.	Birth companion present				
36.	Appropriate pain relief offered/given-Pethidine, Entenox, Epidural				
37.	Maternal mobilisation and upright position supported				
Risk Assessment and management					
38.	Risk of infection identified				
39.	Antibiotics given if infection risk identified				
40.	Hypertension Identified:				
41.	Antihypertensive treatment given- systolic BP >160 mmHg				
42.	Magnesium sulphate given –raised diastolic BP & proteinuria				
43.	Maternal risk factors identified				
44.	Fetal risk factors identified				
45.	Intrapartum sentinel events identified				
46.	Mother assessed as high risk				
47.	Mother appropriately referred to higher level of care or senior consultation requested				
48.	If transfer planned -transferred within 1 hour				
LABOUR-1st STAGE RISK/PAIN ASSESSMENT & Mx Totals :					

Active labour delay		NA	NC	C	COMMENT
49.	Duration of 1st stage documented-lasted maximum of 10 hours (multiparous) or 12 hrs (1st pregnancy)				
50.	Delay in active first stage appropriately identified				
51.	If delay suspected-cephelo-pelvic disproportion (CPD) assessed and fetal distress excluded				
52.	If delay suspected-Bladder emptied				
53.	If delay suspected-maternal hydration supported				
54.	If delay suspected-Membranes ruptured if still intact				
55.	Vaginal examination repeated in 2hrs				
56.	If delay confirmed full assessment including abdominal palpation and vaginal exam performed by MO/obstetrician				
57.	If CPD, Fetal distress, or abnorm. presentation found-caesarian section planned/transferred to hospital				
58.	Labour augmented if delay confirmed and CPD, abnormal foetal presentation/distress & scarred uterus excluded				
59.	Oxytocin dose only increased every 30 minutes				
LABOUR-1st STAGE-DELAY Totals :					

LABOUR-1st Stage CTG.		NA	NC	C	COMMENT
60.	Continuous FHR monitoring commenced via cardiotocograph (CTG) if indicated				
61.	If CTG used -indication documented				
62.	Detailed assessment and of CTG documented				
63.	CTG assessed as normal, suspicious, pathological or need for urgent intervention.				
64.	If the CTG was suspicious or pathological MO/obstetrician informed				
65.	1 or more conservative interventions commenced				
66.	If the CTG was 'need for urgent intervention' obstetric support present				
67.	Presence of acute /sentinel event assessed				
68.	Urgent delivery planned				
	LABOUR-1st STAGE-CTG Totals :				

LABOUR- 2nd Stage. 10cm dilation to delivery.		NA	NC	C	COMMENT
69.	Time of commencement of 2nd stage documented				
70.	Maternal temperature recorded 2-4 hourly				
71.	Maternal Blood pressure recorded hourly				
72.	Vaginal examination performed hourly				
73.	Baseline foetal heart rate(FHR) recorded every 5 mins including while awaiting theatre				
74.	Presence of acute/sentinel event documented				
75.	Suspected delay in 2nd stage appropriately identified and MO informed.				
76.	Confirmed delay in 2nd stage appropriately identified and MO called.				
77.	Membranes ruptured				
78.	Mother encouraged to bare down				
79.	If delay confirmed assessed by MO/Obstetrician within 15mins and reassessed every 15-30mins				
80.	Appropriate management plan documented				
81.	Time of decision to expedite delivery recorded				
82.	Instrumental delivery considered/attempted				
83.	Indication for instrumental delivery documented				
84.	If urgent delivery planned –baby delivered within 1 hour				
85.	Duration of 2nd stage documented-lasted maximum of 2 hours (multiparous) or 3 hrs (1st pregnancy)				
	LABOUR-2ND STAGE Totals:				

LABOUR-2nd Stage- Emergencies		NA	NC	C	COMMENT
86.	Fetal distress appropriately identified				
87.	Cord prolapse excluded				
88.	Mother placed in Lt. lateral andO_2 therapy commenced				
89.	Cord prolapse appropriately identified				
90.	Vaginal examination performed				
91.	Presenting part prevented from compressing cord				
92.	Ringers lactate infusion and salbutamol commenced for fetal distress or cord prolapse				
93.	Urgent delivery or transfer implemented for fetal distress or cord prolapse				
94.	Cephelo pelvic disproportion (CPD) appropriately identified				
95.	Manoeuvres instituted to facilitate delivery				
96.	Mother appropriately informed of emergencies and management plan.				
	LABOUR-2ND STAGE –EMERGENCIES Totals:				

Subtotals brought forward	NA	NC	C	Total Possible Score	Compliant Total Score	X100=%
Antenatal Care				7		**%**
Pre facility labour				5		**%**
Labour 1st Stage-Assessment				22		**%**
Labour 1st Stage-Risk Mx				14		**%**
Labour 1st Stage-Labour delay				11		**%**
Labour 1st Stage-CTG				9		**%**
Labour 2nd Stage				17		**%**
Labour 2nd Stage-Emergencies				11		**%**
Final Score:				96		**%**

ASSESSED BY:		**Date:**	
Obstetrician Sign:		**Print:**	
MP No.			
Midwife Sign:		**Print:**	
SANC No.			

Appendix 1: Definitions

1. Risk of infection

- ✓ Hyperthermia ≥ 38^{o}C
- ✓ Offensive vaginal discharge
- ✓ Prolonged rupture of membranes >24hrs

2. Hypertension

- ✓ systolic BP >160 mmHg
- ✓ Diastolic BP ≥110 mmHg and 3+ proteinuria
- ✓ Diastolic BP ≥90 mmHg, 2+ proteinuria and any: severe headache, visual disturbance, epigastric pain

3. Maternal Risk factors requiring consultation/referral/urgent delivery

History:

- ✓ Nullipara aged ≥37 years
- ✓ Parity ≥5
- ✓ Previous caesarean section
- ✓ Previous surgery on the uterus, cervix, vagina, bladder or pelvic floor
- ✓ Previous postpartum haemorrhage requiring blood transfusion
- ✓ Serious medical disorder (e.g. cardiac disease, current TB, currently symptomatic asthma, epilepsy)
- ✓ Cardiac disease
- ✓ Multiple pregnancies
- ✓ Rupture of the membranes before the onset of labour (refer if no spontaneous labour within 12 hours)

Assessment:

- ✓ Vulvovaginal blisters /ulcers/Extensive warts
- ✓ Anaemia (Hb <10 g/dL)
- ✓ Hypertension (≥140/90 mmHg)
- ✓ Maternal pyrexia ≥37.5 degrees C
- ✓ Antepartum haemorrhage
- ✓ The presence of significant meconium (dark green or black amniotic fluid that is thick or tenacious, or any meconium-stained amniotic fluid containing lumps of meconium.)
- ✓ Offensive liquor
- ✓ pain reported by the woman that differs from the pain normally associated with contractions
- ✓ Shock/shortness of breath or very ill

Poor progress/Delays

- ✓ Prolonged latent phase (≥8 hours)
- ✓ Confirmed delay in active stage-(crossing 2 hour partogram action line)
  - Less than 2cm dilation in 4hrs(1st pregnancy)
  - Slowing in progress (multiparous)
- ✓ Suspected delay in 2nd stage
  - Descent inadequate after 1hr (1st pregnancy)
  - Descent inadequate after 30mins (multiparous)
- ✓ Confirmed delay in 2nd stage
  - The fetal head has not descended onto the pelvic floor after 2 hours of full dilatation.
  - Delivery has not occurred after 45 minutes of pushing(1st pregnancy)
  - Delivery has not occurred after 30 minutes of pushing(multiparous)
- ✓ Prolonged second stage of labour not suitable for vacuum extraction
- ✓ Failed vacuum extraction

4. Fetal risk factors requiring consultation/referral

- ✓ suspected fetal growth restriction or macrosomia
- ✓ Estimated fetal weight <2 kg
- ✓ suspected anhydramnios or polyhydramnios
- ✓ any abnormal presentation, including cord presentation
- ✓ high (4/5–5/5 palpable) or free-floating head in a nulliparous woman
- ✓ fetal heart rate below 110 or above 160 beats/minute
- ✓ a deceleration in fetal heart rate heard on intermittent auscultation.
- ✓ CTG tracing suspicious/pathological

5. Indications for CTG monitoring

- ✓ Previous caesarean section
- ✓ Suspected intrauterine growth restriction
- ✓ Multiple pregnancy
- ✓ Pre-eclampsia
- ✓ Antepartum haemorrhage
- ✓ Prolonged rupture of the membranes (>24 hours)
- ✓ Suspected chorioamnionitis or offensive liquor
- ✓ Meconium stained liquor
- ✓ Poor progress in labour

- ✓ Oxytocin infusion
- ✓ accident with abdominal trauma or serious maternal injury
- ✓ fetal arrhythmia (particularly tachyarrhythmias) on ultrasound,
- ✓ decreased fetal movement,
- ✓ fetal growth restriction < 10th percentile
- ✓ baby overdue > 7 days

6. Indications for continuous CTG monitoring

- ✓ Administration of oxytocics
- ✓ Presence of complications: fever, bleeding, or green amniotic fluid

7. CTG assessments include:

- ✓ Contractions
- ✓ Baseline fetal heart rate (FHR)
  - Reassuring- 110–160 bpm
  - Non reassuring- 100–109 bpm or 161–180 bpm
  - Abnormal-< 100 bpm or > 180 bpm
- ✓ Baseline variability
  - Reassuring- 5-25 bpm during the interval when no contractions occur
  - Non reassuring- Less than 5 for 30 to 50 minutes OR More than 25 for 15 to 25 minutes
  - Abnormal-Less than 5 for more than 50 minutes OR More than 25 for more than 25 minutes OR Sinusoidal
- ✓ Presence or absence of decelerations
  - Reassuring- None/early or Variable for less than 90 minutes
  - Non reassuring- Variable decelerations with concerning characteristics et al
  - Abnormal-Late decelerations
- ✓ Presence of accelerations
  - Reassuring- two accelerations (increase of FHR > 15 bpm or and > 15 seconds) in 20 minutes
  - Non reassuring- periodical occurrence with every contraction
  - Abnormal-no accelerations > 40 minutes

8. CTG Analysis

1. Normal- All features are reassuring
2. Suspicious-1 non-reassuring feature AND 2 reassuring features
3. Pathological-1 abnormal feature OR 2 non-reassuring features
4. Need for urgent interventions-Acute fetal bradycardia or prolonged deceleration >3mins

9. Conservative interventions

- ✓ mother encouraged to mobilise & and avoid being supine
- ✓ if the mother is hypotensive intravenous fluids commenced
- ✓ contraction frequency reduced by reducing or stopping oxytocin
- ✓ tocolytic drug commenced

10. Acute/Sentinel events

- ✓ uterine rupture
- ✓ cord prolapse
- ✓ placental abruption
- ✓ fetal exsanguination/vasa previa
- ✓ amniotic fluid embolism
- ✓ maternal collapse

11. Delay in 2nd stage

- ✓ The fetal head has not descended onto the pelvic floor after 2 hours of full dilatation.
- ✓ Delivery has not occurred after 45 minutes of pushing in a nullipara, or 30 minutes of pushing in a multipara.