MANAGEMENT OF SICK AND SMALL NEWBORNS

FACILITATOR MANUAL

2ND Edition, JULY 2015

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INTRODUCTION

Each year in South Africa, 14,000 newborns die, most from preventable causes, thus contributing significantly to both infant and child mortality. Most births and most newborn deaths occur in hospitals. Improving the quality and timeliness of care is a critical step to save these lives. Since 2003 the Limpopo Initiative for Newborn Care (LINC) has advanced the quality of care of newborns in district and regional hospitals in the Limpopo province. LINC is a joint venture between the Department of Paediatrics and Child Health in Polokwane and the provincial Maternal, Child and Women's Health directorate.

The Newborn Care Charts for Management of Sick and Small Newborns in Hospital are designed to be used by doctors and nurses at the district and regional hospital level and provide a ready reference for assessment, classification, and treatment of sick and small newborns as well as an overview of routine care that should be provided to all newborns.

The training modules are designed around the charts, providing detailed and systematic approaches to the assessment, recognition and management of the numerous conditions of sick and small newborns.

The package of materials including this facilitator's manual is intended for use by provinces, districts and health facilities to assess, plan and systematically improve the newborn care service in their efforts to reduce newborn deaths and morbidity and overall infant and child mortality.

ACKNOWLEDGEMENTS

The facilitator's guide and training package on the Management of Small and Sick Newborns was developed to improve newborn care in the Limpopo Province of South Africa as part an initiative called LINC (the Limpopo Initiative for Newborn Care).

The Limpopo Initiative has developed the facilitator's guide, training modules and chart book on newborn care for Newborn Care, University of Limpopo and Department of Health, Limpopo Province. We would like to acknowledge the Centre for Rural Health, University of KwaZulu-Natal, Save the Children US and UNICEF for their support. The South African adaptation of the WHO IMCI guidelines also informed the development of the facilitator's guide and the training modules.

The 1st edition Management of Sick and Small Newborns (LINC charts) were developed, tested and reviewed by the following people:

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ABOUT THIS MANUAL

The Management of Sick and Small Newborn charts and training manual provides an approach to the assessment, classification and management of sick and small (i.e. preterm and low birth weight) babies from birth, during their stay in a health care facility up to the time of discharge, and also at follow up.

The training is based on ensuring that the competencies to care for newborn are acquired. A range of adult learning methods are used, these include reading and self-study, discussion, and case based learning in written exercises and group discussions, visual presentations and extensive clinical practice. The training manuals are intended for in-service training of health care workers who already have basic training in maternal and newborn care; however the material can be adapted for pre-service training, and self-study.

This facilitator's manual will assist the facilitator to;

- ❖ Identity competencies required by the health workers in the district or facility
- ❖ Determine who in the district needs training
- ❖ Plan training for the facility or district to meet this need
- ❖ Draw up a course schedule for the training
- ❖ Prepare for the training course
- ❖ Review facilitator skills
- ❖ Monitor and evaluate the individual learners on the training course
- ❖ Monitor and support trained health workers after training

This facilitator's manual is designed to be used in conjunction with

- Trainee modules
- Trainee exercises
- Power point presentations
- Demonstrations
- Video presentations.

PLANNING FOR TRAINING

1. ASSESS TRAINING NEEDS

1. Identify the staff working in the maternity and newborn care section in your health facility or district

- Paediatricians
- Doctors
- Neonatal Nurses
- Midwives
- Auxiliary and enrolled nurses

1. Establish if the staff are permanently placed in maternity or newborn care or do they rotate. If they rotate what percentage of staff are permanently placed. If a large percentage of staff rotate, then address this problem before planning for training.

The situation assessment done on facilities as part of the broader newborn care improvement plan, will also assist you to determine who needs to be trained

2. Determine what maternal, newborn, paediatric, PMTCT and infant feeding training the staff have already had. The trainings they might have attended or courses complete include
    - Doctors:
        - ❖ Diploma in Child Health
        - ❖ 2 day MSSN training course
        - ❖ Mother and Infant HIV course
        - ❖ PMTCT training and updates
        - ❖ Self-study of Neonatal PEP
    - Professional Nurses
        - ❖ Diploma in Advanced Midwifery
        - ❖ Diploma in Neonatal Nursing
        - ❖ MSSN training for Professional nurses
        - ❖ PMTCT training and updates
        - ❖ Mother and Infant HIV course
        - ❖ Lactation management / MBFI course
        - ❖ Neonatal PEP course
    - Enrolled nurses
        - ❖ MSSN training course
        - ❖ Lactation management / MBFI course

3. Evaluate the newborn care competency requirements. *"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 the training to ensure that these competencies are met. Acquiring and sustaining the competency require repetition of the activity and follow up. A programme of mentoring and support is suggested.
4. The list below identifies the competencies addressed by the charts and training package. It also list the competencies required for different categories of staff. The staff and competencies may differ in your situation, so a blank chart is included for your use.

Competency	Sub competency	MO	Paed MO	Advance midwife	Neonatal PN	Mid-wife	Neonatal EN/ENA	MSSN module and lesson	Other material
Help the baby breathe at birth	Basic resuscitation	✓	✓	✓	✓	✓	✓		HBB
	Provide Advanced resuscitation	✓	✓	✓	✓				SAPA, HBB+NRP
Provide routine care to newborns at birth	Rapidly assess baby immediately after birth	✓	✓	✓	✓	✓	✓	RC	
	Fully assess baby after birth in post natal ward			✓	✓	✓	✓	RC	
	Assess and manage risk factors or special treatment needs	✓	✓	✓	✓	✓		RC	PMTCT, IMCI
	Provide routine treatment to the well-baby	✓	✓	✓	✓	✓	✓	RC	
	Assess and support breastfeeding, expressing breast milk, cup feeding	✓	✓	✓	✓	✓	✓	RC	Lactation MBFI, PMTCT
	Daily review and discharge	✓	✓	✓	✓	✓	✓	RC	
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 injuries, abnormalities and local infections	✓	✓		✓	✓		M1, L3	
	Assess risk factors and special treatment needs	✓	✓	✓	✓	✓	✓	M1, L4	
Provide supportive care to newborn to maintain homeostasis	Monitor, prevent, and manage hypothermia	✓	✓	✓	✓	✓	✓	M2, L5	PEP
	Provide safe oxygen therapy	✓	✓	✓	✓	✓	✓	M2, L7	PEP
	Monitor, prevent, and manage hypoglycaemia	✓	✓	✓	✓	✓	✓	M2, L5	
	Provide safe feeds and fluids to babies	✓	✓	✓	✓	✓	✓	M2, L8	PEP
	Infection prevention and control	✓	✓	✓	✓	✓	✓		
	Safely transfer and refer babies	✓	✓	✓	✓	✓	✓	M2,L10	
Diagnose and manage common specific newborn problem	Manage babies with apnoea and respiratory distress	✓	✓	✓	✓			M2,L11	PEP
	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 seizures	✓	✓	✓	✓				
	Prevent and manage neonatal jaundice	✓	✓	✓	✓	✓	✓	M2,L16	PEP
	Manage congenital abnormalities	✓	✓	✓	✓			M2,L17	PEP
	Manage exposure to HIV, TB and syphilis	✓	✓	✓	✓	✓	✓	M2, L18	PMTCT
	Counsel, discharge and follow up	✓	✓	✓	✓	✓	✓	M3,L2 2	
Ensure a clean, safe and friendly newborn environment		✓	✓	✓	✓	✓	✓	M2,L9	

Competency	Sub competency	MO	Paed MO	Advance midwife	Neonatal PN	Mid-wife	Neonatal EN/ENA	MSSN module and lesson	Other material
Help the baby breathe at birth	Basic resuscitation								
	Provide Advanced resuscitation								
Provide routine care to newborns at birth	Rapidly assess baby immediately after birth								
	Fully assess baby after birth in post natal ward								
	Assess and manage risk factors or special treatment needs								
	Provide routine treatment to the well-baby								
	Assess and support breastfeeding, expressing breast milk, cup feeding								
	Daily review and discharge								
Assess and classify the sick and small newborn	Assess and Classify need for emergency care								
	Assess and Classify priority signs in newborns								
	Assess injuries, abnormalities and local infections								
	Assess risk factors and special treatment needs								
Provide supportive care to newborn to maintain homeostasis	Monitor, prevent, and manage hypothermia								
	Provide safe oxygen therapy								
	Monitor, prevent, and manage hypoglycaemia								
	Provide safe feeds and fluids to babies								
	Infection prevention and control								
	Safely transfer and refer babies								
Diagnose and manage common specific newborn problem	Manage babies with apnoea and respiratory distress								
	Manage low birth weight babies								
	Manage babies with infections								
	Prevent and manage neonatal encephalopathy								
	Prevent and manage neonatal seizures								
	Prevent and manage neonatal jaundice								
	Manage congenital abnormalities								
	Manage exposure to HIV, TB and syphilis								
	Counsel, discharge and follow up								
Ensure a clean, safe and friendly newborn environment									

2. Plan for training

The following training courses are provided

2.1 Helping Babies Breathe (HBB)

HBB covers the immediate care of the baby from birth, correct practices once baby is born including skin to skin and delayed cord clamping. Neonatal resuscitation including bag and mask ventilation in the first "golden" minute. HBB is a one day (4 – 6 hour) training course for all health workers working in maternity. It is ideally done at facility or district level, with 6 participants at a time. Separate HBB training and facilitator material is provided.
HBB training should ideally precede Routine care (RC) and Management of Sick and Small Newborn (MSSN) training.

2.2 Routine newborn care at birth (RC)

The Routine care training modules is based on the Routine Care charts A – K in the Newborn Care Charts, and includes all the routine prevention and care a healthy baby requires before going home. The material is still in development, and the plan is to integrate the training with Lactation management and PMTCT training, and to develop material that will allow the training to be provided on-site at facilities as part of in-service training.

2.3 Management of Sick and Small Newborn (MSSN)

MSSN training is for health workers who are working in the neonatal unit. Separate courses can be run for Professional nurses, enrolled nurses and doctors, or doctors and professional nurse training can be combined. The duration of the training is usually 5 days.

The enrolled nurse training can incorporate HBB, Routine care and aspects of MSSN, especially the principles of newborn care.

3. MSSN training options

The MSSN Training course is a 5 day training, but there are a number of more flexible options to run the training, to ensure capacity development where resources may be limited, or where district may prefer a different approach.

1. Classical 5 day training

MSSN training has classically been run as a 5 day course for professional nurses. This requires participants to be on-site for 5 days with accommodation, meals and transport. There are usually 16 participants and 4 facilitators. Training is conducted in 2 classrooms and clinical practice in the neonatal unit. The neonatal unit needs to have enough sick babies and enough space for demonstrations.

2. Training course for 1 day a week, until training completed

The training courses offered in the continuous course can be offered, according to the same training schedule, but participants come for training for one day every week, until the training is complete. The requirement for this training is similar to the above, but does not require accommodation or necessarily meals (participants could bring their own food if there is no budget for this) Smaller courses can be run for fewer people, perhaps 8 with one facilitator and then case load in the neonatal unit

does not need to be as many, enabling the course to run in some district hospitals. An essential requirement is that participants be on time and have 8 hours of training time, and commit to attend every session.

3. Distance based learning

The training can be done on a distance based learning method, and in future we hope to introduce an e-learning component.

Participants read the material, go through the presentations on a computer or watch the videos on a computer and then answer the exercises. They can either check the answers against the correct ones, or send them to a facilitator for correction.

The full 5 day course includes 15 hours of practical training, so it is suggested that participants doing the distance learning, come in for 2 continuous days or 2 separate days for overview and discussion with a facilitator and clinical practice. The clinical practice will need to be done at a hospital with a large case load, to ensure adequate clinical practice.

Requirements will include reading skills, access to a computer or DVD and self-motivation. The advantage is that health workers who are far away from a main center can access this training, without having to be away from their clinical station for too long.

4. In-service training

This can be integrated into the in-service training programme of a facility. Using this approach 2 hours would be set aside each week or month for in-service training. Participants would have pre-reading to do before the in-service training. 40 minutes would then be spent on summarizing the reading and going through the exercises, there would then be two 40 minute practical sessions.

The in-service training approach would usually require an on-site or visiting facilitator. An interested doctor could also facilitate and participate in preparing and presenting the practical sessions. All categories of health worker would participate

The advantage of this model is that all health workers at the facility learn together and it also represents an opportunity for problem solving and quality improvement.

5. Doctor's training – 2 day doctors training course.

Doctors cannot usually be released for a 5 day training. A 2 day training course, taking out the key elements for the doctors is included as an option for training. It is assumed that some of the skills in assessment and management do not need to be covered.

4. Course preparation

MSSN Facilitators

- 2 facilitators are required for every 6 – 8 participants that are trained.

MSSN Facilitators should meet the following criteria

- Completed the MSSN training or Diploma in Neonatal ICU,
- Work or worked in a Neonatal unit where they have demonstrated ability to implement the training
- Attended a facilitators training and then successfully co-facilitated on 2 complete training courses, before being accredited as a Newborn Care Facilitator.
- It is invaluable for a doctor or paediatrician to support the training, especially the clinical aspects, but they can also assist in some of the classroom sessions. Doctors should be experienced in newborn care and familiar with the MSSN approach.

Participant numbers

Training is done in groups of 6 – 8 or 12 – 16 participants, dependent on the size of the clinical area and facilities. The course includes a number of exercises, and clinical demonstrations and practice. In order to do this the number of participants per facilitator cannot be increased, and the maximum number of participants should be 16.

Classroom Venue

- If there are 16 participants you need a venue for 20 persons, and one breakaway session. If there are 8 participant's one classroom is adequate. The desks and chairs need to be mobile so you can work in a small group.
- Pay attention to ensuring a comfortable temperature and quiet working environment.
- The classroom should be close to the clinical site, so it may be better to use a classroom in the same hospital.

Clinical / practical

- Participants require adequate exposure to clinical practice, and the training venue should be close to a large neonatal unit.
- The Neonatal unit should have about 20 sick and small newborns for each group of 8 participants. For a group of 16 there should be 40 sick and small newborns. This is to ensure that the participants get adequate clinical exposure.
- The neonatal unit needs to be large enough to accommodate 8 or 16 participants.
- The facility needs to demonstrate the following good practices
    - Infection control and prevention, especially impeccable hand washing
    - Kangaroo mother care, both intermittent and continuous
    - Correct feeding and fluid prescriptions
    - Breast feeding and MBFI accredited
    - Use of infusion controllers on all drips
    - Appropriate use of incubators
    - Correct administration and monitoring of oxygen
    - Nasal CPAP use with bubble CPAP or nasal CPAP machine
    - Good clinical records to demonstrate care

Size of group	6 – 8 participants	12 – 18 participants
Number of facilitators	2 facilitators, one of who is a clinical instructor	4 facilitators, one of who is a clinical instructor
Classrooms	1 classroom	2 classrooms
Clinical case load in neonatal unit	16 – 24 sick and small newborns	30 – 48 sick and small newborns
Space in neonatal unit	Enough space around each patient for a group of 4 and separate demonstration area	Enough space around each patient for 2 groups of 6 and a separate demonstration area

Accommodation and transport

- If accommodation is required, ensure this is booked in advance
- Accommodation should be close to the classroom and the clinical site
- Transport must be available to transport participants to the classroom and clinical site.

Learning material

Prepare the material beforehand, the following material is required.

- Facilitators guide for each facilitator
- Newborn care chart per participant
- Newborn care training manual per participant
- Newborn care exercises per participant
- Clinical practice per participant
- Newborn care record/s used in your province per participant
- Newborn care monitoring forms used in your province per participant
- Additional recording forms and monitoring forms if the forms you use are different to those in the materials.

Teaching aids

- Power point slide presentations
- A3 or A2 laminated posters of charts
- Videos
- Helpful ice breaker

Equipment per classroom

- Laptop
- Data Projector
- Speakers
- TV and DVD video
- Screen
- White board
- Flip Chart

Stationary and supplies

- Name tag and holder
- Paper
- Pens
- Pencils
- Eraser
- Felt tip pen
- Highlighters
- Pencil sharpener
- Flip chart
- White board marker

5. Course schedules MSSN

Attached are a number of suggested course schedules dependent on the course you choose. You can select one of these schedules or adapt it to the requirements of your training

A1 - 5 day course for Professional Nurses (PN) and Midwives
A2 - 2 day course for Doctors
A3 - 5 day course for on MSSN and RCN for Enrolled Nurses (EN)
A4 - 5 day course (1 day / week) for Professional Nurses (PN)
A5 - In-service training course for the Newborn team

Course	Description	Facilitators	Classroom	Practical	Suggested venue	Material for Class work	Equipment for class work
A1: MSSN 5 day course Prof Nurses / midwives	5 day central course 8 hours per day Accommodation may be required	Newborn Care Facilitator: Participant 1: 4	Classroom for 20 Break away room for 8	Neonatal unit with 30 + SS newborns	Tertiary regional hospitals if adequate facilities	Newborn Charts Trainee Manual MSSN Exercises & Practicals	Laptop & Speakers Data Projector & Screen TV and DVD video Whiteboard / FlipChart Pens Posters & Prestik
A2: MSSN 2 day course Doctors	2 day central course 8 hours per day Accommodation may be required	Neonatologist & Paediatrician NCF or doctor for practical 18:3	Classroom for 20	Neonatal unit with 30 + SS newborns	Tertiary Regional	Newborn Chart Trainee Manual Exercises / Practical for doctors	As above
A3: MSSN and RCN 5 day course Enrolled Nurses	5 day central course 8 hours per day Accommodation or run one day a week x 5	NCF 1:6 2:12 3:18	Classroom	Neonatal unit with 15 +SS babies	Regional hospitals	Newborn Chart Trainee Manual	As above
A4: MSSN 1 day a week for 5 weeks Facility based course	Regional hospital or facility based course 5 separate days 5 hours per day 3 hours per week self-study	Newborn Care Facilitator Paediatric doctor	Classroom	Neonatal unit with 10+ SS babies	Regional and large district hospitals	Newborn Chart Trainee Manual	As above
A5: MSSN Facility based in-service training	Facility based course 2 contact hours per week for 10 weeks, 2 hours of self-study / week	NCF Paediatrician or Paed MO	Classroom	Neonatal unit with 10+ SS babies	Regional and large district hospitals	Newborn Chart Trainee Manual	As above

6. COURSE AGENDAS

Course A1: 5 day course on the Management of Sick and Small Newborns For professional nurses & midwives

Date/Time	Topic	Lesson / Practical
DAY 1		
08h00 – 09h00	Registration, Welcome, Overview of Improving care	Module 1, Lesson 1
09h00 – 10h30	Assess and classify: Need for Emergency care and Priority signs	Module 1.1,2, Lesson 2
10h30 – 11h00	TEA	
11h00 – 12h00	Assess and classify: Injuries, abnormalities and local infection	Module 1.3, Lesson 3
12h00 – 13h00	Assess and classify: Risk factors	Module 1.4, Lesson 4
13h00 – 14h00	LUNCH	
14h00 – 16h30	Practical 1: Infection prevention and Assess and classify	Practical 1, 2, 3
DAY 2		
08h00 – 09h30	Treat, Observe and Care: Principles of treatment: Maintain normal body temperature	Module 2.1.1, Lesson 5
09h30- 11h00	Treat, Observe and Care: Administering Oxygen	Module 2.1.2, Lesson 6
11h00 – 11h15	TEA	
11h15 – 12h00	Treat, Observe and Care: Glucose monitoring	Module 2.1.3, Lesson 7
12h00 – 12h30	Treat, Observe and Care: Infection control	Module 2.1.5, Lesson 9
12h30 – 13h00	Treat, Observe and Care: Transfer and referral	Module 2.1.6, Lesson 10
13h00 – 14h00	LUNCH	
14h00 – 16h30	Practical 2:Risk factors, Incubators and oxygen therapy	Practical 4,5,6
DAY 3		
08h00-10h15	Treat, Observe and Care: Feed and fluid management	Module 2.1.4, Lesson 8
10h15 - 10h30	TEA	
10h30 -12h00	Treat, Observe and Care: Preterm and low birth weight	Module 2.2.2 Lesson 12
12h00 – 13h00	Treat, Observe and Care Apnoea and Respiratory Distress	Module 2.2.1. Lesson 11
13h00 – 14h00	LUNCH	
14h00 – 16h30	PRACTICAL 3: Feeds and fluids, Ballard, KMC1	Practical 7,8,9
DAY 4		
08h00 – 09h00	Treat, Observe and Care: Serious acute infection	Module 2.2.3 Lesson 13
09h00 – 09h45	Treat, Observe and Care: Neonatal Encephalopathy and Neonatal Seizures	Module 2.2.4,5 Lesson 14,15
09h45 – 10h30	Treat, Observe and Care: Jaundice	Module 2.2.6 Lesson 16
10h30– 10h45	TEA	
10h45 – 13h00	PRACTICAL 4: KMC2, Weight gain, Jaundice	Practical 10,11,12
13h00 – 14h00	LUNCH	
14h00 – 15h00	Treat, Observe and Care; Congenital abnormalities	Module 2.2.7: Lesson 17
15h00 – 16h30	Treat, Observe and Care; Syphilis, TB and HIV	Module 2.2.8,9,10: Lesson 18,19,20
DAY 5		
08h00 – 09h00	Routine care: Breastfeeding OR CPAP Module	
09h00 – 11h00	Practical Breastfeeding or CPAP	Practical 23, 24 or 15,16,17
11h00 – 11h30	TEA	
11h30 – 12h15	Discharge and Follow-up	Module 3, Lesson 21
12h00– 13h00	Post-test, evaluation and closure	
13h00	LUNCH	

Course A2: 2 day course on the Management of Sick and Small Newborns For doctors

Pre- reading; Charts and Modules

Date/Time	Topic	Activity
DAY 1		
08h00 – 08h30	Registration, Welcome, Overview of Improving care	Lesson 1
08h30 – 09h30	Assess and classify: Need for emergency care, priority signs, injuries and malformations	PowerPoint
09h30 – 11h00	Slide presentation on injuries, abnormalities, and minor problems	PowerPoint
11h00 – 11h30	TEA	
11h30 – 13h00	Assess Risk factors and treatment needs and overview of HIV management	PowerPoint
13h00 – 14h00	LUNCH	
14h00 – 16h00	Practical: Assess and classify, Ballard, KMC	Practical's 2,8,9
16h00- 16h45	Management of Surgical Problems	PowerPoint
DAY 2		
08h00 – 08h45	Feeds and fluids	Lesson 8
08h45 – 09h30	Respiratory distress and Apnoea, CPAP	Presentation
09h30 – 10h15	Fetal hypoxia / Neonatal encephalopathy	Presentation
10h15 – 10h45	Severe infections / infection prevention and control	Presentation
10h45 – 11h00	TEA	
11h00 – 13h00	Oxygen, CPAP, X-Ray viewing	Practical 6,15,21
13h00 – 14h00	LUNCH	
14h00 – 16h00	Practical: Assess weight gain, Jaundice, HIE,	Practical 11,12,13
16h00 – 16h30	Outstanding issues	

Course A3: 5 day course on the Management of Sick and Small Newborns and Routine Care of Newborns : For enrolled nurses and enrolled nursing assistants

Date/Time	Topic	Activity
DAY 1	**HBB**	
08h00 – 09h00	Registration, objectives, expectations	
09h00 – 13h00	Helping Baby Breathe	
13h00 – 14h00	TEA	
14h00 – 15h30	Assessment	
15h30 – 16h30	RC: B, C Rapidly assess then fully assess the baby after birth	
DAY 2	**Routine Newborn Care**	
08h00 – 10h00	Assess and manage Risk factors and special treatment needs	
10h00 - 10h30	TEA	
10h30 – 13h00	Assist mother with breastfeeding	
13h00 – 14h00	LUNCH	
14h00 – 15h00	Practical Assist and Assess breastfeeding	Practical 23
15H00 – 16H00	Expressing breast milk and cup feeding	Practical 24
Day 3	**RC and MSSN**	
08:00 – 09:00	Daily review and discharge	K:
09:00 - 10: 00	Assess and classify for Priority signs	Lesson 2
10:00 – 10:30	TEA	
10:30 – 11:00	Introduction to Principles of treatment	
11:00 – 12:00	Treat monitor and care normal body temperature Exercises: Temperature management	Lesson 5
12:00 – 13:00	Treat monitor and care administer oxygen Written Exercises: Oxygen	Lesson 6
13:00 – 14h00	LUNCH	
14h00 – 16h00	1Practicals: Incubators, Oxygen administration	Practical 5, 6
DAY 4	**MSSN**	
08:00 – 09:00	Treat: feeds and fluids Exercises: Fluids and feeds	Lesson 8
09:00 – 10:00	Infection prevention and control Exercises: Infection prevention	Lesson 9
10h00 – 10h30	TEA	
10:30 – 13:00	Practical 1. Calculation of feeds exercise 2. Newborn Admission records and observation charts 3. Infection prevention and control	Practical 1,7
13h00 – 14h00	LUNCH	
14h00 – 16h00	Preterm and Low birth weight babies	Lesson 12
DAY 5	**MSSN**	
08h00- 10h00	Practical KMC	Practical 9,10,11
10h00 – 10h30	TEA	
10H30- 11h00	Jaundice	Lesson 16
11h00 – 12h00	Counsel, discharge and follow up	Lesson 21
12h00 - 13h00	Reflections on the course Questions and Discussions Evaluation and closure	
13H00	LUNCH	

Course A4: 5 day course (1 day / week) on the Management of Sick and Small Newborns

For Professional Nurses (PN)

Date/Time	Topic	Lesson / Practical
DAY 1		
08h00 – 09h00	Registration, Welcome, Overview of Improving care	Module 1, Lesson 1
09h00 – 10h30	Assess and classify: Need for Emergency care and Priority signs	Module 1, Lesson 2
10h30 – 11h00	TEA	
11h00 – 12h00	Assess and classify: Injuries and malformations	Module 1, Lesson 3
12h00 – 13h00	Assess and classify: Risk factors	Module 1. Lesson 4
13h00 – 14h00	LUNCH	
14h00 – 16h30	Practical 1: Assess and classify	Practical 1a, b, c
DAY 2		
08h00 – 09h30	Treat, Observe and Care: Principles of treatment: Maintain normal body temperature	Module 2, Lesson 5
09h30- 11h00	Treat, Observe and Care: Administering Oxygen	Module 2, Lesson 6
11h00 – 11h15	TEA	
11h15 – 12h00	Treat, Observe and Care: Glucose monitoring	Module 2, Lesson 7
12h00 – 12h30	Treat, Observe and Care: Infection control	Module 2, Lesson 9
12h30 – 13h00	Treat, Observe and Care: Transfer and referral	Module 2, Lesson 10
13h00 – 14h00	LUNCH	
14h00 – 16h30	Practical 2: Principles of treatment	Practical 2a, b, c
DAY 3		
08h00-10h15	Treat, Observe and Care: Feed and fluid management	Module 2, Lesson 8
10h15 - 10h30	TEA	
10h30 -12h00	Treat, Observe and Care: Low birth weight, KMC	Module 2.2 Lesson 12
12h00 – 13h00	Treat, Observe and Care Apnoea and Respiratory Distress	Module 2.2.1 Lesson 11
13h00 – 14h00	LUNCH	
14h00 – 16h30	PRACTICAL 3: Specific treatment 1	Practical 3a,b,c
DAY 4		
08h00 – 09h00	Treat, Observe and Care: Acute Infections and Severe Disease: Acute infection	Module 2.2.3, Lesson 13
09h00 – 09h45	Treat, Observe and Care: Neonatal Encephalopathy	Module 2.2.4, Lesson 15
09h45 – 10h30	Treat, Observe and Care: Jaundice	Module 2.2.6, Lesson 16
10h30– 10h45	TEA	
10h45 – 13h00	PRACTICAL 4: Specific treatment 2	Practical 4a, 4b, 4c
13h00 – 14h00	TEA	
14h00 – 15h00	Treat, Observe and Care: Congenital abnormalities	Module 2.2.7: Lesson 17
15h00 – 16h00	Treat, Observe and Care: Congenital syphilis	Module 2.2.8: Lesson 18
DAY 5		
08h00 – 09h00	Treat, Observe and Care: Congenital TB	Module 2.2.9, Lesson 19
09h00 – 10h45	Treat, Observe and Care: HIV affected mother and baby	Module 2.2.10 Lesson 20
10h45 – 11h00	TEA	
11h00 – 12h00	Counsel, Discharge and Follow-up	Module 3, Lesson 21
12h00– 13h00	Post-test, evaluation and Closure	
13h00	LUNCH	
Date/Time	Topic	Activity

Course A5: Facility based In-service training course on the Management of Sick and Small Newborns
For Professional Nurses (PN) and Doctors

In-service training course: Weekly schedule (2 hours / week Individual reading, 2 hours / week contact time)

WEEK	*MODULE*	*PRE- READING FROM MANUAL*	*CLASSROOM 40 MINUTES*	*PRACTICAL 40 MINUTES*	*PRACTICAL 40 MINUTES*
1.	Introduction*	None	Introduction Routine care	Routine care postnatal	Routine postnatal care
2.	Assess and Classify	1.1 Need for emergency care 1.2 Priority Signs	Presentation, module and exercises	Practical 2,3 Assess and classify and using recording form	
3	Assess and Classify	1.3 Abnormalities and local infections 1.4 Risk factors	Presentation and module	Practical 1	Practical 4
4	Principles of Newborn Care	2.1.1 Maintain body temperature 2.1.3 Glucose	Presentation and module	Practical 5	
5	Principles of Newborn Care	2.1.2 Oxygen therapy 2.1.5 Infection prevention	Presentation and module	Practical 6	
6	Principles of Newborn care	2.1.4 Feeds and fluids 2.1.6 Transfer and referral	Presentation and module	Practical 7	
7	Treat: Specific Conditions	2.2.1 Apnoea and respiratory distress and CPAP	Presentation and module	Practical 15 - 17	
8	Treat: Specific Conditions	2.2.2 Preterm and low birth weight	Presentation and module	Practical 8	Practical 9
9	Treat: Specific Conditions	2.2.3 Serious acute infection 2.2.4Local Infection 2.2.5Neonatal Encephalopathy	Presentation and module	Practical 13	
10	Treat: Specific Conditions	2.2.6 Jaundice 2.2.7Congenital abnormalities	Presentation and module	Practical 12	
11	Treat: Specific Conditions	2.2.8,9,10 Syphilis, TB HIV	Presentation and module	Practical Additional	
12	Follow up and discharge	3.7 When to return 4.1Follow up 4.2Developmental screening	Presentation and module	Practical Additional	

LIST OF PRACTICALS

Practical	Training Module	Module subsection	Duration of practical
Practical 1	Principles of treatment	Infection prevention in the neonatal unit, including hand washing	40 minutes
Practical 2	Assess and classify	Demonstrate A&C	40 minutes
Practical 3	Assess and classify	A&C, Need for emergency signs and priority signs, injuries, abnormalities and local infection	40 minutes
Practical 4	Assess and classify	A&C risk factors and special treatment needs	40 minutes
Practical 5	Principles of treatment	Maintain normal body temp: using a manual and servo control incubator	40 minutes
Practical 6	Principles of treatment	Oxygen therapy	40 minutes
Practical 7	Principles of treatment	Feeds and fluids	40 minutes
Practical 8	Specific treatment: LBW	Ballard score	40 minutes
Practical 9	Specific treatment: LBW	KMC, Skin-to-skin, managing and monitoring in KMC	40 minutes
Practical 10	Specific treatment: LBW	KMC, discharge use the tool and assess	40 minutes
Practical 11	Specific treatment: LBW	Assess weight gain	40 minutes
Practical 12	Specific treatment: Jaundice	Jaundice, check bilirubin, manage phototherapy	40 minutes
Practical 13	Neonatal encephalopathy	Monitor and Manage infant with NE,	40 minutes
Practical 14	HIV, TB, Syphilis	HIV and syphilis	40 minutes
Practical 15	CPAP	CPAP – demonstrate use of CPAP	40 minutes
Practical 16	CPAP	CPAP – assembling and setting up CPAP machine	40 minutes
Practical 17	CPAP	CPAP – initiating, monitoring and adjusting	40 minutes
Practical 18	Development Assessment	In development	40 minutes
Practical 19	Infant Motor Assessment	In development	40 minutes
Practical 20	Umbilical Cord Drip	In development	40 minutes
Practical 21	X-Ray interpretation	In development	40 minutes
Practical 22	Principles of treatment	Cleaning and sterilising equipment and surfaces in the NNU	40 minutes
Practical 23	Routine care	Assessing and assisting with breast feeding	40 minutes
Practical 24	Routine care	Expressing breast milk and cup feeding	40 minutes

MONITORING PROGRESS ON THE COURSE

ASSESSMENT OF THE PARTICIPANTS

Assessing participants ensures that you are helping them achieve the competencies they require. Participants on all the courses, should complete a pre-test assessment, followed by the same test as a post test, and should be evaluated throughout the course to ensure they can complete all the exercises satisfactorily and that they have the necessary exposure to clinical cases.

PRE-TEST QUESTIONNAIRE

The multiple-choice questionnaire is conducted at the beginning of every course. It consists of 60 questions covering care of the sick and small newborn. The purpose is twofold: firstly, to gauge the level of knowledge and experience the trainees have as a group and individually; and secondly for candidates to recognize areas of deficiency.

The questions and answer sheet are in the Appendices – see Appendix 2 and Appendix 3. The correct answers are left blank on the scoring sheet. Using a transparent template one can then easily check the trainees' answers.

The trainee manual also has the MCQ questions and clear answer sheet in their manuals in which they can complete the pre-test questionnaire.

ASSESSMENT OF EXERCISES

Facilitators keep track of answers to exercise, and indicate if there are exercises that are difficult for participants, so that that section can be covered again. Attached is an example of the sheet, for each participant. 0 = not done, 1 = partially correct, 2 = well done
This sheet is available on an Excel spreadsheet.

ASSESSMENT OF CLINCAL SIGNS

A record is kept in each classroom of the clinical signs seen by the group. If participants in a course have not seen a sign an effort needs to be made to find babies with these signs, or to show video's so that this aspect of training is complete.

POST TEST ASSESSMENT

The MCQ done as a pre-test is done at the end of the course as a post test. An hour is given to participants to complete the test, and they may use the charts to assist them with answers. A test score of 80% is required to pass the test. The pre-test mark is usually 60% so the post test of 80% is important. Should participants obtain this pass mark, they are allowed to repeat the test on another occasion.

Monitoring Participant Progress: MSSN											
Course:			Venue:						Date:		
		Participant Initials:									
Pre-test		Pre Test Score									
Post-test		Post Test Score									
Module 1: Assess and Classify	A&C E & P	1A: Written									
	A&C Priority	1B: Written cases									
	A&C Risk	1C: Group									
	Rec Form	1D: Recording form									
Module 2: Treat	Temp	2A: Written									
	Oxygen	2B: Written Cases									
	Glucose	2C: Written Cases									
	Feeds, Fluids	2D: Written Cases									
	Observations	2E: Written cases									
	Infection	2F: Written cases									
	Transfer and referral	2G: Written cases									
	Respiratory distress	2H:Written Case									
	Preterm and LBW	2I: Written Cases									
		2J: Written Cases									
		2K: Is Also 3C									
		2L: Written Cases									
	Serious infection	2L:Written Case									
	Neonatal Encephalopathy	2N: Written Case									
	Neonatal Jaundice	2O: Written Case									
	Syphilis, TB, HIV	2P: Written Case									
		2Q: Written Case									
Module 3: Discharge follow up	Discharge	3A: Written cases									
	Follow up	3B: Written cases									

. 2 = well done or observed, 1 = partially correct, 0 = poorly done or not done

Clinical Sessions, Post- test and Overall Assessment												
Course:			Venue:				Date:					
		Participant Initials:										
Module 1	Assess and Classify	1: Infection										
		2, 3 : A&C to end local infections										
		4: A&C Risk factors										
Module 2	Principles of Treatment	5: Incubators										
		6: Oxygen Therapy										
		7: Feeds and fluids										
Module 2	Specific Treatment:	8: Ballard score										
		9: KMC, skin to skin, monitoring										
		10: KMC discharge										
Module 2	Specific Treatment	11: Assess weight gain										
		12: Jaundice										
		13: NE										
Module 3	Specific treatment Feeding	14: HIV, TB, Syphilis										
		15, 16: CPAP Demo										
		17, CPAP, initiating, monitoring, adjusting										
Additional practicals												
List of signs not seen												
Overall Assessment												
Comments												

SIGNS IN SICK AND SMALL NEWBORNS

Not breathing or gasping	Heart rate > 180 or < 100	Severe Pallor	Extreme lethargy/ unconscious
Severe chest in-drawing	RR > 60	Grunting	Central Cyanosis
Decreased tone	Increased Tone	Irregular jerky movements	Reduced activity / lethargy
Full fontanelle	Abdominal distention	Jaundice	Head circumference < 3rd centile
Head circumference > 3rd centile	Birth injuries – list	abnormalities – list	Local infections – list
No attachment at all	Not well attached to breast	Good attachment	Not suckling at all
Not suckling effectively	Suckling effectively	Thrush	

OVERVIEW OF TRAINING METHODS

A number of different methods are used in the training course. This is to ensure that participants engage with the material and assimilate the content and become competent in caring for newborns.

The Newborn Care Charts is the guideline that the health worker will keep with them in the neonatal unit, to guide them in caring for newborns. The training materials refer to the charts, and at all times during the classroom and practical training, and self-study, the participants must have the charts open on the appropriate page. This will assist them in using the charts in the workplace.

1. Reading trainee manual

The training manual explains the chart and provides background information. The manual is intended to be read in class, either silently or as a group. It can also be used as self-study, so sections can be read before coming to class, or individually for the distance based learning.

Our experience is that it is better for someone to read aloud than for individuals to read on their own, as participants reading speed varies. Before a section is read the facilitator explains what is covered in that section, and at the end summarizes the main points and takes discussion. The discussion allows participants to get clarity or share the experience and learning.

2. Introduction to Tools for newborn care

The manual introduces a number of tools that are used to aid the clinical management of newborns. These include the

- 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
    i. Initial assessment form
    ii. Admission / Discharge summary
    iii. Weight, feeding and treatment summary
    iv. Ballard score
    v. Fetal-infant growth chart for preterm infants
    vi. KMC score chart
    vii. HIE score chart
    viii. Health worker notes
- Newborn Observation Chart

If your facility or service uses different charts you can introduce these charts instead. If you would like to adapt the charts these are available.

3. **Written case based exercises**

Written exercises are interspersed in the manual. The written exercises always refer to a case, and are used to reinforce the learning in the modules to ensure participants are able to use the information to assess or care for a newborn. A separate exercise book is given to each participant. Facilitators have the answers to the exercises in their lesson plans.

4. Role plays
A number of role plays are used to demonstrate counseling and interactions between health workers. Each person in the role play is given a brief. A discussion follows the role play.

5. Visual learning
A number of power point presentations or slide shows are used to demonstrate clinical signs and care. This reinforces the learning and ensure aids in the recognition of signs and correct care of patients e.g. oxygen therapy etc.

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 not have experienced facilitators.

6. Clinical Session
The clinical sessions are conducted in the clinical area and ensure that the participants are able to assess and monitor newborns and provide care.

FACILITATION SKILLS AND TIPS[1]

1. Techniques for motivating participants

a) Encourage interaction:

- Make opportunities to speak to each participant individually during the first day
- Explain that your function is not so much to teach, but rather to facilitate learning and that you are there to guide and help them
- Show that you are prepared to discuss with them openly and in a friendly manner.
- Point out errors sensitively.

b) Keep Participants Involved in Discussion

- Ask questions frequently but avoid "yes/ no" questions, rather use open or 'why', or 'how' etc. Pause after posing questions to give participants a chance to think or look it up
- Acknowledge the response to the question in a positive manner. Under all circumstances avoid ridiculing or demeaning a participant.
- Use the name of participants when asking a question or acknowledging a response.
- Maintain eye contact with participants and try to include everyone. The shy ones may need friendly encouragement.

c) Keep the Session Focused and Lively

- Keep presentations lively, using conversational approach rather than reading, while speaking clearly and not too fast, varying the pitch of your voice
- Use examples from your experience and encourage participants to do the same.
- Write key points that participants have volunteered on a flip chart or blackboard.
- Summarize frequently. Ask participants for any important points that were omitted
- Try to establish from participants whether the learning objectives have been met.

d) Managing Problems with Group Dynamics

- It is not uncommon for one or two participants who want to hold the floor and answer every question or relate some irrelevant stories. How does one deal with that?
- Avoid asking this participant to answer every question by suggesting that someone from the other side of the group should respond.
- At times it may be necessary to interrupt a long story when the individual pauses for a moment or takes a breath!
- There may be particularly shy or quiet participants; try to find out if it is a language problem. If so, you may have to ask your co-facilitator to take over while you spend some time with the participant.
- Discuss disruptive participants with your co-facilitator and/or the Course Director.

2. Techniques for relating modules to participants' jobs

Try to relate the case management procedures to participants' work situation, e.g. Are the recommended drugs available? Are there problems with referral of patients? What are the chances of mothers coming back for follow-up? Try to assist participants to resolve management problems.

[1] Based on and adapted from the IMCI Facilitator Guidelines in IMCI South African Adaptation 2009

3. When providing individual feedback

Compare the participant's answers to those in the lesson plan. Try to establish the possible reason for any mistakes made: there may be a problem of not understanding a certain term or the question as a whole or some important point in the case under discussion was missed.

Address the main difficulty and try to guide the participant through the problem.

- Ask the participant to summarize what has been achieved by the exercise.
- Always praise the participant for good work – or for tackling the question, which has presented a problem.
- Let the participant know that her hard work is appreciated.

4. Coordinating a role play

- Role plays can be very instructive for all involved provided that is well coordinated.
- Role players must be carefully selected, possibly from volunteers.
- Seating is important: a semi-circle with the role players in the middle works well
- Role players must be quite clear what their role is and what is expected of them.
- At the end of the role play thank the players. They should be given an opportunity to express how they felt. Ask for feed-back but ensure that it is supportive. Highlight all the positive points before going on to what could be improved.

5. Collaboration with the co-facilitator

- It is very crucial that you have a good working relationship with your co-facilitator.
- Always be aware of the fact that any tension between the two of you will be picked up by the participants, which will be to the detriment of everyone.
- Before the day's proceedings start, the two of you should agree which items will be dealt with by whom. Agree on who will run a drill or do a demonstration. Close collaboration is particularly important when doing a group exercise or a role play.

LESSON PLANS

MANAGEMENT OF SICK & SMALL NEWBORNS

MODULE: INTRODUCTION

MANAGEMENT OF SICK & SMALL NEWBORNS

LESSON 1. INTRODUCTION & REGISTRATION

PROCEDURES	METHOD	Time allocation 60 minutes	Requirements
1. Introduce yourself and ask participants to introduce themselves.	Introduction	5 minutes	Name tags
2. Perform any necessary administrative tasks.	Administration	10 minutes	Administration forms
3. Overview of newborn care in SA	Power point presentation 0.1	15 minutes	CD / DVD Projector Computer
4. Explain your role as facilitator.	Group Discussion	5 minutes	Flip chart and pens Prestik
5. Participants tell where they work and tell briefly their responsibility for care of newborns	Group discussion	10 minutes	
6. Outline the training	Power point presentation 0.2 and / or demonstration with wall charts	15 minutes	

Note to Facilitators: This session may take longer than 60 minutes.

1. INTRODUCTION 5 min

If participants do not know you or do not know each other, introduce yourself as a facilitator of this course and write your name on the white board or flipchart. As the participants introduce themselves, write their names on the whiteboard or flipchart. Leave the list of names in a place where everyone can see it to help you and the participants learn each other's names.

2. ADMINISTRATIVE TASKS 10 min

There may be some administrative tasks or announcements that you should address. For example, you may need to explain the arrangements that have been made for lunches, the daily transportation of participants from their lodging to the course, or payment of per diem.

3. OVERVIEW OF NEWBORN CARE 15 min

Present the **Power Point Presentation 0.1** on newborn care in South Africa, and why it is a priority and how this relates training on management of sick and small newborns

4. EXPLANATION OF YOUR ROLE AS FACILITATOR 5 min

Explain to participants that, as facilitator (and along with your co-facilitator, if you have one), your role throughout this course will be to:

* Guide them through the course activities

* Answer questions as they arise or find the answer if you do not know

* Clarify information they find confusing

* Give individual feedback on exercises where indicated

* Lead group discussions, drills, video exercises and role plays

* Prepare them for each clinical session (explain what they will do and what to take along)

* Observe and help them as needed during their clinical sessions.

5. BRIEF DESCRIPTION OF PARTICIPANTS' RESPONSIBILITY FOR CARE OF SICK AND SMALL NEWBORNS 10 min

Explain to participants that you would like to learn more about their responsibilities for caring for sick and small newborns. This will help you understand their situations and be a better facilitator for them. For now, you will ask each of them to tell where they work and what their job is.

Begin with the first person listed on the flipchart and ask the two questions below. Note the answers on the flipchart.

* Where do you work?
* What is your training or position?

Note: Have the participant remain seated. You should ask the questions and have the participant answer you, as in a conversation. It is very important at this point that the participant feel relaxed and not intimidated or put on the spot.

6. TRAINING OUTLINE 15 min

Outline the training. You can present this as a PPP or explain to them the outline of training.

Distribute the chart book, and explain that they should always have the charts open in front of them.

Start by introducing the chart book. Go to the inside cover of the chart book and discuss the process of triage for newborns, and then the process of management of newborns i.e

- Routine care at birth
- Management of Sick and Small Newborns
    1. Assess and Classify
    2. Treat, Observe and Care,
    3. Counsel, Discharge and follow up

This training focusses on the Management of Sick and Small Newborns, however the charts include Helping Babies Breathe and Routine Care. HBB training is done separately. Routine Care training is done as in-service training. If participants have not done Routine Care training, they can review the charts and arrange for training to be done at their facilities.

First let's look at what is covered in Routine care.

The routine care charts clarify the triage process and which babies should room in with their mothers, and which babies need to be admitted to the neonatal unit. Section B on page 7 covers the rapid assessment of the baby immediately after birth. All babies classified as read need to be admitted to the Neonatal Unit. Babies classified as Yellow need special treatment, and are usually kept with their mothers.

Section C is a full assessment of the baby while still in postnatal. Babies with red classifications are admitted to the neonatal unit. Babies with yellow classification need special assessment and care, but may be kept with the mothers or admitted to the neonatal unit, depending on the situation.

Section E covers the routine treatment that may be required in the postnatal ward

Section F, G, H, I and J are concerned about counselling and breastfeeding support. Ask participants if they have previously covered these sections, and if they are confident with the content and skills. Take note of participants response so that your can arrange additional training and support on these areas, if participants are not familiar with breast feeding support and counselling.

The MSSN training
The MSSN training will follow the same process as the modules. Look at the Table of Contents on page 3. And then turn to page 23 where MSSN starts.

Discuss the colour coding of classification on page 24 .

ASSESS		**CLASSIFY**		
ASK, CHECK & RECORD	LOOK, LISTEN & FEEL	SIGNS	CLASSIFY	ACT NOW

You will also notice that the modules use certain pictures to symbolise different activities.

 This picture symbolises an important point, or warning sign

 This picture indicates that participants should **record** case findings in the chart provided

 This picture indicates that participants should do an **exercise** in the Exercise Module

 In the exercise module, this picture indicates there is a **written exercise** to be done

 In the exercise module, this picture indicates there is a **group exercise** to be done

 Role play

 DVD exercise

Module1:

ASSESS AND CLASSIFY

SICK & SMALL NEWBORNS

Lessons Plans: Assess and Classify

LESSON	*METHOD*	*EXPECTED TIME*	*REQUIREMENTS*
Lesson 2: Assess and classify: Emergency care and priority signs		**90 Minutes**	
1. Distribute and introduce the module. Introduce the Assessment process and the classification process	Demonstration	10 min	Trainee Manual, Poster A & C Flip chart
2. Participants read through section 1.1 (1.1.1 and 1.1.2) p. 9 - 12	Individual / Group reading *and clarification	10 min	Trainee Manual
3. Introduce the Initial Assessment form	Demonstration	10 min	Initial Assessment Form A3
4. Participants read through section 1.2 (1.2.1 - 1.2.9) p.13 - 21	Individual / Group reading *and clarification	20 min	Trainee Manual
5. Slide show: DVD - summarise the assessment process and signs using a slide show or DVD	Demonstration	15 minutes	Laptop and projector or DVD
6.Exercise 1A	Individual written exercise	5 min	Trainee Manual
7. Participants do Exercise 1B	Written exercise	15 min	Trainee Manual
8. Summaries the Lesson	Summary	5 min	Flip chart
Lesson 3: Assess and Classify: Birth Injuries, Abnormalities and local Infections		**60 min**	
1. Read Module 1.3 p.22- 24	Individual reading	15 min	Trainee Manual
2. Slide show or DVD of abnormalities	Slide show	30 min	Laptop, projector, or DVD
3. Optional: Group discussion on common minor problems with newborn babies	Group Discussion	15 min	Flip chart
Lesson 4: Assess and Classify: Risk factors		**60 min**	
1. Read Module 1.4 p.25 - 28	Reading	15 min	Trainee Manual
2. Exercise 1 C	Group discussion	10 min	Trainee Manual
3. Introduce newborn care record	Reading	10 min	Newborn record
4. Exercise 1 D	Written Exercise	15 min	Blank Newborn Admission / Discharge and Initial Assessment form
5. DVD case summary for Assess and Classify * DVD still in development	DVD or Summary	10 min	DVD

LESSON 2: ASSESS AND CLASSIFY: NEED FOR EMERGENCY CARE AND PRIORITY SIGNS

Lesson 2: Assess and classify: Emergency care and priority signs		**90 Minutes**	
1. Distribute and introduce the module. Introduce the Assessment process and the classification process	Demonstration	10 min	Trainee Manual, Poster A & C Flip chart
2. Participants read through section 1.1 (1.1.1 and 1.1.2) p. 9 - 12	Individual / Group reading *and clarification	10 min	Trainee Manual
3. Introduce the Initial Assessment form	Demonstration	10 min	Initial Assessment Form A3
4. Participants read through section 1.2 (1.2.1 - 1.2.9) p.13 - 21	Individual / Group reading *and clarification	20 min	Trainee Manual
5. Slide show: DVD - summarise the assessment process and signs using a slide show or DVD	PP Presentation	15 minutes	Laptop and projector or DVD
6.Exercise 1A	Individual written exercise	5 min	Trainee Manual
7. Participants do Exercise 1B	Written exercise	15 min	Trainee Manual
8. Summaries the Lesson	Summary	5 min	Flip chart

1. INTRODUCE THE MODULE 5 MIN

- Ask participants to read the first paragraph
- Demonstrate the assessment process using the wall chart or page 25 of the chart book
- Write up the objectives for the module on a flip chart, and put them on the wall

Objectives of module

1. Assess and classify the newborns "need for emergency care"
2. Provide immediate care for the newborn requiring emergency care
3. Assess and classify the newborn for priority signs
4. Assess and classify the newborn for birth injuries, congenital abnormalities and local infections
5. Provide immediate care
6. Assess and classify the infant for risk factors and special treatment needs

- Determine if participants have any objectives of their own, and clarify where there objective may be addressed, if it is not in this module.

2. ASSESS AND CLASSIFY NEED FOR EMERGENCY SIGNS 10 min

Note on reading in the classroom; *participants can read on their own, or members of the group can take it in turns to read. Reading may also be done at home. When reading aloud, don't read the boxes that are pasted from the chart book. See that participants have the chart book open in front of them, and are looking at the chart while someone is reading. After reading a section, ask questions to check understanding and clarify any questions that participant may have.*

- Ask participants to read section 1.1 p. 9 – 11

Assess if participants are comfortable with the emergency assessment.

Remind participants that this is not emergency care at birth, but rather emergency care of the baby that is brought to the neonatal unit, or brought to casualty or the clinic. However the same principles apply, that we assess the Airway and Breathing and then the Circulation and DEFG – Don't Ever Forget Glucose.

Ask participants if they are competent with bag and mask ventilation. They would have done bag and mask ventilation as part of the HBB training.

Have a Neonatalie ready in your classroom so participants can practise bag and mask ventilation.

3. INTRODUCE THE INITIAL ASSESSMENT FORM **10 min**

This assessment is mainly for Professional Nurses. It is not taught to Enrolled Nurses and Enrolled Nursing Assistants. There is value in all midwives being able to do this assessment for an infant in maternity or at a primary health care clinic, and then initiating care for the infant. While doctors may not routinely use this form, they are free to do so, and need to understand the assessment process.

- Show participants the Initial Assessment Form
- Explain when the form is used, i.e. when babies are first admitted to the neonatal unit, from casualty or maternity, and as a full assessment for all babies after delivery in postnatal ward.
- The Initial Assessment enables the midwife or nurse to make an assessment of the baby and institute treatment before the doctors sees the baby
- The Initial Assessment can replace the comprehensive assessment of babies before they are discharged home.
- Participants will practise using this form during the course

4. ASSESS FOR PRIORITY SIGNS **20 min**

- Ask participants to ready through section 1.2 Assess for priority signs p. 13 - 21
- Ensure participants are referring to the chart book during reading
- Clarify and answer questions

5. Power point slide show **10 min**

	**DVD or PPP**

- Show participants a Power Point Slide Show (**PPP1)** or DVD that demonstrates the signs found in the Assessment of emergency and priority signs.

6. WRITTEN EXERCISE 1A (p.4) **10 min**

- Ask participants to do complete the exercise below, but documenting the findings on the Initial Assessment Form in their exercise book
- Once this is completed, they can compare their assessment form with the assessment form overleaf
- Ensure participants are following instructions and provide individual feedback.

EXERCISE 1A
Written

In this exercise you will practise using the Initial Assessment form to Assess and Classify a baby. Read the case history and then record the findings and classification on the Initial Assessment form.

Case 1
Maria Modise, a 24 years old Grav 2 Para 1, delivered a 3.5 kg baby girl by NVD at your hospital on the 20 April. Baby cried well after birth. She is brought through from postnatal ward to the nursery on 21 April at 09h15. Mom said she was not feeding well and the nurse noticed irregular jerky movements.

You quickly assess the need for emergency care. Baby is breathing well, no gasping, Respiratory rate 46 / min and Heart rate 144 / min. Blood glucose (Test strip) 2.6 mmol /L. Temperature 36.6°C. You notice irregular jerky movements of the right arm and face. Baby has decreased tone, lethargy and decreased movement. Fontanelle normal

Document your findings using the recording form below or a standard Initial Assessment Form to Assess and Classify before comparing it with the completed form.

Completed form for Exercise 1A, Case 1

Date: *21/4/20…..* Time: *9:15 am* Name: *Baby of Maria Modise*

Date of birth: *20/4/20….* Weight:*3.5* kg

ASK: How old is the baby? *Day 1* Where was the baby born? *This hospital*

What is the baby's current problem? *Not feeding well* _____

Is the baby having a problem with feeding? *Yes*_____

Has the baby had any convulsions or abnormal movements? *Lethargic and not moving well*_____

ASSESS		NEEDS ACTION	CLASSIFY
ASSESS NEED FOR EMERGENCY CARE			Respiratory failure yes ☐ no ☐
Breathing well	(Y)	N	
Gasping	(N)	Y	
Respiratory rate < 20 / minute	(N)	Y	Circulatory failure yes ☐ no ☐
Pale or cold	(N)	Y	
Heart rate > 180 or < 100 / minute	(N)	Y	
Baby extremely lethargic	(N)	Y	
Glucose test strip 2.6 m / mol / l	Norm	Low	Hypoglycaemia yes ☐ no ☐

ASSESS		NEEDS ACTION	CLASSIFY
ASSESS FOR PRIORITY SIGNS:APNOEA AND RESPIRATORY DISTRESS			**Classify for apnoea and respiratory distress**
Central cyanosis	(N)	Y	
Fast breathing (respiratory rate ……. / min)	(N)	Y	
Severe chest in-drawing	(N)	Y	
Grunting	(N)	Y	
Apnoea	(N)	Y	
ASSESS FOR OTHER PRIORITY SIGNS			**Classify for priority signs**
Temperature: < 36°C	(N)	Y	***Severe disease***
Birth weight: < 2500g	(N)	Y	
> 4000g	(N)	Y	
Increased tone	(N)	Y	
Decreased tone	N	(Y)	
Irregular jerky movements	N	(Y)	
Reduced activity	N	(Y)	
Lethargic or unconscious	N	(Y)	
Bulging fontanelle	(N)	Y	
Abdominal distension	(N)	Y	
Bile stained vomiting	(N)	Y	
Jaundice	(N)	Y	

7. EXERCISE 1 B (p.6) **10 min**

- Ask participants to do Exercise 1B and then provide individual feedback.

EXERCISE 1B
Written

CASE 1
A small baby, Lebo is brought to the nursery from labour ward. You assess the need for emergency care. First you assess her breathing, circulation and glucose. She is gasping, cyanosed and her heart rate is 120 per minute. She is pale, and extremely lethargic. Her blood glucose is 2.0 mmol / l

Document the finding of the assessment and **Classify** her need for emergency care.

ASSESS		NEEDS ACTION	CLASSIFY
ASSESS NEED FOR EMERGENCY CARE			Respiratory failure yes ☐ no ☐
Breathing well	Y	(N)	
Gasping	N	(Y)	
Respiratory rate < 20 / minute	(N)	Y	Circulatory failure yes ☐ no ☐
Pale or cold	(N)	Y	
Heart rate > 180 or < 100 / minute	(N)	Y	
Baby extremely lethargic	N	(Y)	
Glucose test strip 2.0 m / mol / l	Norm	(Low)	Hypoglycaemia yes ☐ no ☐

How would you ACT NOW?

Act now to correct respiratory & circulatory failure& hypoglycaemia

- *Resuscitate the baby using bag and mask*
- *Give oxygen*
- *Call for help*
- *Keep warm*
- *Put up an IV line*
- *Infuse 10ml/kg of Normal Saline over 1 hour. Add 10% glucose to the infusion*
- *Check blood glucose*
- *Check that Vitamin K was administered*
- *Arrange nursery admission*
- *Manage for hypoglyacaemia (Chart book p. 41)*

She starts breathing regularly on her own in 30 seconds. You continue with the oxygen and assess for priority signs. Respiratory rate is 80 / min, there is grunting and flaring and severe chest in-drawing. She is no longer cyanosed. Her weight is 1.4 kg and the axillary temperature is 35.2^0C. She has decreased tone and less than normal movement. Her fontanelle is normal. There is no jaundice, abdominal distension, or vomiting.

Document your findings on the Initial Assessment forms and classify her for priority signs

ASSESS		NEEDS ACTION	CLASSIFY
ASSESS FOR PRIORITY SIGNS:APNOEA AND RESPIRATORY DISTRESS			**Classify for apnoea and respiratory distress**
Central cyanosis	(N)	Y	
Fast breathing (respiratory rate 80 / min)	(N)	Y	***Severe respiratory distress***
Severe chest in-drawing	N	(Y)	
Grunting	N	(Y)	
Apnoea	(N)	Y	
ASSESS FOR OTHER PRIORITY SIGNS			**Classify for priority signs**
Temperature: < 36°C	N	(Y)	***SEVERE RESPIRATORY DISTRESS***
Birth weight: < 2500g	N	(Y)	
> 4000g	(N)	Y	***VERY LOW BIRTHWEIGHT***
Increased tone	(N)	Y	
Decreased tone	N	(Y)	***HYPOTHERMIA***
Irregular jerky movements	N	Y	***SEVERE DISEASE***
Reduced activity	N	Y	
Lethargic or unconscious	N	Y	
Bulging fontanelle	(N)	Y	
Abdominal distension	(N)	Y	
Bile stained vomiting	(N)	Y	
Jaundice	(N)	Y	

CASE 2

A term baby, Mathosi is brought to the nursery from labour ward. She was born by normal delivery. Her birth weight was 3260 g. Her APGAR scores were 5 at 1 minute and 6 at 5 minutes, so she is brought to the nursery. You assess the need for emergency care. She is breathing well and not gasping. She is pale and extremely lethargic. The glucose test strip is 2.6 mmol / l.

Classify her need for emergency care

ASSESS		NEEDS ACTION	CLASSIFY
ASSESS NEED FOR EMERGENCY CARE			Respiratory failure yes ☐ no (☐)
Breathing well	(Y)	N	
Gasping	(N)	Y	
Respiratory rate < 20 / minute	N	Y	Circulatory failure yes (☐) no ☐
Pale or cold	N	(Y)	
Heart rate > 180 or < 100 / minute	N	Y	
Baby extremely lethargic	N	(Y)	
Glucose test strip 2.6 m / mol / l	(Norm)	Low	Hypoglycaemia yes ☐ no (☐)

What would you do?

Give oxygen
Call for help
Establish an IV line. Give Infuse Normal Saline10 ml / kg over 1 hour, then change to Neonatolyte or Dextrose 10% at recommended volume for weight and age
Check VIT K if administered
Keep warm
Check blood glucose

You evaluate her for priority signs. She is breathing regularly, her respiratory rate is 50 / min. There is no cyanosis, no grunting and no chest in-drawing. Her temperature is 36.8^{0}C. She has decreased tone and is lethargic. She has reduced activity. The fontanelle is full. There is no abdominal distention or vomiting.

Complete the Assessment and classification for priority signs

ASSESS		NEEDS ACTION	CLASSIFY
ASSESS FOR PRIORITY SIGNS:APNOEA AND RESPIRATORY DISTRESS			**Classify for apnoea and respiratory distress**
Central cyanosis	(N)	Y	
Fast breathing (respiratory rate 50 / min)	(N)	Y	
Severe chest in-drawing	(N)	Y	
Grunting	(N)	Y	
Apnoea	(N)	Y	
ASSESS FOR OTHER PRIORITY SIGNS			**Classify for priority signs**
Temperature: < 36°C	(N)	Y	***Severe disease***
Birth weight: < 2500g	(N)	Y	
> 4000g	(N)	Y	
Increased tone	(N)	Y	
Decreased tone	N	(Y)	
Irregular jerky movements	(N)	Y	
Reduced activity	N	(Y)	
Lethargic or unconscious	N	(Y)	
Bulging fontanelle	N	(Y)	
Abdominal distension	(N)	Y	
Bile stained vomiting	(N)	Y	
Jaundice	(N)	Y	

CASE 3

Baby Khanyile is brought to the neonatal unit from casualty. She is 10 days old. Her birth weight was 3350 g and today she weighs 3540 g. She is breathing well and has a HR of 150/min. Blood glucose is 2.8mmol/l. Her mother says she is going stiff and not feeding well. You evaluate for priority signs. Respiratory rate is 50 per minute, there is no grunting or chest in-drawing. She has increased tone and has irregular jerky movements. The fontanelle is full. She is jaundiced. There is no abdominal distention or bile stained vomiting. Her temperature is 36.4°C. Using the Initial assessment form assess and classify emergency and priority signs

ASSESS		NEEDS ACTION	CLASSIFY
ASSESS NEED FOR EMERGENCY CARE			Respiratory failure
Breathing well	(Y)	N	yes ☐ no (☐)
Gasping	(N)	Y	
Respiratory rate < 20 / minute	(N)	Y	Circulatory failure
Pale or cold	(N)	Y	yes ☐ no (☐)
Heart rate > 180 or < 100 / minute	(N)	Y	
Baby extremely lethargic	(N)	Y	
Glucose test strip 2.8 m / mol / l	(Norm)	Low	Hypoglycaemia yes ☐ no (☐)
ASSESS		**NEEDS ACTION**	**CLASSIFY**
ASSESS FOR PRIORITY SIGNS:APNOEA AND RESPIRATORY DISTRESS			**Classify for apnoea and respiratory distress**
Central cyanosis	(N)	Y	
Fast breathing (respiratory rate 50 / min)	(N)	Y	***No apnoea***
Severe chest in-drawing	(N)	Y	***No respiratory distress***
Grunting	(N)	Y	
Apnoea	(N)	Y	
ASSESS FOR OTHER PRIORITY SIGNS			**Classify for priority signs**
Temperature: < 36°C	(N)	Y	***Severe disease***
Birth weight: < 2500g	(N)	Y	***Jaundice***
> 4000g	(N)	Y	

Increased tone	N	(Y)	
Decreased tone	(N)	Y	
Irregular jerky movements	N	(Y)	
Reduced activity	(N)	Y	
Lethargic or unconscious	(N)	Y	
Bulging fontanelle	N	(Y)	
Abdominal distension	(N)	Y	
Bile stained vomiting	(N)	Y	
Jaundice	N	(Y)	

8. SUMMARISE LESSON **5 min**

- Summarise the lesson
- Go through the main classifications
- Conduct a short drill to ensure that participants remember what classifications e.g.

a. If a baby is admitted and has a respiratory rate of 15 / min, gasping respiration, extreme lethargy, heart rate 90 min, glucose of 3.5mmol /l:

   - What emergency classification does she have?
     Respiratory and circulatory failure

   - What is the first thing you will do?
     Resuscitate with a bag and mask

b. A baby has a respiratory rate 56 /min, grunting and mild chest in-drawing?

   - What is the classification?
     Severe respiratory distress

LESSON 3: ASSESS AND CLASSIFY INJURIES, ABNORMALITIES OR LOCAL INFECTIONS

Lesson 3: Assess and Classify: Birth Injuries, Abnormalities and local Infections		**60 min**	
1. Read Module 1.3 p.22- 24	Individual reading	15 min	Trainee Manual
2. Slide show or DVD of abnormalities	Slide show	30 min	Laptop, projector, or DVD
3. Optional: Group discussion on common minor problems with newborn babies	Group Discussion	15 min	Flip chart

1. READ **15 min**

Read Module 1.3 p. 22 – 24

2. SLIDE SHOW OR DVD **30 min**

Show participants slides of newborns with birth injuries, abnormalities or local infections.

	***DVD or Slide Show***

3. GROUP DISCUSSION **15 min**

Ask participants about common minor problems they see, how to manage them, and where to find more information.

4. OPTIONAL

If you are dealing with a group of doctors or having a 1 day a week course, you may also want to discuss the treatment of injuries and malformations. Turn to section 2.2.7

LESSON 4: ASSESS AND CLASSIFY RISK FACTORS AND SPECIAL TREATMENT NEEDS

Lesson 4: Assess and Classify: Risk factors		**60 min**	
1. Read Module 1.4 p.25 - 28	Reading	15 min	Trainee Manual
2. Exercise 1 C	Group discussion	10 min	Trainee Manual
3. Introduce newborn care record	Reading	10 min	Newborn record
4. Exercise 1 D	Written Exercise	15 min	Blank Newborn Admission / Discharge and Initial Assessment form
5. DVD case summary for Assess and Classify * DVD still in development	DVD or Summary	10 min	DVD

1. READ **15 min**

Read Module 1.4 p. 25 – 28

2. EXERCISE 1 C (p.10) **10 min**

Have participants read the short scenario, and think about the risk factors. Then discuss all the risk factors, and write them on a flip chart.

EXERCISE 1C

GROUP EXERCISE

Mother's blood group is O positive; HIV status and RPR status are unknown. Baby's birth weight is 4.2 kg. The liquor was clear and not offensive. Apgar score was 7 at 1 minute and 9 at 5 minutes.

Discuss the risk factors.

Answers

1. ***Mother's blood group:*** *When the mother's blood group is O, there is an increased risk of jaundice in the baby due to haemolysis if the baby's blood group is A, B or AB. If the baby's blood group is known to be O, there is no increased risk of jaundice.*
2. ***HIV status unknown:*** *It is essential to know this so that the mother and baby can be given antiretroviral drugs to reduce the chance of the baby becoming infected with HIV from the mother, and so the mother can receive care for her own health.*
3. ***RPR status is unknown:*** *If the mother is RPR positive, the baby may have syphilis and will then need to be treated.*
4. ***Birth weight 4.2 kg:*** *There is an increased risk of the baby becoming hypoglycaemic. The baby must be fed early and the blood glucose levels checked hourly for the first 6 – 12 hours. If feeding is not possible or the baby becomes hypoglycaemic, an IV infusion of Neonatalyte (10% glucose) must be started.*

3. INTRODUCE THE NEWBORN CARE RECORD **10 min**

Have participants turn to Appendix 1 page 160 – 167. Give participants copies of the Newborn Care Record. They should be familiar with the record from their workplace. If you are working in another area, introduce the participants to the newborn record that you are using. If there is no standard newborn care record, go through the Newborn Care Record, to demonstrate to participants what information needs to be recorded for every admission.

4. EXERCISE 1 D (p.11) **15 min**

Have participants record the information in the following exercise on an initial assessment form and on a Record. Ask the participants to use just the information until the beginning of management. The section on management can be done later in the course.

	***EXERCISE 1D*** **Written**

The following is a case study with the completed "**Initial Assessment**" form and the "**Newborn Admission / Discharge**" sheet.

Before you look at the completed forms, work through the case study and complete the forms for yourself, and then compare them with the completed forms which follow. How did you do?

Case 1
You are working at Musasa District Hospital.

Thandi Ngobeni is a 27 year old Grav 5 para 4.
All her children are alive and were born at term after normal pregnancies.

She **booked** at the antenatal clinic at your hospital when she was 18 weeks pregnant. LMP 7 / 12 / 2007. She said that she was sure of her dates.

Investigation results: RPR result not back, HIV negative, ABO blood group unknown, Rhesus blood group positive, Haemoglobin 11.5 G / dl.

She has 3 further **antenatal clinic visits** and everything was found to be normal. An ultrasound examination at 22 weeks agrees with the gestational age by dates.

She presents **in labour** at 07h45 on 5 / 7 / 2008, with a history of labour pains starting at 05h30 that morning. The cervix was 3 cm dilated, 3 moderate to strong contractions in 10 minutes, foetal heart normal, membranes intact.

A decision was made to do a caesarean section for preterm labour. A female **infant** weighing 1250g was delivered at 09h07, with Apgar scores of 5/10 at 1 minute and 8/10 at 5 minutes.

The respiration was slow initially, and the baby was ventilated with a bag and mask for 1 – 2 minutes after which she was breathing well on her own.

Chloramphenicol eye ointment was put into the babies eyes and she was given Vit K 1mg IMI. Her head circumference was 27.5 cm. While still in the labour ward, the baby developed rapid respiration, grunting and severe chest in-drawing, and was transferred to the newborn nursery for further management.

5 / 7 / 2008 **On admission** to the nursery, 10h05:
Low birth weight infant, 31 weeks by dates, looks pink, respiratory rate 80 / min, grunting and chest in-drawing. Heart rate 146 / min, temperature 35.6 ^{0}C, oxygen saturation 78% in room air. Blood glucose on test strip 1.8 mmol / l.

5. OPTIONAL: SUMMARY DVD

Have participants watch a complete assessment of a newborn and document the findings on an initial assessment form as they watch the DVD. (This DVD has not yet been produced)

Limpopo Newborn Admission / Discharge

Hospital: Musina District Hospital

Mother's Name: Thandi NGOBENI

Infant's Name: Sephokazi

Mothers Number: 79405622

Hospital Number: 7973 4495

Age:	EDD:	Parity:	Gravidity:
27	16/9/08	5	4

RPR:	If RPR pos	ABO Blood Group:	Rh Group
Pos / neg / (unknown)	Treated / NOT / Partial Rx	unknown	+ve

VCCT	If Yes	If pos	Feeding choice:
(Yes) / No	pos / (neg) / unk	ARV to mom Y / N Time:	EBF / EFF / Uncertain

Birth Time:	Birth Date:	Birth Month:	Birth Year:
9:07	5	7	2008

Gender:	Birth Weight:	HC:	Gest Age Score:
F	1250 kg	27.5 cm	30 weeks

Apgar 1 min	Apgar 5 min	Time to spontaneous respiration:
5	8	< 1 minutes

Antenatal Problems:

RPR unknown

Date of onset of labour:	Time of onset:
5/7/08	5h 30.

Date and time ROM:	Duration of rupture of membranes:
N/A	N/A hrs

Liquor: normal - clear

Mode of delivery: C/S.

Problems with delivery: C/S for preterm labour

Placenta: not noted wt: 320g

Resuscitation:

None:	Oxygen	Mask	Intubation
		✓	

Details of resucitation: Bag + mask ventilation for 1-2 minutes

Perinatal risk factors:

1 RPR unknown	2 Preterm labour.
3	4
5	6

Discharge:

Routine care:	Treatment given:	Date:
Chloramphenicol Eye prophylaxis	✓	5/7/08
Vitamin K 1mg imi	✓	5/7/08
BCG	✓	24/7/08
Polio	✓	24/7/08
Benzathine Penicillin / Proc pen *(Positive or unknown RPR)*	N/A	
Anitretroviral to baby *(if applicable)*	N/A.	
RTHC filled in	(Yes) / No	

Outcome: Problems resolved Growing well.

Feeding at discharge: Breast only.

Follow up Plans: Clinic 3 days then check Hosp 1 week + at 5 months.

Date: 21/8/08 + 14/1/09 Place: Musina D.H.

Discharge weight:	Discharge date:
1760	14/8/08.

Admisssion to Neonatal Unit:

Admission Date: 5/7/08

Reason for admission: Respiratory Distress Low Birth Weight

Problems during neonatal admission:

Problem:	Date:
1 Low Birth Weight.	5/7/08
2 Preterm	5/7/08
3 Respiratory Distress - Hyaline Memb Dis	5/7/08
4 Mat. RPR unknown → Neg	7/7/08.
5 Jaundice. - Phototx 2 days	
6 - Max TSB 180	8/7/08.
7	
8	
9	
10	

Date: *5/7/08* Time: *9:45* Name: *Baby of Thandi Ngobeni*_____

Date of birth: *5/7/08* Weight:*1.250kg*

ASK: How old is the baby? *Day 1*. Where was the baby born? *Musasa District Hospital*

What is the baby's current problem? *Rapid breathing*

Is the baby having a problem with feeding? *N/A*

Has the baby had any convulsions or abnormal movements? *No*

ASSESS		NEEDS ACTION	CLASSIFY
ASSESS NEED FOR EMERGENCY CARE			Respiratory failure yes ☐ no ☐
Breathing well	(Y)	N	
Gasping	(N)	Y	
Respiratory rate < 20 / minute	(N)	Y	Circulatory failure yes ☐ no ☐
Pale or cold	(N)	Y	
Heart rate > 180 or < 100 / minute	(N)	Y	
Baby extremely lethargic	(N)	Y	
Glucose test strip 2.6 m / mol / l	(Norm)	Low	Hypoglycaemia yes ☐ no ☐

ASSESS		NEEDS ACTION	CLASSIFY
ASSESS FOR PRIORITY SIGNS:APNOEA AND RESPIRATORY DISTRESS			**Classify for apnoea and respiratory distress** ***Respiratory distress***
Central cyanosis	(N)	Y	
Fast breathing (respiratory rate 80 / min)	N	(Y)	
Severe chest in-drawing	N	(Y)	
Grunting	N	(Y)	
Apnoea	(N)	Y	
ASSESS FOR OTHER PRIORITY SIGNS			**Classify for priority signs**
Temperature: < 36°C	N	(Y)	
Birth weight: < 2500g	N	(Y)	
> 4000g	(N)	Y	
Increased tone	(N)	Y	
Decreased tone	(N)	Y	
Irregular jerky movements	(N)	Y	
Reduced activity	N	(Y)	
Lethargic or unconscious	(N)	Y	
Bulging fontanelle	(N)	Y	
Abdominal distension	(N)	Y	
Bile stained vomiting	(N)	Y	
Jaundice	(N)	Y	

Module 2:

TREAT, OBSERVE AND CARE

SICK & SMALL NEWBORNS

Module 2: LESSON PLANS

TREAT, OBSERVE, AND CARE: PRINCIPLES OF TREATMENT

PROCEDURE		*TIME*	*REQUIREMENTS*
LESSON 5: Maintain normal body temperature		**90 minutes**	
1. Introduce module 2 and overview principles of treatment	Group reading	5 min	Flip chart and Trainee manual
2. Read 2.1.1: Maintain body temperature – p. 34 - 36	Reading	10 min	Trainee manual
3. Group discussion – mechanism of heat loss	Group	10 min	Flip chart
4. p. 38 – 41	Reading	30 min	Trainee manual
5. Group discussion OR DVD on advantages and disadvantages of KMC	DVD	15 min	DVD player
6. Incubator temperature	DRILL	5 min	Trainee manual
7. Exercise 2A	Written exercise	10 min	Trainee manual
8. Summarise	Summary	5 min	Flip chart
LESSON 6: Oxygen Therapy		**90 minutes**	
1. Introduce the session	Introduction	5 min	Flip chart and Trainee manual
2. Read 2.1.2 on Oxygen therapy p. 42 - 49	Group reading	25 min	Trainee manual
3. DVD, Slides	DVD	10 min	DVD player or lap top and projector
4. Exercise 2B	Exercise	15 min	Trainee manual
5. Summarise the session	Summary	5 min	Flip chart
Additional DVD on CPAP * under development		30 min	DVD player
LESSON 7: Glucose monitoring		**40 minutes**	
1. Introduce the session	Introduction	5 min	Flip chart
2. Read 2.1.3 p. 50 – 52	Group reading	15 min	Trainee manual
3. Do Exercise 2C	Written exercise	15 min	Trainee manual
4. Do Drill	Drill	5 min	Drill
5. Summarise	Sum	5 min	Flip chart
LESSON 8: Feeds and fluids		**90 minutes**	
1. Introduction to the session	Introduction	5 min	Flip Chart
2. Read 2.1.4 p.53-55	Group reading	10 min	Trainee manual
3. Exercise 2D	Written exercise	30 min	Trainee manual
4. DRILL	Drill	10 min	Trainee manual
5. OBSERVATIONS	Group Reading	10 min	Trainee manual
6. Exercise 2 E	Written exercise	20 min	Observation chart
7. Summarise the lesson	Summary	5 min	
LESSON 9: Infection		**40 minutes**	
1. Introduction to the session	Introduction	5 minutes	Flip chart
2. Read 2.1.5 p. 56 – 58	Reading	10 min	Trainee manual
3. Exercise 2F	Written exercise	10 min	Trainee manual
3. Role Play	Role play	10 min	Role play cards
4. Summarise the lesson	Summary	5 min	Flip chart
LESSON 10: Transfer and referral		**30 minutes**	
1. Introduction	Introduction	5 min	Flip Chart
2. Read 2.1.6 p. 59 – 61	Reading	10 min	Trainee manual
3. Exercise 2 G	Written exercise	10 min	Trainee manual Referral Letter
4. Summarise lesson and module	Summary	5 min	Flip chart

LESSON 5: MAINTAIN BODY TEMPERATURE 2.1.1

PROCEDURE	*METHOD*	*TIME*	*REQUIREMENTS*
LESSON 5: Maintain body temperature		**90 minutes**	
1. Introduce module 2 and overview principles of treatment	Group reading	5 min	Flip chart and Trainee manual
2. Read 2.1.1: Maintain body temperature – p.34-36	Reading	10 min	Trainee manual
3. Group discussion – mechanism of heat loss	Group	10 min	Flip chart
4. p. 38– 41	Reading	30 min	Trainee manual
5. Group discussion OR DVD on advantages and disadvantages of KMC	DVD	15 min	DVD player
6. Incubator temperature	DRILL	5 min	Trainee manual
7. Exercise 2A cases	Written exercise	10 min	Trainee manual
8. Summarise	Summary	5 min	Flip chart

1. INTRODUCTION TO PRINCIPLES OF TREATMENT 5 min

Introduce participants to the concept "principles of treatment", and that these need to be applied to all sick and small newborns, before specific treatment is given. This means that a nurse can provide treatment even before a doctor has assessed the baby if she is familiar with the principles of treatment.

Ask participants what they think are the key principles of newborn care treatment

Overview the objectives of the module and write them on a flip chart, and put them on the wall.

Learning objectives
At the end of this module you will be able to:

- Prevent, recognise and treat hypothermia and maintain normal body temperatures in newborn infants using different warming methods, including Kangaroo Mother Care, infant warmers, open and closed incubators and radiant heaters
- Assess which babies require oxygen and provide oxygen therapy using the most appropriate method for the baby's condition, including headbox oxygen, nasal prongs, nasal cannula and CPAP.
- Maintain normal blood glucose. Prevent and, if necessary, treat hypoglycaemia and hyperglycaemia
- Understand and calculate feed and fluid requirements for sick and small babies
- Practice infection prevention and control for newborns in healthcare facilities
- Recognise which babies should be referred and carry out a safe and successful transfer to another facility with clear communication
- Recognise and appropriately manage specific conditions of the newborn period, including apnoea, prematurity and low birth weight, serious acute infections, neonatal encephalopathy, neonatal seizures, neonatal jaundice, congenital abnormalities, congenital syphilis, congenital tuberculosis, HIV affected mothers and babies and care of HIV infected babies.

Read (Introduction and 2.1) p. 31- 33

2. MAINTAIN BODY TEMPERATURE 2.1.1. **10 min**
Read 2.1.1 p. 34 – 36

3. GROUP DISCUSSION: HEAT LOSS **10 min**

Lead a group discussion on heat loss. Ask participants to explain the ways that babies can lose heat, and how this happens in maternity and newborn units.
Once participants have brainstormed heat loss be sure to categorise their input under the following headings

CONVECTION	*CONDUCTION*	*EVAPORATION*	*RADIATION*
• Draughts blowing from open windows and doors	• Being placed on a cold surface, a cold sheet or cold surface	• Baby being wet – not properly and quickly dried at birth, not removing the wet towel • Wet nappies	• Being placed next to cold surfaces, such as windows, outside walls

Discuss how to prevent heat loss from each of these mechanisms.

4. READ HYPOTHERMIA AND METHODS OF WARMING BABIES **30 min**
Read to the end of 2.1.1. p. 38 – 41

5. GROUP DISCUSSION: Skin to skin **15 min**

Lead a group discussion on skin-to-skin. Discuss the advantages and disadvantages of skin-to-skin. Discuss when you should start with skin-to-skin, and when and how to use it. Let participants share their own experience with skin-to-skin.

At the end summarise the discussion on skin-to-skin and key points on the advantages, and when to initiate skin-to-skin.

Alternatively watch a DVD on KMC or skin-to-skin, and then have a discussion after seeing the DVD.

6. DRILL (p.14) **5 min**

Ask participants to open their chart books to page 37, under incubator settings for manually operated closed incubators. Remind participants that setting the temperature for a manual and servo control incubator is very different. For a servo control incubator you set the temperature that you want the baby to be, usually 36.8°C, and the incubator sets its own temperature. With a manual incubator, you have to regulate the incubator

temperature. The table is a guide only, you also have to consider the temperature of the baby and adjust it up or down.

Go around the classroom and asking each participant one statement about the incubator temperature. They need to respond as either true or false. If the answer is incorrect repeat the question to the next participant.

A baby needs incubator care, is the incubator temperature correct?

A 6 day baby weighing 1.200g is put in an incubator with a temperature of 35ºC	✓ *True*	False
A baby weighing 2000g on day 10 is put on 32.5 ºC	✓ *True*	False
A 1500g baby at birth is put on 32.5 ºC	True	✓ *False*
A 3200g baby on day 2 is put on 30 ºC	True	✓ *False*
A 17 day old baby weighing 1800g is put on 33.5 ºC	✓ *True*	False
A 15 day old baby weighing 1000g is put on 34.5 ºC	✓ *True*	False
A 8 day baby weighing 1700g is put on 32 ºC	True	✓ *False*
A 12 day old baby weighing 1400g is put on 31 ºC	True	✓ *False*
A 15 day old baby weighing 1600g is put on 33.5 ºC	✓ *True*	False
A 3 day old baby weighing 1500g is put on 35 ºC	✓ *True*	False
A 1 day old baby weighing 2800g, temp is 38 ºC, the incubator had been set at 33.5 ºC. Use keep the temperature the same	True	✓ *False*
A 3 day old baby weighs 1400g temp set at 35.5 ºC, temp is now 35.2 ºC, you increase the temperature of the incubator to 38 ºC for 30 minutes, then recheck the babies temp	✓ *True*	*False*

7. WRITTEN EXERCISE (p.14)

EXERCISE 2A
Written

What is the best way to keep each of the following babies in a thermo neutral environment?
Note: Have a discussion or provide individual feedback, it is important that each person can find the best solution for their environment. The "correct" answer may thus differ.

Scenario 1:
A 1.6kg baby born at the clinic. There are no emergency signs. The baby is not sucking well, but a nasogastric tube has been inserted for feeds. The baby does not have respiratory distress or other priority signs.

Skin-to-skin

Scenario 2:
A baby comes from home, to the hospital, weighs 3.3 kg and has a temperature of 31.5 degrees.

Overhead radiant heater or incubator, Servo control incubator, Incubator, skin to skin

Scenario 3:
A baby weighed 900g at birth and on day 10 weighs 850g. Gestational age at birth was 30 weeks.

Incubator (servo or manual, heat shield, and pay attention to windows and draughts if open incubator).

Scenario 4:
A baby was born in hospital. Birth weight was 1.2kg. Baby is now 15 days old and weighs 1.4 kg. Baby is cup feeding well, and has normal temperature control.

Discuss with participants whether KMC will be safe to start in this situation

8. SUMMARY **5 min**
Summarise the lesson

LESSON 6: OXYGEN THERAPY

LESSON 6: OXYGEN THERAPY	***METHOD***	***90 MINUTES***	*REQUIREMENTS*
1. Introduce the session	Introduction	5 min	Flip chart and Trainee manual
2. Read 2.1.2 on Oxygen therapy p. 42 – 49	Group reading	25 min	Trainee manual
3. DVD, Slides	DVD	10 min	DVD player or lap top and projector
4. Exercise 2B and drill	Exercise	15 min	Exercise module
5. Summarise the session	Summary	5 min	Flip chart
Additional DVD on CPAP *** under development**		30 min	DVD player

1. INTRODUCTION **5 min**

Introduce the session on oxygen and go through the objectives

- Know which babies need oxygen
- Understand how to administer oxygen
- Understand the advantages and disadvantages of each method
- Monitor oxygen administration in newborns

2. READ 2.1.2 **25 min**

Read 2.1.2 p. 42 - 49
Explain and clarify as you go along.
Enquire from participants what practices they use in their facilities.

Enrolled nurses leave out the section on CPAP

3. DVD **10 min**

Watch a DVD on initiating oxygen. (DVD from small infant, until a new DVD has been produced)

4. EXERCISE 2B (p.15) **15 min**

Ask participants to do Written Exercise 2B individually

Give individual feedback on the assessment

EXERCISE 2B
Written

CASE 1
You assess a 3 day old term infant for priority signs. He is cyanosed, has a respiratory rate of 90 / minute, grunting and severe chest in-drawing.

a) Classify
   - *Severe Respiratory distress*

b) How would you administer oxygen?
   - *Give by headbox with venturi starting at 40% (alternately start with a nasal catheter or nasal prong)*
   - *Observe the oxygen saturation continuously*
   - *If he requires > 60% oxygen at 10L, change to CPAP*

c) How will you measure the amount of oxygen being given?
   - *The venturi in the line sets the amount of oxygen and air that is mixed i.e. 60%, 40%, 28%, 25%*
   - *An air blender mixes air and oxygen at whatever percentage you set. You need oxygen and medical air and a blender*
   - *An oxycheck is a device you place in the headbox that measures the percentage oxygen in the headbox. Few units have these*
   - *The oxygen saturation measured by an pulse oximeter will tell you if the baby is getting too high or too low a concentration of oxygen*

d) How will you change the concentration of oxygen being given?
   - *Change the venturi to one which gives more or less oxygen*
   - *If there is an oxygen / air blender, dial in the percentage of oxygen required*

e) What flow rate of oxygen should be administered into a head box?
   - *4 – 5 L / min*

f) How will you know that the baby is getting the correct amount of oxygen?
   - *Measure, and record, the blood oxygen saturation of the baby with a pulse oximeter*
   - *The saturation should be kept in the range between 90 – 94% if preterm, and 92 – 95% in a full term baby*.

CASE 2
Baby Bulelwa is born prematurely at 30 weeks. She is transferred from theatre to your unit on face mask oxygen. She is warm and pink, breathing well and has normal circulation and glucose. She has a respiratory rate of 70 per minute, and mild chest in-drawing and no grunting. She weighs 1150g. Her oxygen saturation was 90%.

a) Classify Bulelwa
   - *Mild Respiratory distress*
   - *Very Low Birth Weight*

At 3 hours of age, she is found to have a respiratory rate of 86 / minute with grunting and more chest in-drawing. The oxygen saturation is now 81%.

b) Classify again and indicate what you would do?

- *Severe Respiratory Distress*

ACTION

- *Start oxygen by head box, or preferably CPAP, if available*
- *Observe the response to oxygen by measuring the blood oxygen saturation. This should be done continuously at first and then hourly when stable. (Keep the saturation 88 – 93%)*
- *Do all observations hourly*
- *Start antibiotics*
- *Keep nil by mouth*
- *Start IV Neonatalyte (10% glucose) at the correct rate for weight / age)*
- *Keep the baby warm*

At 6 hours of age, her respiratory rate has increased to 90 breaths / minute, and the oxygen saturation is 80%.

c) What are the options? What will you do in your situation?
- *Increase the percentage of oxygen being given or change to CPAP*
- *If the oxygen requirement reaches 60%, CPAP should be used, if it is available*
- *Observe the oxygen saturation continuously*

Option 1: She was put on head box oxygen. Her oxygen saturation remained normal (88 – 93%) in 50% head box oxygen over the next 2 days, and the respiratory rate has come down to 74 breaths / minute. On day 5 you find that her oxygen saturation is 95%.

d) What would you do?

Option 2: She was put on NCPAP5 with pressure of cm H20. Her oxygen saturation was 99% on 40% oxygen after 3 hours.

d) What would you do?

e) What are the dangers of giving too little oxygen?
- *Organ damage from hypoxia. All tissues are damaged, but serious permanent damage can be done to the brain.*

f) What are the dangers of giving too much oxygen?
- *Damage to the eyes: Retinopathy of prematurity*
- *Damage to the lungs: Broncho -pulmonary Dysplasia*

CASE 3

A 3kg baby has **SEVERE RESPIRATORY DISTRESS**. His mother has been breastfeeding him. He is placed in headbox oxygen – 40%. He remains distressed with grunting, severe chest in-drawing and cyanosis. The oxygen concentration is increased to 60%. He remains cyanosed. It is increased to 80%. On 80% oxygen the baby has saturation of 85%.

What steps should you take now?

- *If CPAP is available commence CPAP*
- ***Continuous** observation of the oxygen saturation*
- *If CPAP is not available, give 100% oxygen and arrange for urgent transfer to a facility which has CPAP or can offer mechanical ventilation.*

DRILL

Conduct a drill with participants, and get them to answer true or false

A 1.4 kg baby born 2 hours ago has SEVERE RESPIRATORY DISTRESS. Oxygen saturation is 70%.

He should be started on headbox oxygen	• True	False
He should be started on face mask oxygen	True	• False
He should be started on CPAP	• True	False
He should be given 100% oxygen	True	• False
If there is no sats monitor (pulse oximeter) then the oxygen saturation of the baby does not need to be monitored	True	• False
Free flowing oxygen into an incubator is always helpful to a baby & should be used	True	• False
When he has a nasogastric tube in situ, use nasal canula oxygen	True	• False
If sats < 88% on 80% oxygen in headbox then change to CPAP	• True	False
ALL preterm babies need oxygen	True	• False
Face mask oxygen should only be used briefly, when the headbox oxygen has to be removed	• True	False
The baby can be taken out of head box oxygen during procedures e.g. drawing blood	True	• False
A baby on headbox oxygen should be fed using a nasogastric tube	• True	False
An air / oxygen blender mixes pure oxygen with medical air to give the required percentage of oxygen	• True	False
A venturi mixes pure oxygen with room air	• True	False

5. SUMMARISE

Babies NEED Oxygen if they have

- Severe respiratory distress
- Oxygen saturation < 90 in preterm and < 92 in term
- Respiratory or circulatory failure
- Severe hypothermia
- Central cyanosis

- ✓ start oxygen quickly – either by headbox or nasal prongs
- ✓ monitor the response
- ✓ increase the oxygen by increasing the percentage or moving from prongs to headbox to CPAP
- ✓ decrease the oxygen by adding a venturi, then changing delivery
- ✓ if possible start babies with hyaline membrane disease who have severe respiratory distress on CPAP immediately
- ✓ always use a pulse oximeter to monitor

LESSON 7: MAINTAIN NORMAL GLUCOSE

LESSON 7: GLUCOSE MONITORING	*45 MINUTES*		
1. Introduce the session	Introduction	5 min	Flip chart
2. Read 2.1.3 p. 50 – 52	Group reading	15 min	Trainee manual
3. Do Exercise 2C	Written exercise	15 min	Trainee manual
4. Do Drill	Drill	5 min	Drill
5. Summarise	Summary	5 min	Flip chart

1. INTRODUCTION **5 min**
Introduce the objectives to participants

2. Read 2.1.3 p. 50 – 52 **15 min**
Do group or individual reading

3. WRITTEN EXERCISE 2C p.18 **15 min**

EXERCISE 2C
Written

CASE 1
A preterm infant of 1700g is born in a level 1 hospital. The infant is nursed in a closed incubator but no feed or fluid was given for the past 2 hours. The blood glucose is then recorded at 1.5 mmol / l. The infant has irregular jerky movements.

a) Why has this infant become hypoglycaemic?
- *The baby has not been fed. (Late feeding)*

b) How could hypoglycaemia have been prevented in this baby?
- *Early feeding*
- *Check the blood glucose level 3 hourly (page 41 in chart booklet)*

c) Could hypoglycaemia have caused the irregular jerky movements?
- *Yes*

d) How would you treat this infant?
- *Give the baby 10ml/ kg (17ml) of EBM or formula immediately*
- *Repeat the blood glucose 15 minutes after feeding*
- *If the blood glucose remains low treat for severe hypoglycaemia*

CASE 2
A 2200g baby was born by caesarean section. The mother is very ill. The baby has not been fed yet. The baby has had an episode of apnoea.

a) Why could this baby have apnoea?
- *Hypoglycaemia with a convulsion*

A nurse decides to check the baby's blood glucose level. The result is 1.3 mmol / l.

b) What would you do?

- *Start IV Neonatolyte (10% glucose) immediately. Give a bolus of 5ml/kg fast i.e. 11ml fast*
- *Repeat the blood glucose in 15 minutes, if normal check 3 hourly for 24 hours*
- *Continue Neonatolyte at 4ml/hr until you have commenced with milk feeds of 15 ml 3 hourly*

CASE 3
A 2.8kg baby has persistently low blood sugars (ranging between 1.2 and 1.8 mmol / l).

What would you do?

- *Ensure that there is an IV line with Neonatalyte, and baby is fed 3 hourly*
- *Give glucagon IMI 0.2 mg / kg / dose, or hydrocortisone 5 mg IVI*
- *Consult a paediatrician*

4. DRILL Answer true or false: **5 min**

Small and sick babies should have their blood glucose level routinely checked every 3 hrs during the first 24 hours	✓ True	False
Babies of diabetic mothers should have their blood glucose checked hourly for the first 6 hours	✓ True	False
All babies > 4kg should have their blood glucose checked 3 hourly for 24 hours	True	✓ False
Hypoglycaemia means a blood glucose < 2.5 mmol / l	✓ True	False
Babies who are hypothermic should have their blood glucose checked after 6 hours	True	✓ False
Babies who have not been fed do not need to have their blood glucose checked regularly	True	✓ False
A baby with hypoglycaemia may be asymptomatic	✓ True	False
Severe hypoglycaemia means a blood glucose < 1.4 mmol / l	✓ True	False
Symptoms of hypoglycaemia include irregular jerky movements, lethargy, apnoeic, and convulsions	✓ True	False

5. **SUMMARISE THE IMPORTANT POINTS** **5 min**
Ask participants to list the main points they have learnt and summarise these are a flipchart

- Hypoglycaemia is common in sick and small babies
- Monitor the glucose 3 hourly
- Monitor glucose in IDDM 1 hourly x 6
- Hypoglycaemia leads to hypothermia
- Hypoglycaemia can cause brain damage
- Treat mild hypoglycaemia< 2.5 with immediate feeds
- Treat severe hypoglycaemia, 1.4 with IVI 10% glucose
- Always check glucose every 15 minutes to ensure it is improving

LESSON 8: FEEDS AND FLUIDS

LESSON 8: FEEDS AND FLUIDS	*METHOD*	*90 MINUTES*	*REQUIREMENTS*
1. Introduction to the session	Introduction	5 min	Flip Chart
2. Read 2.1.4 p.53 - 55	Group reading	10 min	Trainee manual
3. Exercise 2 D	Written exercise	30 min	Trainee manual
4. DRILL	Drill	10 min	Trainee manual
5. OBSERVATIONS	Group Reading	10 min	Trainee manual/ Photostat
6. Exercise 2 E	Written exercise	20 min	Observation chart
7. Summarise the lesson	Summary	5 min	

1. INTRODUCTION **5 min**

Introduce the topic of feeding and fluids for babies and review the two objectives
Know how to feed small and sick neonates
Know how to determine the volume of feeds and fluids to be given to newborns.

Ask participants to share their experience about how they determine fluids and feeds, and who in there setting works out the feeds.

Explain that in the Counsel module you will Assess feeding for those infants who are breast fed or fully fed on replacement milk, and that this module deals mainly with those infants who are too sick or too small to initiate breastfeeding, so they have to start on IVI fluids and or feeds by cup or nasogastric tube.

It is always best to feed infants expressed breast milk from the mother and not formula. However if this is not possible then formula will need to be used. Some facilities are able to use banked, heat treated breast milk.

2. READING **10 min**

Let participants read section 2.1.4 p. 53 - 55 and refer to pages 42 - 44 of their care charts.

3. EXERCISE 2D p.20 **20 min**

EXERCISE 2D
Written

Use Table 3 (p.43) and Table 4 (p.44) in your Chart Book to help you answer the following questions

CASE 1

A well-baby weighs 1600g on day 6 and is tolerating feeds orally.

a) What feeds will you prescribe for this baby?
   - *30mls / 3 hourly (8 feeds)*

b) What is the total volume of feed baby received on day 6 if he drank all the milk but left 10ml at 09h00?
   - *230 ml*

CASE 2
A baby with a birth weight of 1300g is now 3 days old

a) What is the total fluid requirement for the 24hours?
    - *100ml/kg i.e. ~130ml /day*

b) Baby tolerated 4 ml 3 hourly orally yesterday and had a drip at 3ml/hour. What feeds and IV fluids will you prescribe today?

IVI Neonatoloyte at 3ml/hour
Oral feeds of EBM 9ml 3 hourly

CASE 3
A well-baby weighs 2000g on day 5

a) What should he be fed?
    - *Breast feed*

b) If he needed replacement feeds, how much would he need, and how frequently
    - *35 ml 3 hourly (8 times per day) by cup*

CASE 4
A well-baby weighs 1650g on day 4. He is being fed expressed breast milk

a) How much milk must he receive in 24 hours?
    - ~125ml/kg (200ml)

a) Write your instructions for his feeds for the day.
    - *Expressed breast milk 25 ml 3 hourly*

CASE 5:
A baby weighs 1.1 kg at birth.
Use table 3 to determine what feeds and fluids you would plan to order on day 1,2, 3, 4 and 5.

Day 1 IVI 3ml/hr, NPM
Day 2 IVI 3ml/hr, 3ml 3 hourly
Day 3 IVI 3ml.hr, 6ml 3 hourly
Day 4 IVI 2ml/hr, 12ml 3 hourly
Day 5: no IVI, 20ml 3 hourly

On day 5 baby develops a distended abdomen and vomiting. How will you alter the feed and fluid prescription?

Nil per mouth
Neonatolyte at 7ml / hour

CASE 6:
A baby is born weighing 1.35 kg. Determine the feed and fluid prescription for the first 5 days, by using table 2. First determine the volume of IVI fluids each day, then the ml/hour, then the total volume of feeds and the volume per 3 hourly feed.

Day 1: 60ml/kg IVI (1.35 x 60ml/kg) / 24 =3.375ml/hr round off to 3ml/hr
Day 2: 50ml/kg IVI (1.35 x 50ml/kg)/ 24 = 2.81ml/hr round off to 3ml/hr and 25ml/kg oral = (1.35 x 50) / 8 feeds = 4.2 ml 3 hourly round off to 4ml 3 hourly
Day 3: ETC
Day 4:
Day 5

Discuss which method is easier table 2 or 3 and when you have to use table2.

4. DRILL: Are the following statements TRUE OR FALSE?

A 2 day old baby weighing 1200g should be given IVI Neonatalyte at 3ml/hour and 9mls/3hrly orally	✓ True	False
A 1750g baby at birth is given 15ml of milk feeds 3 hourly	✓ True	False
All babies weighing <1.5kg should be kept on nil per mouth on day 1 & be given IV Neonatalyte	✓ True	False
Babies receiving IV fluids to be given 5% Dextrose	True	✓ False
The best feed for small & sick babies is breast milk	✓ True	False
A baby weighing 1.5 kg should be started on 12 ml breast milk 3 hourly	True	✓ False
A baby weighing 1.450g should be started on 11ml breast milk 3 hourly on the first day	True	✓ False
A baby weighing 1.600g should be given 30 mls breast milk 3 hourly by day 5	✓ True	False
Babies lose 10 -15% of their body weight & regain it by 14 days.	✓ True	False

5. NEWBORN OBSERVATIONS

Let participants read the information on the newborn observation chart in their exercise book p. 22 and give them a blank observation chart.

Observations are a critically important part of patient care. Key information about the patient needs to be documented, so that the key treatment strategies for the patient are recorded, and that any change in the condition, is noted so the treatment can be adjusted.

We have dealt so far with 4 key principles of newborn care i.e.
Temperature management
Oxygen therapy
Hypoglycaemia
Feeds and fluids

For each of these key care areas there are a number of key observations that will assist in determining whether the appropriate care is being given and whether the baby is responding to the care. Some of these elements are as follows

1. Temperature Management: Infants temp, incubator temp, room temp,
2. Oxygen therapy: Circulation, (HR) respiration (RR), grunting, cyanosis, chest-in-drawing, saturation. Amount of oxygen delivered, method of oxygen delivery.
3. Hypoglycaemia: Glucose and response to low or to high glucose
4. Feeds and Fluids: Circulation, hydration, feeds and fluids prescribed and actually given, feeds tolerated, vomiting, stools (intake and output)

Other aspects of specific treatment, that will be dealt with in the next section, also needs documentation and monitoring, like treatment given, response to treatment, each area needs specific documentation. The newborn care record has been developed to ensure that all the information about the infant is documented.

The newborn observation chart is developed so that the key aspects of monitoring and treatment for that day can be documented in one place. Other specific treatment is documented in other places in the newborn record i.e.

Daily weight: Graphed on the summary chart
Weekly head circumference and Hb: On the summary chart
Summary feeds: On the summary chart
Summary of specific treatment: On summary chart
Bilirubin: on summary chart and bilirubin chart
Summary of problems and outcome: on the front cover
KMC care, on KMC chart
Ballard score
HIE chart

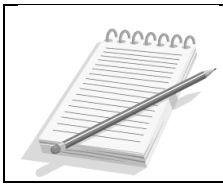
The chart below is a part of the daily observation chart
Note what observations are included.

The chart does not determine how frequently an observation should be done - this will be determined by the condition of the infant, or by the level of care that the infant is receiving.

E.g. Infants in ICU are monitored every hour or continuously. Where their monitoring is continuous then an hourly observation is charted.

Name:										**Hospital No.**		
	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00
Resp rate												
Grunting												
Recession												
Apnoea												
Heart rate												
Temp infant												
incubator												
Oxygen:												
Amt administered												
Baby's colour												
SATS												
CPAP pressure												
Blood glucose												
Urine amount												
blood												
protein												
Vomits												
Stools												
Feed: amt given												
Seizures												
Activity/movement												
Feed										**IV fluids**		
Type										Type		
Amount										Drip rate		
Frequency												
Amount given in 24 hours										**Amount given in 24 hours**		
Total fluid intake in 24 hours												

6. EXERCISE 2E



EXERCISE 2 E
Written

CASE 1
Baby Zama was born at home and is admitted to the neonatal unit at 6am. You assess him for emergency care, he is breathing well, his heart rate is 160 / min, and he does not have pallor or extreme lethargy. His blood sugar is 2.0 mmol / l. On assessment of priority signs, his breathing is fast (RR 70), he is grunting, his tongue is pink, his weight is 1,800g, he is very cold to touch, his extremities are blue in colour, and his temperature is 34.0 ºC. He has normal tone, normal activity and is not lethargic.

a. What is your classification?

Emergency care: Hypoglycaemia

Priority signs: Severe respiratory distress
Low Birth Weight
Hypothermia

Because of the babies condition as classified above, IVI fluids were commenced with 10% Neonatolyte initially a bolus of 5ml/kg (9ml) then at 5 drops/min. Baby was placed in a warm incubator, and oxygen was commenced by head box. Hourly observations were done.
Look at the observation chart below

	07:00	08:00	09:00	10:00	11:00	12:00
Resp rate		70	88	60	52	58
Grunting		✓	✓	✓	✓	
Recession						
Apnoea						
Heart rate		166	160	154	158	152
Temp Infant		35.5	36	36.2	36.5	37.2
Incubator		38	38	37	37	37.5
Oxygen		✓	✓	✓	✓	✓
Amt administered		5l	5l	5l	5l	5l
Baby's colour		Blue hands / feet	Blue hands / feet	Pink	Pink	Pink
SATS		82	85	88	92	96
Blood glucose		2.2mmol				2.5mmol
Feed: mt given		NPO	NPO	NPO	NPO	NPO
Activity/movement		Limp	Limp	Some flexion	Some flexion	Some flexion
Fluid		IV				
Type	NNL	Neonatolyte				
Amount	9 ml bolus					
Frequency		5ml/hour				
Amount given in 24 hours						
TOTAL fluid intake in 24 hours						

Comment on the management of
b. Fluids and glucose
The baby is kept nil per mouth, but the amount of fluid to be administered and type is not documented.

c. Oxygen and saturation
Baby had a fast RR and recession and low oxygen saturation of 82% and was appropriately given oxygen, not clear how it was administered, presumably by head box oxygen. The oxygen saturation started improving at 10h00 and by 12h00 was 96%.

ADDITIONAL CASES

If time allows do these additional cases.

1. Baby Sipho was born at clinic weighing 1300g. She was brought in by ambulance and was 5 hours old on arrival. You assess for emergency care. HR 146 / min, RR 82 / min. Blood sugar is 1.6mmol / l.

Assessment

***Emergency Care**:* *Hypoglycaemia*

Priority Care: *Very Low Birth Weight*
Respiratory Distress

a) What do you do?

- *Manage for hypoglycaemia*
  - *Start IV Neonatalyte (10% glucose) immediately at the rate for weight and age (3 ml / hour)*
  - *Check the blood glucose level after 15 minutes*
  - *Continue to manage for hypoglycaemia (Chart Book p 21)*

On further assessment RR is 82/min, no cyanosis, in-drawing or grunting. Temperature 31.6^{o}C. She is pink, but feels very cold. She has reduced activity. Fontanelle is normal.

b) What is your assessment and classification?

Assessment	***Classification***
Emergency Care	
Blood sugar 1.6 mmol / l	*Hypoglycaemia*
Priority signs	
Respiratory rate >82	*Severe Respiratory distress*
Temp < 36.0	*Hypothermia*
Birth weight 1300g	*Very Low Birth Weight*
Reduced activity	*Severe Disease*

c) What is the appropriate method for warming baby Sipho?

- *Radiant warmer or incubator set at 38^{o}C*
- *If there is no incubator, use Kangaroo Mother Care to both warm the baby and to keep her warm*
- *Observe the temperature of the baby every 30min*

Also:

- *Give 30% oxygen (nasal prongs) until the baby's temperature is normal*
- *Observe the oxygen saturation hourly*
- *Observe the blood glucose level according to the hypoglycaemia guideline*
- *Start antibiotics*

d) After 2 hours, Sipho's temperature is 32.2^{o}C. What would you do?

Assessment:

- *The temperature is not increasing sufficiently*

Action

- *Check the incubator temperature*
- *If the incubator temperature is 38^{o}C, increase it*
- *If it is less than 38^{o}C ensure that it reaches that level*
- *Recheck the blood glucose level*
- *Check the baby's temperature ½ hourly*

Continue monitoring – glucose, temp & saturation

7. Summarise lesson

LESSON 9: INFECTION PREVENTION AND CONTROL 2.1.5

LESSON 9: INFECTION	***40 MINUTES***		
1. Introduction to the session	Introduction	2 minutes	Flip chart
2. Read 2.1.5 p. 56 – 58	Reading	10 min	Trainee manual
3. Exercise 2F	Written exercise	10 min	Trainee manual
4. Role Play	Role play	10 min	Role play cards
5. Summarise the lesson	Summary	2 min	Flip chart

1. INTRODUCTION / LEARNING OBJECTIVES

Introduce participants to the learning objectives and ask them to identify issues that they have with infection control in their units and how they have managed to deal with them.

2. READ

Read through pages 56 - 58

3. EXERCISE 2F p.26

EXERCISE 2F
Written

CASE 1

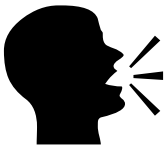
Thabo was born at 32 weeks gestation with a birth weight of 1550g. His mother had had ruptured membranes for about 2 days before she went into labour. She received no antenatal care.

a. What risk factors does Thabo have for having for acquiring an infection?
   - *Preterm labour*
   - *Prolonged rupture of membranes – possible chorioamnionitis*
   - *Unbooked mother: unknown RPR and HIV status*

b. After admission, what would you do to prevent further infection?
   - *Give prophylactic antibiotics (Penicillin and Gentamycin)*
   - *Check the CRP after 48 hrs*
   - *Give eye prophylaxis*
   - *Routine cord cleaning with alcohol*
   - *Ensure careful hand washing by all staff and visitors*

c. What do you need to do to treat potential infections in Thabo?
   - *As above*
   - *Do the mother's RPR, and treat the baby if necessary*
   - *Ascertain the mother's HIV status, and give the baby the correct prophylaxis*

d. Who would you allow to visit Thabo while he is in the neonatal unit?
   - *Parents, grandparents, siblings and other significant family members*
   - *All visitors must adhere to strict hand washing practices*



ROLE PLAY

Watch a Role play between the CEO and the Head of neonatal nursing at a district hospital.
(You may make up a different scenario that better suits your situation. The Role Play below is a suggestion)

CEO
You are non-medical, and have just been watching TV about an outbreak of infection and NEC in a neonatal unit, and have decided on a number of measures to implement in the neonatal unit which you think will prevent infection. They include:

- Excluding all visitors from the neonatal unit
- Everyone must wear sterile coat and mask
- Outborn babies must go to the paediatric ward.

Neonatal Nurse

You will have a discussion with the CEO and explain to her what the best methods to prevent infection are. Ensure that you stress the following:

- Hand washing and use of hand solution
- Prevent overcrowding
- Individual equipment for each baby
- Avoiding communal activities or a communal procedure area
- If applicable "specialising" babies rather than doing one task for all babies

Let each participant de-role and discuss the role play. Clarify any issues arising.

5. Summary

Summarise the main points of the discussion, and ensure that everyone understands the important points as this is an area where there can be a difference of opinion.

LESSON 10: TRANSFER AND REFERRAL

LESSON 10: TRANSFER AND REFERRAL	***30 MINUTES***		
1. Introduction	Introduction	5 min	Flip Chart
2. Read 2.1.6 p. 59 – 61	Reading	10 min	Trainee manual
3. Exercise 2 G	Written exercise	10 min	Trainee manual Referral Letter
4. Summarise lesson and module	Summary	5 min	Flip chart

1. INTRODUCTION
Introduce the module, and ask participants their opinion about when to refer babies, and also their experience. (Make sure that negative experiences are balanced with positive ones) Ensure that your objectives will include relating this area to the situation in which they work.

2. READING
Read 2.1.6 p. 59 - 61 or go through the power point presentation

3. EXERCISE 2G p.28

Ask participants to answer the questions on their own, and then discuss the answers with you.

EXERCISE 2G
Written

1. Where should the following babies be managed or transferred?

a) A well-baby weighing 2200g
   - *The mother and baby can go home if the mother knows how to provide Kangaroo Mother care, the baby is breast feeding well and al risk factors are dealt with*

b) A well-baby weighing 4500g born at a district hospital The mother is diabetic
   - *The baby should be observed in the Neonatal unit for 6 hours for hourly blood glucose assessments, and until glucose is normal and stable*

c) A baby weighs 1400g with severe respiratory distress, gestational age 32 weeks. The baby is 4 hours old in 60% head box oxygen and saturation is 82%.CPAP is not available at your hospital
   - *Baby needs to be in the High Care Unit of the district hospital and needs to be transferred to a level 2 or 3 hospital for CPAP and possibly rescue surfactant.*

d) A baby weighing 3200g who has failed to maintain spontaneous respiration after birth. Apgar scores of 3/10 at 1 minute and 4/10 ay 5 minutes. Mother had been in prolonged 2nd stage for 3 hours before C-Section was performed.
   - *Baby should not be transferred. Prognosis is poor. Provide supportive care. Discontinue resuscitation after 20 minutes.*

e) A baby weighing 3500g who develops jaundice, is now day 6 with a TSB of 670.

- *Needs to have treatment initiated and to be referred to a secondary or tertiary facility that can do an exchange transfusion.*

f) A well-baby weighing 1800g born at the clinic
   - *Baby should be referred to the district hospital neonatal unit, where intermittent and then continuous KMC can be started.*

g) A baby weighing 2900g who has had uncontrolled convulsions that have not responded to 1st and 2nd line drugs in the guideline
   - *Refer to a secondary to tertiary facility*

h) A baby weighing 1250g who is having recurrent apnoea
   - *Refer to a secondary to tertiary facility*

i) A baby weighing 3400g with gastroschisis
   - *Refer to a tertiary facility*

5. Summarise the lesson and module

MODULE 2.2: SPECIFIC PROBLEMS

Overview of Lesson Plans

PROCEDURE	*METHODS*	*TIME*	*REQUIREMENTS*
Lesson 11: 2.2.1 APNOEA AND RESPIRATORY DISTRESS		**60 minutes**	
1. Introduce module 2.2	Introduction	5 min	Flip Chart Trainee manual
2. Read 2.2.1: Apnoea and respiratory distress p. 62 – 71	Reading	25 min	Trainee manual
3. An approach to CXR: this session is for doctors	Power point presentation	(30 min)	Lap top and projector
4. Exercise 2H	Written exercise	25 min	Trainee manual
5 Summary	Summarise	5 min	Flip Chart
LESSON 12: 2.2.2: PRETERM AND LOW BIRTH WEIGHT		***120 MINUTES***	
1. Introduce the session	Introduction	5 min	Flip chart
2. Read 2.2.2 Preterm and Low Birth Weight p. 72 - 79	Group reading	20 min	Trainee Manual
3. Exercises 2I and 2J Plotting Gestational age and completing the weight feeding and treatment summary sheet	Written exercise	20 min	Neonatal Record or Fetal infant growth chart
4. Read 2.2.2.2 and 2.2.2.3 KMC p. 80 - 85	Group reading	20 minutes	
5. Optional DVD	DVD	30 minutes	
6. Exercise 2K	Written exercise	20 minutes	
7. Read 2.2.2.4 Assess feeding and weight gain in low birth weight babies. p. 85 - 89	Group reading	10 min	
8. Exercise 2L	Written Exercise	20 min	
9. Summary	Summarise	5 min	Flip Chart
Lesson 13: 2.2.3 SERIOUS ACUTE INFECTION		**60 minutes**	
1. Introduce the session	Introduction	5 min	Flip Chart
2. Read 2.2.3. Serious acute infections. p.90 - 94	Group reading	20 min	Trainee Manual
3. Do Exercise 2M	Written exercise	30 min	Trainee Manual
4. Summary	Summarise	5 min	Flip Chart
Lesson 14: 2.2.4 NEONATAL ENCEPHALOPATHY		**40 minutes**	
1. Introduction to the session	Introduction	5 min	Flip Chart
2. Read 2.2.4. Neonatal encephalopathy. p. 95 - 98	Group Reading	15 min	Mainly for doctors
3. Exercise 2N	Written exercise	15 min	Trainee Manual
4. Summary	Summary	5 min	Flip Chart
Lesson15: 2.2.5 NEONATAL SEIZURES		10 minutes	
1. Introduction to the session	Introduction		Flip Chart
2. Read 2.2.5. Neonatal seizures. p.99	Group Reading	10min	Mainly for doctors
4. Summary	Summary		Flip Chart
Lesson 16: 2.2.6 JAUNDICE		**45 minutes**	
1. Introduction to the session	Introduction	5 minutes	Flip Chart
2. Read 2.2.6 Jaundice p. 100-106	Group Reading	20 min	Mainly for doctors
3. Exercise 2O	Written exercise	10 min	Trainee Manual
4. Summary	Summary	5 min	Flip Chart

Lesson 17: 2.2.7 CONGENITAL ABNORMALITIES	**40 min**		
1. Introduction	Introduction	5 min	Flip Chart
2. Read 2.2.7 Congenital abnormalities. p. 107 - 112	Group Reading	15 min	Trainee manual
3. Slide presentation	Slide show	20 min	Lap top, projector
4. Summary			
LESSON 18: 2.2.8 CONGENITAL SYPHILIS		***30 MINUTES***	
1. Introduction to the session	Introduction	5 minutes	Flip Chart
2. Read 2.2.8 p. 113 - 114	Group Reading	10min	Mainly for doctors
3. Exercise 2P	Written	10 min	Trainee Manual
4. Summary	Summary	5 min	Flip Chart
LESSON 19: 2.2.9 CONGENITAL TUBERCULOSIS		***25 MINUTES***	
1. Introduction to the session	Introduction	5 minutes	Flip Chart
2. Read 2.2.9 p. 115 – 117	Group Reading	10min	
3.Exercise 2Q number 1	Written	5 min	Exercise book
4.Summary	Summarise	5 min	Flip chart
LESSON 20: 2.2.10 HIV AFFECTED MOTHER AND BABY AND 2.2.11		***50 MINUTES***	
1. Introduction to the session	Introduction	5 minutes	Flip Chart
2. Read 2.2.10 and 2.2.11 p. 118 - 123	Group Reading	20 minutes	
3. Written exercise 2Q number 2	Written exercise	20 minutes	Exercise book
4. Summary	Summarise	5 minutes	Flip chart

LESSON 11: APNOEA & RESPIRATORY DISTRESS

PROCEDURE	*METHODS*	*TIME*	*REQUIREMENTS*
Lesson 11: 2.2.1 APNOEA AND RESPIRATORY DISTRESS		**60 minutes**	
1. Introduce module 2.2	Introduction	5 min	Flip Chart Trainee manual
2. Read 2.2.1: Apnoea and respiratory distress p. 62 – 71	Reading	25 min	Trainee manual
3. An approach to CXR: this session is for doctors	Power point presentation	(30 min)	Lap top and projector
4. Exercise 2H	Written exercise	25 min	Trainee manual
5 Summary	Summarise	5 min	Flip Chart

1. Introduction **5 min**

Introduce the objectives of the module.

In this section you will learn:

- What is apnoea
- What is respiratory distress
- What causes apnoea
- What observations to do
- How to treat apnoea
- How to recognize the different causes

Ask participants to share their experience about Apnoea and respiratory distress and how to determine the cause and manage it.

2. Read **25 min**

Read 2.2.1 (p. 62 - 71)

3. Approach to a reading a CXR in a neonate: for doctors **20 min**

Power point presentation for doctors, optional for others.
First look at the approach to X-rays on page 50 of charts, and chart on page 51, then go over the power point presentation.

4. EXERCISE 2H p.29

EXERCISE 2H

WRITTEN

1. An infant is born at 32 weeks gestation, 1,45kg in a level one hospital. Soon after delivery the respiratory rate is 86 breaths / minutes and he was noticed to be grunting and to have chest in-drawing. The oxygen saturation is 82%

1a. Classify

SEVERE RESPIRATORY DISTRESS
LOW BIRTH WEIGHT

1b. What is the probable cause of the severe respiratory distress?

HYALINE MEMBRANE DISEASE

1b.What is the reason for making this diagnosis?

Baby is premature, and respiratory distress is soon after birth

1c.How will you confirm the diagnosis?

Check gestational age of the baby with a Ballard Score, do a Bubble test, (Bubbles tests are not done in many place any more) and do a CXR at around 6 hours

1d. What will you do for the baby?

Ideally put the baby on nasal CPAP

1e. Where should the baby be treated?

Preferably where nasal CPAP is available.

2. A 30 week infant, with a birth weight of 1350 g, has a respiratory rate of 76 / minute

and chest in-drawing. His blood oxygen saturation has been 89% on 40% oxygen in headbox. On day 3 he has 3 apnoeic episodes. The baby has reduced activity, has a body temperature of 35^{o}C, and his blood glucose level is 2.1 mmol / l. The baby is being fed expressed breast milk by nasogastric tube. He is not on any medication.

2a. Classify

Hypoglycaemia
Very low birth weight
Severe respiratory distress
Hypothermia

2 b. What would you do for him?

Find cause for hypoglycaemia, hypothermia, and apnoea and respiratory distress, investigate and treat.
Do a septic screen, check electrolytes, order a portable CXR and start IV antibiotics
Treat hypoglycaemia with IV 10% glucose, and then an infusion, repeat dextrose stix after 15 minutes
Warm up in incubator or skin to skin
Increase % oxygen in headbox or place on nasal CPAP
Place on an apnoea monitor

2c. Why could he have become apnoeic?

Immaturity
Worsening respiratory distress
Hypoglycaemia
Septicaemia

3. A term baby is born by Caesarian Section for delayed 2nd stage. There is meconium stained liquor. Apgars are 5/10 and 6/10 at birth. Baby is breathing spontaneously but is cyanosed. He is taken to the neonatal unit, where he is placed on headbox oxygen, but after 2 hours has a RR of 72/min, in-drawing and grunting.

3a. What is his classification

Severe respiratory distress

3b. What do you do for him?

Oxygen
Antibiotics
Hourly observations

3c. You do a CXR and note that the X-ray shows hyperinflation with areas of consolidation. What is his diagnosis?

Meconium Aspiration Syndrome
.
3d. How will you manage this?

Oxygen
Other supportive care
Penicillin and Gentamycin IV for 48 hours then review CRP
Check for other signs of Neonatal Encephalopathy and manage for those if present.

4.Baby S was born at hospital 4 days ago. Mom was in prolonged labour and had ruptured membranes for 48 hours before delivery. Mom and baby both well after delivery. Baby started feeding poorly, and then grunting this morning. In casualty, baby is blue, RR is 68 breaths /min, HR 160 / min, temp 35 degrees, blood sugar 2.5mmol/l. There is mild recession and grunting. Oxygen saturation is 82%.

4a. Classify

Severe respiratory distress
Severe disease
Risk of Bacterial Infection

4b. What is the likely diagnosis?

Pneumonia

4c. How would you investigate and manage the baby further.

Oxygen and supportive care
CXR
Penicillin and Gentamicin for 7 – 10 days

5. SUMMARY
Summarise the management of respiratory distress. Make this applicable to the work situation of the participants.

LESSON 12: PRETERM AND LOW BIRTH WEIGHT

Relevant Chart Pages: 52 – 61

LESSON 12: 2.2.2: PRETERM AND LOW BIRTH WEIGHT	***120 MINUTES***		
1. Introduce the session	Introduction	5 min	Flip chart
2. Read 2.2.2 Preterm and Low Birth Weight p. 72 - 79	Group reading	20 min	Trainee Manual
3. Exercises 2I and 2J Plotting Gestational age and completing the weight feeding and treatment summary sheet	Written exercise	20 min	Neonatal Record or Fetal infant growth chart
4. Read 2.2.2.2 and 2.2.2.3 KMC p. 80 - 85	Group reading	20 minutes	
5. Optional DVD	DVD	30 minutes	
6. Exercise 2K	Written exercise	20 minutes	
7. Read 2.2.2.4 Assess feeding and weight gain in low birth weight babies. p. 85 - 89	Group reading	10 min	
8. Exercise 2L	Written Exercise	20 min	
9. Summarise the session	Summary	5 min	Flip Chart

1. INTRODUCTION

OBJECTIVES

At the end of this section you will be able to:

1. Understand the causes and classification of low birth weight
2. Know the relevance of gestational age.
3. Be able to determine the gestational age and plot the parameters on an infant fetal chart to determine appropriateness for gestational age.
4. Provide comprehensive care, and treatment to low birth weight babies

2. READ

Read 2.2.2 (p. 72– 79). Refer to page 52 in the Chart Book while participants are reading.

3. WRITTEN EXERCISE 2I p. 31

Ask participants to turn to page 99 of their Newborn care chart book, and using the Foetal Infant growth chart, to plot the parameters using this growth chart.

EXERCISE 2I

WRITTEN

1. Plot the following babies on the growth chart

2. Classify each baby's growth pattern as AGA or UWFGA

	BIRTH WEIGHT	*HEAD CIRCUMFERENCE*	*BALLARD SCORE*	*CLASSIFICATION*
Baby A.	1370g	30cm	34 weeks	*UWFGA*
Baby B	2100g	30cm	36 weeks	*AGA*
Baby C	1850g	26cm	33 weeks	*AGA*
Baby D	1920g	30cm	32 weeks	*AGA*
Baby E	1420g	32cm	29 weeks	*AGA*
Baby F	830g	23cm	30 weeks	*UWFGA*
Baby G	2200g	29cm	31 weeks	*AGA*

EXERCISE 2J

WRITTEN

Case: Baby Tshila
Baby Tshila was admitted to the neonatal unit from the labour ward. On initial assessment there was no **respiratory failure** or **circulatory failure**. You evaluated baby Tshila for respiratory distress and classified him as having **severe respiratory distress**. You immediately placed the baby in an incubator with headbox oxygen. The baby's birth weight was 1.2 kg, the axillary temperature was 35°C. You inserted a peripheral line and started IV fluids at 3 ml / hour. The glucose test strip was 2.0 mmol / l on admission

1. When the baby is stable you do a Ballard score on the baby. The score shows that the baby is 30 weeks gestation. The Head circumference is 27 cm and length 39cm.

1a. Plot the parameters on the foetal-infant growth chart. How would you use the gestational age to classify the baby?

Weight is just below 50th centile, height just below 50th centile, and COH just below 50th centile. Baby is appropriate for gestational age

1b. What is the most likely aetiology of the respiratory distress?

Hyaline membrane disease

1c. What treatment will you give the baby and for how long?

1d. Look at the weight feeding and treatment summary sheet. What treatment did the baby get and for how long?

1e. Below are the infants weights over 10 days.
The baby's weight is as follows

DAY	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Weight	1.2	1.15	1.1	1.0	1.0	1.05	1.05	1.11	1.15	1.2

Plot the weights on the foetal infant growth chart below.

Comment on the infant's growth?

Is there anything you need to do? 3 b) Look at the feeding – could this explain the growth?

4. Plot the head circumference and weight on the “Foetal-Infant” growth chart.

a) Comment on the head size?

Has increased in size

b) What could be causing the problem?

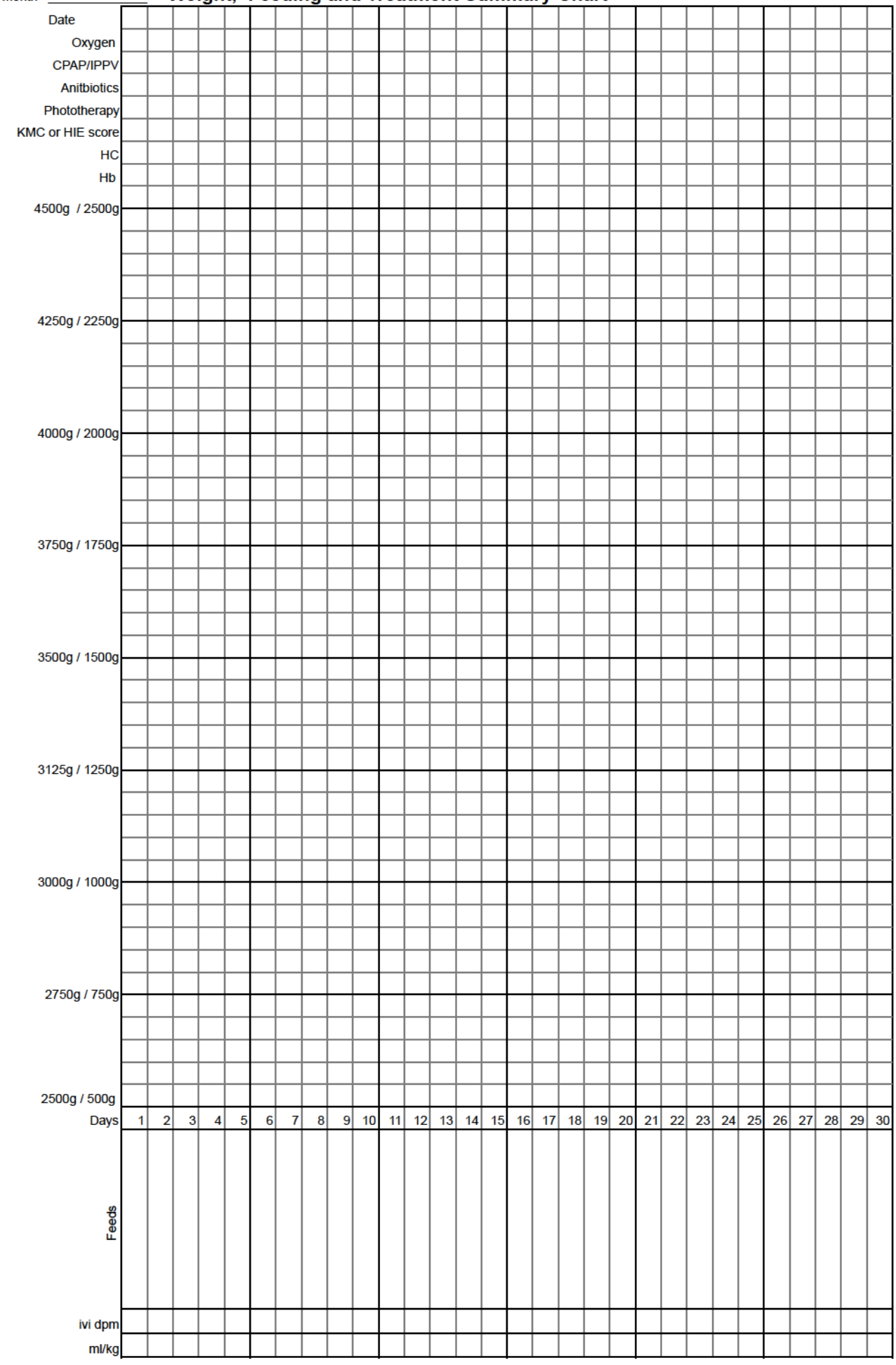
Hydrocpehalus

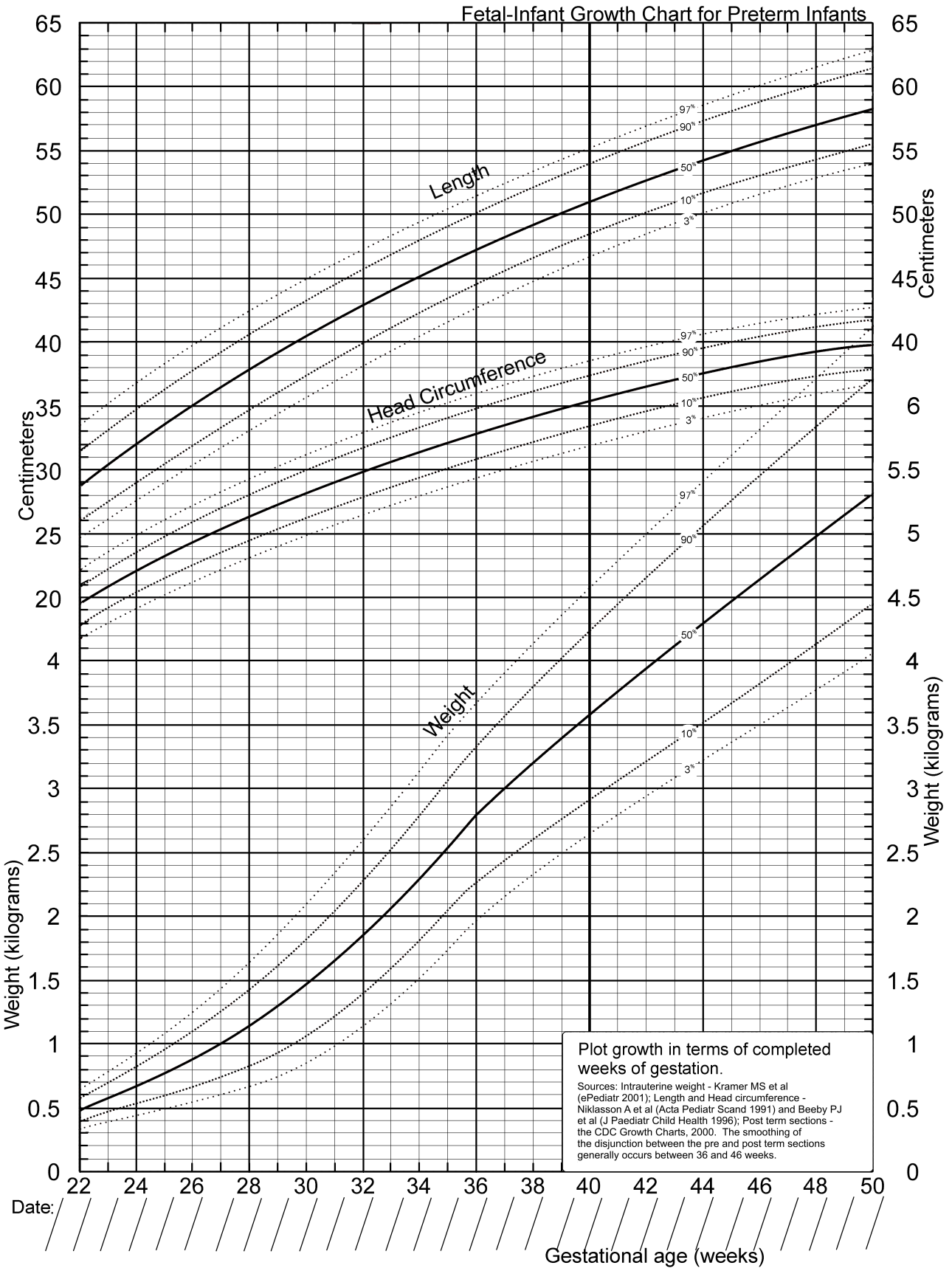
c) What will you do?

Ultrasound of head and refer to neurosurgeon

Month _____

Weight, Feeding and Treatment Summary Chart




Fetal-Infant Growth Chart for Preterm Infants
Length
Head Circumference
Weight
97%
90%
50%
10%
3%
Centimeters
Weight (kilograms)
Plot growth in terms of completed weeks of gestation.
Sources: Intrauterine weight - Kramer MS et al (ePediatr 2001); Length and Head circumference - Niklasson A et al (Acta Pediatr Scand 1991) and Beeby PJ et al (J Paediatr Child Health 1996); Post term sections - the CDC Growth Charts, 2000. The smoothing of the disjunction between the pre and post term sections generally occurs between 36 and 46 weeks.
Date:
Gestational age (weeks)

4. READING KMC
Read 2.2.2.2 and 2.2.2.3 p. 80 – 85

5. **Optional Video Exercise**
   Watch the DVD or video on KMC
   Discuss the implementation of KMC in your district

6. **WRITTEN EXERCISE 2K p.35**

	***EXERCISE 2K*** **Written**

Participants will need to enter information onto a KMC score sheet

Baby Tendai was born on 24th May weighing 1230g at 30 weeks gestation. His mother is HIV positive and on antiretroviral treatment. His problems were: Low birth weight, preterm, hyaline membrane disease – for which he received CPAP for 3 days, hypoglycaemia, neonatal jaundice (maximum TSB 272µmol / l). He received Nevirapine daily from birth and His mother has chosen to breast feed him. Continuous KMC was started on 18th June. On 6th July he weighs 1750g and is breast feeding well. He has no apnoea and is on iron and multivitamin supplements.

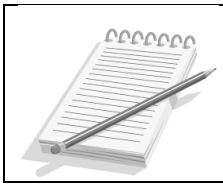
What is the KMC score?

- Tendai's mother has a supportive husband, who has part time work, and a mother-in-law. Their home has an outside tap but no electricity.
- Tendai is breast feeding exclusively
- He is able to attach well to the breast and his mother is doing this well
- He suckles well
- His mother handles him well
- Weight chart attached
- His mother needs help with giving the medications
- She says that she knows how to do KMC
- She does not always do KMC with Tendai – he is often seen lying in the bed
- She is not sure if she will be able to do KMC at home

7. **READING: ASSESS FEEDING AND WEIGHT GAIN IN LOW BIRTH WEIGHT BABIES 2.2.2.4**

   Read p. 85 – 89

8. **WRITTEN EXERCISE 2L p.35**



EXERCISE 2L
Written

Have the following babies lost more or less than 10% of their birth weight?

1.	Birth weight 1600g	Day 4 weighs1410g	More 11.8%
2.	Birth weight 1200g	Weight has come down to 950g	More 20.8%
3.	Birth weight 950g	Lowest weight 800g	More 15.7%
4.	Birth weight 1550g	Day 5 weighs 1470g	Less 5%

Comment on the weight gain in these babies

1. Birth weight 1780g
   10 days weighs 1820g
   17 days weighs 1970g
   24 days weighs 2210g

   Change
   - *day 10: 40g+ (regained birth weight + 40 g) - adequate*
   - *day 17: 150g+ (21 g / day) - satisfactory*
   - *day 24: 240g+ (35 g / day) - good*

2. Birth weight 1040g
   14 days weighs 1020g
   21 days weighs 1170g
   28 days weighs 1220g
   35 days weighs 1360g

   Change
   - *day 14: 20g- (not yet regained birth weight)*
   - *day 21: 150g+ (21 g / day) - adequate*
   - *day 24: 50g+ (7 g / day) - inadequate*
   - *day 35: 140g+ (20 g / day) - adequate*

3. Birth weight 1450g
   12 days weighs 1400g
   19 days weighs 1450g
   26 days weighs 1500g
   33 days weighs 1530g

   Change
   - *day 12: 50g less than birth weight - not satisfactory*
   - *day 19: 50g+ (7g / day) - inadequate*
   - *day 26: 50g+ (7g / day) - inadequate*
   - *day 33: 30g+ (4g / day) - inadequate*

9. Summarise
Summarise the specific management of preterm and low birth weight babies.
The following drill may be able to help participants consolidate their learning

Weight and condition	Where to care	What warmth	Frequent observations	Specific treatment
1.7 kg Well				
1.2 kg Severe respiratory distress				
2.3 kg, hypoglycaemia				
900g				

LESSON 13: SERIOUS ACUTE INFECTIONS

Lesson 13: 2.2.3 SERIOUS ACUTE INFECTION	**60 minutes**		
1. Introduce the session	Introduction	5 min	Flip Chart
2. Read 2.2.3. Serious acute infections. p.90 - 94	Group reading	20 min	Trainee Manual
3. Do Exercise 2M	Written exercise	30 min	Trainee Manual
4. Summary	Summarise	5 min	Flip Chart

1. INTRODUCTION **5 min**

LEARNING OBJECTIVE
At the end of this section you will be able to:
- Recognize the main causes of severe infection
- Know what other conditions can present with similar signs
- Know how to manage these babies

2. Read 2.2.3 (p. 90 – 94) **20 min**
This can also be summarised in a power point presentation, if reading is done at home.

3. Written Exercise 2M p.37 **30 min**
This exercise is mainly for doctors or neonatal nurse practitioners

EXERCISE 2M

WRITTEN

Case 1: A baby is brought to you on day 2. The mother says that the baby has refused feeds since yesterday evening and is very sleepy. When you examine the baby you find that he is floppy, lethargic and has a temperature of 35.2^{o}C, has a slightly distended abdomen but no vomiting.

a. Classify

SEVERE DISEASE
HYPOTHERMIA

b. What is the likely cause of the problem?

SERIOUS ACUTE INFECTION, Septicaemia, Meningitis, NEC

c. What investigations will help you to make a diagnosis?

CXR, FBC, CRP, LP, Blood Culture

d. What treatment does the baby need?
Treat hypothermia
Check for hypoglycaemia
IVI Cefotaxime and Ampicillin
Supportive care, check circulation, sats, vitals

Case 2: A preterm baby in the newborn unit had a birth weight of 1050g. On day 10 he is noticed to be pale and to have poor tone. He starts vomiting bile stained fluid and passes a blood stained stool. You notice that his abdomen is distended.

a. Classify

VLBW, Severe disease, NEC

b. What is the likely cause of the baby's signs?

NEC, Septicaemia

c. What must you do?

Cefotaxime, Ampicillin, Nil per mouth, other supportive care

d. Which investigation is useful in helping to make the diagnosis? What is it likely to show?

Abdominal X-Ray

e. Which babies are at a high risk of getting this condition?

Babies who are not breastfed, very low birth weight, babies in a crowded nursery with poor infection control.

f. Where should the baby be managed?
Regional or tertiary facility

4.SUMMARY

Summarize the main messages.

LESSON 14: NEONATAL ENCEPHALOPATHY

Lesson 14: 2.2.4 NEONATAL ENCEPHALOPATHY	**40 minutes**		
1. Introduction to the session	Introduction	5 min	Flip Chart
2. Read 2.2.4. Neonatal encephalopathy. p. 95 - 98	Group Reading	15 min	Mainly for doctors
3. Exercise 2N	Written exercise	15 min	Trainee Manual
4. Summary	Summary	5 min	Flip Chart

1. INTRODUCTION

Learning Objectives
In this section you will learn:

- What asphyxia is
- What encephalopathy is
- How to recognize encephalopathy
- How to treat the baby with neonatal encephalopathy

3. READING / OVERVIEW

Read 2.2.4 page 95 - 98

3. WRITTEN EXERCISE 2N p.39

EXERCISE 2N

WRITTEN

A 3300g baby was born with Apgar scores of 5 /10 and 7/10 at 1 and 5 minutes respectively. At the age of 12 hours his mother reports that he does not want to suckle. When you examine him you find that his muscle tone is increased, he is hyperalert and staring, he has poor moro, sucking and grasp reflexes. There is no history suggestive of convulsions, and his posture, fontanelle and respiration are normal.

a. What is the severity of the Neonatal Encephalopathy?

Mild

b. What is the baby's HIE score?

6

c. What are you going to do?

Observe, feed by NG tube

LESSON 15: NEONATAL SEIZURES 2.2.5

Chart page 66

Lesson15: 2.2.5 NEONATAL SEIZURES	10 minutes		
1. Introduction to the session	Introduction		Flip Chart
2. Read 2.2.5. Neonatal seizures. p. 99	Group Reading	10min	Mainly for doctors
4. Summary	Summary		Flip Chart

1. INTRODUCTION
Objectives p. 99

In this section you will learn:
- What conditions could cause seizures
- Signs that a newborn is having a seizure
- What investigations need to be done for a newborn who has a seizure
- How to treat a newborn who is having a seizure

2. READING
Read 2.2.5 p. 99

3. DISCUSSION AND SUMMARY

Take any questions and discussion on the topic, and summarise the main findings

LESSON 16: NEONATAL JAUNDICE 2.2.6

Chart booklet page 67

LESSON 16: 2.2.6 NEONATAL JAUNDICE	***45 MINUTES***		
1. Introduction to the session	Introduction	5 minutes	Flip Chart
2. Read 2.2.6 p. 100 - 106	Group Reading	15 min	Mainly for doctors
3. Exercise 2O	Written exercise	20 min	Trainee Manual
4. Summary	Summary	5 min	Flip Chart

1. INTRODUCTION
Objectives p. 100

In this section you will learn:
- How bilirubin is formed from haemoglobin
- What physiological jaundice is
- Which babies are at risk of severe jaundice
- Know when and how to start phototherapy
- Know when to refer or start an exchange transfusion

2. READING
Read 2.2.6 p. 100 - 106

4. WRITTEN EXERCISE 2O p. 40

EXERCISE 20

WRITTEN

1. A well, breast fed, term infant weighing 3.150g develops jaundice on Day 3. The TSB is 210µmol / L. Both the mother and infant are blood group O positive.

1a. What is the probable cause of this infant's jaundice?

Physiological jaundice

1b. Does this infant have hyperbilirubinaemia? Give your reason.

No, bilirubin is below the line defining hyperbilirubinaemia

1c. How do you manage this baby?

Reassure and reassess

2. A term infant's mother has a blood group O.
2a. Is the baby at risk for jaundice? Explain your answer.

Yes, if there is ABO incompatibility, if the baby is A or B and the mother is O

2b. When would you check the TSB?

At 6 hours

The TSB at 6 hours of age is 96 umol / l
2c.What would you do?

Start phototherapy

2d.When would you recheck the TSB?

In 12 hours?

2e. When would you stop phototherapy?

When below the phototherapy line by 50 umol/l

3. A baby weighs 2.2 kg at birth with a gestational age of 36 weeks. He has bilateral cephalhaematomas. On Day 2 he is noticed to be jaundiced with a TSB 190µmol / l.

3a. What possible causes are there for this baby to be jaundiced?

Cephalhaematoma's and prematurity

3b.What should you do?

Plot the bilirubin on the chart, note that he is above the phototherapy line and commence phototherapy.

No treatment was given. On day 5 the baby was noticed to be lethargic with poor tone and not feeding well. The TSB was 370 umol / l.

3c.Why is this baby hypotonic and lethargic?

Kernicterus

3d. What must be done now?

Phototherapy while preparing for an exchange.

Comment on the management of this baby

5. SUMMARY

LESSON 17: CONGENITAL ABNORMALITIES

Lesson 17: 2.2.7 CONGENITAL ABNORMALITIES	**40 min**		
1. Introduction	Introduction	5 min	Flip Chart
2. Read 2.2.7 Congenital abnormalities. p. 107 - 112	Group Reading	15 min	Trainee manual
3. Slide presentation	Slide show	20 min	Lap top, projector
4. Summary	Summary	5 min	Flip Chart

1. INTRODUCTION

Objectives
At the end of this section you will:

- Be able to recognise some major congenital abnormalities
- Know how to provide emergency care
- Know what plans must be implemented to manage the baby
- Be able to counsel the parents about the condition of the baby

2. READ

Read 2.2.7 page 107 - 112

3. SLIDE SHOW

Show participants a slide show of congenital abnormalities, and discuss the management, including when to refer. The depth you go into will depend on whether you have a group of doctors, nurses or a mixed group.

Note that this session can be combined with 1.3.

4. Summarise the session

LESSON 18: CONGENITAL SYPHILIS

LESSON 18: 2.2.8 CONGENITAL SYPHILIS	***30 MINUTES***		
1. Introduction to the session	Introduction	5 minutes	Flip Chart
2. Read 2.2.8 p. 113 - 114	Group Reading	10min	Mainly for doctors
3. Exercise 2P	Written	10 min	Trainee Manual
4. Summary	Summary	5 min	Flip Chart

1. INTRODUCTION

Introduce congenital syphilis,

At the end of this section you will be able to:

- Recognise the clinical features of congenital syphilis
- Take preventive action by screening and treating women antenatally
- Appropriately manage the baby with congenital syphilis

2. READ

Read 2.2.8 p. 113 - 114

5. WRITTEN EXERCISES p.42

EXERCISE 2P

WRITTEN

1.A mother has a positive RPR, and has had 3 doses of Benzathine Penicillin, the last on 20th of June. She delivered a baby on 15th July. The baby is well, with no problems and no clinical signs of congenital syphilis.

1a. How would you manage this baby?

Benzathine Penicillin 50 000 units / kg, IM 1 dose

2a.A 2500g newborn has jaundice, blisters of the hands and feet. There is hepatoslenomegally. The mother had a positive RPR test and has received 1 dose of 2.4 million units of Benzathine Penicillin 5 days before she delivered.

b. How would you treat the infant?

Supportive care
Admit
Procaine Pen 50 000 units / kg IM daily for 10 – 14 days or Pen G 150 000 units /kg IV 12hourly for 10 – 14 days.
NOTIFY

6. SUMMARISE THE SESSION

LESSON 19: CONGENITAL TUBERCULOSIS

LESSON 19: 2.2.9 CONGENITAL TUBERCULOSIS	***25 MINUTES***		
1. Introduction to the session	Introduction	5 minutes	Flip Chart
2. Read 2.2.9 p. 115 – 117	Group Reading	10min	
3. Exercise 2Q number 1	Written	5 mins	Exercise book
4. Summary	Summarise	5 mins	Flip chart

1. **Introduce the session**

Learning objectives:
In this session you will learn to:

- Take appropriate action for the baby who has been exposed to tuberculosis

2. Read
Read 2.2.9 (p.115 – 117)

3. Written exercise 2Q p.43

EXERCISE 2Q

WRITTEN

Complete Exercise 2Q question 1.

1. A mother is diagnosed with pulmonary TB and initiated on anti-tuberculosis drugs one month before the birth of her baby.

1a.How would you manage her baby?

4. Summarise

LESSON 20: HIV AFFECTED MOTHER AND BABY

LESSON 20: 2.2.10 HIV AFFECTED MOTHER AND BABY AND 2.2.11	***50 MINUTES***		
1. Introduction to the session	Introduction	5 minutes	Flip Chart
2. Read 2.2.10 and 2.2.11 p. 118 - 123	Group Reading	20 minutes	
3. Written exercise 2Q number 2	Written exercise	20 minutes	Exercise book
4. Summary	Summarise	5 minutes	Flip chart

1. Introduce the session

Learning objectives

In this section you will learn to:
- Understand the importance of knowing the HIV status of the mother and baby
- Understand the infant feeding choices for HIV positive mothers
- Discuss the follow up plans of HIV affected babies

2. Read 2.2.10 and 2.2.11
Read p. 118 – 123

3. Exercise 2Q

EXERCISE 2Q

WRITTEN

2. A mother is HIV positive, and took ART from 36 weeks of pregnancy as she booked late. She delivered at 38 weeks gestation. She does not have a CD4 count result. The baby weighs 2,3kg.

2a. What would you do for the mother?

Ensure she had a CD4 result
TB screen
WHO staging
Counselling on infant feeding
Counselling on partner testing and safe sex

2b.What ARV prophylaxis should the baby take and for how long?

NVP for 12 weeks because the mother took less than 4 weeks of ART before delivery.

2c.The mother decides that breastfeeding is best for her baby.

a. For how long should she breastfeed?

Exclusive breastfeeding for 6 months and then breastfeeding and complimentary feeding till 1 year.

b. What treatment should the mother and baby receive?

The mother will continue on ART and the baby will receive NVP for 12 weeks

c. What advice would you give the mother about breastfeeding?

Exclusive breastfeeding for 6 months
Adherence of ARV's
Safe sex

d. When should the baby return for an HIV DNA PCR test?

At 6 weeks.

2d.Moms CD4 count result is available before she is discharged. Her CD4 count is 170. What do you need to do for the mother?

Ensure the mother remains on lifelong ARV treatment
Commence on Co-trimoxazole
TB screen and if eligible commence IPT
Encourage partner testing and safe sex
Family planning counselling

3. An HIV exposed baby is in the neonatal unit and weighs 1.8kg. The baby has been diagnosed with pneumonia.
3a. What HIV care would you provide for the baby?

EBM according to guidelines
HIV DNA PCR test. If HIV positive commence on ART and confirm HV status with a second PCR test. If HIV negative repeat PCR at 6 weeks
NVP syrup according to weight and age
Blood for ALT and TSB on day 7

4. Summary

Module3:

COUNSEL, DISCHARGE AND FOLLOW UP

SICK & SMALL NEWBORNS

Lesson 21: Counsel, discharge and follow up	***50 MINUTES***		
1. Introduction to the session	Introduction	5 minutes	Flip Chart
2. Read p. 127– 131 Counsel, Discharge and follow up, developmental chart	Group Reading	10 minutes	
3. Exercise 3 A	Written exercise	10 minutes	Exercise book
Exercise 3 B	Written exercise	10 minutes	Exercise book
Exercise 3 C	Written exercise	10 minutes	Exercise book
4. Summary	Summarise	5 minutes	Flip chart

1. Read introduction and objectives (p.126)

At the end of the module you will be able to

- Understand which babies can be discharged and when
- Counsel mother on babies condition and care, when to return with the baby for routine and emergency care
- Assess returning ill babies for review at the PHC or hospital
- Assess and treat babies returning for routine care over the first few months of follow up, and counsel the mother appropriately at each visit

2. Module 3.1 COUNSEL, DISCHARGE AND FOLLOW UP
Read page 127 – 131

3. Exercise 3A p.45

EXERCISE 3A
Written

CASE 1
Baby Tendai was born on 24th May weighing 1230g at 30 weeks gestation. His mother is HIV positive and on antiretroviral therapy. His problems were: Low birth weight, preterm, hyaline membrane disease – for which he received CPAP for 3 days, hypoglycaemia, neonatal jaundice (maximum TSB 272µmol / l). He received Nevirapine daily from birth and his mother has chosen to breast feed him.

Continuous KMC was started on 18th June. On 6th July he weighs 1750g and is breast feeding well. He has no apnoea and is on iron and multivitamin supplements.

a) Is Tendai a "high risk" baby?

- *Yes:*
  - *Very Low Birth Weight*
  - *Preterm*
  - *Received oxygen*
  - *Hypoglycaemia*
  - *Mother HIV positive*

b) What is the KMC score?

- Tendai's mother has a supportive husband, who has part time work, and mother-in-law. Their home has an outside tap but no electricity.
- Tendai is breast feeding exclusively
- He is able to attach well to the breast and his mother is doing this well
- He suckles well
- His mother handles him well
- Weight chart attached
- His mother needs help with giving the medications
- She says that she knows how to do KMC
- She does not always do KMC with Tendai – he is often seen lying in the bed
- She is not sure if she will be able to do KMC at home
    - *KMC score is 15*

c) Will Tendai need medication to take home? If yes, which medication?

- *Yes*
    - *Iron supplements*
    - *Multivitamins*

EXERCISE 3B
Written

Refer to CASE 1 above

a) When must Tendai come back for a check?

- *Day 3: to the clinic*
- *1 week: Special neonatal follow up clinic*

b) What are the important things which must be checked?

- *Weight gain*
- *Head circumference*
- *Feeding*
- *HIV status*

c) How often must he be seen again?

- *Weekly until he weighs 2500g*
- *If DNA PCR test was negative at 6 weeks repeat PCR 6 weeks after cessation of breastfeeding and then at 18 months*

d) For how long must he be followed up?

- *9 months for developmental screening*

Insert material on expressing breast milk, cup feeding and nasogastric feeding

ADDITIONAL LESSONS ON ROUTINE CARE

ROUTINE NEWBORN CARE : ASSESS FEEDING AND COUNSEL

	PROCEDURE	*TIME*	*REQUIREMENTS*
Lesson1 : ASSIST MOTHER WITH BREASTFEEDING Assess breastfeeding and replacement feeding		60 min	
1. Introduction 3.1 &3.2	Introduction	5 min	
2. Read p.	Reading	10 min	
3. Exercise RA, RB, RC	Video exercise	30 min	Video or DVD
4. Read p.	Reading	10 min	

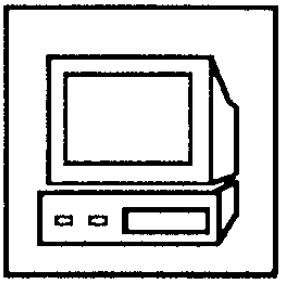
EXERCISE RA

Part 1: Module 16 in IMCI video
In this exercise you will practice recognizing signs of good and poor attachment during breastfeeding as shown in photographs.

Part 2: Photograph exercise
Study photographs numbered 66 through 70 of young infants at the breast. Look for each of the signs of good attachment. Compare your observations about each photograph with the answers in the chart below to help you learn what each sign looks like. Notice the overall assessment of attachment (turn over the page – there is space for your answers)

Now study photographs 71 through 74. In each photograph, look for each of the signs of good attachment and mark on the chart whether each is present. Also write your overall assessment of attachment.

PHOTO	*SIGNS OF GOOD ATTACHMENT*				*ASSESSMENT*	*COMMENTS*
	Chin Touching Breast	Mouth Wide Open	Lower Lip turned Outward	More Areola Showing Above		
66	Yes (almost)	Yes	Yes	Yes	Good attachment	
67	No	No	Yes	No (equal above and below)	Not well attached	
68	Yes	No	No	Yes	Not well attached	Lower lip turned in
69	No	No	No	No	Not well attached	Cheeks pulled in
70	Yes	Yes	Yes	Cannot see	Good attachment	
71						
72						
73						
74						



EXERCISE RB

Part 1 - Video

You will watch a video demonstration of the steps to help a mother improve her baby's positioning and attachment for breastfeeding.

Part 2 - Photographs

In this exercise you will study photographs to practice recognising signs of good or poor positioning and attachment for breastfeeding. When everyone is ready, there will be a group discussion of each of the photographs. You will discuss what the health worker could do to help the mother improve the positioning and attachment for breastfeeding.

1. *Study photographs numbered 77 through 79 of young infants at the breast. Look for each of the signs of good positioning. Compare your observations about each photograph with the answers in the chart below to help you learn what good or poor positioning looks like.*

2. Now study photographs 80 through 82. In these photographs, look for each of the signs of good positioning and mark on the chart whether each is present. Also decide if the attachment is good.

PHOTO	***SIGNS OF GOOD POSITIONING***				***COMMENTS ON ATTACHMENT***
	Infant's Head and Body Straight	**Head and Body Facing Breast**	**Infant's Body Close to Mother's**	**Supporting Infant's Whole Body**	
77	Yes	Yes	Yes	Yes	
78	Yes	Yes	Yes	Yes	
79	No – neck turned so not straight with body	No	No - turned away from mother's body	No	Not well attached: mouth not wide open, lower lip not turned out, areola equal above and below
80					
81					
82					

LIST OF ABBREVIATIONS

APH	Antepartum haemorrhage
AIDS	Acquired immunodefciency syndrome
AGA	Appropriate for gestational age
ANC	Antenatal care
ARV	Anti-retroviral
AZT	Azidothymidine (antiretroviral drug)
BBA	Born before arrival
BD	Twice daily
CA	Chorio –amnionitis
CHD	Congenital heart disease
CNS	Central nervous system
CPAP	Constant positive airway pressure
CRP	C-reactive protein
CXR	Chest X-ray
EBM	Expressed breastmilk
EBF	Exclusive breastfeeding
FBC	Full blood count
GA	Gestational age
GPH	Gestational proteinuric hypertension
HIE	Hypoxic-ischaemic encephalopathy
HIV	Human immuno deficiency virus
HMD	Hyaline membrane disease
HR	Heart rate
ICU	Intensive care unit
IDM	Infant of diabetic mother
IM	Intramuscular injection
IMCI	Integrated Management of Childhood Illnesses
IPPV	Intermittent positive pressure ventilation
IV	Intravenous injection
IVF	Intravenous fluids
IVH	Intra-ventricular haemorrhage
KMC	Kangaroo mother care
LBW	Low birth weight
LP	Lumbar puncture
NEC	Necrotising enterocolitis
NG	Naso-gastric
NMR	Neonatal mortality rate
NND	Neonatal death
NTD	Neural tube defect
NVP	Nevirapine
PCR	Polymerase chain reaction test
PDA	Patient ductus arteriosus
PMTCT	Prevention of mother to child transmission
PROM	Prolonged rupture of membranes
RDS	Respiratory distress syndrome
RPR	Rapid plasma regain (screening test for syphilis)
ROM	Rupture of membranes
RR	Respiratory rate
RTHC	Road to health chart
SGA	Small for Gestational Age
TSB	Total serum bilirubin
TSR	Time to sustained respiration
TTN	Transient tachypnea of the newborn
VCT	Voluntary counselling and testing

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