

OSCE CHECKLIST 01: EMERGENCY TRIAGE OF NEW BORN

Objective: By the end of this exercise the participants should be able to

- Assess all new born arriving in the NBSU for emergency signs and triage them for management
- Assess the new born for admission in the NBSU/referral to SNCU

#	Steps	Score	Participants				
			1	2	3	4	5
1	All babies arriving in the facility should be assessed for emergency signs using TABCD by placing under the radiant warmer	1					
	Perform hand hygiene						
2	Assess the T emperature by attaching thermister probe to the skin over upper right side of the abdomen	1					
3	Assess the A irway and breathing and see if the baby has <ul style="list-style-type: none"> • Breathing or gasping • Central cyanosis • Apneic spells • Respiratory rate >70/min • Lower chest in-drawing • Grunting 	2					
4	Assess C irculation and see if the baby has <ul style="list-style-type: none"> • Capillary refill time (>3 sec) • Weak and fast pulse (>160 /min) 	1					
5	Look for C oma or C onvulsion	1					
6	Look for D ehydration Diarrhea plus any 2 of the following: <ul style="list-style-type: none"> • Lethargy • Sunken eyes • Very slow skin pinch 	2					
7	Manage immediately as per emergency signs	1					
8	If no emergency signs are present, Complete assessment and decide for admission	1					
	Total	10					

Key points to remember:

Classification based on triage of the newborn	Action
1. Cases with emergency/ danger signs	➤ Need to be prioritized for emergency treatment and stabilized for referral
2. Priority cases	➤ Need assessment for rapid action and admission for further evaluation
3. *Cases which are not categorized as emergency or priority	➤ These cases can be assessed and counselled and if required may come for follow up visit

- ✓ Always give priority to small and sick baby during triage. Initiate treatment immediately when an emergency sign is detected while simultaneously completing the assessment for other emergency signs.
- ✓ Attend to the newborn as soon as it is brought to the facility. Do not keep the newborn waiting for any administrative procedure.

Definitions

1. Central cyanosis: Bluish discoloration of lips and tongue
2. Lethargy: A neonate who is not alert, but responds to voice. An unconscious neonate may or may not respond to pain.
3. Convulsion: Repetitive, abnormal, jerky movement, or Smacking of lips,

OSCE CHECKLIST 02: MANAGEMENT OF A NEW BORN WITH EMERGENCY SIGNS

Objective: By the end of this exercise the participants should be able to:

- Provide immediate correct management to a new born according to the emergency signs

#	Steps	Score	Participants				
			1	2	3	4	5
1	Call for help	1					
2	Temperature: If the baby is cold (temperature <36.5 °C), rewarm the baby.	1					
3	Airway and Breathing: If the baby is <ul style="list-style-type: none"> • Gaspings/grunting/apneic spells • Has Central cyanosis • Respiratory rate >70/min • Lower chest in-drawing Perform <ul style="list-style-type: none"> ✓ Resuscitation with bag and mask ✓ Give oxygen ✓ Keep the baby warm 	2					
4	Circulation: If the baby has <ul style="list-style-type: none"> • Capillary refill time (>3 sec) • Weak and fast pulse (>160 /min) Immediately <ul style="list-style-type: none"> ✓ Give the neonate oxygen and keep it warm ✓ Insert IV line and give NS 10ml/kg over 30min 	2					
5	Coma or Convulsion: <ul style="list-style-type: none"> • Check and correct hypoglycemia • If convulsions continue, give IV calcium • If convulsions continue, give IV anticonvulsants 	2					
6	Dehydration <ul style="list-style-type: none"> • Keep the baby warm • Insert IV line and give fluids rapidly 	2					
	Total	10					

OSCE CHECKLIST 03: USE OF RADIANT WARMER

Objective: By the end of this exercise the participants should be able to

- Identify parts of the radiant warmer,
- Operate the Radiant warmer

#	Steps	Score	Participants				
			1	2	3	4	5
1.	Connect to mains and switch on the warmer at least 20 – 30 minutes prior to the expected time of delivery.	1					
2.	Identify servo and manual mode and select the servo mode.	1					
3.	Set the desired skin temperature to 36.5°C.	1					
4.	Set alarm for temperature variation of 0.5°C above or below	1					
5.	<ul style="list-style-type: none"> • Place the baby (neonatalie) in the bassinet. • Identify the correct site for positioning the skin probe (right hypochondrium in supine position/ flank in prone position). 	2					
6.	Connect skin probe after cleaning at the correct site	1					
7.	Ensures that the baby's head is covered with a cap and feet with socks OR Keep the baby Clothed if doesn't require close watch	1					
8.	Checks the sensor probe regularly so as to ensure that it is in place, else it might harm the baby.	2					
	Total	10					

Key points to remember:

1. Use Servo mode settings for all babies admitted in NBSU after initial stabilization of a sick/hypothermic baby/, check periodically that the probe is in position
2. Use manual mode settings to manage severe hypothermic baby (< 32°C) for rapid rewarming. Do not forget to monitor axillary temperature every 15 minutes
3. Check that the correct surface of the probe is facing the skin and the probe is attached at the correct site

Disinfection

- **Bassinet:** – Use only mild soap/detergent and water wipes daily. Do not use spirit or other chemicals to clean the plastic/acrylic parts. Weekly Use 2% Bacillocid/ glutaraldehyde or when the bassinet is unoccupied (move the baby while using disinfectant)
- **Probe** Clean using Isopropyl alcohol swab before and after each use.

OSCE CHECKLIST- 4: NEWBORN RESUSCITATION (NBR), NBSU

#	Steps	Score	Participants				
			1	2	3	4	5
1.	NBSU should be equipped with resuscitation kit, suction catheter, Oxygen, laryngoscope, ETT, Adrenaline	1					
2.	Place the baby on radiant warmer (already switched on), inform Doctor and helper.	1					
3.	Quickly assess for breathing/ Crying, If answer is NO, Start initial steps	1					
4.	Perform the initial steps of resuscitation (PSDSR) as required <ul style="list-style-type: none"> ▪ Position the baby in slight neck extension using a shoulder roll ▪ If required, clear the airway. First suction the mouth and then suction the nose using a mucus extractor. ▪ Dry the baby ▪ Stimulate by Gently rub the newborn's back, trunk, or extremities ▪ Reposition and reassess breathing 	2					
5.	Assess for breathing, heart rate and colour If breathing normally provide Observational care with mother: <ul style="list-style-type: none"> • Provide Warmth and support breastfeeding • Monitor temperature, HR, breathing and colour every 30 mts for first 2 hours. 	2					
6.	If not breathing well (apnea, gasping)/ HR <100 bpm Initiate bag and mask ventilation using room air*(≥ 35 weeks & 21-30% < 35 weeks) for 30 seconds	1					
7.	If labored breathing and persistent cyanosis, Position and clear airway. SpO2 monitor. Supplemental O2 as needed.	1					
8.	For PPV, after 5-10 inflation look for chest rise. If chest is not rising, follow MR SOPA: <ul style="list-style-type: none"> • Mask adjustment, position of head, suction if required, Open mouth, increase pressure and alternate airway. • Consider ETT or Laryngeal mask if needed 	2					
9.	Continue bag and mask ventilation for 30 seconds Reassess the baby for breathing after 30 seconds of bag and mask ventilation by checking for umbilical pulsations: Total pulsations felt in 6 seconds x 10= heart rate.	1					
10.	a) If HR > 100/ minute continue bag and mask ventilation till the baby starts breathing spontaneously and bilateral chest rise is seen, Wean off bag and mask ventilation b) If HR <100/ minute, continue bag and mask ventilation and connect oxygen	2					
11.	If HR < 60/ minute, Intubate if not already done	2					

	Chest compression (only by pediatrician or trained doctor) Coordinate with PPV with 100% Oxygen						
12.	If HR continue to be <60/ minute Consider Epinephrine (1:10000) 0.1 to 0.3ml/kg IV, If endotracheal route, give 0.5- 1.0 ml/kg	1					
13.	At any point if baby starts breathing spontaneously and bilateral chest rise is seen, wean off bag and mask ventilation and give post-resuscitation care <ul style="list-style-type: none"> • Monitor every 15 minutes and check for breathing, temperature, colour and CFT • Monitor blood sugar • Watch for complication” convulsion, coma, poor feeding, lethargy, respiratory distress” 	2					
14.	If baby is not breathing, continue bag and mask ventilation for maximum 20 minutes	1					
Total Score		20					

1. All NBSU should be equipped with resuscitation kit, suction catheter, Oxygen, laryngoscope, ETT, Adrenaline

Equipment	Accessories	Function	Remarks
Radiant warmer	Temperature sensor and sensor cover Warm towels or blanket	Warmth , maintaining the warm chain	Preheated warmer
Suction Machine	10F or 12F suction catheter suction, set at 80 to 100 mm Hg	Clearing of airways	Bulb syringe Meconium aspirator
Bag & mask	Term- and preterm-sized masks	Positive pressure ventilation	8F feeding tube and large syringe
Oxygen	Pulse oximeter with sensor and cover Equipment to give free-flow oxygen		Target oxygen saturation table
If trained in NRP protocols and can intubate then must have the following equipment checked. A paediatric stethoscope should be available for auscultation			
Laryngoscope with straight blades	size-0&1, Endotracheal tubes (sizes 2.5, 3.0, 3.5), endotracheal tube insertion depth table • Waterproof tape or tube-securing device • Scissors , 5-mL syringe	Intubate	Laryngeal mask (size 1) , Carbon dioxide (CO2) detector, Measuring tape and/or •
1:10,000 (0.1 mg/mL) epinephrine	Normal saline • Supplies for placing emergency umbilical venous catheter and administering medications	Medicate	

2. After 5 cycles of Bag and mask, if bilateral chest rise does not occur, check for the following (MRSOPA):

	Problem	Remedial Step
M	Inadequate seal	Mask Adjusted to ensure airtight seal
R	Inappropriate Position	Reposition the head in sniffing position
S	Blocked Airway	Suction the Airway
O		Open baby's mouth and ventilate
P	Inadequate pressure	Increase Pressure by squeezing the bag with more pressure till a chest rise is visible
A	No improvement with above steps	Consider Alternate means of breathing such as endotracheal intubation

3. Chest Compressions

- a. Calls for additional help if necessary
- b. Asks assistant to increase oxygen concentration to 100%
- c. Asks assistant to place ECG leads and attach to monitor (recommended)
- d. Compressor moves to head-of-bed position, ventilator to side of bed
- e. Places thumbs on sternum (lower one-third, below imaginary line connecting nipples), fingers under back supporting spine (fingers do not need to touch)
- f. Compresses sternum one-third of the AP diameter of chest, straight up and down
 - i. Compressor counts cadence “One-and-two-and-three-and-breathe-and”
 - ii. Positive-pressure ventilation administered during compression pause (“breathe-and”)
 - iii. 3 compressions and 1 breath every 2 seconds
- g. After 60 seconds of chest compressions and ventilation:
 - i. If the heart rate is 60 bpm or greater, discontinue compressions and resume PPV at 40 to 60 breaths per minute.
 - ii. If the heart rate is less than 60 bpm, check the quality of ventilation and compressions. If ventilation and compressions are being correctly administered, epinephrine administration is indicated.

4. Medication: Epinephrine Summary

- a. Preparation Intravenous or Intraosseous 5 1-mL syringe labelled “Epinephrine-IV” Endotracheal 5 3- to 5-mL syringe labelled “Epinephrine-ET only”
- b. Dose Intravenous or Intraosseous 0.1 to 0.3 mL/kg Endotracheal 0.5 to 1 mL/kg
- c. Administration Rapidly—as quickly as possible Intravenous or Intraosseous: Flush with 0.5 to 1 mL normal saline Endotracheal: PPV breaths to distribute into lungs Repeat every 3 to 5 minutes if heart rate remains less than 60 bpm.
- d. Route Intravenous (preferred) or Intraosseous Option: Endotracheal only while intravenous or intraosseous access is being obtained
- e. Concentration 1:10,000 epinephrine

OSCE CHECKLIST 05: MEASURING OXYGEN SATURATION USING PULSE OXIMETER

Objective:

- To understand the indications for oxygen therapy in new born.
- To confidently use a pulse oximeter to determine the oxygen saturation of a new born.

Situation: A 2-day old baby brought in by her mother at the CHC with c/o of fast breathing. On examination you find: RR – 70/minute with chest indrawing. Determine her oxygen saturation (SpO₂) using pulse oximeter.

#	Steps	Score	Participants				
			1	2	3	4	5
1.	Ensure availability of following items <ul style="list-style-type: none"> • Pulse oximeter • Y-type probe and/or fingertip probe • Medical tape • Alcohol swab 	1					
2.	Tell the mother about the procedure	1					
3.	Choose the appropriate pulse oximeter probe for the age of the child and ensures that it is properly attached to machine	1					
4.	Position the baby appropriately under the radiant warmer	1					
5.	Identify a well perfused site preferably in the hand (finger) or foot (toe) to apply the probe.	1					
6.	Reposition the probe till the display panel shows wave forms/ number and secure the probe using the Velcro extension	1					
7.	Set high and low alarm limits for SPO ₂ (2% above and below desired limits of 90-94%) and heart rate (100-160/min)	1					
8.	Read and record the findings in the case sheet after the number / waveforms are stable.	1					
9.	Monitor and record heart rate, SPO ₂ at least 2 hourly.	1					
10.	Observe and change site at least once in 8 hours.	1					
	Total	10					

Key points to remember:

Pulse oximeter is used both for screening and monitoring purpose:

- Screening tool for all new born presenting with any of the emergency signs
- Monitoring oxygen therapy
- Desired range of SpO₂ for preterm babies is 91% to 95% and desired heart rate is 100 to 160 /min.

Precautions:

- Avoid oedematous, bruised sites and excessive pressure.
- Avoid excess ambient light to shine on the probe, if so cover with an opaque material
- Do not tie the BP cuff proximal to the limb where the probe is fixed to avoid poor perfusion
- Keep fully charged but do not run the oximeter on battery alone if back up power is available
- Baby movement – pulse waveform can be not well detected leading to abnormal reading

Daily cleaning of Pulse oximeter

- Clean probe with spirit swab before every application
- Use moist cloth (with soap and water) to clean monitor
- Do not autoclave.
- Do not use petroleum based, acetone or other harsh solutions
- Carefully connect and disconnect probes and plugs the probe to avoid damage. Grip the hub and not the cable.

OSCE CHECKLIST 06: USE OF GLUCOMETER

Objective: By the end of this exercise the participants should be able to check blood sugar of a baby using glucometer by heel prick method.

#	Steps	Score	Participants				
			1	2	3	4	5
1	Check the expiry date before using the strips.	1					
2	Perform hand hygiene and put on sterile gloves	1					
3	Insert a new strip into the glucometer. The meter will turn on automatically	1					
4	Warm the heel by holding the heel in your palm, while gently squeezing it for a few minutes.	1					
5	Identify the puncture site on the postero-lateral aspect on the heel	1					
6	Prepare the site with spirit and allow it to air dry.	1					
7	Make a needle stick puncture on the postero-lateral aspect of heel, allow blood to collect and form a droplet.	1					
8	Apply the blood droplet to the test strip when the droplet symbol appears in the glucometer window.	1					
9	Read the result from the glucometer display panel and record it.	1					
10	Discard the used strips in the red bin and the lancet in the puncture proof container	1					
	Total	10					

Key Points to remember

In all infants, blood glucose <45 mg% is hypoglycaemia and needs immediate correction.

1. Keep the box containing the strips tightly closed.
2. Do not use povidone/betadine for cleaning puncture site.
3. Avoid the middle portion of heel and avoid making deep punctures. I
4. In heel- pricks, the depth should not go beyond 2.4 mm.
5. For premature neonates, a 0.85 mm lancet is used.

OSCE CHECKLIST 07: MEASURING TEMPERATURE OF A STABLE NEW BORN USING DIGITAL THERMOMETER

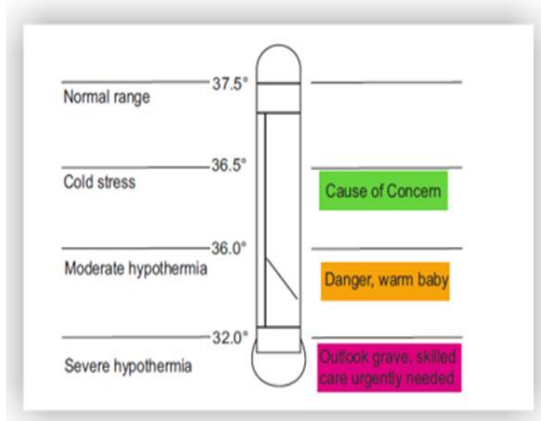
Objective: By the end of this exercise the participants should be able to measure temperature of a stable new born using digital thermometer and manage according to the temperature reading.

#	Steps	Score	Participants				
			1	2	3	4	5
1	Perform hand hygiene	1					
2	Clean the bulb of the thermometer with spirit swab and allow it to dry and switch on for recording the temperature	1					
3	Place the tip of digital thermometer in roof of dry axilla parallel to the trunk.	2					
4	Check that the baby's arm is held close to the body to keep the thermometer in place. Wait till the beep sound	1					
5	Read the temperature when the thermometer beeps.	1					
6	Record the finding, inform mother	2					
7	Clean the thermometer from the base to the bulb with spirit swab	2					
Total		10					

Key Points to remember

- Normal axillary temperature of the new born is 36.5°C to 37.5°C
- There should be no addition or subtraction to the displayed temperature

Grading of hypothermia



Temperature	Diagnosis	Management
36°C-36.4°C	Cold stress	Remove any wet clothes, provide Kangaroo Mother Care, breast feed
32°C-35.9°C	Moderate hypothermia	Remove clothes , place under radiant warmer, monitor temperature every 15 min
<32°C	Severe hypothermia	Remove clothes, place under radiant warmer, rapid warming up to 34.5°C and slow warming up to 36°C, supportive management

OSCE CHECKLIST 08: MANAGEMENT OF SEVERE HYPOTHERMIA

Objective: By the end of this exercise the participants should be able to manage a case of **severe** hypothermia

#	Steps	Score	Participants				
			1	2	3	4	5
1.	Severe hypothermia is temperature of baby < 32°C	1					
2.	Admit the baby	1					
3.	Remove cold clothes from the baby and replace with warm cotton clothes.	1					
4.	Place under radiant warmer with clothes including cap, socks and mittens.	1					
5.	Rapidly re-warm up to 34°C and then Slowly re-warm up to 36.5°C	1					
6.	Monitor temperature every 15-30 minutes	1					
7.	Monitor B.P., HR, and glucose as needed	1					
8.	If Capillary filling time >3 sec, give IV RL/ NS 10ml/kg in 30 min	1					
9.	Give oxygen to maintain SpO2 90-94%	1					
10.	Continue breast feeding. If baby cannot breast feed, given EBM through paladai/gavage	1					
11.	In case baby has vomiting/feed intolerance start IV fluids	1					
12.	If hypoglycemia is present, start 10% Dextrose	1					
13.	Give Vit K1 accordingly stat dose * if not given earlier	1					
14.	Start Inj Ampicillin & Gentamicin according to mg/kg dosage	1					
15.	Refer to SNCU after stabilization if there is no improvement	1					
	Total	15					

Key Points to remember

- Normal axillary temperature of the new born is 36.5 – 37.5°C (97.7 – 99.5°F).
- The signs and symptoms in a hypothermic baby may be subtle and nonspecific; therefore, it is essential to have high index of suspicion for hypothermia especially in LBW and preterm babies.
- **Repeat Injection Vit K1 only in cases with active bleeding**

OSCE CHECKLIST 09: KANGAROO MOTHER CARE (KMC)

Scenario: A woman has given birth in your maternity unit to a baby at 34 weeks' gestation. The baby weighs 2 kg and is pink, active, stable and breathing normally.

#	Steps	Score	Participants				
			1	2	3	4	5
A	Demonstrate how you would perform kangaroo mother care (give participant clothed baby)						
1.	Explain the procedure to the mother	1					
2.	Ensure privacy for the mother	1					
3.	Maintain room temperature 26-28°C and keep it draught free	1					
4.	Ensure the mother is sitting or reclining comfortably	1					
5.	Gently undress the baby except for cap, nappy and socks	1					
6.	Place: <ol style="list-style-type: none"> baby prone on the mother's chest in an upright position Between her breasts, skin to skin In a frog-like position (arms and legs flexed) Turn baby's head to one side so airway is open Support baby's bottom using appropriate sling or binder Cover mother and baby with blanket or shawl 	6					
6	Ensure baby is breastfed once every two-hours	2					
7	Monitor for any emergency signs and act accordingly	2					
	Total Score	15					

Key Points to remember:

- What are the two key components of KMC?
 - Skin-to-skin contact
 - Exclusive breastfeeding
- What are the benefits of KMC?
 - Reduces risk of hypothermia
 - Promotes lactation
 - Promotes weight gain
 - Reduces infections
 - Improves bonding between mother and new-born

OSCE CHECKLIST 10: ORIENTATION ON BREASTFEEDING

Objective: By the end of this exercise the participant should be able to help mother breastfeed in correct manner.

#	Steps	Score	Participants				
			1	2	3	4	5
1.	Advise mother to sit or lie in a comfortable position and help the mother to continue breast feeding	1					
2.	Describe and ensure correct position: <ul style="list-style-type: none"> Baby's body is well supported. The head, neck and the body of the baby are kept in the same plane. Entire body of the baby faces the mother. Baby's abdomen touches mother's abdomen. 	4					
3.	Describe and ensure good attachment: <ul style="list-style-type: none"> Baby's Mouth is wide open Lower lip is turned out Chin is touching her breast Larger area of the areola is visible above than below 	4					
4.	Check for effective suckling - slow, deep sucks with pauses	1					
Total Score		10					

Key Points to remember:

1. Feed at least 8 times in 24 hours including night feeds
2. Empty the breast completely and then latch the baby onto next breast
3. hind milk is rich in fat content and helps in weight gain of the baby
4. In case the admitted baby has any difficulty in breast feeding; Counsel the mother to continue expressing breast milk and feed the baby
5. Counsel regarding correct diet, adequate rest and stress-free environment

Few important conditions which can be easily managed

- **Inverted/flat nipples** –should be diagnosed in the antenatal period and these mothers need additional support to feed their babies.
- **Sore Nipple:** A sore nipple is caused by incorrect attachment of the baby to the breast and so correct positioning and attachment of the baby to the breast and application of Hind milk to the nipple after a feed and the nipples should be aired, to allow healing in between feeds. If fungal infection is suspected, treat with antifungal medication.
- **Breast engorgement:** can be prevented by early and frequent feeding and correct attachment of the baby to the breast. Additionally, local warm water packs and analgesics (Paracetamol) to be given to the mother to relieve pain.
- **Breast abscess:** Mother must be treated with analgesics and antibiotics. The abscess is to be incised and drained. Breast feeding must be continued from the other breast
- **Reduced milk supply / not enough milk:** Many mothers complain that they do not have enough milk. Reassurance is needed if baby is gaining weight adequately, passing urine 6-8 times/day and sleeps for 2-3 hrs after each feed. Advice KMC for VLBW babies.

OSCE CHEKLIST 11: TECHNIQUE FOR EXPRESSED BREAST MILK AND KATORI-SPOON/PALADAI FEEDING

#	Steps	Score	Participants				
			1	2	3	4	5
A	Technique of expressing breast milk by hand:						
1.	Relax the mother by back massage for 10-15 minutes across the length of the vertebral column	1					
2.	Obtain a cleaned & washed katori, cup or container to collect and store the milk	1					
3.	Wash hands with soap and water thoroughly before expression	1					
4.	Sit comfortably, lean forward and support the breast over a bowl using both hands	1					
5.	Initially massage the breast in all quadrants	1					
B	Expression of milk -						
6.	Position the thumb and the forefinger at the margin of areola on both sides & press the breast tissue into the ribcage	1					
7.	Maintaining the backward pressure and start bringing the thumb & the forefinger of the hand towards each other. Do not slide finger and thumb over the breast towards the nipple	1					
8.	Repeat the same several times till no further milk can be expressed out.	1					
9.	Presses the areola in the same way from the sides, to make sure that milk is expressed from all segments of the breast	1					
10.	Expresses each breast for at least 3-5 minutes, alternating breasts until the flow of milk stops (both breasts are expressed)	1					
11.	Stored in a clean and covered container- at room temperature for 8 hours or in refrigerator for 24 hours.	2					
C	Feeding by katori-spoon or paladai:						
12.	Use a clean medium sized cup and a small (1-2ml size) spoon.	1					
13.	Takes baby onto lap and in semi-upright position with head well supported and with a napkin around the neck to mop up the spillage	1					
14.	Stimulates the angle of the mouth and rests the spoon with 1-2ml of milk at the angle of the mouth	1					

15.	Pours the milk slowly into the baby's open mouth watches for swallowing & avoiding the spill. Gently stroke behind the ear or on the sole if the baby goes to sleep.	1					
16.	Continues feeding in this manner till the desired amount has been fed	1					
17.	Burps the baby	2					
18.	Place in lateral position with head supported a little higher than the rest of the body	1					
	Total	20					

Key Points to remember:

1. Manual Expression of breast milk

- Having the baby close or handling the baby before milk expression may help the mother to have a good let-down reflex
- To stimulate and maintain milk production one should express milk frequently – at least 8 times in 24 hours but also not to try to express in a shorter time
- It may take 20-30 minutes to express breast milk adequately.
- Process of expressing breast milk should not hurt– if it hurts, the technique is wrong. At first no milk may come, but after pressing a few times, milk starts to drip out.

2. Feeding by Katori-spoon or Paladai:

- Feeding with a spoon/ paladai and cup has been found to be safe in LBW babies
- While estimating the intake, account for the spilled milk weighing the napkin will provide exact amount of milk spilled

If baby still sluggish, do not insist on this method- It is better to switch back to gavage feeds till the baby is ready

OSCE CHECKLIST 12: FEEDING WITH ORO-GASTRIC TUBE

Objective: By the end of this exercise, the participant will be able to insert an Oro-gastric tube and feed a new born through it.

Gavage feeds are initiated for any baby weighing below 1500 grams or for any baby between 1500-1800 grams who is not able to accept cup-feeds or is losing weight on cup-feeds.

EQUIPMENT & SUPPLIES

- Sterile Oro gastric (OG) feeding tube (6F or 8F)
- 2-5 mL syringe (for aspiration)
- Sterile 10mL /20 ML syringe (for feeding)
- Kidney dish or bowl
- Stethoscope
- Scissors
- Normal saline
- Adhesive tape

#	Steps	Score	Participants				
			1	2	3	4	5
1	Arrange necessary supplies.	1					
2	Use 8F OG tube for babies >2000 gms and 6F for babies <2000 gms	1					
3	Wash both hands, air dry and put on sterile gloves.	1					
4	Ask helper to open the pack carefully and remove the tube carefully	1					
5.	Note the point of graduated marking from the angle of mouth or the tip of nostril to the lower tip of tragus and then to the mid-point between the xiphisternum and umbilicus.	1					
6.	Note the marking as this length of the tube should be inserted through the mouth	1					
7.	During insertion, elevate the baby's head to flex the neck slightly and hold the tube at least 5-6 cms from the tip for insertion	1					
8.	Gently insert it through the mouth pointing towards the back of throat to the required distance.	1					
9	Place a stethoscope just below xiphisternum slightly to the left side of the upper abdomen. Attach a syringe having 2-3 ml air, auscultate with a stethoscope for sound of gush of air in the stomach as the air is pushed	1					
10	Secure the tube in place gently with tape on the cheek and Record point of its insertion in cms at the angle of mouth/nostril in the case sheet.	1					
	Total	10					

Key Points to remember:

1. Precautions while inserting the tube: observe closely for breathing difficulty and colour changes

- If the baby has difficulty in breathing or turns blue or vomits, remove the tube immediately as it may be in the trachea. Always pinch the tube before removing.
- If resistance is felt during insertion, do not push further. Remove the tube and retry or call for assistance.

2. Confirm correct positioning of the tube:

- Place a stethoscope just below xiphisternum slightly to the left side of the upper abdomen. Attach a syringe having 2-3 ml air, auscultate with a stethoscope for sound of gush of air in the stomach as the air is pushed.
- If no sound heard, withdraw the tube immediately by pinching it and reinsert it and reconfirm correct position by reinjecting air.
- Once confirmed remove the syringe and close the OG tube.

3. Feeding technique: Take the required amount of feed (breast milk) in a clean bowl. Ensure the tube is in the stomach by noting its point of measurement at the angle of mouth and cross-checks it with the records. At the time of feeding, the outer end of the tube is attached to a 10/20ml syringe (without plunger) and keeping the syringe vertical, the required amount of milk is poured in the syringe and is allowed to trickle by gravity. Do not push. Remove the syringe and close the tube.

4. The baby should be placed in the right lateral position for 15 to 20 minutes to avoid regurgitation. There is no need to burp a gavage-fed baby. The orogastric tube may be inserted before every feed or left in situ for upto 7 days.

Monitoring during feeding

- Routine pre-feed aspiration of gastric contents is not recommended. Before every feed, the abdominal girth (just above the umbilical stump) should be measured. If the abdominal girth increases by more than 2 cm from the baseline, then perform pre-feed aspirate. It may be also done if baby vomited previous feed.
- If the aspirate is more than 25 percent of the last feed or if it contains blood, feeding should be suspended and baby should be shifted to intravenous fluids while evaluating for sickness. While pulling out a feeding tube, it must be kept pinched and pulled out gently.

OSCE CHECKLIST 13: OXYGEN THERAPY IN NEW BORN

Situation: A baby aged 15 days is brought in by her mother at the CHC with difficulty in breathing. On examination: RR – 75/minute, laboured breathing and central cyanosis and SpO₂ is 89%. The baby was diagnosed as a case of severe respiratory distress and would need oxygen support.

Describe the steps of administration of oxygen via nasal prongs from an oxygen cylinder.

#	Steps	Score	Participants				
			1	2	3	4	5
1.	Explain to the caregiver that the baby needs the support of oxygen to relieve the difficulty in breathing	1					
2.	Ensure oxygen cylinder is secured on flat surface	1					
3.	Attach the regulator and flow meter and ensure all the connections are tight.	1					
4.	Attach the humidification bottle to the flow meter and fill with clean water up to the mark level on the bottle (between 1/3 and 2/3)	1					
5.	Select the appropriate size nasal prongs and connect oxygen tubing to the regulator and flow meter	1					
6.	Set the flow rate at 0.5-2 L/minute	1					
7.	Open the cylinder using spanner/key	1					
8.	Ensure the nostrils are clear of secretions, place the nasal prongs and secure by taping along the cheeks	1					
9.	Monitor SPO ₂ at regular interval using pulse oximeter to monitor to check the condition of the baby and need for further oxygen treatment	2					
Total		10					

Key points to remember:

1. Oxygen is a drug and should be used only if the baby has hypoxia as it is harmful to eyes, brain and lungs.
2. Do not use masks to deliver oxygen in neonates.
3. If the baby has central cyanosis even on 100% oxygen, urgently refer to higher centre for assisted ventilation.

Daily monitoring of the baby on oxygen therapy

- Monitor SpO₂ every 2 hours if a baby is on continuous oxygen therapy.
- Maintain oxygen saturation to 90-94%.
- Once the baby's SpO₂ is maintained at 90-94%, gradually wean from oxygen.

When to discontinue oxygen therapy

- Reduce by 0.5 L every few minutes and observe oxygen saturation. If the saturation maintained at 90-94%, gradually remove oxygen.

Administration of oxygen from oxygen cylinders

Oxygen cylinders – It must have a regulator to limit the pressure of oxygen being released, a gauge to indicate the amount of oxygen in the cylinder and a flow meter to control oxygen flow to the patient.

When using an oxygen cylinder:

- Tighten all the connections (between the cylinder and the regulator and between the regulator and the flow meter), so that oxygen does not leak out.
- Open the regulator and check the amount of oxygen in the cylinder on the pressure gauge. If the needle of the gauge is in the red zone, the cylinder is nearly empty and should not be used, unless it is the only one you have. Never allow such a cylinder to be used for a child overnight, as it will run out and the child will become hypoxemic.
- Oxygen like an emergency drug has to be always available; thus it must be ordered as per the anticipated need for oxygen to avoid any stock out situations and an order is to be placed before it runs out.

As oxygen can spread fire easily, hence it is very important not to allow an open flame anywhere within 3 m of an oxygen source. Firebreak connectors are recommended to stop the oxygen flow in the event of fire.

OSCE CHECKLIST 14: HOW TO CLEAN SELF INFLATING BAG

Objective: By the end of this exercise the participants should be able to disassemble, clean, disinfect/sterilize and assemble different parts of the neonatal Self inflating Bag.

Situation: The staff nurse has completed the resuscitation procedure successfully and after providing initial observation care the new born is in stable condition. Demonstrate how to clean the Self inflating bag

#	Steps	Score	Participants				
			1	2	3	4	5
	Washing and Rinsing						
1	After the new born resuscitation procedure, disassemble all the parts of the Self inflating bag: <ul style="list-style-type: none"> • Mask (to be removed with the thumb in the center) • Patient outlet • Fish mouth • Air inlet and oxygen inlet • Safety valve (Pop up valve) • Body of the bag 	2					
2	Wash thoroughly using a soap/ detergent and rinse with clean running tap water	1					
3	Leave all parts to air dry thoroughly on a clean tray	1					
4	Re-assemble all parts	1					
	Disinfection/Sterilization						
5	Autoclavable bag (as per manufacturer's instructions): Except the reservoir put all other parts in the autoclave after disassembling.	1					
6	For non-autoclavable bag: soak all parts except the reservoir in 2% glutaraldehyde after disassembling <ul style="list-style-type: none"> • High level disinfection (HLD)- for 30 minutes • Sterilization- for 6 hours 	1					
7	After soaking, rinse thoroughly with distilled water	1					
8	Dry all the parts with sterile cloth and then reassemble	1					
9	Place it a clean autoclaved sheet cover and label it with the date of sterilization	1					
	Total	10					

Key points to remember:

1. The Self inflating bag and mask should be disassembled and cleaned after every use and HLD/sterilised at least once every week.
2. Do not use spirit/bleaching solution to clean/disinfect/sterilise the equipment as it may be irritant to the new born baby's airway.

OSCE CHECKLIST 15 UMBILICAL VEIN CATHETERISATION

Objective: By the end of this exercise, the participants should be able to catheterize umbilical vein of a new-born.

An umbilical vein catheterisation is indicated only when need for IV access is urgent, but a peripheral IV line cannot be established quickly.

Supplies for UVC

1. 2 pairs of sterile gloves.
2. Sterile umbilical catheter or ordinary gastric tube
 - if the baby weighs less than 1.5 kg, use a 3.5-F catheter
 - if the baby weighs 1.5 kg or more, use a 5-F catheter
3. Sterile infusion set with IV fluid
4. Sterile 5- or 10-ml syringe
5. Swabs or cotton-wool balls soaked in antiseptic solution
6. Sterile blade
Cord tie or suture (to control bleeding)
7. Sterile forceps
8. Adhesive strapping, or thin paper tape (to secure catheter)

#	Steps	Score	Participants				
			1	2	3	4	5
1	Gather the supplies and prepare the solution to be infused	1					
2	Wash hands, and put on sterile gloves.	1					
3	Prepare the umbilicus and the surrounding skin by using cotton-wool ball soaked in alcohol solution in an outward circular motion starting at the umbilicus, allow to dry.	1					
4	Repeat the procedure with Povidone iodine swab and finally with alcohol swab once more, using a new swab each time and allowing to dry each time.	1					
5	Place sterile drapes over the baby's body so that only the umbilical area is exposed.	1					
6	Fill the umbilical catheter with Normal Saline using a closed syringe (i.e. with the plunger completely inside the barrel of the syringe) attached to the end of the catheter.	2					
7	Place a cord tie or suture around the base of the umbilicus to control bleeding, and using a sterile blade, cut the cord to a length of 1 to 2 cm.	1					

8	Identify the two umbilical arteries and the single umbilical vein.	1					
9	Hold the catheter in one hand (applying gentle traction to the cord with forceps in the other hand, if necessary) and insert the catheter into the umbilical vein, guiding the catheter towards the head of the baby and to the baby's right side	1					
10	As the catheter is advanced, periodically apply gentle suction with the syringe until blood flows back freely into the catheter. Do not advance the catheter any further.	2					
11	Tie the cord tie or suture around the stump of the umbilicus to hold the catheter in place.	1					
12	Remove the syringe and connect the infusion set to the catheter, ensuring that there are no air bubbles in the set.	1					
13	Secure the catheter with adhesive tape to prevent it from being dislodged.	1					
	Total	15					

Key points to remember:

1. The two umbilical arteries are thicker-walled and usually contracted while the single umbilical vein usually has a wider opening and is found above the arteries (closer to the baby's head at 12 o'clock position)
2. Once blood flows back freely through the catheter which is usually after the catheter is inserted 5 to 7 cm, do not advance the catheter any further.
3. Tying the cord tie around the stump of the umbilicus prevents bleeding around the catheter or from one of the arteries.'

<u>DO's</u>	<u>DON'Ts</u>
<p>Inspect the infusion every hour: -</p> <ol style="list-style-type: none"> 1. Look for redness and swelling around the umbilicus, which may indicate infection. If redness or swelling is seen at any time, stop the infusion and remove the umbilical vein catheter. Attempt to establish a peripheral IV line again, and treat for infection of the umbilicus. 2. Check the volume of fluid infused and compare to the prescribed volume; record all findings. 	<ol style="list-style-type: none"> 1. If resistance is encountered while advancing the catheter, especially in the first 2 to 3 cm, do not continue. Remove the catheter and try again. 2. While filling the catheter with fluid, ensure that there is no air in the catheter and that a closed syringe (plunger completely inside the barrel of the syringe) has been attached to the end of the catheter otherwise a sudden deep breath by the baby just after the catheter has been inserted may result in an air embolus

OSCE CHECKLIST 16: USE OF PHOTOTHERAPY UNIT

Objective: By the end of this exercise the participants should be able to

- Provide phototherapy to a new born presenting with complaints of yellowish discolouration of skin & eyes following all precautions
- Operate and maintain the phototherapy unit

#	Steps	Score	Participants				
			1	2	3	4	5
1	Switch on the unit and check that all tubes/lamps are working.	1					
2	Undress the baby (neonatalie) completely. External genitalia should be covered in a diaper.	1					
3	Cover the eyes with eye shades once lights are on.	2					
4	Place the baby (neonatalie) supine in the bassinet and lower the Phototherapy unit as close to the baby (neonatalie) as possible while using LED. For other lights follow manufacturer's instructions.	1					
5	Turn the baby (neonatalie) to expose all the body surfaces.	1					
<u>Monitoring of the baby</u>							
6	Encourage the mother to feed every 2 hours	1					
7	Temperature -4 hourly	1					
8	Urine output and weight –daily	1					
9.	Serum bilirubin -Clinical assessment of jaundice in the baby is not reliable as the skin gets bleached under phototherapy.	1					
	Total	10					

Key points to remember:

1. The baby under phototherapy may pass loose green stools, develop skin rashes & increased insensible water loss etc. which are harmless Continue phototherapy and breast feeding. These side effects are reversible
2. Bronze baby syndrome: Phototherapy should be discontinued if baby has conjugated hyperbilirubinemia.

Maintenance of the phototherapy unit:

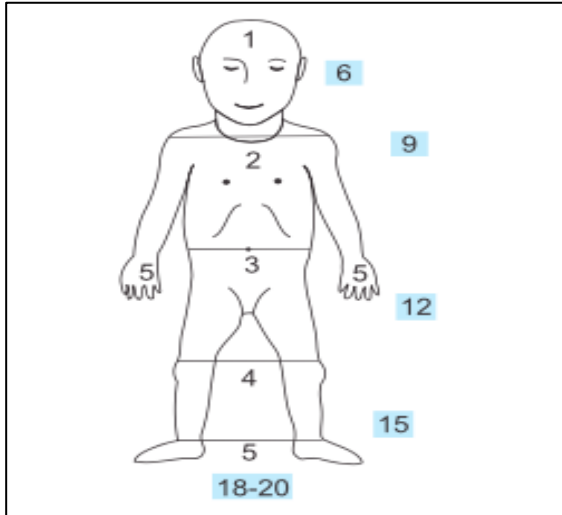
1. Change all the fluorescent tubes 3-6 months or after 1000 hours of use or when the light flickers.
2. LED bulbs have longer life 30,000 hours or 6 years whichever is earlier.
3. Monitor irradiance of machine periodically using a flux meter.
4. If Flux meter and hour meter are not available, then change fluorescent tubes every 3 months

5. Clean with locally available disinfectant (*0.5% bleaching solution*) once a week

Look for Jaundice

Examine baby in good lighting conditions, preferably in natural daylight; press gently on the baby's forehead or nose to look for yellowish discoloration. If yes, it's likely the baby has mild jaundice.

Visual perception of jaundice (Kramer 1969)

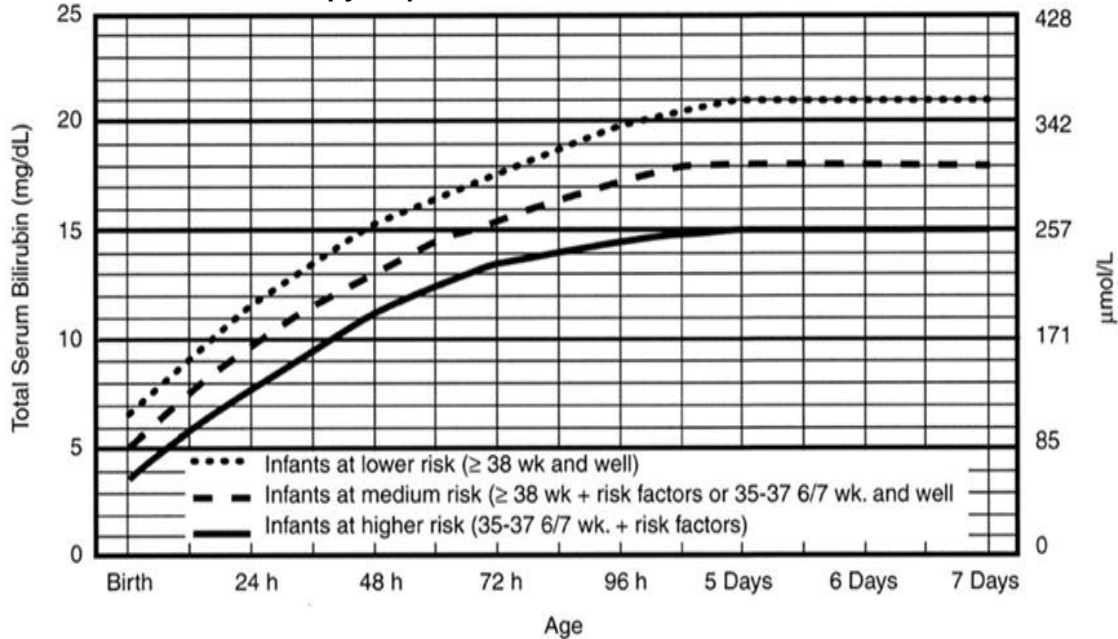


Alert Signs /Indications for referral (non-physiological causes)

- Any jaundice visible in the first 24 hours of life
- lasting > 14 days in term and > 21 days in preterm infants
- with fever
- Increasing levels/deep jaundice: palms and soles of the infant is deep yellow
- When the cause of jaundice is not clear /improving

Direct bilirubin level of > 2 mg/dl and clay coloured stools in the newborn period is rare and is never physiological thus refer immediately to unit with facilities for surgery

Chart for Phototherapy as per AAP Guidelines 2004



- Use total bilirubin. Do not subtract direct reacting or conjugated bilirubin.
- Risk factors = isoimmune hemolytic disease, G6PD deficiency, asphyxia, significant lethargy, temperature instability, sepsis, acidosis, or albumin < 3.0g/dL (if measured)
- For well infants 35-37 6/7 wk can adjust TSB levels for intervention around the medium risk line. It is an option to intervene at lower TSB levels for infants closer to 35 wks and at higher TSB levels for those closer to 37 6/7 wk.
- It is an option to provide conventional phototherapy in hospital or at home at TSB levels 2-3 mg/dL (35-50mmol/L) below those shown but home phototherapy should not be used in any infant with risk factors.

Treatment of jaundice based on serum bilirubin level:

	Phototherapy	Exchange transfusion ^a
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Age	Healthy infant \geq 35 weeks	Preterm infant < 35 weeks' Gestation / any risk factors ^b	Healthy infant \geq 35 weeks	Preterm infant < 35 weeks' gestation/ any risk factors ^b
Day 1	Any visible jaundice c		15	10
Day 2	15	10	25	15
Day 3 onward	18	15	25	20

- Exchange transfusion is not described in this *training package*. The serum bilirubin levels are included in case exchange transfusion so that the infant can be transferred quickly and safely to another facility where exchange transfusion can be performed.
- **Risk factors include small size (< 2.5 kg at birth or born before 37 weeks gestation), haemolysis, perinatal asphyxia and sepsis.**
- Visible jaundice anywhere on the body on day 1.

DO NOT USE -drugs like phenobarbitone, clofibrate, or steroids to prevent or treat hyperbilirubinemia

DO NOT Expose- the baby to sunlight it does not help in treatment of jaundice

OSCE CHECKLIST 17: MANAGEMENT OF NEONATAL SEIZURES

Objective: By the end of this exercise the participants should be able to manage a new born with convulsions.

#	Steps	Score	Participants				
			1	2	3	4	5
1	Place the baby under the radiant warmer and ensure a patent airway, effective breathing and adequate circulation (TABC).	1					
2	Check SPO2 using Pulse oximeter and start oxygen if SpO2 < 90%	2					
3	Secure IV access and draw blood samples for complete blood count– if possible send/store sample for Calcium levels estimates	1					
4	Check Random blood sugar by doing heel prick and If blood sugar is less than 45 mg/dl, correct hypoglycemia by a bolus of 2 ml/kg of 10% dextrose followed by a maintenance infusion of 6-8 mg/kg/min	2					
5	If seizures persist even after correction of hypoglycaemia start Injection Phenobarbitone 20mg/kg IV over 20 minutes. If the baby has no further seizures do not start maintenance.	1					
6	If seizures persist after initial Phenobarbitone infusion, administer further boluses of 5 mg/Kg up to a total of 40 mg/Kg	1					
7	If seizures are not controlled with Inj Phenobarbitone, give Injection Phenytoin 20 mg/Kg IV over 20 minutes	1					
8	Refer the baby to SNCU after stabilization	1					
	Total	10					

Key points to remember:

1. The 1st Line anticonvulsant drug for neonates is Inj Phenobarbitone and the 2nd line is Inj Phenytoin.
2. Both Phenobarbitone and Phenytoin are administered at a maximum rate of 1 mg/kg/min
3. Phenytoin should only be mixed with saline and not with dextrose as it precipitates in dextrose
4. Start a maintenance dose of 3-4 mg/Kg/day after 12 hrs of the loading dose of Phenobarbitone and Phenytoin.
5. Monitor counts, blood sugar, serum calcium and electrolytes
6. Do not use Diazepam for control of convulsions in neonates

OSCE CHECKLIST 18: SEPSIS IN NEW BORN

Objective: The aim of the checklist is to equip the provider with appropriate management of sepsis in a newborn

#	Steps	Score	Participants				
			1	2	3	4	5
1	Suspect sepsis when a baby is brought with difficulty in feeding or poor weight gain in addition to any emergency signs	1					
2	If age is less than 72 hours of birth, look for risk factors for early-onset sepsis : <ul style="list-style-type: none"> • Very low birth weight (<1500 g), prematurity • Prolonged rupture of membranes in the mother (>18 hours) • Intra-partum maternal fever (>37.8°C) 	1					
3	If age is more than 72 hours of birth, look for risk factors of late-onset sepsis like <ul style="list-style-type: none"> • Very low birth weight (<1500 g), prematurity • Lack of breastfeeding • Disruption of skin integrity (eg; use of intravenous fluids) • Poor hygiene • Skin infection or umbilical sepsis 	2					
4	Suspect meningitis if the infant is: <ul style="list-style-type: none"> • Drowsy/ unconscious • Convulsing • Has a bulging fontanelle/ • Irritable • Has a high-pitched cry. Refer to SNCU.	2					
5	Manage emergency signs	1					
6	Continue Exclusive breastfeeding/Expressed Breast Milk	1					
7	Start with Injection ampicillin and gentamicin for 7-10 days	1					
8	Any baby who is being treated with antibiotics but fails to improve by 48-72 hours of admission needs to be referred to SNCU.	1					
Total		10					

Key points to remember:

1. Neonatal sepsis is a clinical syndrome characterized by signs and symptoms of infection in the first month of life. It encompasses various systemic infections of the newborn such as septicemia, meningitis, pneumonia and urinary tract infections (UTIs).
2. **To treat skin pustules or umbilical infections** Teach the mother to gently wash off pus and crusts with soap and water after hand washing Dry the area, apply 0.5% Gentian violet paint and wash hands. Repeat twice daily.
3. **If the umbilicus is red or draining pus** then give oral amoxicillin twice daily for 5 days as recommended

Antibiotic schedule and dosage in neonatal sepsis

Antibiotic	Dosage	Frequency*		Route	Duration
		(a) 0-14 days of life	(b) >14 days of life		
Inj Ampicillin	50mg/kg/dose	12 hourly	8 hourly	IV	7-10
And					
Inj Gentamicin	5mg/kg/dose	24 hourly	24 hourly	IV	7-10 days

***This frequency of antibiotics is valid in babies weighing < 2kg**

In babies weighing \geq 2kg, the frequency remains as (a) from 0-7 days of life and (b) from > 7 days of life

- Give antibiotics slowly, after dissolving in 5-10 mL fluid using a microdrip set/infusion pump.
- **Never mix two antibiotics in the same syringe**

Sepsis screen (may be done in NBSU which have the facilities): in all babies with probable sepsis and in babies born to mothers with risk factors for sepsis. A positive “sepsis screen” takes into account two or more positive tests as given below:

- TLC <5000
- Neutropenia (Absolute Neutrophil Count < 1800/cumm)
- Immature neutrophil (band cells) to total neutrophil (I/T) ratio > 0.2
- Micro ESR (ESR> 15mm 1st hour)
- C-Reactive Protein–positive

OSCE CHECKLIST 19: PERSONAL PROTECTIVE EQUIPMENT (PPE)

PPE are the items used to protect the healthcare worker from splashes of blood, body fluids, excretions or droplets or aerosolization of organisms from the respiratory tract (WHO). These consist of gloves, caps, eye-covers, masks, gowns and footwear.

Objective: Ensure availability and functionality of resources as per attached annexure (LaQshya)

Scenario: You are going to deliver a baby in the labour ward.

#	Steps	Score	Participants				
			1	2	3	4	5
A	Demonstrate how you would use personal protective equipment to protect yourself and the patient						
1.	Shoe covers	1					
2.	Waterproof apron	1					
3.	Eye cover	1					
4.	Cap	1					
5.	Mask	1					
6.	Gown	1					
7.	Gloves	1					
B	Put on the sterile gloves using the following procedure						
8.	Ask assistant to open the outer package of the gloves	1					
9.	Open the inner wrapper exposing the cuffed gloves with the palm facing upwards	1					
10.	Pick up the first glove by the cuff, touching only the inside portion of the cuff	1					
11.	Hold the cuff in one hand and slip the other hand into the glove ensuring that the fingers enter the corresponding finger of the glove	1					
12.	Pick up the second glove by sliding the fingers of the gloved hand under the cuff of the second glove	1					
13.	Put the second glove on the ungloved hand by maintaining a steady pull through the cuff until the fingers reach the end of the corresponding finger of the glove	1					
14.	Adjust the cuff until the gloves fit comfortably and cover both the wrists.	1					
C	After the procedure, how would you remove the contaminated gloves?						
15.	Grasp one of the gloves near the cuff and pull downwards towards the fingers	1					

16.	Grasp the second glove and pull downwards	1					
17.	Pull off the two gloves at the same time, being careful to touch only the inside surfaces of the gloves with your bare hands	1					
18.	Place them in a container of 0.5% chlorine solution	1					
D	What precautions should you take to avoid contaminating sterile gloved hands?						
19.	Don't touch unsterile items with gloved hands. Keep gloved hands above waist level	1					
20.	Wash hands thoroughly with soap and water and dry them after the procedure	1					
	Total score:	20					

OSCE CHECKLIST 20: HAND WASHING

Objective: By the end of this exercise the participant will be able to demonstrate correctly the steps

#	Steps	Score	Participant				
			1	2	3	4	5
1	Remove rings, bracelets, threads and watch.	1					
2	Wet hands in clean running water. Applies soap.	1					
3	Vigorously rub hands on both sides in following manner <ul style="list-style-type: none"> • Palms, fingers and web spaces • Back of hands • Knuckles • Thumbs • Fingertips and creases • Wrist and forearm up to the elbow 	6					
4	Thoroughly rinse hands in clean running water.	1					
5	Allows air dry keeping the hands above waist level.	1					
	Total	10					

Key points to remember:

1. Alcohol rub can also be used if the hands are not soiled by blood or any other secretion. However, alcohol rub is not a substitute for proper hand washing, hence, use alcohol rub judiciously in places where there is no water or in between examining babies.
2. Alcohol hand rub is to be used on both sides of hands for 30 seconds or till the solution is dry in the same manner as hand washing is performed.

OSCE CHECKLIST 21: PREPARATION OF 0.5% CHLORINE SOLUTION

Objective: By the end of this exercise the participant will be able to prepare of 0.5% Chlorine solution for decontamination of instruments and gloves.

#	Steps	Score	Participants				
			1	2	3	4	5
1.	Keep the necessary items ready (plastic bucket and mug, wooden stirrer, tea spoon, bleaching powder in an airtight container, 1 litre water, plastic apron, utility gloves)	1					
2.	Wear plastic apron and utility glove	1					
3.	Take 1 litre water in a plastic bucket	1					
4.	Put 3 level tea spoonful of bleaching powder in the plastic mug and add little water to make thick paste	1					
5.	Add this paste to 1 litre water in the bucket to make 0.5 % chlorine solution	1					
6.	Stir the solution with a wooden stirrer – a milky white solution will appear. Keep it covered.	1					
Total		6					

Key points to remember:

- a. Store the bleaching powder in air tight container away from sun light
- b. Always prepare the solution using plastic spoon and mug wearing utility gloves
- c. Keep the 0.5% chlorine solution in a wide mouth plastic tub/container
- d. Change the chlorine solution every 6 hours or if it appears turbid due to multiple/frequent use and prepare fresh solution.
- e. Ensure the instruments are submerged in the 0.5% chlorine solution for 10 mins for decontamination

OSCE CHECKLIST 22: PROCESSING OF INSTRUMENTS

Objective: By the end of this exercise the participant will be able to process of instruments

#	Steps	Score	Participants				
			1	2	3	4	5
1.	Decontamination						
	<ul style="list-style-type: none"> Place the used items/instruments unlocked in 0.5% Chlorine solution in a plastic container Let it soak for 10 minutes Wear utility gloves, removes instruments from chlorine solution and rinses them in water 	3					
2.	Cleaning						
	<ul style="list-style-type: none"> Clean the instrument with detergent and cold water using soft brush Scrub the instruments with special attention at toothed areas & locks in a container filled with water to avoid splashing Rinse them thoroughly to remove all detergent and air dry them 	3					
3.	Sterilization						
	<ul style="list-style-type: none"> Fill the bottom of the autoclave with water till the ridge Place the items in autoclave drum loosely and puts it on the stove or electrically connected system Note the timing when the steam emits from the pressure valve. Keeps the wrapped items for 30 min and unwrapped for 20 min at 15 pounds per square inch (PSI) at 121 degrees centigrade (106 Kilo Pascal). Open the pressure valve to release the steam and allow the autoclave to cool for 15-30 min before opening. Dip instruments like Laparoscope or bag & mask etc. in Glutaraldehyde solution 	5					
4	Storage – store the instruments at a clean dry place.	1					
	Total	12					

Key points to remember

- Place the items loosely in the autoclave to allow steam to circulate.
- For chemical sterilization, immerse instruments in 2% Glutaraldehyde for 10 hours
- For HLD by boiling method, count 20 minutes after water starts boiling
- While boiling the instruments make sure that lid is closed, instruments are well soaked in water, no in-between addition or taking out of water and/or instrument
- Avoid splashing while decontaminating or cleaning instruments
- While autoclaving, use a biological indicator to ensure the items are sterilized

OSCE CHECKLIST 23: SEGREGATION OF BIO-MEDICAL WASTE AND THEIR DISPOSAL

#	Steps	Score	Participants				
			1	2	3	4	5
1	Segregation						
	Yellow Category <ul style="list-style-type: none"> • Human Anatomical Waste • Soiled Waste • Discarded or Expired Medicine • Chemical Liquid Waste • Chemical Laboratory Waste • Chemotherapy Drug Vials 	1					
	Red Category <ul style="list-style-type: none"> • Contaminated Waste (Recyclable) • Gloves 	1					
	Blue Category <ul style="list-style-type: none"> • Glassware • Metallic Body Implants 	1					
	White Category <ul style="list-style-type: none"> • Waste Sharps including metals 	1					
2A	Common Biomedical Waste Treatment Facility, Agency (CBMWTF) available and providing services						
i	Disinfection of waste – Not required	1					
ii	Proper storage before transportation – locked, covered, well ventilated storage area has to be there with colour coded cabins or partitions	1					
iii	Safe disposal – to be done by the agency	1					
2B	Rural facilities, Agency (CBMWTF) not available						
i	Disinfection of waste – blood or body fluid stained plastics, glass items, metallic sharps as mentioned above to be disinfected using 0.5% chlorine solution for 20 minutes.	1					

ii	Proper storage before transportation - locked, covered, well ventilated storage area has to be there with colour coded cabins or partitions	1					
iii	Safe Disposal – <ul style="list-style-type: none"> • Yellow Bin Waste – deep burial pit • Red Bin Waste – disinfected, mutilated items to be sold for recycling • Blue Bin Waste - disinfected, mutilated items to be sold for recycling • Puncture Proof Box Waste – to be buried in sharps pit • Municipality/ General waste – to be either picked by municipality 	3					
	Total	12					

Key points to remember

- Only one of the points between 2A and 2B, as per the availability of BMW agency, has to be filled.

BMW categories & their segregation, collection, treatment, processing & disposal options

Category	Type of Waste	Type of bag or container to be used	Treatment & disposal options
1	2	3	4
YELLOW	(a) Human Anatomical Waste Human tissues, organs, body parts and foetus below the viability period (as per the Medical Termination of Pregnancy Act 1971, amended from time to time)	Yellow coloured non-chlorinated plastic bag Yellow coloured non-chlorinated plastic bag	Incineration or Plasma Pyrolysis or deep burial* Incineration or Plasma Pyrolysis or deep burial* In absence of above facilities, autoclaving or micro-waving/ hydroclaving followed by shredding or mutilation or combination of sterilisation and shredding. Treated waste to be sent for energy recovery
	(b) Soiled Waste Items contaminated with blood, body fluids like dressings, plaster casts, cotton swabs and bags containing residual or discarded blood and blood components		
	(c) Expired or Discarded Medicines Pharmaceutical waste like antibiotics, cytotoxic drugs including all items contaminated with cytotoxic	Yellow coloured non-chlorinated plastic bag	Expired cytotoxic drugs and items contaminated with cytotoxic drugs to be returned back to the manufacturer or supplier for incineration at temperature

	drugs along with glass or plastic ampoules, vials etc.		>1200°C or to common BMW treatment facility or hazardous waste treatment, storage and disposal facility for incineration at >1200°C or Encapsulation or Plasma Pyrolysis at >1200°C All other discarded medicines shall be either sent back to manufacturer or disposed by incineration
	(d) Chemical Waste Chemicals used in production of biological and used or discarded disinfectants	Has to collected in yellow coloured non-chlorinated plastic bag	Disposed off by incineration or Plasma Pyrolysis or Encapsulation in hazardous waste treatment, storage and disposal facility
	(e) Chemical Liquid Waste Liquid waste generated due to use of chemicals in production of biological and used or discarded disinfectants, silver X-ray film developing liquid, discarded Formalin, infected secretions, aspirated body fluids, liquid from laboratories and floor washings, cleaning, housekeeping and disinfecting activities etc.	Separate collection system leading to effluent treatment system	After resource recovery, the chemical liquid waste shall be pre-treated before mixing with other wastewater. The combined discharge shall conform to the discharge norms given in Schedule-III
	(f) Discarded linen, mattresses, beddings contaminated with blood or body fluid, routine mask and gown (2018 Amendment)	Yellow coloured non-chlorinated bags or suitable packing material	Non-chlorinated chemical disinfection followed by incineration or Plasma Pyrolysis or for energy recovery. In absence of above facilities, shredding or mutilation or combination of sterilisation and shredding. Treated waste to be sent for energy recovery or incineration or Plasma Pyrolysis
	(h) Microbiology, Biotechnology and other clinical laboratory waste Blood bags, laboratory cultures, stocks or specimens of microorganisms, live or attenuated vaccines, human and animal cell cultures used in research, industrial laboratories, production of biological, residual toxins, dishes and devices used for cultures	Autoclave or Microwave or Hydroclave safe plastic bags or containers (2018 Amendment)	Pre-treat to sterilise with non-chlorinated chemicals on-site as per World Health Organisation guidelines on Safe management of wastes from health care activities and WHO Blue Book, 2014 and thereafter sent for incineration (2018 Amendment)

RED CONTAMINATED WASTE (RECYCLABLE)	Wastes generated from disposable items such as tubing, bottles, intravenous tubes and sets, catheters, urine bags, syringes (without needles and fixed needle syringes) and vacutainers with their needles cut) and gloves	Has to be collected in RED coloured non-chlorinated plastic bags or containers	Autoclaving or microwaving/ hydroclaving followed by shredding or mutilation or combination of sterilisation and shredding. Treated waste to be sent to registered or authorised recyclers or for energy recovery or plastics to diesel or fuel oil or for road making, whichever is possible. Plastic waste should not be sent to landfill sites
WHITE (TRANSLUCENT)	Waste sharp including metals Needles, syringes with fixed needles, needles from needle tip cutter or burner, scalpel, blades or any other contaminated sharp object that may cause puncture and cuts. This includes both used, discarded and contaminated metal sharp.	Has to be collected in puncture-proof, tamper-proof and leak-proof containers	Autoclaving or dry heat sterilisation followed by shredding or mutilation or encapsulation in metal container or cement concrete; combination of shredding cum autoclaving; and sent for final disposal to iron foundries (having consent to operate from the SPCBs or Pollution Control Committees) or sanitary landfill or designated concrete waste sharp pit
Blue Glassware	(a) Glassware Broken or discarded and contaminated glass including medicine vials and ampoules except those contaminated with cytotoxic wastes	Puncture proof and leak proof boxes or containers with blue coloured marking (2018 Amendment)	Disinfection (by soaking the washed glass waste after cleaning with detergent and Sodium Hypochlorite treatment) or through autoclaving or microwaving or hydroclaving and then sent for recycling
	(b) Metallic Body Implants	Puncture proof and leak proof boxes or containers with blue coloured marking (2018 Amendment)	

Dilution of cleaners and disinfectants to prepare working solution

Reagent	Dilution	Application
HLD – aldehyde based (product preferably should not release formaldehyde gas – so plain formalin solution should not be used)	Daily use (OT and other critical areas): Add 7 ml of the concentrate per litre of water. * Used once a week (OT only):	For high-level disinfection of surfaces in critical areas. Can also be used for disinfection of blood and body fluid spills on metallic & non-metallic surfaces.

<p>Example product - Bacillocid</p>	<p>Add 20 ml per litre of water.</p> <p>Used 2-3 times a week (OT only): Add 10ml per litre of water. *</p> <p>For disinfection of blood body spills: Add 10ml per litre of water (1%)*.</p> <p>*Kindly refer to manufacturer instructions also before use</p>	
<p>Low level disinfectant (any product with 4th or 5th generation Quaternary ammonium compound with demonstrated resistance to inactivation by hard water) – product to be finalised</p>	<p>As per manufacturer</p>	<p>For cleaning and disinfection in semi-critical areas. Can also be used in general areas.</p>
<p>Chlorine (Chlorine releasing granules containing chlorine dioxide/ Sodium dichloroisocyanurate (NaDCC) preferable).</p> <p>Example product – Isochlor granules.</p> <p>If this is not possible, Sodium hypochlorite solution with a minimum basic concentration of 5.25 to 6.15% can be used)</p> <p>Note: Bleaching powder should be avoided as it leaves powder residues on the surfaces.</p>	<p>Important: Irrespective of the chlorine formulation used, the final concentration mentioned in parts per million (ppm) of chlorine should be adhered to.</p> <p>Granules: as per manufacturer recommendation (add the number of grams of granules to measured quantity of water).</p> <p>Sodium hypochlorite:</p> <p>For small blood - body fluid spills (less than 10ml) – use a 1:100 (1%) dilution (500 ppm free chlorine).</p> <p>For large blood – body fluid spills (more than 10ml) – use a 1:10 (10%) dilution (5000 ppm free chlorine).</p> <p>For linen disinfection: Use a 1:100 (1%) dilution (500 ppm free chlorine) with immersion for 5 minutes. Rinse with plain water immediately.</p>	<p>For disinfection of soiled linen, liquid biomedical waste. Can also be used for disinfection of blood and body fluid spills on non-metallic surfaces.</p> <p>For disinfection and odour minimisation of toilets.</p> <p>For disinfection of selected patient care equipment (non-metallic) such as oxygen humidifier bottles, bedpans, urine pots.</p>
<p>Any good quality liquid soap</p>	<p>Add enough soap to water to give a soapy feel. Avoid too much foaming or prepare as per manufacturer recommendation.</p>	<p>For general cleaning and removal of dust and organic matter on environmental surfaces and equipment.</p>

Dilution Chart for liquid sodium hypochlorite

Original concentration	Dilution (prepared v/v)	Chlorine in ppm	Recommended use
Minimum 5%	None	50,000 ppm	
	1:10 (10%)	5000	Disinfection of large blood/body fluid spills
	1:100 (1%)	500	Wiping metallic surfaces on a regular basis, wiping after cleaning a small blood spill.
	1:200 (0.5%)	250	Cleaning equipment disinfection