

CLINICAL SCENARIO

Radiant Warmer 1

NAME: _____ DATE: _____

PURPOSE: Teaching / Practice
 Test Result: Pass / Fail / Retest

Scenario Overview

A very floppy, bradypnoeic 1.2 kg baby is born to a heavily sedated pre-eclamptic mother. The participant should assess the baby, place the baby under a radiant warmer, and give oxygen. Discuss temperature control.

Reminder to Facilitator

Facilitator team to decide what is essential for participants' understanding; we suggest facilitator team underline or mark these essential items in the **INFORMATION/RESULT** column before beginning the session to ensure these are highlighted in that section.

ALWAYS REMEMBER THE CANDIDATE SHOULD START WITH THE 4 Ss

Safety of the staff and patient

Setting for the environment and patient

Stimulate the patient for response

Shout for help

Begin Scenario

SETTING THE SCENE: A premature baby weighing 1.2 kg is born by normal vaginal delivery to a pre-eclamptic mother who has been sedated with diazepam and received hydralazine to prevent incipient eclampsia. The baby is floppy and breathing very slowly. You are waiting in NICU to receive the baby. **WHAT DO YOU DO?**

#	ACTION REQUIRED	INFORMATION / RESULT	COMMENTS:
1	(Setting) where will you put the baby?	<ul style="list-style-type: none">The baby needs to go under a radiant warmer: oxygen and emergency tray must be near at handA hat will be needed to prevent heat loss	
2	(Safety) what do you do now?	<ul style="list-style-type: none">Wash handsPut on gloves	
3	Call for help	Let sister in charge and doctor on duty know that a sick baby is soon arriving in the ward	
4	Prepare the radiant warmer to receive the baby, choose manual setting	<ul style="list-style-type: none">Plug in radiant warmer and switch on the powerSelect manual setting	
5	What power setting will you use?	25% or prewarm setting (if available on model)	
6	Please show me where you will plug in the temperature probe	<ul style="list-style-type: none">Plug temperature probe into the infant temperature probe portHold temperature probe in hand	
7	How do you check that the temperature probe is working?	<ul style="list-style-type: none">Hold temperature probe in hand and move hand directly under overhead heating elements to check for heatAllow bedding to get warm while waiting for the baby to arrive in the nursery	

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#	ACTION REQUIRED	INFORMATION / RESULT	COMMENTS:
8	The baby has arrived wrapped in a cloth What do you do now?	<ul style="list-style-type: none"> • Quickly check ABCs • Airway: is clear • Breathing: baby is breathing slowly and irregularly • Circulation: Call for help – start oxygen by nasal prongs 0.5 L/min • Put a hat on the child • Unwrap the baby under the radiant warmer 	
9	Please show me how you apply the temperature probe to the baby	<ul style="list-style-type: none"> • Collect: tape or elastic bandage, gauze, alcohol • Position infant in middle of radiant warmer cot, keeping nasal prongs and tubing in place • Use gauze and alcohol to clean temperature probe 	
10	The baby is wet What do you do?	<ul style="list-style-type: none"> • Dry the baby • Place temperature probe directly over infant's liver and secure with tape or elastic bandage • The probe is secured enough not to fall off, but not too tight 	
11	If the temperature probe is too tight what problem will occur?	Pressure sore at probe site	
12	When will you check the temperature of the baby?	After 5 minutes	

THANK YOU

i REMIND PARTICIPANTS:

- A radiant warmer may be used on all neonatal patients admitted to the nursery ward, but especially for:
 - Prematurity
 - Birth asphyxia
 - Low birth weight
 - Intrauterine growth restriction
 - Hypothermia
 - Undertaking invasive procedures
- It is usually used for short periods of time before a baby is placed in a warmer cot or an incubator or when a baby is having a procedure done that is difficult to do in an incubator or cot
- **Obstetrics/Labour Ward Note:** A radiant warmer provides an area post-delivery to prevent hypothermia

TAKE AWAY MESSAGES:

- Be prepared for an infant referral from labour ward
- Check that the radiant warmer is clean and working and already warm when the baby arrives
- Ensure that all emergency treatment that could be needed are at hand
- Warn the staff on duty that a sick baby is on the way

! INFECTION PREVENTION AND CONTROL

Be sure to wash your hands thoroughly and to put on gloves before handling the baby or any equipment. After every use, remember to disinfect all consumables and equipment before using them again.

? QUESTIONS FOR THE GROUP **?**

- | | | |
|----|---|---|
| 1. | How quickly should you rewarm a hypothermic baby? | If a baby is cold, rewarming must be careful and gradual to prevent seizures |
| 2. | What clinical complications can occur from hypothermia? | <ul style="list-style-type: none"> • Associated with an increase in mortality • Switches off surfactant production causing respiratory distress, apnoea and hypoxia • Increases energy (glucose) requirement, leading to hypoglycaemia, poor weight gain • Increases the risk of metabolic acidosis and necrotising enterocolitis |

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❓ QUESTIONS FOR THE GROUP ❓

- 3.** How can the radiant warmer allow hypothermia to occur?
- **Alarms:** Radiant warmers have in-built alarms that should sound if the patient's temperature is above or below a set normothermic range. If this range is not appropriately set, alarms may sound at incorrect situations.
-
- 4.** What are clinical causes of hypothermia?
- Hypothermia can occur in any sick infant and make the underlying problem worse. It's especially common in:
- Prematurity
 - Intrauterine growth restriction
 - Birth asphyxia
 - Sepsis
-
- 5.** What clinical complications can occur from hyperthermia?
- Risks of hyperthermia include increased fluid loss with development of:
- Hyponatraemic dehydration
 - Convulsions
 - Raised metabolism
 - Tachypnoea
 - Tachycardia
 - Recurrent apnoea
-
- 6.** How can the radiant warmer allow hyperthermia to occur?
- Hyperthermia due to:
- **Alarms:** Radiant warmers have in-built alarms that should sound if the patient's temperature is above or below a set normothermic range. If this range is not appropriately set, alarms may sound at incorrect situations.
 - **Probe:** if the device is set to automatically adjust its temperature based on the patient's temperature (servo mode) and the patient temperature probe falls off the patient or is not well secured, the radiant warmer may overheat in an attempt to compensate for what it observes as a low body temperature. This puts the patient at risk for a body temperature greater than 40°C and clinical harm.
-
- 7.** What are clinical causes of hyperthermia?
- Sepsis and dehydration are the common causes of baby causes of hyperthermia
-

Scenario end

CLINICAL SCENARIO

Radiant Warmer 2

NAME: _____ DATE: _____

PURPOSE: Teaching / Practice
 Test Result: Pass / Fail / Retest

Scenario Overview

A 10-hours old baby weighing 1.6 kg is in the nursery under the radiant warmer. The participant should assess the baby, deal with any alarms that sound on the warmer, and monitor care. Discuss temperature control.

Reminder to Facilitator

Facilitator team to decide what is essential for participants' understanding; we suggest facilitator team underline or mark these essential items in the **INFORMATION/RESULT** column before beginning the session to ensure these are highlighted in that section.

ALWAYS REMEMBER THE CANDIDATE SHOULD START WITH THE 4 Ss

Safety of the staff and patient

Setting for the environment and patient

Stimulate the patient for response

Shout for help

Begin Scenario

SETTING THE SCENE: A 10-hour old baby, Phiri (weighing 1.6 kg at birth) is in the nursery under a radiant warmer.
WHAT DO YOU DO?

#	ACTION REQUIRED	INFORMATION / RESULT	COMMENTS:
1	(Setting) where will you put the baby?	Setting is OK	
2	(Safety) what do you do now?	<ul style="list-style-type: none">Wash handsPut on gloves	
3	(Stimulate) the baby	The baby is moving normally when stimulated	
4	Call for help	No need for help at present	
5	What do you do next?	<ul style="list-style-type: none">Quickly check ABCsAirway: is clearBreathing: is regularCirculation: baby is pink	
6	Check the reading on the temperature probe	Temperature is 35°C	
7	What do you do now?	<ul style="list-style-type: none">Check the hat is in place and the baby is dryRaise the temperature of the manual radiant warmer by 1°C	
8	When will you recheck the baby's temperature? What other checks should you do?	<ul style="list-style-type: none">In 5 - 10 minutesMake sure the probe position is correct over the baby's liver and is firmly attached (but not too tight)	

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#	ACTION REQUIRED	INFORMATION / RESULT	COMMENTS:
9	As you walk away an alarm on the radiant warmer starts to sound Which alarms to you check and how do you check them?	Check all the alarms <ul style="list-style-type: none"> • Temperature Alarm: Assess if the patient is too hot or cold and change the radiant warmer settings accordingly • Power Alarm: The main power has failed. Turn off the power button on the radiant warmer • Probe Alarm: Make sure the probe is plugged in; if the alarm continues, replace the probe or contact your maintenance department • System Alarm: The radiant warmer may not be warming correctly. Move the patient to another (working) radiant warmer and contact maintenance department 	
10	When will you check the temperature of the baby?	After 5 minutes	

THANK YOU

i REMIND PARTICIPANTS:

- A radiant warmer may be used on all neonatal patients admitted to the nursery ward, but especially for:
 - Prematurity
 - Birth asphyxia
 - Low birth weight
 - Intrauterine growth restriction
 - Hypothermia
 - Undertaking invasive procedures
- It is usually used for short periods of time before a baby is placed in a warmer cot or an incubator or when a baby is having a procedure done that is difficult to do in an incubator or cot
- **Obstetrics/Labour Ward Note:** A radiant warmer provides an area post-delivery to prevent hypothermia

TAKE AWAY MESSAGES:

- Be prepared for an infant referral from labour ward
- Check that the radiant warmer is clean and working and already warm when the baby arrives
- Ensure that all emergency treatment that could be needed are at hand
- Warn the staff on duty that a sick baby is on the way

! INFECTION PREVENTION AND CONTROL

Be sure to wash your hands thoroughly and to put on gloves before handling the baby or any equipment. After every use, remember to disinfect all consumables and equipment before using them again.

? QUESTIONS FOR THE GROUP **?**

1.	How quickly should you rewarm a hypothermic baby?	If a baby is cold, rewarming must be careful and gradual to prevent seizures
2.	What clinical complications can occur from hypothermia?	<ul style="list-style-type: none"> • Associated with an increase in mortality • Switches off surfactant production causing respiratory distress, apnoea and hypoxia • Increases energy (glucose) requirement, leading to hypoglycaemia, poor weight gain • Increases the risk of metabolic acidosis and necrotising enterocolitis
3.	How can the radiant warmer allow hypothermia to occur?	<ul style="list-style-type: none"> • Alarms: Radiant warmers have in-built alarms that should sound if the patient's temperature is above or below a set normothermic range. If this range is not appropriately set, alarms may sound at incorrect situations.

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❓ QUESTIONS FOR THE GROUP ❓

4. What are clinical causes of hypothermia?

Hypothermia can occur in any sick infant and make the underlying problem worse. It's especially common in:

- Prematurity
- Intrauterine growth restriction
- Birth asphyxia
- Sepsis

5. What clinical complications can occur from hyperthermia?

Risks of hyperthermia include increased fluid loss with development of:

- Hyponatraemic dehydration
- Convulsions
- Raised metabolism
- Tachypnoea
- Tachycardia
- Recurrent apnoea

6. How can the radiant warmer allow hyperthermia to occur?

Hyperthermia due to:

- **Alarms:** Radiant warmers have in-built alarms that should sound if the patient's temperature is above or below a set normothermic range. If this range is not appropriately set, alarms may sound at incorrect situations.
- **Probe:** if the device is set to automatically adjust its temperature based on the patient's temperature (servo mode) and the patient temperature probe falls off the patient or is not well secured, the radiant warmer may overheat in an attempt to compensate for what it observes as a low body temperature. This puts the patient at risk for a body temperature greater than 40°C and clinical harm.

7. What are clinical causes of hyperthermia?

Sepsis and dehydration are the common causes of baby causes of hyperthermia

Scenario end

CLINICAL SCENARIO

Radiant Warmer 3

NAME: _____ DATE: _____

PURPOSE: Teaching / Practice
 Test Result: Pass / Fail / Retest

Scenario Overview

A baby in the nursery is well enough to be moved from radiant warmer to a warm cot. The participant should assess the baby, make the move, monitor the baby's temperature, and then clean and prepare the radiant warmer for the next baby. Discuss temperature control.

Reminder to Facilitator

Facilitator team to decide what is essential for participants' understanding; we suggest facilitator team underline or mark these essential items in the **INFORMATION/RESULT** column before beginning the session to ensure these are highlighted in that section.

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Begin Scenario

SETTING THE SCENE: A baby is well enough to be transferred from the radiant warmer in NICU to a warm cot.
WHAT DO YOU DO?

#	ACTION REQUIRED	INFORMATION / RESULT	COMMENTS:
1	Make sure the warmer is on and warmed up and that it has been cleaned	The warmer temperature is 36°C and has been cleaned	
2	(Safety) what do you do now?	<ul style="list-style-type: none">Wash handsPut on glovesCollect: Tape or elastic bandage, Gauze, AlcoholGently remove the temperature probe from the baby and clean the site with gauze or alcohol	
3	You turn off the radiant warmer switch and move the baby quickly to the warmer cot What do you do next?	Check the baby's temperature after 30 minutes to make sure he is maintaining a normal body temperature	
4	Please show me how you clean the temperature probe	Clean temperature probe, including cable and plug head, with 70% alcohol or dilute chlorine	
5	Now please show me how you prepare the warmer for the next baby	Use gauze and alcohol or diluted chlorine to wipe: <ul style="list-style-type: none">Control panelPower buttonMattressBassinet walls	

THANK YOU

continue to the following page 

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 - Prematurity
 - Birth asphyxia
 - Low birth weight
 - Intrauterine growth restriction
 - Hypothermia
 - Undertaking invasive procedures
- It is usually used for short periods of time before a baby is placed in a warmer cot or an incubator or when a baby is having a procedure done that is difficult to do in an incubator or cot
- **Obstetrics/Labour Ward Note:** A radiant warmer provides an area post-delivery to prevent hypothermia

TAKE AWAY MESSAGES:

- Be prepared for an infant referral from labour ward
- Check that the radiant warmer is clean and working and already warm when the baby arrives
- Ensure that all emergency treatment that could be needed are at hand
- Warn the staff on duty that a sick baby is on the way

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? QUESTIONS FOR THE GROUP **?**

1.	How quickly should you rewarm a hypothermic baby?	If a baby is cold, rewarming must be careful and gradual to prevent seizures
2.	What clinical complications can occur from hypothermia?	<ul style="list-style-type: none">• Associated with an increase in mortality• Switches off surfactant production causing respiratory distress, apnoea and hypoxia• Increases energy (glucose) requirement, leading to hypoglycaemia, poor weight gain• Increases the risk of metabolic acidosis and necrotising enterocolitis
3.	How can the radiant warmer allow hypothermia to occur?	<ul style="list-style-type: none">• Alarms: Radiant warmers have in-built alarms that should sound if the patient's temperature is above or below a set normothermic range. If this range is not appropriately set, alarms may sound at incorrect situations.
4.	What are clinical causes of hypothermia?	Hypothermia can occur in any sick infant and make the underlying problem worse. It's especially common in: <ul style="list-style-type: none">• Prematurity• Intrauterine growth restriction• Birth asphyxia• Sepsis
5.	What clinical complications can occur from hyperthermia?	Risks of hyperthermia include increased fluid loss with development of: <ul style="list-style-type: none">• Hyponatraemic dehydration• Convulsions• Raised metabolism• Tachypnoea• Tachycardia• Recurrent apnoea
6.	How can the radiant warmer allow hyperthermia to occur?	Hyperthermia due to: <ul style="list-style-type: none">• Alarms: Radiant warmers have in-built alarms that should sound if the patient's temperature is above or below a set normothermic range. If this range is not appropriately set, alarms may sound at incorrect situations.• Probe: if the device is set to automatically adjust its temperature based on the patient's temperature (servo mode) and the patient temperature probe falls off the patient or is not well secured, the radiant warmer may overheat in an attempt to compensate for what it observes as a low body temperature. This puts the patient at risk for a body temperature greater than 40°C and clinical harm.
7.	What are clinical causes of hyperthermia?	Sepsis and dehydration are the common causes of baby causes of hyperthermia

Scenario end

Disclaimer

Newborn Essential Solutions and Technologies–Education Clinical Scenarios:
Radiant Warmer

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