



HEALTH HOLDING

HAFER ALBATIN HEALTH
CLUSTER
MATERNITY AND
CHILDREN HOSPITAL

Department:	Pediatrics		
Document:	Multidisciplinary Policy and Procedure		
Title:	Use of Pulse Oximeter in Pediatric Patient		
Applies To:	All Pediatric Staff		
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1. PURPOSE:

- 1.1 To continuously monitor oxygen saturation of arterial blood.
- 1.2 To assess patient's response to oxygen therapy.
- 1.3 To evaluate need for oxygen therapy.

2. DEFINITIONS:

- 2.1 **Pulse Oxymetry** – is a non – invasive saturation monitoring useful in measuring the percent of O₂ saturation of arterial hemoglobin. There are two numerical values obtained from the pulse oximeter monitor:
 - 2.1.1 The oxygen saturation of hemoglobin in arterial blood describe as saturation of peripheral SpO₂.
 - 2.1.2 The pulse rate in beats per minute with a pulse waveform or indicator that illustrates the strength of the pulse being detected.

3. POLICY:

- 3.1 Pulse oximetry is a non – invasive monitoring where light sensor is taped to a limb or earlobe.
- 3.2 It is useful in determining the oxyhemoglobin saturation of patient at risk for hypoxia. Use of pulse oximeter will be carried out by a staff nurse who has received education/ training and possess an evidence of successful in skilful competency "use of Pulse Oximeter". The display reading should correlate with the patient's heart rate to make sure that the reading is accurate.
- 3.3 Calibration must be done by the biomedical technician every six months for Periodic Preventive Maintenance (PPM).

4. PROCEDURE:

- 4.1 Perform hand hygiene to decrease transmission of infection.
- 4.2 Check pulse oximeter for functioning. An audible beep represents the arterial pulse and fluctuating wave form indicating strength of the pulse. A weak signal will produce an inaccurate recording of saturation. Probe should be appropriate to patient's size and age.
- 4.3 Explain the purpose of monitoring to the patient and parents.
- 4.4 Reassure the patient that the monitoring is painless, try to put the probe on a parent or nurse so the patient can see that it is painless.
- 4.5 Select the appropriate probe with particular attention to correct size and where it will be placed.
 - 4.5.1 Hinged finger probe
 - 4.5.2 Rubber finger probe
 - 4.5.3 Ear sensor probe
 - 4.5.4 Soft probe
 - 4.5.5 Flex II probe

- 4.6 Set the appropriate low and high alarm parameters and ensure the alarms are "on", unless ordered differently by physician.
 - 4.6.1 Oxygen Saturation Parameters:
 - 4.6.1 95 – 100% for patient's room air.
 - 4.6.2 90 – 100% in patient receiving 100% oxygen.
- 4.7 Prepare selected site by cleaning the area with alcohol swab and allowing it to dry. Oily and dirty skin can interfere with the passage of light waves.
 - 4.7.1 Choice of probe site will vary depending on the size of the patient and the site availability.
 - 4.7.2 Avoid the arm being used for blood pressure monitoring as cuff inflation will interrupt the pulse oximeter signal.
- 4.8 Connect the sensor probe to the pulse oximeter.
 - 4.8.1 Do not apply tension to probe cables as damage may result. If a probe is damaged in any way, discontinue use immediately.
 - 4.8.2 Handle the probe carefully and never leave it in a place where it could be dropped on the floor.
 - 4.8.3 Align the connector correctly before attempting to insert it into the monitor. Never pull the probe from the machine by pulling on the cable; always grasp the connector firmly between finger and thumb.
- 4.9 Place the probe on the site with good perfusion.
 - 4.9.1 Finger
 - 4.9.2 Foot
 - 4.9.3 Toe
 - 4.9.4 Palm
 - 4.9.5 Ear
 - 4.9.6 For neonatal and pediatric use, some suggested sites are the calf, forearm and outer aspect of the foot proximal to the toe.
- 4.10 Ensure proper coverage of the photo detector is essential. Avoid site with fingernail polish or artificial (cosmetic) fingernail.
- 4.11 Apply minimal pressure to the test site when attaching the probe to the patient. Do not restrict circulation.
- 4.12 Apply probe securely to the selected site and ensure that the light emitting sensor and the light-receiving sensor are aligned opposite to each other.
- 4.13 Position the patient's hand at heart level to eliminate venous pulsation and promote accurate reading.
- 4.14 Ensure accuracy, check for adequate signal strength and a repeatable pulsatile wave form. The pulse reading on the pulse oximeter matches the patient's heart rate.
- 4.15 Leave sensor probe in place until oximeter reading remains constant and the pulse display reaches full strength during each cardiac cycle.
- 4.16 Check and record oxygen saturation at regular intervals as ordered by physician. Monitor patient's hemoglobin, low hemoglobin level may be satisfactorily saturated yet not adequate to meet a patient's oxygen.
- 4.17 Check the probe site at least every four hours. Change the site at least every four hours or as necessary.
- 4.18 Rotate site for probe placement on a regular basis to prevent skin breakdown under the probe. Skin irritation may result from the adhesive used in adhesive- containing probes and the pressure from the probe itself.
- 4.19 Evaluate clinical appearance of patient in relation to the SpO₂ values displayed on the monitor.
 - 4.19.1 Use of the pulse oximetry in cases of smoke or carbon monoxide inhalation is not helpful because oximetry cannot distinguish between normal oxygen saturation in the hemoglobin and the carboxyhemoglobin saturation of hemoglobin that occurs with inhalation of smoke or carbon dioxide.
- 4.20 Care of pulse oximeter:
 - 4.20.1 Clean the reusable probe gently with Medisol Spray. Discard disposable probe after each use.
 - 4.20.2 Position safely to avoid dropping or damage from spillage.
 - 4.20.3 When connecting the probe or lead, always insert the plug correctly. Check carefully to avoid damage.
 - 4.20.4 When connecting and disconnecting the probe, grasp the plug firmly and not the cable. The connector has a series of very fine pins that can be easily damaged.

- 4.20.5 When not in use, the oximeter probe cable may be loosely coiled for storage or carrying, but should not be coiled too tightly as this will damage the wires inside the cable. The lens and detector should be kept clean.
- 4.21 Write nursing care plan according to identified patient's problem through nursing process approach, refer to Nursing Clinical Practice Guidelines.
- 4.22 Document in the nurses notes and forms the procedure including the date and time, oxygen saturation reading and any action taken.

5. MATERIALS AND EQUIPMENT:

- 5.1 Cardio – Respiratory Monitor/ Pulse Oximeter
- 5.2 Oximeter Cable
- 5.3 Oximeter Connector
- 5.4 Oximeter Probe
- 5.5 Medisol Spray
- 5.6 Alcohol Swab

6. RESPONSIBILITIES:

- 6.1 All Paediatric Nurses


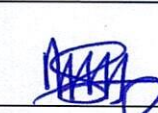
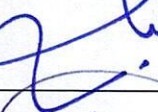
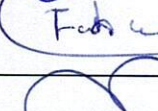


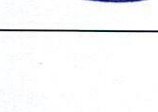
7. APPENDICES:

- 7.1 Nurses Progress Notes

8. REFERENCES:

- 8.1 Kingdom of Saudi Arabia, Ministry of Health Baish General Hospital, 2018.

9. APPROVALS:

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