Pulse Oximetry (Assessing Oxygen Saturation)

Purpose

The purpose of this procedure is to monitor arterial blood oxygen saturation (SaO2) without the use of invasive devices.

Preparation

1. Review the physician's orders or facility protocol for pulse oximetry.
2. Review the resident's care plan to assess for any special needs of the resident.
3. Refer to the manufacturer's instructions for pulse oximetry placement and alarm settings.
4. Assemble the equipment and supplies as needed.

General Guidelines

1. The pulse oximeter is a probe with light emitting diodes (LEDs) connected to an oximeter. The LED emits light waves that are absorbed by oxygenated and deoxygenated hemoglobin molecules. The oximeter measures the light reflected by these molecules and calculates the pulse oxygen saturation (SpO2), which is a reliable measure of SaO2. Several factors can influence the accuracy of pulse oximetry, such as:
   a. **Amount of hemoglobin**. The pulse oximeter measures oxygen saturation of the hemoglobin, not absolute hemoglobin levels. Therefore, a severely anemic resident could have normal SaO2 without maintaining adequate oxygen in the tissues.
   b. **Placement of the oximeter**. Impaired circulation (e.g., peripheral vascular disease, temperature-induced vasoconstriction) to the area in which the oximeter probe is placed will provide inaccurate data. Since the elderly often have impaired peripheral circulation, the probe should be placed on the ear or bridge of the nose.
   c. **Activity**. Movement of the probe may affect the oximeter readings. Do not place probe on the finger of a resident who experiences hand tremors.
   d. **Light**. Bright lights (sunlight, treatment lights, etc.) may interfere with accuracy of the SpO2 readings.
   e. **Foreign objects**. Artificial nails and nail polish can prevent the LEDs from reaching the saturated hemoglobin molecules, lowering the SpO2 readings.
2. Normally SpO2 is between 90 and 100 percent; SpO2 below 70 percent is life threatening.

Equipment and Supplies

The following equipment and supplies will be necessary when performing this procedure.

1. Pulse oximeter;
2. Appropriate probe;
3. Nail polish remover;
4. Flow chart or documentation record; and
5. Personal protective equipment (e.g., gowns, gloves, mask, etc., as needed).

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Assessment

1. Assess the resident for the following signs and symptoms of impaired oxygen saturation:
   a. Altered respirations, difficulty breathing, abnormal breath sounds;
   b. Cyanotic appearance of nail beds, lips, skin, mucous membranes, skin;
   c. Restlessness, irritability; and/or
   d. Confusion, loss of consciousness.
2. Assess the site most appropriate for probe placement:
   a. If the resident has impaired peripheral circulation or hand tremors, place the probe on the ear or bridge of the nose.
   b. If the resident is obese, use a disposable, adhesive probe.
   c. Do not attach clip-on probe if area is edematous or skin integrity is compromised.
3. Assess the resident for latex allergy. If the resident is allergic to latex, do not use adhesive probes.

Steps in the Procedure

1. Provide for resident privacy.
2. Explain the procedure to the resident.
3. Perform hand antisepsis.
4. Assist the resident to a comfortable, resting position.
5. If placing probe on finger, support the resident's lower arm. Remove fingernail polish.
6. Attach probe to selected site and probe cable to monitor.
7. Turn on oximeter.
8. Compare oximeter pulse rate with resident's radial or apical pulse (they should be the same).
9. **For intermittent monitoring**:
   a. Wait until oximeter displays a constant SpO2 value and pulse display reaches its maximum for every cardiac cycle. Record SpO2 on readout.
10. For continuous monitoring:
    a. Check alarm limits and volume. Reset to desired levels.
    b. Verify that alarms are activated.
    c. Assess skin integrity under probe regularly.
    d. Reposition probe regularly.
11. If SpO2 is less that 90 percent:
    a. Reposition the probe and re-evaluate readings.
    b. If SaO2 is less than acceptable level for resident's condition, notify the physician.
    c. Position the resident in semi or high-Fowler's position.
12. If pulse wave intensity is low:
    a. Locate different site for probe and reposition.
    b. Use a different probe.
    c. Assess cardiovascular status by assessing radial and apical pulses.
13. Remove probe when monitoring is complete. Turn off monitor.
14. Discard all disposable items in designated receptacles.
15. Discard personal protective equipment (if used) in designated receptacles.
16. Perform hand antisepsis.
17. Reposition the bed covers. Make the resident comfortable.
18. Place the call light within easy reach of the resident.
19. If the resident desires, return the door and curtains to the open position and if visitors are waiting, tell them that they may now enter the room.

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Documentation

The SaO2 flow sheet should be placed in the medical record. In addition, the following information should be recorded in the resident's medical record:

1. The date and time that the procedure was performed.
2. The type of probe and location of placement.
3. The assessment data gathered prior to the procedure.
4. The resident's response to the procedure.
5. Any unusual findings and action taken.
6. If the resident refused the procedure, the reason(s) why and the intervention taken.
7. The signature and title of the person performing the procedure.

Reporting

1. Notify the supervisor if the resident refuses the procedure.
2. Report other information in accordance with facility policy and professional standards of practice.

References	
MDS (RAPs)	n/a
Survey Tag Numbers	n/a
Related Documents	
Risk of Exposure	Blood–Body Fluids–Infectious Diseases–Air Contaminants–Hazardous Chemicals
Procedure Revised	Date:_____ By:_____ Date:_____ By:_____ Date:_____ By:_____ Date:_____ By:_____