

PROMISE HOSPITAL: PULSE OXIMETRY COMPETENCY

1. Pulse oximetry is a procedure used to measure the percentage of oxygen carried in blood.

True

False

2. Pulse oximetry is useful to clinicians in assessing:

- a.
- b.
- c.

3. Clinical effects of hypoxemia include (list at least 3):

4. Pulse oximetry alone is reliable in determining the status of a patient.

True

False

5. Limitations of pulse oximetry to compute accurate readings include:

- a. Internal characteristics (List at least 3):

- b. External characteristics (List at least 3):

6. Oximeters respond to carboxyhemoglobin as if it were oxyhemoglobin.

True

False

7. An instantaneous drop in the pulse oximetry reading, for instance from 99% to 85%, should be a cause for concern.

True

False

8. The predictive accuracy of pulse oximetry tends to be overstated. Most manufacturers specify that their oximeter readings can be expected to have a _____% standard deviation in the _____% saturation range. For example, there is a 95% probability that a pulse oximeter reading of 90% corresponds to an arterial blood saturation reading between 84% and 96%. Note: Oximeters reliably indicate the development of hypoxemia before harm comes to the patient.

9. Accuracy of pulse oximetry readings diminishes the further it is from the norm. For example, a reading of 52% should be viewed as low, but may not be as bad as it appears.

True

False

10. For best results with use of pulse oximetry, therapists should follow these steps:

- a.
- b.
- c.
- d.

1. True
2. Answers:
 - a. Severity of disease
 - b. Effectiveness of therapeutic interventions
 - c. The need for supplemental oxygen
3. Answers: Nausea, Incoordination, Vertigo, Impaired athletic performance, Neurological deficits, Death
4. False, the entire clinical picture must be taken into consideration.
5. Answers:
 - a. Low peripheral vascular perfusion, Venous congestion, Vasoconstriction from hypothermia, Hypovolemia, Cardiogenic shock, Anemia, Abnormal hemoglobin, Skin pigmentation
 - b. Motion artifact, Interference by electrical energy and stray light, Interpretation of pulse ox reading, Intravascular dyes, Nail polish
6. True, if a patient has significant elevation of HbCO (cigarette smokers, fire fighters) then the oxygen content would be overestimated, thereby decreasing oxygen delivery to tissues.
7. False, it is physiologically impossible for the body to change at such a significant rate of oxygen saturation.
8. 2-3; 70-100
9. True, therapists should be wary of readings less than or equal to 68% - 78%, unless the reading is validated by arterial blood sampling.
10. Answers:
 - a. Secure the probe
 - b. Monitor signal strength
 - c. Be aware of whether the patient smokes
 - d. Validate pulse oximetry readings with arterial blood sampling