SIMULATION SCENARIO #5

MAKING TIME FOR TREATMENT

Simulation Device: Oximeter

Skills Progression Line

Simulation Level: Beginner

Source: Benner, P. E. (1995). *De novice à expert : excellence en soins infirmiers.* InterEditions.

THE OXI

- Inspired by the Zaccurate 500 DL Pro Series Fingertip Pulse Oximeter.
- Allows you to show an oxygen saturation measurement (blood oxygenation measurement) and a heart rate (pulse) to simulate hypoxemia and/or hyperoxia.
- Compatible with low, medium, high-fidelity manikins or with a simulated/standardized patient.
- Designed to fit on human fingers, but also works with silicone, rubber, latex or plastic fingers.
- When a value is received, a bar graph will match the heartbeat (BPM).
- Comes with a wrist strap, a USB-C cable and a wall charger.
- Powered by a rechargeable Lithium-ion battery (24-hour autonomy).

THIS DEVICE IS

User-friendly

Remote-controlled via instant Bluetooth connection

Durable

Designed, manufactured and assembled in Canada

Environment-friendly
(1 device bought = 1 tree planted)

Controlled via Innov2Learn's free, easy-to-use app for all devices

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MAKING TIME FOR TREATMENT

Simulation Device: Oximeter

NURSING SKILLS

This simulation develops the nursing student's know-how, sense of responsibility and accountability with a COPD (Chronic Obstructive Pulmonary Disease) patient.

AUTHORS

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OVERVIEW OF THE CLINICAL SITUATION

The workday begins in the Respiratory Division of a hospital's medical unit. Mr. Oliver, 58, was admitted yesterday afternoon. He was brought in during the night by the emergency services after respiratory decompensation in COPD (stage 2 – GOLD criteria + FEV). COPD was diagnosed two years ago and treatment is underway.

The nursing student admitted Mr. Oliver, who is wearing a nasal cannula at a variable flow rate of 2 L/min to be adjusted to meet an oxygen saturation target of 88%-92%. The reason for admission is to treat his decompensation and to adjust his treatment. In fact, this is the second flare-up in one year, manifesting with a cough, sputum, dyspnea, and mild hyperthermia.

His medical history/risk factors include active smoking (pack-year: 20, meaning 1 pack per day for 20 years), BMI (Body Mass Index) of 28 – overweight, waist circumference of 110 cm.

Mr. Oliver has been living alone since his divorce, 10 years ago. He doesn't have children. He also snacks a lot and has a high-fat, high-protein diet. He tells us that fast-food restaurants are the only ones open late and he's been eating there at least three (3) times a week for the past 10 years.
He is a workshop manager at an automobile plant and says that he's very immersed in his work. Having to be hospitalized causes him a lot of stress and he's on constantly on his computer or cell phone.

LEARNING GOALS

COGNITIVE LEVEL: Assess the global situation in order to anticipate a flare-up of the patient's clinical condition and suggest pertinent interventions.

EMOTIONAL LEVEL: Propose and implement a health education program to help the patient quit smoking and provide lifestyle and dietary advice.
Display efficient and transparent communication with the patient as well as leadership.

PROCEDURAL LEVEL: Ensure continuous monitoring that is adapted to the care situation, in particular with the oximeter and the variable oxygen flow.

EDUCATIONAL MATERIAL

- Innov2learn Oximeter Simulator
- Mobile device
- Nasal cannula
- Sphygmomanometer stethoscope
- Thermometer
- Patient's care record including:
  - Sphygmomanometer stethoscope - parameters: BP 140/82; pulse 98/min; sat. 90%; respiratory rate: 30/min;
  - Thermometer - parameters: 37.9°C;
  - Lab results: CBC, CRP, blood gas;
  - Chest X-ray (if possible);
  - Mr. Oliver's pharmacological profile;
  - Doctor's prescription for variable O2 administration.

PRE-REQUISITE KNOWLEDGE/SKILLS

- Pharmacology and pharmacotherapy of COPD and flare-ups
- Interpreting drug administration records and adjusting the O2 flow according to saturation levels (medical prescription)
- Cardiothoracic examination
- Taking vitals/interpreting O2 saturation data for COPD patients (normal vs COPD values, CO2 tolerance level
- Using an oximeter/interpreting data
- Adjusting O2 flow rate according to saturation levels: KNOW THE RISKS OF OXYGEN-INDUCED HYPERCAPNIA
- Communication techniques/skills (motivational interviews)
- Identifying cardiovascular risk factors
- Pathophysiological process of COPD, flare-ups, maintenance and emergency treatments

PHARMACOLOGICAL PROFILE

Drug (class)	Route of administration	Time of administration
Antacid	oral	7:30 AM
Bronchodilators Long-acting beta-w stimulants	inhalation suspension	8:00 AM
Anticholinergic	inhalation	8:00 AM 8:00 PM
Antidepressant	oral	10:00 PM
Antibiotic	oral	10:00 AM

OXYGEN THERAPY PRESCRIPTION:

- Monitor O2 saturation 3 X/day
- Goal: Maintaining saO2 between 88-92%with 2 L/min of O2 via cannula
- If saO2 < 88%, administer 3 L O2 – control respiratory rate + rest
- If saO2 > 92%, stop administering O2

LAB RESULTS*

Complete Blood Count (CBC)	Mr. O Results	Normal Values for Men
HEAMATIDS (RBC)	4.9	4.5-5.5 million/mm3
HEMOGLOBIN	143	130-170 g/L
HEMATOCRIT	50	42-52%
LEUCOCYTES	13 000	4000-10,000/mm3
POLYNUCLEAR NEUTROPHILS	63	40-70%
POLYNUCLEAR EOSINOPHILS	1.3	1-4%
POLYNUCLEAR BASOPHILS	0.3	<1%
LYMPHOCYTES	29	20-40%
MONOCYTES	5.7	4-10%
PLATELETS	362 000	150,000-400,000/mm3
CRP	230	< 5mg/L

Blood Gas Test	Mr. O Results	Normal Values
PaO2	55mmHg	>80 mmHg
SaO2	90%	92–98%
PaC02	55mmHg	35–45 mmHg
HCO3 -	28mmHg	22–26 mmol/L
pH	7.32	7.35–7.45

**Taken from the Guide des examens biologiques*

SIMULATION TIMETABLE

Briefing (suggested duration: 30 minutes)

1. Introduce the clinical situation, the skills to be developed and the learning goals.
2. Guide students towards care record analysis (lab results, paraclinical data, pharmacological profiles).
3. Structure clinical risk assessment during the briefing period (prior to the simulation).
4. Provide guidance and support to students about prioritizing proper monitoring for the situation and coordinating nursing with medical care.
5. Expected Course of Action: prioritizing saturation and oxygenation monitoring/lung sounds/tobacco consumption/nutritional intake and hydration/BP/evaluating the patient's emotional state.

Caregiving Situation (suggested duration: 15 minutes)

Expected Assessments

- Targeted clinical assessment including:
  - Measuring O2 saturation and vitals
  - PQRSTU*** of current (new) symptoms
  - Assessing the patient's emotional state

Debriefing (suggested duration: 30 minutes)

- Roundtable discussion of emotions (as needed).
- Reviewing the learning goals and elements to be explored:
  - Cognitive Level: Comprehensive analysis of the situation in order to anticipate a worsening of the patient's condition and propose relevant care interventions.
  - Emotional Level: Key attitudes/positions and messages for establishing mutual trust and a partnership between the patient and the care team.
  - Procedural Level: Provide relevant information to the doctor (using the appropriate communication tool for the setting) and clinical monitoring plan. Motivational Interviewing Guide (smoking cessation and dietary measures).
  - Significant and durable competencies learned to be implemented in professional practice.

EXPECTED INTERVENTIONS

- Adapted communication with a patient worried about hospitalization and his professional responsibilities
- Comprehensive and structured clinical evaluation
- Establish a partnership with the patient regarding his clinical monitoring plan and inhaler treatment plan
- Create a climate conducive to the implementation of a health education program
- Teach patient about moving around safely and about the risks and precautions to take as a smoker under oxygen therapy
- Assess and document Mr. Oliver's habits and diet

CLINICAL TOOL:

ASSESSING PAIN WITH PQRSTU

(TO USE AND ADAPT TO THE SYMPTOMS DISPLAYED DURING THIS SIMULATION)

- P: What caused your pain? What relieves it? What makes it worse? (movements, drugs, applying hot/cold therapy, etc.)
- Q: Describe your pain. What do you feel? (Throbbing, burning, numbing, electric shocks, deep, superficial)
- R: Where do you feel pain? Point to the painful area(s) with your finger.
- S: Do you feel discomfort elsewhere?
- T: When did the pain start? Is it intermittent or constant? If it is intermittent, when does it occur?
- U: What do you think is causing the pain? What does it mean to you?

Source: Adapted from Jarvis, C. & Eckhardt, A., Chapados, C. & Lavertu, E. (2020). Physical Examination and Health Assessment, 3rd edition, volume 1, Elsevier Canada, pages 256-257.

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