Acute Respiratory Distress Syndrome (ARDS)

Part III: Novel Coronavirus Infection (COVID-19)

Introduction

In this unfolding case study that simulates the complexities of clinical practice, you will assume the role of a nurse in the critical care setting. You will use a holistic approach to provide safe care by making correct clinical judgments for a patient with ARDS and septic shock. You will need to apply essential knowledge to notice and interpret the most crucial assessment findings and lab values to properly establish care priorities and recognize a developing complication before it needlessly progresses.

Preparation for Care Activity

Recognizing Clinical Relationships

Review the medical history and home medications of this patient. For each home medication, identify the pharm. classification and expected outcome for this patient its most common side effect (SE). Finally, draw a line to determine which medication treats what condition.

Medical History	Home Medications	Pharm. Classification	Expected Outcome	Common SE
• Diabetes type II • Hypertension • Seasonal allergies	1. Metformin 1000 mg PO BID	Hypoglycemic med (Antihyperglycemia)	keep BS stable - lower BS	Headache N/V/D indigestion
	2. Glyburide 10 mg PO BID	hypoglycemic med	lower BS - Secrete insulin	Weight gain Indigestion Hypoglycemia
	3. Lisinopril 20 mg PO daily	ACE	↓ BP	Cough dizzy blurry vision
	4. Loratadine 10 mg PO daily	Antihistamine	allergy relief	Ha dry mouth weakness

Part I: Developing Noticing and Interpreting Skills

1. Which findings from the *present problem* are **most important** and noticed by the nurse as clinically significant?

Most Important Findings	Clinical Significance
• ↑O2 needs ↓ demand • Covid positive • Pale, diaphoretic, Anxious • O2 85% w/ retractions	• opposite of what our goal is • body is Shunting • ∅ adequate ventilation/perfusion

2. Which data from the *social history* is **most important** and noticed by the nurse as clinically significant?

Most Important Findings	Clinical Significance
• homeless • No close family	• ↑ infection risk, ↓ healing • ∅ Support

3. Which findings from the *contextual factors* are **most important** and noticed by the nurse as clinically significant?

Most Important Findings	Clinical Significance
• Pts Around him are dying + Vented • Staff is overworked + Stressed	• hard to Stay motivated • Burnout leads to less Sufficient Care

Patient Care Begins

Rhythm Interpretation	
Regular or (Irregular) P wave present? yes Rate: 118 Interpretation: A-fib	
Clinical Significance:	**Intervention** (if needed)
• Inadequate perfusion • Clot risk / Stroke risk	• Amniodarone + Cardiovert? • Anticoag

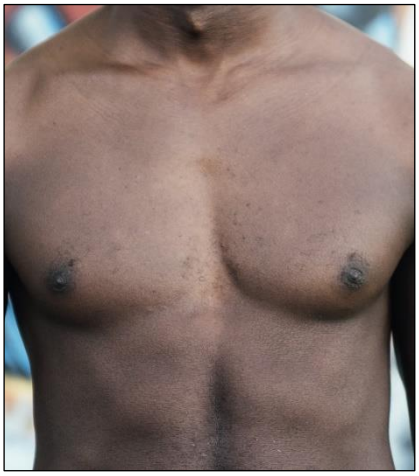
4. Which current vital sign findings are **most important** and noticed by the nurse as clinically significant?

Most Important Data	Clinical Significance	TREND: Improved/Declined/No Change
• 84% O_2 • ↓ BP	• No perfusion	• declined: BP O_2: improved

5. What assessment data needs to be noticed as most important? Interpret its clinical significance.

Most Important Data	Clinical Significance	TREND: Improved/Declined/No Change
• Anxious + tense • breath sounds diminished • Shallow RR • irregular Heart Sounds	• declines healing + ↑ O_2 demand • No gas Exchange occuring • CO_2 buildup • Inadequate perfusion	• Declining

Auscultate Anterior Breath Sounds

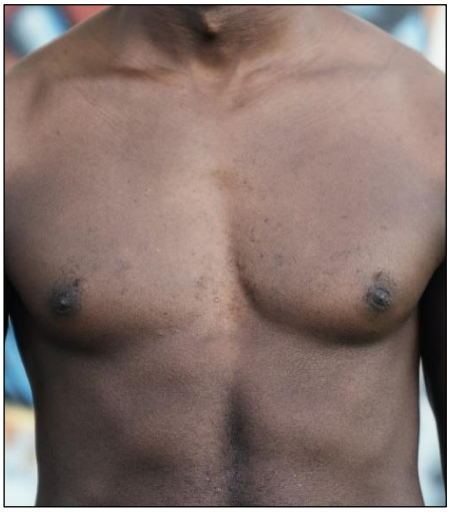


Place a circle on the chest where the nurse would place the stethoscope to auscultate the left lower lobe.

Click this link to listen. Identify what type of breath sounds are heard, and interpret their clinical significance.

Breath Sounds	Clinical Significance
Crackles	• ↓ gas exchange

Auscultate Heart Sounds



Place a circle on the chest where the nurse would place the stethoscope to auscultate the apical pulse.

Click this link to hear heart tones. Identify what type of heart sounds are heard, and interpret their clinical significance.

Heart Sounds	Clinical Significance
irregular rhythm	• ↓ Perfusion

As you complete the head-to-toe assessment, you notice this finding in the flowsheet in the medical record:

Intake & Output	0800	1000	1200
Intake	150 mL	100 mL	60 mL
Output	0	0	0

6. Which findings from this new information are **most important** and noticed by the nurse as clinically significant?

Most Important Findings	Clinical Significance	Nurse Response
• 310 intake + No output	• holding fluid → could lead to fluid overload	• Call HCP about diuretic • maybe K+ too low?

7. After evaluating the patient, identify the current nursing priority and which action(s) the nurse should take. List interventions by priority and the expected outcome.

Nursing Priority	• ↓ O_2 demand ↑ O_2 supply	
Priority Interventions	**Rationale**	**Expected Outcome**
• Apply O_2 • determine cause of Arrhythmias • Benzo?	• ↑ O_2 supply → ↓ anxiety • get correct tx • Calm Anxiety → ↓ O_2 demand	• ↑ O_2 Sat • Stop arrythmias • ↑ O_2 Sat

Misc.						
	Mg	COVID-19	`Ion Ca	Lipase	Lactate (Ven)	Hgb A1C
		+			+	

Which diagnostic findings are **most important** and noticed by the nurse as clinically significant?

Most Important Data	Clinical Significance	TREND Improved/Declined/No Change
• Covid • lactase	• Respiratory distress • ???	• No change

Arterial Blood Gas (ABG)					
	pH	paCO2	paO2	HCO3	O2 sat
	7.2↓	52↑	58↓	20↓	82 NRB

Which diagnostic findings are **most important** and noticed by the nurse as clinically significant?

Most Important Data	Clinical Significance
• Resp Acidosis • ↓ PaO2 (58)	- hypoventilation, hypoxia, - Severe hypoxemia

Lab Planning Activity

Lab Name	Clinical Significance	Priority Nursing Assessments/Interventions
Lactate was 22 Current Value: 4.8 (0.5-2.2) Critical Value	• Acidosis	• Adequate Ventilation

Part II: Developing Responding Skills

1. Interpreting clinical data collected, list at least **two** problems that are possible for this patient? Which problem is the priority?

Possible Problems	Priority Problem	Pathophysiology of Priority Problem
• Hypoventilation • Inadequate perfusion to organs	• Resp distress	•

Omar is successfully intubated and has a 7.0 mm endotracheal tube (ET) that is well secured, 24 cm at the lips.

Current vent settings are:

- CMV/AC rate 12
- TV 550 mL
- PEEP +5
- FiO2 100%.

A central line was placed in the right internal jugular (RIJ) vein. Correct placement of the ETT and central line was confirmed by chest x-ray.

He is sedated and not moving. His breath sounds have coarse crackles scattered bilat and aeration remains diminished. You note the following on the monitor:

2. Which current findings are **most important** and noticed by the nurse as clinically significant?

Most Important Data	Clinical Significance	TREND: Improved/Declined/No Change
• 91% O_2 • RR: 12 • Sinus tachy	• better oxygenation • Better ventilation • Situational	• Improved Resp • Improved : A-fib gone

Medical Management of Care

3. Identify the rationale for each provider order and its expected outcome.

Care Provider Orders:	Rationale:	Expected Outcome:
Ventilator settings: CMV/AC rate 12, TV 550 mL, PEEP +5, Fi O2 100%.	• mimic Normal Breathing	• Improve Conditions
Norepinephrine IV infusion (0.5-30 mcg/min) to maintain MAP >65.	• Raise BP	
Vasopressin 0.04 IV infusion	• Raise BP	
0.9% NS IV infusion 100 mL hour	• ???	
Fentanyl IV infusion 10-125 mcg/hour. RASS goal -3 (Mod. Sedation)	• Sedation	
Dexmedetomidine IV infusion 0.2-1 mcg/kg/hour. RASS goal -3 (Mod. Sedation). (Pt weighs 83 kg)	• Sedation	
Chlorhexidine 15 mL oral/swab every 12 hours	• oral care - prevent infection	
Famotidine 20 mg IV every 12 hours	• for stress ulcers	• Suppress gastric Acid
Heparin 5000 units SQ every 8 hours	• Prevent clots + DVT	
Insert urinary catheter	• Improve output	

Nursing Management of Care

4. After interpreting clinical data collected, identify the nursing priority and three priority interventions. For each intervention write the rationale and expected outcome.

Nursing Priority	Safety	
Priority Intervention(s)	**Rationale**	**Expected Outcome**
1. Oral Care	- Prevent infection	• ↓ worsen condition
2. talking to pt / rapport	- Calm pt + promote healing	• quality care
3. Monitor Vent Setting + pt response	- Make sure sure interventions are Working	• Improve Condition

5. Identify the psychosocial/holistic care priority based on the findings you noticed as most important. List appropriate interventions, rationale, and expected outcomes.

Psychosocial/Holistic Care Priority	Nurse / pt relationship Community resources	
Priority Interventions	**Rationale**	**Expected Outcome**
• Education • Case managment	• Keep pt involved in POC + calm • help get resources	• healing environment ↓ Anxiety • get help to go home safely

Education/Discharge Planning

6. Identify three priority educational topics that must be included in a teaching plan to prevent complications.

Teaching About Illness	**Treatment Priorities**
• Reason for vent	• Need to know how it works + why its necessary
• What they're hearing	• Alarms, etc
• What you're doing / giving	• Calms pt to know whats going on.

Part III: Developing Evaluation Skills

1. For each finding, make a clinical judgment by placing an "x" in the appropriate column if the patient's condition has improved, has not changed, or has declined.

Assessment Finding	**Improved**	**No Change**	**Declined**
T: 101.8 F/39.3 C (oral)	✓		
P: 114 **(**regular)			✓
R: 20			✓
BP: 92/50 **MAP**: 64			✓
O2 sat: 91% vent: FiO2 100%			✓
Breath sounds coarse crackles bilaterally		✓	
20 mL light yellow urine past 2 hours	✓		
Body tense, moving hands toward mouth			✓
Eyes are open and follows the nurse's command to squeeze his hand	✓		

Write a concise narrative nurse's note to document what was most important in the medical record at the end of your shift.

Pt came in w/ covid in Resp distress
tried non invasive techniques to improve O_2 + perfusion
Condition worsened → moved to vent
pt was was tolerating + improving
but recent assessment shows declined.

Nurse Reflection

To strengthen your clinical judgment skills, reflect on your knowledge and the decisions made caring for this patient by answering the reflection questions below.

Reflection Question	Nurse Reflection
As you worked through this simulation, how did it make you feel?	know how to improve O_2 know what to look for
What did you already know and do well on this simulation?	• Signs of Resp distress
What areas do you need to develop/improve?	• I need to study Vent settings
What did you learn? How will you apply what was learned to improve patient care?	• how to tell if pt needs to move to vent