ATI Real Life Student Packet
N201 Nursing Care of Special Populations
2025

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ATI Scenario: Cystic Fibrosis

To Be Completed Before the Simulation

Blue boxes should be completed using textbook information. What do you expect to find? This information should be collected before you start the ATI simulation

Medical Diagnosis: Cystic Fibrosis

NCLEX IV *(8)*: **Physiological Integrity/Physiological Adaptation**

NCLEX IV *(7)*: **Reduction of Risk**

<u>Anatomy and Physiology</u>
<u>Normal Structures</u>

The respiratory system consists of the upper and lower respiratory tract. The upper respiratory tract includes the nose, mouth, pharynx, epiglottis, larynx, and trachea. The lower respiratory tract consists of the bronchi, bronchioles alveolar ducts and the alveoli. Air enters the respiratory tract through the nose where it is warmed and moistened. It then moves through the oropharynx, laryngopharynx and epiglottis (a small flap that closes when swallowing, preventing solids and liquids from getting into the lungs) to the larynx before moving into the trachea. The trachea divides into the right and left mainstream bronchi at the carina. The mainstream bronchi subdivide into the lobar, segmental and subsegmental bronchi. Further divisions form the bronchioles. Air then travels into the alveolar ducts and then the alveoli, which is the site of gas exchange for O2 and CO2. The alveoli are interconnected by pores of Kohn, they allow movement from alveolus to alveolus. Gases are exchanged across the alveolar-capillary membrane, where the alveoli come in contact with pulmonary capillaries. Surfactant is a lipoprotein produced by alveolar cells that reduces the amount of pressure needed to inflate the alveoli and makes them less likely to collapse. Pulmonary circulation occurs when the pulmonary artery receives deoxygenated blood from the right ventricle of the heart and delivers it to the pulmonary capillaries that lie alongside the alveoli, the pulmonary veins return oxygenated blood to the left atrium, then to the left ventricle and into the systemic circulation. Venous blood is collected from capillary networks of the body

<u>Pathophysiology of Disease</u>

An autosomal recessive defect that causes increased viscosity of mucous gland secretions, an elevation of sweat electrolytes, an increase in several organic and enzymatic constituents of saliva and abnormalities in autonomic nervous system function. The defect is primarily caused by an abnormal chloride movement. There is a decrease in pancreatic secretion of bicarbonate and chloride and an increase in sodium and chloride in both saliva and sweat. Mucous glands produce a thick mucoprotein that accumulates and dilates them. In the pancreas thick secretions block the ducts leading to pancreatic fibrosis. The blockage prevents essential pancreatic enzymes from reaching the duodenum. Stools are often bulky, frothy and foul smelling. Respiratory symptoms are produced by stagnation of mucus in airways, with eventual bacterial colonization

and returned to the right atrium by the superior and inferior vena cava.

Ventilation- involves inspiration and expiration, contraction of the diaphragm and external intercostal and scalene muscles increases chest dimensions decreasing intrathoracic pressure. Gas flows from an area of higher pressure to one of lower pressure.

To Be Completed Before the Simulation

Anticipated Patient Problem: Impaired gas exchange

Goal 1: Will have an SpO2 of 94% or higher by the end of my care

Relevant Assessments (Prework) What assessments pertain to your patient's problem? Include timeframes	Multidisciplinary Team Intervention (Prework) What will you do if your assessment is abnormal?
Assess respiratory rate, depth and pattern q 8h	Encourage breathing exercises PRN for shortness of breath
Auscultate lung for adventitious sounds q 8h	Encourage position changes to facilitate postural drainage
Assess SpO2 q 4h	Elevate HOB to 45 degrees at all times except while sleeping
Assess for signs of hypoxia (cyanosis, confusion) q 4h	Apply oxygen 2L NC PRN hypoxia
Assess for productive cough q 4h	Provide chest physiotherapy after administration of nebulizers
Monitor ABG's q 12h	Collaborate with RT to administer nebulizers

Goal 2: Will have a respiratory rate of 12-20 by then end of my care

To Be Completed Before the Simulation

Anticipated Patient Problem: Impaired nutrition

Goal 1: Will consume 50% or greater of each meal by the end of my care

Relevant Assessments (Prework) What assessments pertain to your patient's problem? Include timeframes	Multidisciplinary Team Intervention (Prework) What will you do if your assessment is abnormal?
Assess fluid and meal intake at mealtimes	Provide nutritional supplement when meal intake is under 50%
Assess for food preferences q 4h	Provide with one preferred food during mealtimes
Assess weight weekly	Administer pancreatic enzymes with meals to allow for proper absorption of food
Assess prealbumin levels q 12h	Educate patient and parents on the importance of the intake of a well-balanced diet
Assess oral mucosa q 4h	Provide oral care before meals to promote appetite
Assess ability to feed self q 12h	Allow ample amount of time to eat meals

Goal 2: Will verbalize the importance of adequate nutrition by the end of my care

To Be Completed During the Simulation:

Actual Patient Problem #1: Impaired gas exchange
Goal: will have SpO2 of 94% or higher by the end of my care _____
_____ Met: ☑   Unmet:☐
Goal: will have respiratory rate of 12-20 by the end of my care _____
_____ Met: ☐   Unmet:☑

Actual Patient Problem #2: Impaired nutrition
Goal: will consume 50% or greater of each meal by the end of my care _____
_____ Met: ☐   Unmet:☑
Goal: will verbalize the importance of adequate nutrition by the end of my care _____
_____ Met: ☐   Unmet:☑

Additional Patient Problems:
#3 Infection
#4 Deficient Knowledge
#5
#6

Below will be your notes, add more lines as needed. **Relevant Assessments:** Indicate pertinent assessment findings. **Multidisciplinary Team Intervention:** What interventions were done in response to your abnormal assessments? **Reassessment/Evaluation:** What was your patient's response to the intervention?

Patient Problem (#)	Time	Relevant Assessments	Time	Multidisciplinary Team Intervention	Time	Reassessment/ Evaluation
Impaired gas exchange		Productive cough and wheezing noted O2 sat 94% on RA		HOB remained upright		Continued coughing, O2 sat 94%
Infection		Gary is positive for B. cepacia		Gary was placed on contact precautions		Maintained contact precautions while inpatient
Impaired gas exchange		Gary had wheezing in bilateral lungs		RT administered nebulizer and chest physiotherapy		Less wheezing heard on auscultation
Infection		Gary is positive for B. cepacia		Susan administered tobramycin and gentamycin		Remained positive for B. cepacia
Impaired nutrition		"Gary hasn't been eating well"		Eternal feeding bolus was administered		Bolus tolerated well
Deficient knowledge		"He skips a lot of his treatments at home"		Educated on the importance of adherence to medication regiment		Gary and parents verbalized understanding and agreed to take respiratory medications
Impaired		"I want some real		Ordered Gary a		Unable to reassess,

nutrition		food"		lunch tray, pancreatic enzyme administered with meal		no meal intake documented

To Be Completed After the Simulation

The orange boxes should be filled out with your simulation patient's actual results, assessments, medications, and recommendations

NCLEX IV *(7)*: **Reduction of Risk**

Actual Labs/ Diagnostics
RBC- 4.6
Hgb-13.8
Hct-39
WBC-19
Platelets-370
Sodium-135
Potassium-3.5
Chloride-103
BUN-20
Creatinine- 1.1
Calcium- 9.4
Glucose- 106
CO2-28
Chest X-ray: Findings consistent with chronic inflammatory lung disease and right lower lung pneumonia. Peripherally inserted central catheter is in place
T: 100.2 HR: 94 RR:24 BP: 110/64 O2 sat: 95% RA

NCLEX II *(3)*: **Health Promotion and Maintenance**

Signs and Symptoms
Productive cough
Wheezing
Temperature
Thick green secretions
Mild clubbing of fingers
Barrel Chest
Small for age
Cap refill greater than 1 second

NCLEX II *(3)*: **Health Promotion and Maintenance**

Contributing Risk Factors
Genetics
Ethnicity

Therapeutic Procedures
Non-surgical
Chest physiotherapy
Postural drainage
Surgical
Gastrostomy

NCLEX IV *(7)*: **Reduction of Risk**

Prevention of Complications
(Any complications associated with the client's disease process? If not what are some complications you anticipate)
DM
Recurrent respiratory infections
Malnutrition
Constipation

NCLEX IV *(6)*: **Pharmacological and Parenteral Therapies**

Medication Management
Nebulizers
Antibiotics
Pancreatic enzymes
Multivitamins
IV fluids
Antipyretics

NCLEX IV *(5)*: **Basic Care and Comfort**

Non-Pharmacologic Care Measures
Cool mist humidifier
Incentive spirometry
Flutter mucus clearing device
Breathing exercises

NCLEX III *(4)*: **Psychosocial/Holistic Care Needs**

Stressors the client experienced?
Divorced parents
Mother remarried
Multiple hospitalizations

Client/Family Education   **NCLEX I** *(1)*: **Safe and Effective Care Environment**

Document 3 teaching topics specific for this client.	Multidisciplinary Team Involvement
• Medication adherence • Hand hygiene • Avoiding people who are sick	(Which other disciplines were involved in caring for this client?) PT RT Dietitian

Patient Resources
Genetic counseling

Reflection Questions

Directions: Write reflection including the following:

1. What was your biggest "take away" from participating in the care of this client?
   My biggest take away from participating in the care of this client was prioritization and time management. The nurse was very busy with Gary during the day because he was a very complex patient with multiple medications that had to be administered. This activity helped me realize what interventions would take precedence over another.

2. What was something that surprised you in the care of this patient?
   Something that surprised me with the care of this patient was his presentation. In Gary's chart he had a lot of symptoms that were related to hypoxia. Gary presented with a lot of coughing and wheezing but he did not show any signs of him being in distress. He was very cooperative during his stay.

3. What is something you would do differently with the care of this client?
   Something that I would do differently with the care of this client is figure out what was preventing the client from adhering to his medication regiment. Understanding why Gary stopped taking his medication and educating him and the importance of taking his medication could prevent him from future hospital visits.

4. How will this simulation experience impact your nursing practice?
   This simulation experience helped me learn time management, prioritization and delegation. During the simulation one of my scenarios was to delegate task to a coworker due to having multiple tasks that needed to be completed at one time. I was able to select the correct answer and learn why all the other options were incorrect.

5. Discuss norms or deviations of growth and development that was experienced during the simulation, including developmental stage.

   Gary was born at 40 weeks gestation with no complications during delivery. Gary was diagnosed with FTT and cystic fibrosis at the age of 2. He had a PEG tube placed due to inadequate weight maintenance. Gary at the age of 15 was still very low on the growth chart, but he attended school just like any other kid his age.