

ATI Real Life Student Packet
N201 Nursing Care of Special Populations
2024

Student Name: Lily Cook _____

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

Anatomy and Physiology
Normal Structures

The upper respiratory tract includes the nasal cavity, pharynx, and the trachea. The epiglottis is the small flap behind the tongue that covers over the larynx while swallowing. The trachea is made up of C-shaped rings of cartilage. The carina is located at the angle of Louis and is where the trachea bifurcates into the right and left mainstream bronchus. Once air passes the carina it is in the lower respiratory tract. Everything in the lower respiratory tract is found in the lungs except for the right and left mainstream bronchi. This includes the right bronchus, left bronchus, bronchioles, mediastinum, left and right lung, and diaphragm. The apex is the narrow, superior portion of each lung. The base is the broad lung area resting on the diaphragm. The mainstem bronchi, pulmonary vessels, and nerves enter the lungs through the hilus. Bronchi subdivide to form the lobar, segmental, and subsegmental bronchi. The right mainstem bronchi is shorter, wider, and straighter than the left. Bronchioles are encircled by smooth muscle that constrict and dilate. The most distant bronchioles are the respiratory bronchioles. Alveolar ducts connect bronchioles to alveolar sacs. Alveoli is where gas exchange occurs and is the terminal part of the respiratory tract. Alveoli produce surfactant which lowers surface tension at the air-liquid interface, preventing alveolar collapse at end-expiration. The purpose of surfactant is to keep the alveoli inflated. There are two types of circulation, pulmonary circulation, and bronchial circulation. Pulmonary circulation is where gas exchange happens, and it includes arteries, capillaries, and veins. Bronchial circulation does not take place in gas exchange but provides oxygen to the bronchi and lung tissues. Azygos vein takes deoxygenated blood from bronchial circulation to the superior vena cava. The ribs and sternum protect the heart and lungs. The pleura consists of parietal and visceral pleura. Parietal lines the chest cavity and visceral lines the lung cavity. The diaphragm is a major muscle of the respiratory system that is innervated by the right and left phrenic nerves. Oxygenation is from the atmosphere and goes into the organs and tissues. It is carried in two forms, oxygen dissolved in plasma or oxygen bound to hemoglobin. Diffusion is the oxygen and carbon dioxide exchange at alveolar-capillary membrane, moving from high to low concentration. Ventilation is the inspiration and expiration that occurs due to intrathoracic pressure changes and muscle action. The medulla is the respiratory center that responds to chemical and mechanical signals. Perfusion is the amount of blood in the capillaries. Ventilation/perfusion

NCLEX IV (7): Reduction of Risk

Pathophysiology of Disease

CF is characterized by exocrine gland dysfunction that produces multi-system involvement. The gene responsible for this disease is the cystic fibrosis transmembrane conductance regulator (CFTR). Clinical features that characterize this disease include increased viscosity of mucous gland secretions, a striking elevation of sweat electrolytes, increase in several organic and enzymatic constituents of saliva, and abnormalities of the ANS. Sodium and chloride are both affected, but primarily chloride is affected by the CFTR gene. Children show a decreased pancreatic secretion of bicarb and chloride and an increase in sodium and chloride in sweat and saliva. A primary factor of this disease is mechanical obstruction caused by a thick mucoprotein that accumulates. In most patients pancreatic fibrosis can be caused by cystic dilation that block and prevent essential enzymes that help with digestion and absorption of nutrients. This can cause steatorrhea and azotorrhea. A common complication of CF includes cystic fibrosis related diabetes (CFRD). Severe insulin deficiency occurs, especially during acute illnesses. In the liver, focal biliary obstruction and fibrosis are common. This can include having fatty infiltration, even with adequate nutrition. Most children become sterile and cannot have children due to the increase in mucus, blocking the cervical canal. Growth and development can also be affected due to decreased absorption of nutrients and increased demands for oxygen. Growth failure, or failure to thrive, can occur if there is an increased weight loss despite an increased appetite and gradual deterioration of the respiratory system.

mismatch is when there is dysfunction or altered lung mechanics, leading to pulmonary shunting (alveoli are perfused but not vented).		
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To Be Completed Before the Simulation

Anticipated Patient Problem: Ineffective airway clearance

Goal 1: Pt will not have cyanosis or blue mucous membranes during my time of care.

Relevant Assessments (Prewrite) What assessments pertain to your patient’s problem? Include timeframes	Multidisciplinary Team Intervention (Prewrite) What will you do if your assessment is abnormal?
Assess for SOB, retractions, or dyspnea q 2 hr	Provide oxygen with humidifier at bedside as ordered
Assess RR and SpO2 q 4 hr	Encourage coughing and deep breathing q 2 hr and PRN
Assess sputum color and amount q 4 hr and PRN	Assist with the use of an incentive spirometer every hour
Assess for dehydration q 8 hr	Provide 400 mL of water q 6 hr
Assess for cyanosis of the mucous membranes and lips q 8 hr and PRN	Position in high fowlers q 4 hr and PRN
Assess LOC and orientation q 4 hr	Reorient and provide suction PRN

Goal 2:SpO2 will be greater than 93% during my time of care on room air.

To Be Completed Before the Simulation

Anticipated Patient Problem: Risk for infection

Goal 1: Temperature will be in between 36.5 and 37.5 C during my time of 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 HR and temperature q 4 hr	Administer Tylenol PO as prescribed
Assess WBC q 12 hr	Administer abx as prescribed
Assess nutritional status q 8 hr	Provide nutritional supplement as prescribed
Assess CXR for infiltrates in lungs PRN	Educate on avoiding crowds and sick people q 12 hr
Assess personal hygiene q 8 hr	Educate on the importance of hand hygiene q 12 hr
Assess risk factors for suppressing the immune system q 12 hr	Limit visitors and isolation precautions PRN

Goal 2: WBC count will be between 1 and 10 during my time of care.

To Be Completed During the Simulation:

Actual Patient Problem #1: Ineffective airway clearance
 Goal:Pt will have an spO2 greater than 93% on RA during my time of care **Met:** **Unmet:**
 Goal:Pt will not have wheezes anteriorly and posteriorly b/l by the end of my care.**Met:** **Unmet:**

Actual Patient Problem #2: Imbalanced nutrition: less than body requirements
 Goal:Pt will eat entire meal try with high protein and calories by the end of my time of care.**Met:** **Unmet:**
 Goal:Pt will not have diarrhea or vomiting during my time of care. **Met:** **Unmet:**

Additional Patient Problems:
 #3 Deficient knowledge on compliance and genetics
 #4
 #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
Deficient knowledge/ineffective airway clearance	1200	Positive cx for Burkholderia cepacia, temperature of 37.9 C	1200	Explained contact isolation precautions	1205	Parents verbalized understanding and nodded
Ineffective airway clearance	1200	Past hx of CF, new admission	1230	Obtained a past hx with the mom	1235	Past hx noted in EMR
Imbalanced nutrition: less than body requirements/ineffective airway clearance	1230	17 th percentile for BMI, <5% for weight and stature, 43.11 kg	1245	Administered dextrose 5% in 0.45% NS with 20 mEq potassium chloride IV 80 mL/hr	1330	Wheezes b/l anteriorly and posteriorly, coughing present, no s/sx of nausea or vomiting
Ineffective airway clearance	1400	Positive cx for Burkholderia cepacia, temperature of 37.9 C, WBC 19	1500	Administered tobramycin IV bolus 90 mg	1600	Temperature 37.9 C, SpO2 95% on RA, HR 94, RR 24
Ineffective airway clearance	1415	Positive cx for Burkholderia cepacian, temperature of 37.9 C, WBC 19	1500	Administered gentamicin 130 mg IV bolus 220 mL/hr	1600	Temperature 37.9 C, SpO2 95% on RA, HR 94, RR 24
Ineffective airway	1500	Coughing, wheezing b/l,	1515	Provided chest physiotherapy	1530	Wheezes heard b/l, coughing still

clearance						present
Ineffective airway clearance	1530	States “skipping a lot of treatments”	1545	Educated on importance of doing treatments	1550	Verbalized understanding to respiratory therapist
Ineffective airway clearance	1550	Wheezes anteriorly and posteriorly b/l, coughing	1600	Administered albuterol 0.83% via nebulizer	1615	Wheezing less noticeable but still b/l
Imbalanced nutrition: less than body requirements	1615	PEG tube in place for inadequate weight	1630	Aspirated for residual stomach contents	1635	Stomach contents aspirated by RN
Imbalanced nutrition: less than body requirements	1620	17 th percentile for BMI, <5% for weight and stature, 43.11 kg	1637	Administered enteral nutrition, high calorie and protein formula, 100 mL/hr	1700	No nausea or vomiting reported
Ineffective airway clearance	1640	Sputum production noted, coughing	1645	Obtained sputum culture	1650	States “kinda green this time”
Imbalanced nutrition: less than body requirements	1700	Asking for a meal to eat, diet ordered for high protein and calories PO	1715	Ordered/Provided dinner tray with high protein and calories	1740	Meal tray empty at bedside, 100% eaten for dinner
Imbalanced nutrition: less than body requirements	1700	Eating meals PO, 43.11 kg, <5% for weight and stature	1720	Administered pancrelipase, 3 capsules PO with snacks	1740	Food digested, no s/sx of nausea or vomiting
Deficient knowledge	1730	Mother asking for information on if the gene can be passed onto other children	1800	Educated that both parents need to have the abnormal gene for the child to have CF	1810	Mother stated “thank you”

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
 CBC
 BMP
 PT/PTT
 CXR
 UA
 Serum quantitative IgE

NCLEX II (3): Health Promotion and Maintenance

Signs and Symptoms

- Coughing
- Sputum production
- WBC 19/ temperature 37.9/ RR 26
- Oriented x3
- Lymphocytes 24%
- Serum IgE 97
- Wt: 43.11 kg
- Mild clubbing of fingers and toes
- Cap refill greater than 1 sec
- PEG tube d/t inadequate nutrition
- Positive for Burkholderia cepacia
- <5% for weight and stature for age
- Wheezing b/l

NCLEX II (3): Health Promotion and Maintenance

Contributing Risk Factors

- CFTR gene
- White
- Family hx

Therapeutic Procedures

Non-surgical
 Chest physiotherapy

Surgical
 PICC insertion
 PEG tube

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)

- Infection
- Diabetes
- Malnutrition
- Death
- Constipation
- Vitamin/electrolyte deficiencies
- Hypoxia
- Pancreatic fibrosis

NCLEX IV (6): Pharmacological and Parenteral Therapies

Medication Management

- Pancrelipase 3 capsules PO with snacks and supplement
- Gentamicin 130 mg IV bolus 220 ml/hr
- Tobramycin IV bolus 90 mg
- Albuterol 0.83% via nebulizer
- IV dextrose 5% in 0.45% NS with 20 mEq potassium chloride, 80 ml/hr

NCLEX IV (5): Basic Care and Comfort

Non-Pharmacologic Care Measures

- Chest physiotherapy
- Education
- Coughing and deep breathing

NCLEX III (4): Psychosocial/Holistic Care Needs

Stressors the client experienced?

- Anxiety
- Guilt
- Depression
- Inability to cope
- Stress

Client/Family Education

Document 3 teaching topics specific for this client.

NCLEX I (1): Safe and Effective Care Environment

Multidisciplinary Team Involvement
 (Which other disciplines were involved in caring for this client?)

- Education on compliance of treatments for nebulizers and chest physiotherapy.
- Education on nutritional meals high in protein and calories.
- Education on how to clean and prevent infection to the newly inserted PICC line

- Respiratory therapy, nursing, providers, radiology, dietician, vascular assess, gastroenterologist

Patient Resources

- Family support, home health, physical therapy, occupational therapy, pediatrician, dietician, outpatient gastroenterologist, psychiatrist

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 is that it is important to have family included in the care of children. Including the family ensured that no information was left out and that everyone got to tell their side of the story. The child also could not remember pertinent information that is needed, so it was important to ask both parents about what had happened leading up to this event. _____

2. What was something that surprised you in the care of this patient?

____ Something that surprised me in the care of this patient is the malnutrition that was observed. I was not expecting that a child would have a peg tube and be less than five percent for their age category. Seeing a fifteen year old boy only weighing ninety-five pounds put it into perspective of how severe this disease is and how many different body systems are involved.

3. What is something you would do differently with the care of this client?

____ Something I would do differently with the care of this client is to educate the parents and child more because they both seemed unsure of certain aspects of the child’s care. It is also concerning that the child has been skipping many treatments and that the parents are not aware of the gene that caused this disease to happen at conception. I think that more education for this family would help prevent future exacerbations and help ease any concerns.

4. How will this simulation experience impact your nursing practice?

____ This simulation experience will impact my nursing practice by having an open view on how to include parents in the plan of care and keeping them updated during a stressful time. _____

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

Deviations of growth and development would include this patient’s weight and height due to it being abnormally low. Nutrition is also a deviation due to him being malnourished during this time of having a high metabolism. Norms of growth and development included major conflicts over independence and control. Another norm could be tendency to withdraw from conversations when upset. ____