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

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ATI Scenario: Cystic Fibrosis Inpatient

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 respiratory system is made up of the upper and lower respiratory system. Starting in the upper respiratory system, oxygen travels in through the **NOSE (nasal cavity/nares)**, here, the air is humidified and cleansed to enter the body, and the **cilia** (hairs) trap harmful bacteria from entering. Then, the air enters the **pharynx** (**nasopharynx, oropharynx, and laryngopharynx),** and then the **larynx (voice box).** Here there is a cough reflex set off by the body when harmful substances/bacteria/food have entered, and the body does not want them to advance down the tract. Then there is the **epiglottis**, a flap-like mechanism that prevents food from entering the airway. The air then moves down to the lower respiratory tract, entering the **trachea,** and moving down to the **bronchi, bronchioles, and the alveoli**, which is where gas exchange takes place. The alveoli produce surfactant, which is a substance that lubricates the structure and keeps the sacs from collapsing (atelectasis). The body consists of two **lungs,** the right lung consists of the upper right lobe, middle right lobe, and lower right lobe. The left lung consists of the upper left lobe and the lower left lobe. The reason for this structure is because the heart protrudes to the left and is tucked into the left lungs for protection. Lastly, there are the **intercostal muscles**, and the **diaphragm** which are the muscles that aide ventilation (the process of one inhale and one exhale) by contracting and relaxing. The gas exchanged in the alveoli is oxygen and carbon dioxide. A unique aspect of the pulmonary system is that it consists of its own system of blood vessels (pulmonary circulation).

NCLEX IV *(7)*: Reduction of Risk

Pathophysiology of Disease

-**Cystic fibrosis (CF)** is an autosomal recessive disease that effects multiple systems in the body, but most prominently, the respiratory system. The disease process begins when there is a mutation in the CF transmembrane conductance regulator protein (CFTR), a chloride channel found on epithelial cells.
-When the CFTR is defective, there is abnormal transport of sodium and chloride ions across the epithelial membranes.
-As a result of this, a thick, sticky mucous forms in the lungs. This abnormal secretion causes obstruction of passageways, which leads to impaired clearance of secretions and puts the patient at risk for chronic infection and inflammation.
-CF also effects the pancreas and GI tract by causing malabsorption of fats, proteins, and fat-soluble vitamins (A, D, E, K) as well as the risk for CF-related diabetes (CFDR).

To Be Completed Before the Simulation

Anticipated Patient Problem: **Ineffective Airway Clearance (r/t thick pulmonary secretions)**
Goal 1: Will demonstrate effective airway clearance as evidenced by improved breath sounds (no crackles) and decreased cough frequency during my care.
Goal 2: SpO2 will remain >/= 95% (or baseline) on room air during 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 function (RR, depth, effort, use of accessory muscles, retractions) per unit guidelines (Q4 hours).	Perform chest physiotherapy (CPT) and postural drainage to mobilize secretions.
Assess SpO2 per unit guidelines (Q4 hours)	Provide supplemental O2 for hypoxemia if ordered.
Auscultate lungs for crackles, wheezes, or diminished breath sounds Q4 hours.	Administer PRN bronchodilators or nebulizer Tx if ordered.
Assess characteristics of sputum (amount, color, thickness, and frequency of cough) upon hourly rounding (Q1 hour).	Maintain adequate hydration (PO/IV) to thin secretions.
Assess skin for color (normal for ethnicity or pallor/cyanosis) Q4 hours.	Encourage coughing techniques to expel mucous.
Obtain an order for a chest X-ray or pulmonary function test as soon as possible.	Notify provider if signs of infection (fever, increased purulent sputum, worsening breath sounds) and obtain a sputum Cx/start ABX if ordered.

To Be Completed Before the Simulation

Anticipated Patient Problem: **Imbalanced Nutrition: Less than Body Requirements (r/t pancreatic insufficiency and malabsorption).**

Goal 1: Will maintain weight WNL for growth curve for age during 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?
Take daily weight and compare to growth chart percentiles.	Increase calorie density of meals with nutritional supplements/calorie boosters.
Monitor dietary intake (24-hour recall, count calories/meal).	Provide high-calorie, high-protein diet, with unrestricted fat (unless contraindicated).
Assess stool characteristics (frequency, presence of steatorrhea, foul odor, bulkiness) each time a BM occurs.	Give pancreatic enzymes with meals.
Assess the abdomen for distention, pain, and bowel sounds Q4 hours.	Encourage foods that are high in fiber to promote bowel regularity.
Monitor labs (albumin, prealbumin, glucose, fat-soluble vitamins) as they result/Q24 hours.	Supplement fat-soluble vitamins (A, D, E, K).
Assess appetite and tolerance for PO intake (nausea/early satiety) at each mealtime.	Encourage frequent, nutrient-dense, small meals/snacks.

Goal 2: Will demonstrate adequate nutritional intake as evidenced by lab values WNL, and appropriate energy and activity for age during my care.

To Be Completed During the Simulation:

Actual Patient Problem #1: **Ineffective Airway Clearance**
Goal: Will demonstrate effective airway clearance as evidenced by improved breath sounds (no wheezes) and decreased cough frequency during my care. Met: ☐ Unmet: ☒
Goal: SpO2 will remain >/= 95% (or baseline) on room air during my care. Met: ☒ Unmet: ☐

Actual Patient Problem #2: **Imbalanced Nutrition (Less than Body Requirements)**
Goal: Will eat at least 75% on all meals given during my care. Met: ☒ Unmet: ☐
Goal: Will demonstrate adequate nutritional intake as evidenced by lab values WNL, and appropriate energy and activity for age during my care. Met: ☒ Unmet: ☐

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

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
Infection	1400	Admitted with Burkholderia cepacian infection. WBCs 19, neutrophils 76% and lymphocytes 24%.	1420	RT Administered Tobramycin 300 mg nebulizer and primary RN administered Tobramycin 90 mg IV bolus and Gentamycin 130 mg IV bolus.	1420	No signs of infection like fever, still has green sputum.
Ineffective Airway Clearance	1405	Coughing with speech and inspiratory and expiratory wheezes auscultated.	1413	Called RT to inquire when breathing Tx would be.	1420	RT arrived at room.
Imbalanced Nutrition	1407	Mother states, "Gary has not been eating well."	1410	Feeding tube in place and stomach contents aspirated.	1420	RT walked in before feeding started.
Ineffective Airway Clearance	1420	RT walked in before feeding started.	1420	Primary RN held the feed until RT was finished with CPT and breathing Tx.	1445	RT stated that there are still mucous plugs and coughing/breathing exercises are not being done at home but wheezing improved.
Ineffective Airway Clearance + Deficient Knowledge	1445	RT stated that there are still mucous plugs and coughing/breathing exercises are not being done at home but wheezing improved.	1445	RT educated on importance of doing breathing exercises at home for disease management.	1445	Verbalized understanding and performed breathing exercises effectively.
Imbalanced Nutrition	1450	RT done in room.	1450	Enteral feeding administered.	1520	Enteral feeding complete, serum electrolytes and vitamins WNL.
Ineffective Airway Clearance + Infection	1600	The provider prescribed a sputum culture. States, "It's really green"	1605	Educated on procedure and collected sputum culture.	1605	No further signs of infection like fever, waiting for result.
Imbalanced Nutrition	1630	States, "I'm hungry."	1635	Ordered a dinner high in calories + protein and administered Pancrelipase.	1655	Ate 100% of meal and nutrition adequate as evidenced by labs.

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

WBCs (4.5-11.0): 19.0
Neutrophils (40-60%): 76%
Lymphocytes (20-40%): 24%

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

Signs and Symptoms

-Persistent cough could not talk without coughing.
-Green, purulent sputum
-Underweight for age/height (10th percentile).

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

Contributing Risk Factors

-Autosomal Recessive: both biological parents carried the gene for CF.

NCLEX IV *(7)*: Reduction of Risk

Therapeutic Procedures

Non-surgical

-Nebulizer Tx
-Breathing exercises

Surgical

Right peripherally inserted central catheter present in the superior vena cava.

Prevention of Complications

(Any complications associated with the client's disease process? If not, what are some complications you anticipate)

-Due to build up of mucous in the lungs, the pt with CF is at high risk for infection.
-Due to pancreatic insufficiencies r/t the disease process, weight loss and malabsorption of nutrients are common as well.

NCLEX IV *(6)*: Pharmacological and

Medication Management

-Airway/Breathing: Budesonide 2 inhalations daily w/ RT, and Albuterol 0.83% unit 4 times/day.
-Nutrition: Pancrelipase 6 caps PO w/ meals, as well as Pancrelipase PRN 3 caps PO w/ snacks to supplement. Vitamins A, D, E K, supplemented.
-Infection: Tobramycin 300 mg nebulizer 2 times/day w/ RT. Tobramycin 90 mg IV bolus Q8 and Gentamycin 130 mg IV bolus Q8. Acetominophen PRN 650 mg PO Q4 for fever > 101.5 F (38.6 C).

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

Non-Pharmacologic Care Measures

- Breathing exercises
- Coughing exercises
- Stationary bike 2 times/day

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

Parenteral Therapies

Stressors the client experienced?

- Missing school/falling behind.
- Missing friends/friends wondering where they are.
- Missing after school activities.
- Fear of the unknown/deficient knowledge about diagnosis.

Client/Family Education

Document 3 teaching topics specific for this client.

• Consume a high-calorie and high-protein diet and eat small meals frequently.
• Mild-moderate exercise daily.
• Supplement vitamins A, D, E, K and do breathing exercises!

NCLEX I *(1)*: Safe and Effective Care Environment

Multidisciplinary Team Involvement

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

RN, RT, CNA, Chaplin if applicable, Child Life services, pediatrician, nutritionist.

Patient Resources

Recommend CF support groups, provide Gary and family with educational packet on diagnosis, and advise to visit a CF website like https://www.chop.edu/conditions-diseases/cystic-fibrosis?utm_source=google&utm_medium=cpc&utm_campaign=transplant&utm_content=lung-cystic_fibrosis-consumer-conversion-custom_us&gad_source=1&gad_campaignid=21291360631&gbraid=0AAAAAD0RXbR4S5Loo1ov5x8LM0j6LCqNE&gclid=CjwKCAjwobnGBhBNEiwAu2mpFMc5_5s5QI4RgoX_eagSolc1BUFJddfjEn__LaNIOEfFNEkrp0tA_hoCnf4QAvD_BwE

Reflection Questions

Directions: Write reflection including the following:

1. What was your biggest "take away" from participating in the care of this client? Taking care of a pediatric patient involves caring for the whole family as well as the client. When gathering information from clients in this developmental stage, there may be gaps in assessment data that the family can fill, this is helpful so that the nurse can obtain a comprehensive assessment to provide the best nursing care.

2. What was something that surprised you in the care of this patient? Something that surprised me about this simulation was Gary's lack of interest in his diagnosis/Tx. I know every client is different, and it is not unusual for a client in this developmental stage to behave this way, but it surprised me a little.

3. What is something you would do differently with the care of this client? I would be more careful when it comes to calculations of weight-based medications, and I would make sure that my interventions go along with my assessment data, so that I can provide safe and relevant nursing care.

4. How will this simulation experience impact your nursing practice? This simulation will impact my nursing practice because now when I take care of a pediatric patient, I will keep in mind the stages of growth and development and the care that they require, as well as caring for the whole family unit.

5. Discuss norms or deviations of growth and development that was experienced during the simulation, including developmental stage. A norm that I noticed in growth and development was Gary's tendency to be jaded when it came to his care. I think he was acting like a typical 15-year-old boy when he did not know how to explain why he was in the hospital, and when RT found out that he was not doing his breathing exercises effectively (or at all) at home. Also, his appetite when he stated he was "really hungry." This was a norm and a positive part of his hospital stay since he is very underweight and struggles with nutrition due to his diagnosis. A deviation in normal G+D is his weight being low for his height (6'1 and 95 lbs, in the 10th percentile).