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

*There are multiple systems involved in CF these include:

Respiratory System:
-The respiratory tract is lined with ciliated epithelial cells & goblet cells that secrete thin mucus to trap and remove dust, bacteria, and other particles.
-The bronchi and bronchioles stay clear because normal mucus is thin and easily moved by cilia toward the throat to be coughed out or swallowed.
-Also, gas exchange occurs in the alveoli where oxygen diffuses into the blood and carbon dioxide is exhaled.

Digestive System:
-The pancreas secretes digestive enzymes (amylase, lipase, protease) through ducts into the small intestine to help break down carbohydrates, fats, and proteins.
-The bile ducts carry bile from the liver to help digest fats.
-Nutrients are absorbed through the intestinal wall into the bloodstream for energy, growth, and tissue repair.

Reproductive System:
-The reproductive tract also contains glands that secrete mucus for lubrication and transport of sperm or ova.
-In males, the vas deferens transports sperm from the testes to the urethra.

Exocrine Glands:
-These glands secrete substances (mucus, sweat, saliva, and digestive enzymes) onto epithelial surfaces through ducts.
-Normally, these secretions are watery due to proper chloride ion transport controlled by the CFTR protein, which regulates movement of chloride and sodium across epithelial cell membranes.

NCLEX IV *(7)*: Reduction of Risk

Pathophysiology of Disease

*CF is an autosomal recessive genetic disorder caused by mutations in the CFTR gene on chromosome 7.
-Both parents need to have the gene in order for their child to have CF

*The CFTR protein acts as a chloride channel that helps regulate the balance of salt and water on epithelial surfaces.

*When this gene is defective, chloride ions cannot move properly in and out of cells, leading to dehydrated, thick, and sticky secretions.

Respiratory Effects:
-Thick mucus accumulates in the bronchi and bronchioles, creating a breeding ground for bacteria such as Pseudomonas aeruginosa and Staphylococcus aureus.
-Mucus obstruction and chronic infection lead to inflammation, airway remodeling, and bronchiectasis (permanent airway dilation).
-Over time, this causes decreased gas exchange, hypoxemia, hypercapnia, and eventually respiratory failure.
-Chronic coughing, wheezing, and digital clubbing are common, SOB.

Gastrointestinal & Pancreatic Effects:
-The thick secretions block pancreatic ducts, preventing digestive enzymes from reaching the intestine.
-This results in malabsorption of fats and proteins, leading to steatorrhea, failure to thrive, and vitamin A, D, E, and K deficiencies.
-Over time, pancreatic fibrosis can lead to CF-related diabetes (CFRD) due to destruction of insulin-producing cells.
-Intestinal obstruction, especially meconium ileus in newborns, is a common early manifestation.

Hepatic Effects:
-Blockage of bile ducts can cause biliary cirrhosis, portal hypertension, and eventually liver failure in advanced disease.

		Reproductive Effects: -In males, congenital bilateral absence of the vas deferens leads to infertility. -In females, thick cervical mucus can make conception difficult, though fertility is not always completely lost. **Sweat Gland Effects:** -CFTR dysfunction also affects sweat glands, causing excessive sodium and chloride loss in sweat. -This leads to salty-tasting skin and increased risk of dehydration and electrolyte imbalances (hyponatremia!!).

To Be Completed Before the Simulation

Anticipated Patient Problem: Ineffective Airway Clearance

Goal 1: During my shift, patient will maintain a patent airway as evidenced by clearer breath sounds, effective cough, and O_2 saturation ≥ 92%.

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?
Auscultate lung sounds posteriorly & anteriorly Q2hr/PRN	**Administer prescribed bronchodilators and mucolytics as ordered**
Assess respiratory rate, rhythm, and effort Q2hr/PRN	**Educate/encourage use of incentive spirometer PRN**
Monitor oxygen saturation via pulse ox continuously/PRN	**Position patient in high-Fowler's continuous/PRN**
Inspect sputum for color, consistency, and amount PRN	**Encourage coughing and deep breathing exercises Q1hr/PRN**
Assess cough effectiveness and ability to expectorate secretions PRN	**Maintain adequate hydration (offer preferred beverage/water) PRN**
Observe patient posture and activity tolerance PRN	**Administer supplemental oxygen as ordered**

Goal 2: By the end of my care, patient will demonstrate proper use of airway clearance techniques**,** such as incentive spirometer, cough and deep breathing.

To Be Completed Before the Simulation

Anticipated Patient Problem: Imbalanced Nutrition: Less Than Body Requirements

Goal 1: During my care, patient's calorie and protein intake will meet ≥ 80–100% of estimated daily needs.

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?
Monitor daily weights once per shift/PRN	**Encourage small, frequent meals and snacks PRN**
Assess dietary intake and appetite Q4hr/PRN	**Collaborate with a dietitian to provide a high-calorie, high-protein, high-fat diet with added salt as tolerated. PRN**
Inspect stools for color, consistency, and fat content PRN	**Notify the provider or dietitian of changes in stool characteristics PRN**
Monitor serum protein, albumin, and fat-soluble vitamin levels via lab draws	**Administer fat-soluble vitamin supplements (A, D, E, K) as prescribed**
Observe for signs of malnutrition (dry skin, muscle wasting, fatigue). PRN	**Administer prescribed pancreatic enzymes with all meals and snacks as ordered.**
Assess adherence to pancreatic enzyme therapy and timing of administration with meals/snacks. PRN	**Educate patient & family on the importance of taking pancreatic enzymes with every meal and snack PRN**

Goal 2: Patient will consume ≥ 75% of meals and snacks with pancreatic enzymes during my care.

To Be Completed During the Simulation:

Actual Patient Problem #1: Infection
Goal: Patient's temperature will remain below 100.4°F (38°C) during my care. **Met: ☐**
Goal: No new signs of systemic infection (hypotension, tachycardia, increased WBC, or confusion) will develop during my care. **Met: ☐**

Actual Patient Problem #2: Ineffective Airway Clearance
Goal: During my care, patient will maintain oxygen saturation ≥ 92% on RA **Met: ☐**
Goal: Patient will remain free of signs of respiratory distress (cyanosis, severe dyspnea, or restlessness) during my care. **Met: ☐**

Additional Patient Problems:
#3 Imbalanced Nutrition: Less Than Body Requirements
#4 Ineffective Health Maintenance
#5 Deficient Knowledge
#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
Infection	1330	Positive for Burkholderia cepacian, WBC: 19.0	1335	Susan RN explained the reason for contact isolation precautions.	1345	Pt understands what to expect each time someone enters room, "great".
Ineffective Airway Clearance	1400	Wheezing present in all lobes posteriorly, anteriorly bilaterally, spo2 95% RA	1415	Suan RN contacts respiratory therapist "to see when his treatments start".	1430	Awaiting respiratory therapist Joseph to comes give pt respiratory treatment & physiotherapy, no signs of respiratory distress (cyanosis, severe dyspnea, or restlessness).
Infection	1420	Positive for Burkholderia cepacian, CF/Acute pulmonary exacerbation, Temp: 37.9 C (100.2 F)	1430	Susan RN administers IV tobramycin 90 mg	1600	Temp: 39.7 C (100.2 F), BP:110/64, no new signs of systemic infection
Ineffective Airway Clearance	1530	Hx of Cystic fibrosis/Acute pulmonary exacerbation,	1600	Respiratory therapist Joseph provides treatment and chest	1610	RT: "He has a lot of mucus plugs, treatment helped move them, still coughing but not effectively, I did not

		Wheezing present in all lobes posteriorly, anteriorly bilaterally.		physiotherapy		see as much wheezing after the therapy", Sp02 95% RA
Imbalanced Nutrition: Less Than Body Requirements	1530	Provider ordered bolus of formula, Pt mother stated, "Gary hasn't been eating well"	1525	Suan RN administered IV bolus of enteral feeding	1530	Pt states "I want some real food"
Ineffective Health Maintenance	1530	Pt stated to respiratory therapist, "skips a lot of his treatments at home".	1600	Respiratory therapist reminded pt, "the importance of the treatments, and that they need to be done regularly".	1610	Ongoing education is needed for pt.
Infection	1620	Order for a sputum collection, pt states "it's kind of green this time"	1630	Susan RN collects sputum, (has pt perform oral hygiene, take deep breaths, expectorate into cup, offers mouthwash, places label on cup"	1700	Awaiting lab results
Imbalanced Nutrition: Less Than Body Requirements	1645	Musculoskeletal: small for age, BMI: 17.9	1650	Susan RN administered Pancrelipase (Pancreaze) 3 capsules PO with water.	1730	Pt consumed chicken breast, pork, chocolate milk, corn on cob. (well-balance, high in calories & protein)
Deficient Knowledge	1800	Pt mother questions Susan RN, "My husband and I were thinking about having a baby, what are the chances of the baby having CF"	1810	Susan RN provides handouts on CF and provides education. "CF is an autosomal recessive gene, both parents would have to have the gene in order for the child to have CF."	1830	Pt mother was grateful for the education, "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 was ordered, abnormal labs included: WBC 19.0, Neutrophils 76%, Lymphocytes 24%
*BMP was ordered, abnormal labs included: Creatinine: 1.1 mg/dL
*PT/PTT: pending
*Serum quantitative IgE: 97
*UA: clear, yellow, normal, SP: 1.006, pH: 7, Negative for rest
*Chest Xray: Suggestive of RLL pneumonia, consistent with chronic inflammatory lung disease (Hx of CF), peripherally inserted central catheter in place.

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

Signs and Symptoms

-Cardiovascular: Mild clubbing of fingers & toes, cap refill greater than 1 second, PICC placed
-Respiratory: Lung sounds: wheezing throughout, productive cough, barrel chest, AP: transverse diameter of thorax
-Musculoskeletal: small for age
-GI: PEG tube present

-Spo2 95% RA, HR: 94, Temp: 37.9, BP: 110/64, RR: 24

-Failure to thrive when born

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

Contributing Risk Factors

-Genetic disorder (autosomal recessive inheritance)
-Thick, sticky mucus production
-Respiratory infection: Burkholderia cepacian
-Decreased immune response due to chronic infection and inflammation
-Poor adherence to airway clearance and medication regimens

Therapeutic Procedures

Non-surgical
-Chest physiotherapy, Nebulized medications, Abx therapy, high-calorie, high-protein diet 3x daily, Enteral nutrition, oxygen therapy PRN, ADLs, contact precautions

Surgical
-N/A (hx of 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)

*Possible complications include:
-Recurrent or chronic pulmonary infections (Burkholderia cepacia)
-Respiratory failure from progressive lung damage
-Pneumothorax
-Hemoptysis
-Malnutrition and growth failure due to pancreatic insufficiency
-Electrolyte imbalances or dehydration from excessive salt loss

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

Medication Management

-Vitamin ADEK 1 tab PO once daily
-Pancreplipase 6 caps PO w/meals
-Dornase alfa 2.5 mg via Neb 2x daily
-Tobramycin 300 mg via Neb 2x daily
-Budesonide 2 inhalation daily
-Albuterol 0.83% unit dose via Neb 4x day
-Dextrose 5% in 0.45% sodium chloride IV 80ml/hr

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

Non-Pharmacologic Care Measures

-Airway clearance techniques (chest physiotherapy)
-Adequate rest and energy conservation
-Hydration to help thin mucus
-Involvement of family in care and adherence planning
-Promoting normal teenage activities as tolerated to support

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

Stressors the client experienced?

-Medication adherence
-Anxiety or fear related to chronic illness and potential complications
-Fatigue and physical discomfort from treatments or infection
-Frustration or anger about frequent hospitalizations and

	mental well-being (schoolwork & video games) -High-calorie, high-protein meals with enzyme support	treatments

Client/Family Education

Document 3 teaching topics specific for this client.

- Importance of medication adherence and airway clearance
- Infection control & prevention
- Nutrition & enzyme management

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

Multidisciplinary Team Involvement

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

-Nurse, PT, OT, RT, Dietitian, Pharmacist, Physician

Patient Resources

-Nutrition programs, support groups, Cystic Fibrosis Foundation (CFF)

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 takeaway was how complex and time-consuming cystic fibrosis care can be, especially during an active infection. I learned that maintaining airway clearance, infection control, and nutrition requires lots of teamwork and the cooperation of the patient, especially outside of the hospital. That also made me realize how hard it can be for teens to stick to their treatments. Which is why lots of education is needed.

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

   -Something that surprised me was how many medications this patient needed to take on schedule and how important communication is when coordinating medications with therapies. I was also surprised by his resistance to doing treatments. It showed me that even patients who understand their care can feel tired and overwhelmed, especially teenagers who just want to feel "normal."

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

   -Something I would do differently is take more time to understand why he was having trouble doing his treatments at home. By learning about his challenges, I could help reduce his stress and better support him. This would help him get the best care not just in the hospital, but at home as well, and hopefully prevent future hospitalizations.

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

   -This simulation experience will impact my nursing practice by, showing me that nursing care isn't just about doing treatments, it's about understanding the patient as a whole person. I'll try to communicate better with teens, encourage their independence, and support them emotionally while still helping them follow their care plan.

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

   -At age 15, this patient is in Erikson's stage of Identity vs. Role Confusion, where independence and peer relationships are very important. A deviation I noticed was delayed physical growth. He was smaller and lighter than average for his age, likely due to malnutrition from pancreatic insufficiency and chronic infection. Emotionally, he showed a normal desire for autonomy but struggled with accepting his limitations, which is typical for teens with chronic illness.