

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

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ATI Scenario: Cystic Fibrosis Inpatient – ATI Real Life 2

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

Normal structures in the respiratory system begin with the upper airway, which includes the nose, pharynx, and larynx. This portion acts as a warm filter, humidifying and conditioning incoming air while protecting against aspiration. The lower airway is made up of the trachea, bronchi, and bronchioles, which conduct air into the lungs and distribute it throughout the pulmonary system. At the terminal ends of the bronchioles are the alveoli, the microscopic sacs where gas exchange occurs. Oxygen diffuses across the alveolar capillary membrane into the pulmonary capillaries, while carbon dioxide diffuses out to be exhaled. The alveoli are surrounded by pulmonary capillaries that maximize diffusion efficiency and maintain systemic oxygen delivery and acid base balance. The mucociliary clearance system provides a critical defense mechanism. Goblet cells secrete thin mucus to trap pathogens and debris, while cilia beat rhythmically to sweep mucus upward toward the pharynx, where it can be swallowed or expelled. This process keeps the lower airway clear and prevents infection. Ventilation is driven by the diaphragm and intercostal muscles, which work together to generate pressure changes that draw air in and expel it. With these structures functioning normally, the respiratory system maintains oxygenation, carbon dioxide removal, and pH regulation. Other organ systems also maintain homeostasis. The pancreas secretes digestive enzymes, ensuring proper nutrient absorption. The reproductive tract supports fertility, and the sweat glands excrete sodium to regulate electrolyte balance and body temperature.

NCLEX IV (7): Reduction of Risk

Pathophysiology of Disease

Cystic fibrosis is a genetic disorder caused by a mutation in the CFTR gene, which regulates the movement of chloride and sodium in and out of epithelial cells. In a healthy system, the CFTR protein maintains thin, slippery mucus that protects and lubricates organs such as the lungs, pancreas, intestines, liver, and sweat glands. In clients with cystic fibrosis, this protein anomaly alters ion transport, causing mucus to become thick, sticky, and tenacious. The abnormal mucus obstructs ducts and passageways, disrupts normal organ function, and creates an environment where organisms can multiply, leading to chronic infection and inflammation. In the respiratory system, thick mucus clogs the bronchi and bronchioles, impairing mucociliary clearance and traps bacteria. This leads to recurrent infections, scarred lung tissue, and progressive impairment of gas exchange. The damage often results in bronchiectasis, hypoxemia, and respiratory failure. In the pancreas, mucus blocks the release of digestive enzymes, preventing proper breakdown and absorption of nutrients. This contributes to malnutrition, steatorrhea, and can lead to cystic fibrosis–related diabetes. The reproductive tract is also affected, with infertility being common, particularly in males due to congenital absence of the vas deferens. Altered sodium and chloride transport causes excessive salt loss in sweat, which can deplete sodium levels in the blood and lead to hyponatremia. This imbalance further complicates the client’s overall health status. Because cystic fibrosis is caused by mutations in the CFTR gene, genetic testing is essential to identify the specific mutation responsible, as this guides prognosis and potential targeted therapies.

To Be Completed Before the Simulation

Anticipated Patient Problem: Risk for impaired gas exchange

Goal 1: Will maintain oxygen saturation > 95 RA or prescribed oxygen during my time of care.

Goal 2: will demonstrate effective airway clearance by producing sputum and reporting decreased dyspnea during my time of care.

Relevant Assessments	Multidisciplinary Team Intervention
(Prewrite) What assessments pertain to your patient's problem? Include timeframes	(Prewrite) What will you do if your assessment is abnormal?
Assess respiratory rate, depth, and effort q2hr + prn	Position patient upright or in semi-Fowler's to optimize ventilation each shift
Assess oxygen saturation continuously with pulse oximetry/	Administer oxygen therapy as prescribed and titrate to maintain target saturation q2hr + prn
Auscultate lung sounds for crackles, wheezes, or diminished breath sounds q2hr	Collaborate with respiratory therapy for nebulizer treatments and airway clearance daily
Assess for signs of hypoxemia (cyanosis, restlessness, tachycardia) continuously	Administer prescribed bronchodilators or mucolytics and monitor response q2hr + prn
Assess effectiveness of airway clearance techniques (cough, chest physiotherapy) each shift	Perform and reinforce airway clearance techniques (chest physiotherapy, incentive spirometry, coughing) q1hr + prn
Assess any reported dyspnea and ability to speak in full sentences continuously +prn	Provide rest periods between activities to decrease oxygen demand prn

To Be Completed Before the Simulation

Anticipated Patient Problem: Risk for fluid and electrolyte imbalance

Goal 1: will maintain stable serum sodium levels within normal range and demonstrate adequate hydration (moist mucous membranes, cap refill < 3s, elastic skin turgor) during my time of care.

Relevant Assessments	Multidisciplinary Team Intervention
(Prewrite) What assessments pertain to your patient's problem? Include timeframes	(Prewrite) What will you do if your assessment is abnormal?
Monitor intake and output continuously	Encourage high-calorie, high-protein diet with pancreatic enzyme supplementation at each meal
Assess for signs of dehydration (dry mucous membranes, poor skin turgor, concentrated urine) q 2hr + prn	Provide oral or IV fluids as prescribed to maintain hydration each shift
Assess daily weight before meals and after voiding	Collaborate with dietitian to modify nutrition plan if weight loss or poor gain is noted daily
Assess serum electrolytes (Na, Cl, K) daily	Administer electrolyte replacements as ordered and monitor effectiveness daily
Assess for signs of hyponatremia (confusion, muscle weakness, lethargy) continuously	Notify provider immediately if patient develops worsening confusion, lethargy, or muscle weakness prn
Assess blood pressure, HR, and orthostatic changes q2hr	Encourage slow position changes to reduce dizziness and prevent falls during q position change

Goal 2: will verbalize understanding of strategies to prevent dehydration and electrolyte imbalance (adequate fluid intake, salt supplementation, enzyme use) before discharge.

To Be Completed During the Simulation:

Actual Patient Problem #1: Ineffective airway clearance

Goal: will maintain oxygen saturation \geq 95% on room air or prescribed oxygen with diminished wheezing and improved breath sounds by the end of each shift.Met: Unmet:

Goal: will demonstrate effective airway clearance by producing sputum and reporting decreased dyspnea during my time of care.Met: Unmet:

Actual Patient Problem #2: Infection

Goal: will verbalize understanding of strict contact precautions and demonstrate adherence to infection-control practices (hand hygiene, mask use, limiting visitors) before discharge.Met: Unmet:

Goal: will remain afebrile and show no new signs of infection (stable WBC, no new infiltrates) during hospitalization.Met: Unmet:

Additional Patient Problems:

#3 Risk for Imbalanced Nutrition: Less Than Body Requirements

#4 Impaired gas exchange

#5 risk for impaired electrolyte/fluid imbalance

#6 Risk for Delayed Growth and Development

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
Ineffective Airway Clearance	0630	Chest X Ray AP/Lateral: stable hilar shadowing and bilateral peri bronchial thickening. Resolution of right lower lobe opacity as compared to 11/11/XX	0830	Susan RN reviews radiology report from the PICC placement	1200	Chest Xray AP/Lateral: Findings are consistent with chronic inflammatory lung disease and right lower lobe pneumonia. PICC is in place.
Infection/ Ineffective airway clearance	0645	Temperature 38.3C. Cough harsh and productive. Wheezing and crackles in all lobes, posterior and anteriorly. RR 24, Spo2 93% RA	0700	Administered 650mg PO acetaminophen. Dr. Royal to treat with IV ABX and aggressive pulmonary therapy.	0700	Temperature 37.9C. SpO2 95% RA
Infection/ Risk for Delayed Growth and Development	0700	"My son has been sick for over a week", "He just isn't getting better" "Im going to get	0715	Educated that faculty will need to follow contact precautions due to Burkholderia	1200	All faculty maintained proper contact isolation precautions. Understood

		bored in here”		cepacia. Educated that playroom access will not be permitted but that entertainment and school work will be allowed		isolation precautions.
Impaired Gas Exchange/ Ineffective airway clearance	0830	RR 26, SpO2 95% RA, mild clubbing of fingers and toes,	0845	Positioned client upright in semi-Fowler’s to promote lung expansion and airway clearance; encouraged coughing and deep breathing	1200	RR 24, SpO2 95% RA,
Ineffective airway clearance/Infection	0900	Lung sounds wheeze throughout. Productive cough, barrel chest, AP = transverse diameter of thorax.	0915	Administered IV tobramycin. Gentamycin administered 220ml/hr.	0930	Auditory function stable, I&O: 100ml
Infection	0945	Susan RN reviewed EMR. Reviewed prescription for Zosyn, Gary has allergic reactions to cephalosporins.	1000	Called the provider to review Zosyn order	1000	Provider prescribed to hold medication.
Risk for imbalanced Nutrition: Less Than Body Requirements	1015	Susan RN aspirates G tube for residual stomach contents “Gary hasn’t been eating well. And with his infection he needs the extra calories”	1030	Held enteral feeding until after chest physiotherapy. Administered enteral nutrition high calorie high protein at 100mL/hr.	1200	Provided high calorie high protein diet when he asked for “real food”
Ineffective Airway clearance	1030	Joseph RT assessed Garys lungs sounds and began respiratory treatment. Stated that “he skips a lot of his treatments at home”	1045	Joseph RT reminded him the importance of the treatments, and the he needs to do it regularly because of cystic fibrosis.	1100	Treatment helped move mucus plugs. Still coughing but not very effective. Wheezing sounds decreased after the treatment.
Risk for imbalanced Nutrition: Less Than Body Requirements	1050	Reviewed order for pancrelipase 6 capsules PO with meals	1100	Administered pancrelipase 10 mins prior to enteral feeding	1200	No signs of intolerance (nausea, vomiting, abdominal pain) were observed.

Infection/ ineffective airway clearance	1200	Explained and assessed provided prescription of culture for sputum. “Its kind of green this time”	1230	Performed oral hygiene, took deep breaths, expectorated into container & offered mouthwash.	1300	Sputum culture results pending
Risk for imbalanced Nutrition: Less Than Body Requirements	1230	“I want some real food” Assessed if spoken to dietician or filled out a menu yet.	1230	Checked providers prescriptions to ensure proper meal order.	1300	Chicken breast, pork, chocolate whole milk provided

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
Chest X-ray: chronic inflammatory lung disease, right lower lobe pneumonia, resolution of prior opacity.
Sputum culture: green sputum, pending results.
O₂ saturation: 95% RA.
CBC: RBC 4.6, Hgb 13.8, Hct 39%, Reticulocyte 1.3%
WBC 19 (↑), Neutrophils 76% (Segs 43%, Bands 8%), Lymphocytes 24%, Monocytes 4%
Platelets 370
PT/PTT pending
Serum quantitative IgE 97

NCLEX II (3): Health Promotion and Maintenance

Signs and Symptoms
RR 26, wheezing throughout, barrel chest, clubbing of fingers/toes.
Productive cough, with green sputum mild dyspnea.
G tube placements for feedings due to inadequate weight maintenance

NCLEX II (3): Health Promotion and Maintenance

Contributing Risk Factors
Cystic fibrosis with thick mucus and impaired clearance.
Colonization with Burkholderia cepacia (resistant organism).
Poor adherence to respiratory treatments at home.
Nutritional deficits (below growth chart, G-tube dependence).
Multiple hospitalizations

NCLEX IV (7): Reduction of Risk

Therapeutic Procedures
Non-surgical
Chest physiotherapy, nebulizer treatments, sputum culture collection, enteral feeding with pancrelipase, IV antibiotics (tobramycin, gentamicin).
Surgical
PICC line placement for IV therapy.

Prevention of Complications
Monitor for worsening pneumonia, hypoxemia, or sepsis.
bronchiectasis, respiratory failure, malnutrition, electrolyte imbalance.
Reinforce adherence to airway clearance and infection-control measures.

NCLEX IV (6): Pharmacological and Parenteral Therapies

Medication Management
Vitamin ADEK 1 tab PO daily
Pancrelipase with meals and snacks

NCLEX IV (5): Basic Care and Comfort

Non-Pharmacologic Care Measures
Chest physiotherapy and respiratory treatments.

NCLEX III (4): Psychosocial/Holistic Care Needs

Stressors the client experienced?
Fatigue from chronic illness and frequent hospitalizations.

Dornase alfa via nebulizer BID (RT)

Tobramycin 300 mg via nebulizer BID (RT)

Albuterol 0.83% unit dose via nebulizer QID (RT)

Tobramycin 90 mg IV bolus q8hr

Gentamicin 130 mg IV bolus q8hr

Acetaminophen 650 mg PO

Dextrose 5% with 0.45% NaCl + 20 mEq KCl IV at 80 ml/hr

Oxygen at 2-4L/min NC to maintain Spo₂ > 92%

Oral hygiene before sputum collection.

Upright positioning to optimize ventilation.

High-calorie, high-protein diet with G-tube supplementation.

Up as tolerated, stationary bicycle for 30min two time per day

Frustration with restricted diet and tube feeds “I want some real food”.

Anxiety related to infection and isolation precautions.

Step father slightly agitated because he “didn’t listen to the doctor”

Client/Family Education

Document 3 teaching topics specific for this client.

Importance of strict adherence to respiratory treatments and airway clearance to prevent mucus plugging.

Need for contact precautions and hand hygiene to prevent spread of Burkholderia cepacia.

Role of pancreatic enzymes and high-calorie nutrition in supporting growth and healing.

NCLEX I (1): Safe and Effective Care Environment

Multidisciplinary Team Involvement

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

Nursing (medication administration, feeding, infection control).

Respiratory therapy (airway clearance, nebulizer treatments).

Provider/pharmacy (antibiotic management, allergy review).

Dietitian (nutrition planning, G-tube supplementation).

Patient Resources

CF Foundation educational materials.

Hospital dietitian and respiratory therapy services.

Pediatric cardiology and pulmonology follow-up clinics.

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 important airway clearance and infection control are in cystic fibrosis. Even when his oxygen looked okay, the mucus plugging and skipped treatments were the real issue. It showed me that teaching and reinforcing daily routines can make or break outcomes.

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

I was surprised that his labs showed such high WBC even though he didn't look critically ill. It reminded me that infection can be brewing under the surface and he only showed a high temperature. I was also caught off guard by how frustrated he was with his diet and tube feeds it made me think more about the psychosocial side of care and how tired he has been with it.

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

I would involve the family more in the plan, especially with nutrition and airway clearance. Instead of just reviewing orders, I'd use teach-back to make sure they understand why enzymes, calories, and treatments matter. I'd also push for a dietician consult sooner to help balance his nutrition with what he wants to eat.

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

This simulation made me more aware of how airway and infection are always top priorities in CF. It will make me more vigilant about subtle respiratory changes, double-checking antibiotic orders for allergies, and enforcing contact precautions. It also reminded me to look at the emotional stressors, not just the physical ones.

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

This client showed deviations in growth and development, being below the 5th percentile and requiring G-tube feeds. His poor appetite and need for pancreatic enzymes highlight nutritional delays common in cystic fibrosis. Frequent hospitalizations and contact precautions also limit his ability to interact with peers and build independence. At his early adolescent stage, these interruptions affect both physical growth and psychosocial development. Supporting nutrition and social needs is key to helping him reach milestones despite chronic illness.