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

Student Name: Ryan Clagett

ATI Scenario: CF-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

-Upper respiratory tract: nose, mouth, pharynx, epiglottis, larynx, and trachea
-Air enters the nose; the nose has three turbinates that moisten air as it enters
-The tubular passageway is divided into nasopharynx, oropharynx, and laryngopharynx
-Nose protects the airway by moistening and warming air
-Epiglottis is a small flap behind the tongue that closes over the larynx during swallowing and prevents aspiration
-Trachea is a five-inch cylindrical tube that keeps the trachea open; it divides the right and left mainstem bronchia at a point called the carina (stimulation causes vigorous coughing)
-Lower respiratory tract: bronchi, bronchioles, alveolar ducts, and alveoli
-The right mainstem is shorter (aspiration more likely)
-Mainstem bronchi subdivide several times to form lobar, segmental, and subsegmental bronchi
-Bronchioles are encircled by smooth muscles that constrict and dilate in response to various stimuli (bronchoconstriction and bronchodilation)
-Volume of air in the trachea and bronchi is called anatomic dead space (no gas exchange)
-Tidal volume (air exchanged per breath) is about 500 mL, but only 150 mL is dead space
-The alveoli are the primary sites of gas exchange for O2 and CO2; there are over 300 million alveoli; interconnected via pores of Kohn; have a total volume of 2500 mL
-Gases are exchanged across the alveolar-capillary membrane, where alveoli meet pulmonary capillaries

NCLEX IV *(7)*: Reduction of Risk

Pathophysiology of Disease

-Chronic, progressive, inherited, incurable disease affecting exocrine (mucous-secreting) glands
-Transmitted as an autosomal recessive trait that affects the cystic fibrosis transmembrane conductance regulator (CFTR) gene located on chromosome 7
-Genetic mutation that involves chloride transport across epithelial membranes
-Characterized by significant aberrations in sweat gland, respiratory, and pancreatic insufficiency, w/ the lungs being the primary organ affected
-Death typically from end-stage lung disease (PNA, emphysema, or atelectasis)
-Class CF is most common, affecting one or more systems; nonclassic doesn't involve pancreatic insufficiency
-Two mutations in the CFTR gene lead to decreased secretion of Cl and increased reabsorption of Na and H2O across epithelial cells, resulting in thick, viscous secretions
-The viscosity increases, affecting the liver, pancreas, lungs, intestines, and reproductive tract; bacteria can stick to thickened secretions, leading to inflammation and infection
-The accumulation of thick, tenacious secretions in the bronchioles and alveoli causes respiratory changes, eventually leading to severe atelectasis and emphysema
-Pancreatic insufficiency results in malabsorption of fat and protein, including lack of absorption of fat-soluble vitamins
-In the pancreas, the reduced water content of secretion, protein precipitation, plugging of ductules and acini, fibrotic tissue, multiple cysts, thick mucus, and fat replacing the acini produce

-Surfactant is a lipoprotein that lowers the surface tension in the alveoli to prevent collapse -Two types of circulation: bronchial and pulmonary; pulmonary provides the lungs w/ blood that takes part in gas exchange; the pulmonary artery receives deoxygenated blood from the R ventricle of the heart and delivers it to pulmonary capillaries that lie directly alongside the alveoli; O2-CO2 exchange occurs at this point; pulmonary veins return oxygenated blood to the L ventricle and into systemic circulation -Bronchial circulation starts w/ the bronchial arteries; they don't take part in gas exchange but provide O2 to the bronchia and other lung tissues; deoxygenated blood returns from the bronchial circulation through the azygos vein into the superior vena cava -Chest wall is supported by 24 ribs (12 on each side), which protects the lungs and heart from injury -The mediastinum is in the middle of the thoracic cavity -Chest lined by parietal pleura; lungs lined by visceral pleura -Diaphragm contracts to increase intrathoracic volume and relaxes to release volume -Oxygenation takes air and makes it available to organs; O2 and CO2 move back and forth by diffusion -Ventilation involves inspiration and expiration; elastic recoil is the tendency for the lungs to return to their original size after being stretched -Compliance refers to the ability of the lungs to expand; resistance refers to any obstacle to airflow during inspiration or expiration -The medulla responds to chemical and mechanical signals -Chemoreceptors respond to hydrogen ion changes, resulting in acidosis or alkalosis and stimulating increases in respiratory rate -Mechanical receptors respond to irritants, causing the coughing reflex -Air filtration is caused by nares and causes sedimentation of particles -Mucociliary clearance system is responsible for the movement of mucus via cilia to remove particles -Cough reflex protects the airway from secretions or aspirants -Reflex bronchoconstriction prevents irritants from entering bronchi		S/Sx of pancreatic insufficiency

-Alveolar macrophages eat foreign particles		

To Be Completed Before the Simulation

Anticipated Patient Problem: **Impaired Gas Exchange**

Goal 1: The pt will have a SpO2 ≥95% RA 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 VS, especially RR, HR, SpO2, q4h and PRN.	Apply oxygen therapy as prescribed PRN SpO2 <90% RA.
Assess WOB, use of accessory muscles, LOC, and restlessness q4h and PRN.	Maintain HOB >30 degrees at all times.
Assess breath sounds q4h and PRN.	Collaborate w/ respiratory therapist to administer prescribed breathing tx as scheduled.
Assess cough effectiveness PRN.	Encourage TCDB PRN and incentive spirometry ten times per hr and PRN.
Assess sputum characteristics (quantity, color, consistency) PRN.	Perform chest physiotherapy and postural drainage as prescribed and PRN.
Assess for fatigue and exertion on ambulation or performing ADLs q shift and PRN.	Cluster nursing care and educate the pt on frequent rest periods PRN.

Goal 2: The pt will demonstrate effective airway clearance techniques (CPT, TCDB, incentive spirometry) by the end of my care.

To Be Completed Before the Simulation

Anticipated Patient Problem: **Imbalanced Nutrition: Less Than Body Requirements**

Goal 1: The pt. will have a daily caloric intake of 110-200% of typical requirements for age and sex 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 height, weight, and growth charts q shift and PRN.	Provide a high-calorie, high-protein diet w/ frequent snacks q shift and PRN.
Assess nutritional status, including caloric intake, protein consumption, and overall diet quality q shift and PRN.	Administer pancreatic enzyme supplements before meals as prescribed PRN.
Assess for GI symptoms, such as abd pain, bloating, or changes in stool characteristics q4h and PRN.	Collaborate w/ the gastroenterologist to prescribe and administer pancreatic enzyme replacement therapy or the insertion of a G-tube PRN.
Assess skin integrity q shift and PRN.	Reposition the pt q2h and apply AquaCell or barrier cream to sacrum PRN.
Assess the pt's energy levels and ability to perform ADLs q shift and PRN.	Collaborate w/ the nutritionist and dietician to develop an individualized and structured diet plan PRN.
Assess dietary preferences q shift and PRN.	Encourage the family to bring in outside food and collaborate w/ dietary for meal suggestions PRN.

Goal 2: The pt. will consume 8-10 glasses of water daily during my time of care.

To Be Completed During the Simulation:

Actual Patient Problem #1: Impaired Gas Exchange
Goal: GD will have a SpO2 ≥95% RA during my time of care. Met: ☐ Unmet: ☐
Goal: GD The pt will demonstrate effective airway clearance techniques (CPT, TCDB) by the end of my care. Met: ☐ Unmet: ☐

Actual Patient Problem #2: Imbalanced Nutrition: Less Than Body Requirements
Goal: GD will consume 100% of meals and snacks during my time of care. Met: ☐ Unmet: ☐
Goal: GD will consume 1-1.5 L of fluid during my time of care. Met: ☐ Unmet: ☐

Additional Patient Problems:
#3: Interrupted Family Processes
#4: Ineffective Health Management
#5: Risk for Allergy Reaction
#6: Readiness for Enhanced Family Coping

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
1	1200	SBAR report: exacerbation of CF, recurrent episodes of high fever (T 38.3 C in clinic), RN administered acetaminophen 650 mg PO at 1030; cough is harsh and productive, wheezing, crackles in all lung fields bilat., anterior, and posterior; RR 24, SpO2 93% RA, at least 30 mins before unit arrival, MD wanted to admit for IV abx and aggressive pulmonary therapy	1202	Accepted transfer of care; prepared receiving room w/ assistance from another RN	1210	Receiving room prepped and cleaned
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1	1211	Contact precautions were ordered: WBC 19,	1230	Maintained contact precautions (gloves, gown)	1231	Verbalized understanding of contact precautions

		positive for *B. cepacia*, CXR: RLL PNA and bilat. peri bronchial thickening noted		before entering the room, educated family on contact precautions and isolation (no game room)		and isolation; verbalized understanding that items can be brought in and schoolwork can be completed w/ school tutor tomorrow)
3, 6	1232	Mother said, “It’s been quite rough at home”; father said, “If Gary did what the provider asked of him, things might be a little better”	1233	Used therapeutic communication, established rapport, redirected family, started the admission process; asked about health history using a family-centered approach	1234	Family focused on the admission process; allergy ID band applied; completed health hx (family involved during questions); physical assessment performed (clubbed fingers and toes, barrel chest, AP = diameter of transverse thorax); hospital rules and policies discussed w/ family; allowed to press BP machine button; parents smiled during assessment
1	1235	Productive cough, wheezing in all lung fields bilat., anterior, and posterior; IV abx tobramycin ordered; T 37.9 C, HR 96, RR 26, SpO2 95% RA	1240	Collaborated w/ RRT about breathing tx, reviewed radiology report about PICC line	1243	PICC site has no pain, pallor, erythema, edema, or drainage and is patent and in place
1	“”	“”	1500	Administered tobramycin 90 mg IV bolus and gentamycin 130 mg IV bolus at 220 mL/hr	1501	Pending AM WBC lab draw
1	“”	“”	1600	RRT administered albuterol 0.83% unit dose via nebulizer and performed chest physiotherapy	1600	SpO2 95% RA, T 37.9 C, HR 94, RR 24, slightly decreased wheezes, coughing less productive

5	1240	Allergy to cephalosporins; order for piperacillin-tazobactam 2 g IV bolus	1250	Collaborated w/ MD about holding piperacillin-tazobactam	1251	Order held
2	1440	Failure to thrive after birth; mother said, "Gary hasn't been eating well. And with his infection, he needs the extra calories"; PEG tube placement; K 3.5, Cl 103; BMI slightly over 10th percentile; weight 43.11 kg (under 5th percentile); height 155.2 cm (under 5th percentile), BP 106/67	1445	Administered D5½NS w/ 20 mEq K IV at 80 mL/hr	1500	PICC dressing is clean, dry, and intact; the site has no pain, pallor, erythema, edema, or drainage; continuous fluid running at the prescribed rate; intake of 100 mL via IV; BP 110/64
""	""	""	""	""	1530	Intake of 110 mL of fluid
""	""	""	""	""	1600	Urine output of 320 mL; PICC dressing is clean, dry, and intact; the site has no pain, pallor, erythema, edema, or drainage; continuous fluid running at the prescribed rate
2	1610	RRT completed respiratory tx, lessened wheezing after tx, pancrelipase ordered to be taken before enteral feedings	1630	Administered pancrelipase three capsules PO 10 mins before enteral feeding; administered a high-calorie, high-protein enteral formula bolus feeding of 300 mL at 300 mL/hr	1730	Tolerated enteral feeding well
4	""	Skips tx at home	1620	Collaborated w/ RRT to educate on the importance of CF tx at home; educated on	1625	Verbalized understanding of the importance of adhering to tx and performing TCDB

				a home regimen and using TCDB as an effective airway clearance technique		to clear his airway
1	1615	Sputum cx ordered; "it's kind of green this time"	1617	Helped to perform oral hygiene; asked to take deep breaths; asked to expectorate into the container; offered mouthwash; placed label on cx cup	1618	Completed steps w/o incident, and cx cup sent down to lab (pending results)
2	1730	"I want some real food"; has not filled out a menu or talked w/ a dietician yet	1745	Collaborated w/ dietary to order a hamburger in a bun, tater tots, skim milk, and fruit-flavored yogurt	1755	Dinner tray arrived on the unit; brought into the room, and placed on the bedside table
2	1755	Dinner tray arrived on the unit; brought into the room, and placed on the bedside table	1800	Administered pancrelipase six tablets PO before the meal was eaten	1830	Tolerated eating dinner well and ate 100%
6	1805	Mother asked, "My husband and I are thinking about having a baby. What are the chances of the baby having cystic fibrosis? Can you explain this?"	1820	Provided handouts and educated that both parents need to have an abnormal gene for their child to have the disease	1825	Verbalized understanding the genes play a role in the factors of whether a child will be born w/ CF
6	1900	Shift ended, and mother said, "I think I'll be spending the night here"	1901	Offered fresh linens for the pullout couch	1902	Expressed happiness when told that the same team would be working tomorrow; mother smiled and seemed happy when offered the linens
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						understanding and demonstrated appropriate airway clearance techniques (CPT, TCDB); consumed 100% of meals and snacks; intake of 210 mL of fluid during time of care; output of 320 mL during time of care [Scenario ends]

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

-WBC 19 (Neutrophils 76%, Lymphocytes 24%)
-Cr 1.1
-CXR (RLL PNA and bilat. peri bronchial thickening noted)
-Positive for *B. cepacia*
-SpO2 93% RA before admission to unit and breathing tx (95% throughout scenario)
-Height/Weight under 5th percentile (43.11 kg, 155.2 cm)
-BMI slightly over 10th percentile
-Sputum cx
-Fever before admission (38.3 C)
-Tachypnea (RR 24 before unit admission; RR 26 before breathing tx; RR 24 after tx)
-Intake of 210 mL; output of 320 mL

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

Signs and Symptoms

-Thick, viscous mucous plugs
-Green sputum production
-Wheezing in all lung fields bilat., anterior, and posterior
-Crackles in lung bases
-Chronic coughing
-Malnutrition; small for age
-Fatigue
-Failure to thrive after birth
-Persistent respiratory problems requiring multiple hospitalizations
-Frequent dehydration
-Clubbed fingers and toes
-Barrel chest
-AP = transverse diameter of thorax
-Dx at 2 years of age

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

Contributing Risk Factors

-Caucasian
-Male
-Failure to thrive after birth
-Parents were carriers of the recessive gene
-[Siblings w/ CF]
-[Exposure to air pollution and secondhand smoke]
-[Mutations in CFTR gene]

Therapeutic Procedures

Non-surgical

-CPT
-PICC placement

Surgical

-[Lung transplantation]
-PEG tube placement
-[Lung resection, ablation, pleurectomy for pneumothorax]
-[Liver transplantation for progressive liver failure]

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)

-Atelectasis (prevention through breathing tx, airway clearance techniques)
-PNA (same as above)
-Dehydration (encouraging frequent hydration of 2-3 L of fluid per day)
-Malnutrition (encouraging a high-calorie, high-protein diet w/ pancreatic enzyme supplementation)

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

Medication Management

-Abx: IV tobramycin and gentamycin
-Enteral feedings
-Pancrelipase before meals and enteral feeding
-D5½NS w/ 20 mEq K for fluid replacement
-Acetaminophen for fever
-Albuterol 0.83% via nebulization for breathing tx
-Vitamin ADEK

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

Non-Pharmacologic Care Measures

-TCDB
-[q2h turns]
-Contact precautions
-[Encouraging adequate fluid intake of 2-3 L per day]
-Clustering nursing care
-CPT
-High-calorie, high-protein meals and enteral feedings
-[Proper hand washing after toileting and before eating]
-[Relaxation techniques]

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

Stressors the client experienced?

-Missing school and interacting w/ friends
-Missing being at home
-Dealing w/ pulmonary exacerbations and hospitalizations
-Maintaining adequate nutrition and weight
-Social isolation due to infection control measures (contact precautions)
-Establishing and maintaining tx routines at home

Client/Family Education

Document 3 teaching topics specific for this client.

•Adhering to breathing tx and airway clearance methods (CPT, TCDB, incentive spirometry).
•Proper use of pancreatic enzyme replacements w/ meals and snacks
•High-calorie, high-protein diet requirements

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

Multidisciplinary Team Involvement

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

RN, RRT, hospitalist, [PT/OT, dietician, nutritionist, pulmonologist, endocrinologist, nephrologist, gastroenterologist, social worker, case management, geneticist, reproductive health]

Patient Resources

Cystic Fibrosis Foundation, CF Chef, local CF parent support groups, online support communities and forums, prescription assistance programs, educational materials for children

Reflection Questions

Directions: Write a reflection including the following:

1. What was your biggest “takeaway” from participating in the care of this client?

   My biggest takeaway from participating in the care of GD is that the care of adolescents also involves caring for the parents. This is what is meant by providing family-centered care. Also, since every encounter is an opportunity in nursing, it is best to establish rapport with the family and promise to provide the best care. The family and GD expressed some tension at the beginning of the scenario, throwing blame at each other regarding recent hospitalizations. However, considering the family's feelings, it was best to redirect them toward the admission process and provide education regarding the current hospitalization. The nurse educated GD on a home regimen, while the respiratory therapist was educated on TCDB and CPT to help alleviate the symptoms associated with CF. The nurse also helped the mother with readiness for enhanced family coping by providing handouts and educating her on the chances that her future children would be diagnosed with CF. Caring for families involves putting aside judgment to provide the best care possible.

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

   Something that surprised me in the care of this patient was that there was much more involved than the RN providing care. For example, the respiratory therapist played a massive role in administering the nebulized albuterol treatments, performing CPT, and educating GD on following breathing tx and CPT at home to prevent exacerbations and future hospitalizations. The nurse also collaborated with the physician and dietician (behind the scenes) regarding holding an order for piperacillin-tazobactam (which the patient was allergic to) and the enteral feedings, including administering pancreatic enzyme supplementation before meals. The RN is the primary caregiver; however, they must be able to collaborate with different members of the healthcare team to provide a plan of care that is optimally patient-centered.

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

   Something that I would do differently with the care of GD would be to be willing to accept help from other RNs. Throughout the scenario, other RNs asked the primary RN if they could help with the medications and other procedures. However, the primary RN decided to tell them that she needed help. Asking for help, especially for an acute patient experiencing CF exacerbation, can help provide optimal patient-centered care while alleviating the symptoms of burnout. The nurse also mentioned being busy and having many tasks to complete. However, by asking for help, she would have the opportunity to do more freely without feeling like she is providing inadequate care for GD and his family.

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

   This simulation experience will impact my nursing practice by giving me therapeutic communication strategies when caring for adolescents and their families and a snapshot into caring for CF patients. This patient population has many moving parts, including antibiotics, pancreatic supplementation before meals, snacks, enteral feedings, and frequent airway assessments to ensure the patient adequately perfuses. By getting a glimpse into how to talk to the family during this acute hospitalization, I will better understand how to approach the family and give them the best care they deserve. Also, I will better prepare for this patient population by understanding a little about caring for a patient with CF since it would not be my first time caring for a CF patient.

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

Since GD is 15 years old, he falls into formal operational cognitive development (Piaget), middle adolescence with identity vs. role confusion (Erikson), and Stage 3 conventional level (social conformity orientation; Kohlberg). GD displayed normal cognitive and moral development. He was able to speak eloquently about his problems, and he was able to speak up for himself regarding eating "normal food." He obeyed the rules for acceptance and approval among his peers, family, and hospital staff. Throughout the scenario, I observed GD showing signs of achievement for identity vs. role confusion. He showed his character, emotions, and identity through interactions with the primary RN and RRT, such as caring about his looks and showing conflicts over independence with his parents regarding how he handles his CF at home. GD did not show signs of regressing or role confusion during the scenario.