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

Student Name: _Lillie Golub_

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

- Functions: transport O2 from air into blood, removal of CO2 in blood
- Upper respiratory tract includes
- Nasal cavities: warms & moistens air, traps foreign particles via mucus
- Pharynx: nasopharynx, oropharynx, laryngopharynx
- epiglottis, larynx,
- The lower respiratory system includes the following:
- Trachea: pipelike structure that contains muscles and connective tissue and is responsible for moving inhaled air down into the lungs. Located at angle of Louis bifurcates to right & left mainstem bronchi The trachea divides into the left and right main bronchi at a point called the carina.
- Bronchi: conduct air to the lungs so that gas exchange can occur, it is lined with a mucus layer that plays a role in protecting the lungs from inhaled pathogens. It is composed of three sections the main bronchus (left & right), the right bronchus has a more vertical course and is shorter and wider (more likely to occur in the right lung than left). The main bronchi then branch out to the secondary lobar bronchi, then to the tertiary segmental bronchi. As the airways get smaller, they have more branches.
- Bronchioles: branches that run into the lungs getting progressively smaller the deeper they go into the lungs and end into alveolar ducts. Lungs: the main respiratory organ where gas exchange occurs the right lung has 3 lobes, and the left has 2 lobes. Normal tidal volume for an adult is 500 mL. Alveoli: tiny air-filled sacs located at the end of the bronchioles, surrounded by capillaries

NCLEX IV *(7)*: Reduction of Risk

Pathophysiology of Disease

- Affected child inherits autosomal recessive defective gene from both parents.
- 25% chance of getting defective gene with every pregnancy.
- CFTR gene – function as chloride channel causing abnormal chloride movement
- Meconium Ileus: Abdominal distention, Vomiting, failure to pass stools, rapid development, dehydration
- GI Manifestations: large, bulk, loose, frothy, extremely foul-smelling stools, voracious appetite (early in disease), anorexia (later in disease), weight loss, marked tissue wasting, growth failure, distended abdomen, thin extremities, shallow sin, deficiency of vitamins A,D,E, and K
- Pulmonary manifestations:
  - Initially: wheezing respiration
  - Dry/nonproductive cough
  - Eventually: ↑ dyspnea, paroxysmal cough
  - Evidence of obstructive emphysema and patchy areas of atelectasis
  - Progressive Involvement: over inflated/barrel-shaped chest, cyanosis, clubbing of fingers and toes
  - Repeated episodes of bronchitis and bronchopneumonia
- Increased viscosity of mucous gland secretions

where gas exchange occurs (inhaled O2 enters bloodstream and CO2 exits bloodstream and is exhaled). The lung has over 3 million alveoli (~0.3mm).

- They are connected by pores of Kohn, deep breathing helps with air movement
- The smooth muscles allow for bronchoconstriction and bronchodilation.
- Gases are exchanged over the alveolar- capillary membrane that's in contact with pulmonary capillaries and O2 and CO2 more back and forth by diffusion.
- Surfactant is a lipoprotein that lowers surface tension and helps reduce the amount of pressure needed to inflate the alveoli. The lungs have two types of circulation: pulmonary & bronchial.
- Pulmonary circulation provides the lung with blood and oxygenates it and moves through the heart to the rest of the body tissue.
- Blood comes from the pulmonary artery (only artery carrying deoxygenated blood) and becomes oxygenated, then returns to the heart via the pulmonary veins into the left atrium.
- The chest wall consists of the mediastinum which separates the right & left lungs.
- The cavity is lined with the pleura which is divided into 2 membranes parietal (chest wall) & visceral (lungs).
- The intrapleural space is between the two and contains 10-20 mL of fluid to provide lubrication and increases unity.
- O2 and CO2 move back and forth through the alveolar- capillary membrane from high to low conc.
- Inspiration is the movement of air into the lungs. Expiration is the movement of air out of the lungs.
- Compliance: ability of lungs to expand.
- Resistance: any obstacle to airflow during ventilation.
- Breathing is controlled in the medulla.
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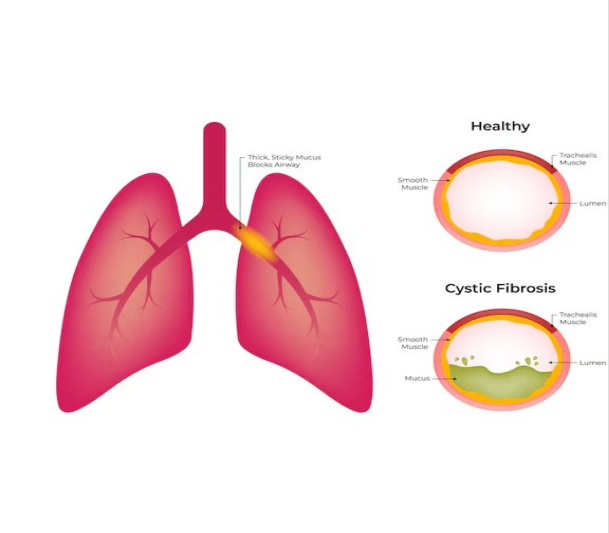
- Elevation of sweat electrolytes, increase in several organic enzymatic constituents of saliva, abnormalities in ANS function.
- Sodium and chloride are affected
- Decrease pancreatic secretion of bicarbonate and chloride and an increase in sodium and chloride in both saliva and sweat,
- Sweat electrolyte is abnormally present from birth throughout life and unrelated to disease severity to which other organs involved. Sodium and chloride content of sweat is 98-99% of child with CF = 2-5x > children w/o.
- Primary manifestation: mechanical obstruction caused by ↑ viscosity mucous gland secretion. Glands produce thick mucoprotein that accumulates and dilates rather than thins freely flowing mucous.
- Small passages go to organs like pancreas and bronchiole obstruct as secretions precipitate or coagulate to form concrete ducts or glands.
- Leads to pancreatic fibrosis: caused by cystic dilation of acini that undergo degeneration and progressive diffuse fibrosis.
- DM in children with CF is ↑. May be caused by diminished blood supply over time to pancreas.
- CFRD(cystic fibrosis related diabetes) has the most common complication associated with disease. And ↑ morbidity and mortality. Severe insulin deficiency.
- CFRD has characteristics of both T1DM and T2DM .
- Adequate insulin appears key in nutrition status and correlates with *optimal* lung function.
- Liver- focal biliary obstruction and fibrosis are common. Fatty infiltration despite proper nutrition.
- Pulmonary: variable onset and extent. Stagnation of mucus in airways with eventually build up of bacterial colonization=lung tissue destruction.
- Secretions are difficult to expectorate and gradually obstruct bronchioles and bronchi causing bronchiectasis, atelectasis, and hyperinflation.
- Favorable to bacterial growth in lungs.
- Frequent pulmonary HTN, cor pulmonale,

respiratory failure, and death.

- Reproductive system of both sexes affected
- Females: glands in uterine cervix fill with mucus, and large amounts may block cervical canal and prevent sperm entry.
- Males: > 95% sterile r/t obliteration of atresia of epididymis, vas deferens, and seminal vesicles, = ↓/absent sperm production.
- Physical growth restriction with ↓ absorption of nutrients, vitamins, and fat. Increase O2 demands and delayed bone growth.
- Increased weight loss despite increased appetite and gradual deterioration if respiratory system



To Be Completed Before the Simulation

Anticipated Patient Problem: Ineffective airway clearance

Goal 1: Will expectorate mucus immediately after treatments and exhibit improved airways with a productive cough and no adventitious breath sounds during auscultation.

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 for adventitious lung sounds q3-4 hrs and prn	Administer ordered nebulizer
Assess for productive cough and collect sputum specimen q3-4hrs	Encourage fluid intake and administer ordered mucolytic.
Assess work of breathing during activity when out of bed prn	Encourage periods of rest for 30-60mins prn
Assess SPO2 q2-4hrs and prn	Position in upright position ≥ 30 degrees
Assess HR and RR q2-4 hrs and prn	Administer Order O2 per facility protocol
Assess mucous membranes and skin turgor for dehydration q4-8hrs and prn	Administer/ maintain ordered maintenance fluids

Goal 2: Will Exhibit improved airway clearance as evidenced by improved breath sounds and RR of 12-20breaths/min

To Be Completed Before the Simulation

Anticipated Patient Problem: Impaired Gas exchange

Goal 1: Will have Spo2 of ≥92% 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 spo2 q 2-4hrs and prn	Contact provider and administer supplemental O2 per facility protocol.
Assess RR and HR q2-4 hrs and prn	Administer ordered bronchodilators
Assess position and RR q4 hrs and prn	Reposition in semi-fowlers position or higher.
Assess environmental temperature prn	Provide neutral thermal environment
Assess physical activity level daily and prn	Educate how to implement deep breathing exercises and when to take breaks when needed.
Assess diet during meals and prn	Collaborate with nutrition and educate patients on importance of high protein and calorie diet. Educate importance of snacks in between meals.

Goal 2: Will have decreased WOB as evident by a RR of 12-20 breaths/ min and HR of 60-100 bpm.

To Be Completed During the Simulation:

Actual Patient Problem #1: Ineffective airway clearance
Goal: Will expectorate mucus immediately after treatments and exhibit improved airways with a productive cough and little to no adventitious breath sounds Met: ☐ Unmet:☐
Goal: Will Exhibit improved airway clearance as evidenced by improved breath sounds and spo2 ≥ 92% Met: ☐ Unmet:☐

Actual Patient Problem #2: Impaired Nutrition
Goal: Will eat 2 -3 ordered snacks during my time of care Met: ☐ Unmet:☐
Goal: Will not lose weight during my time of care Met: ☐ Unmet:☐

Additional Patient Problems:
#3 Impaired gas exchange
#4 Infection
#5 Deficient knowledge
#6 R/f anaphylaxis
#7 R/f electrolyte imbalance
#8 R/f ototoxicity

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
Impaired gas exchange Ineffective airway clearance	1200	HOB at 30 degrees Stepfather states is not compliant to providers instructions Mother states "the past few weeks have been quite rough at home." Wheezing anterior and posterior upon auscultation Dry nonproductive cough HR 96 RR 26 BP 106/67 95% RA	1240	Called RT for ordered administration of medications Review Providers orders	1530	Maintain HOB ≥ 30 degrees Maintain spo2 >92% RT reported a lot of mucus plugs with coughing still present Decreased wheezing with auscultation after treatment
r/f infection deficient knowledge	1200	RN implements isolation precautions RN Donned gown and gloves Assessed	1230	Educated on isolation precautions Instructed patient and parents that he is not to leave room		Appears disappointed Does not want to do schoolwork.

		knowledge of hospital rules/policies and isolation precautions		but staff can supply activities for him and that he will likely have homework to do. Informed family staff will wear gown and gloves every time the room is entered. Informed that school tutor will be in following day. Discuss prescriptions from provider and plan of care		
Deficient knowledge		RN assessed patient knowledge of patients recent readmission. Patient asked for mothers help with answering questions		RN encouraged mothers participation in assessment of current patient history during the admission process.		Both stated were eager to begin answering any questions RN may have.
r/f anaphylaxis	1230	Assess for allergy band Order for Piperacillin tazobactam (Zosyn) 2gm IV bolus q6hr Allergies: cephalosporin, ragweed, trees, pollen, cats, dogs	1230	Apply allergy band during assessment Contact provider	1400	Provider put hold on ordered piperacillin d/t allergy
Ineffective airway r/f imbalance electrolyte balance r/f ototoxicity	1225	AP Lateral chest X-Ray revealed chronic inflammatory lung disease (consistent with CF) and R lower lobe pneumonia CXR confirmed right PICC is in place Temp 100.2 F (37.9) WBC 19	1500	Administer ordered IV tobramycin (Nebcin) 90 mg IV bolus q 8hr Administer Ordered Gentamicin 130 mg IV bolus q 8hr = 220mL/hr	1600	Hearing intact administration well tolerated

		Neutro 76% Lympho 24% Creatinine 1.1 Hearing intact				
R/f impaired nutrition	1230	Weight 43.11kh (95lbs) Ht. 155.2 cm (61in) Age 15 Male <5% for weight and stature on growth chart Assess for residual stomach contents prior to g-tube feed	1600	Prepare and administer Bolus feeding of 300 mL x1 over one hour upon admission enteral-feeding bolus through g-tube- high calorie and high protein. Administration was given following physiotherapy by RT Administer Pancrelipase (Pancreaze) PO 6 capsules prior to enteral feeding	1530	Mother agrees with necessary orders when stating “gary hasn’t been eating well. And with his infection he needs the extra calories.”
Ineffective airway clearance	1530	Skipped a lot of treatments at home	1530	Ordered chest physiotherapy is performed by RT RT encouraged at home treatments and reminded of the importance and to do regularly Physiotherapy 4x/day	1600	RT reported a lot of mucus plugs with coughing still present Decreased wheezing with auscultation after treatment
Impaired gas exchange Ineffective airway r/f Infection	1605	Stated sputum is “kind of green” RN don gown and gloves	1605	Obtained sputum sample Hand hygiene Gown and gloves	1610	Green sputum collected and sent to lab
r/f impaired nutrition	1800	Requested “real food” Assess providers orders”	1900	Ordered High protein high calorie meal. Administer ordered (pancrelipase) PO 6 capsules with meals	1930	Chose desired meal without any resistance and ate.
Deficient knowledge	1930	Mother asked about chances of future children having CF	1930	Provided supplemental handouts Educated mother that both parents	1930	Mother was eager and receptive to receive information before her husband returned

				need to have abnormal genes in order to have the disease.		

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

RBC 4.6/mm3
Hemo 13.8g/dL
Hemat: 39%
WBC: 19.0/mm3
Neutro: 76%
Lympho: 24%
Creatinine: 1.1mg d/L
IgE: 97
UA: normal/ negative for bacteria, blood crystals, bilirubin

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

Signs and Symptoms

Ill for over a week and not getting better
Positive for Burkholderia cepacian
Wheezing Throughout Both Lungs
Productive cough
Barrel chest
Mild clubbing of fingers and toes
PICC placement
Small for age
Peg tube
Cap refill > 1 second

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

Contributing Risk Factors

Cystic fibrosis
FTT
Diagnoses with CF at 2y/o
PEG for feeding d/t inadequate weight
Noncompliance with at home treatment
Previous hospitalizations
BMI <18
Height and weight <5%

Therapeutic Procedures

Non-surgical
Physiotherapy

Surgical
Peg tube
PICC

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)

Small for age in weight and height d/t poor nutrition
Contact procautions

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

Medication Management

Vitamin ADEK 1 tablet PO daily
Pancrelipase 6capsules PO w/ meals
Dornase alfa (Pulmozyme) 2.5 mg via neb 2x/day (RT admin)
Tobramycin (TOBI) 300 mg via neb 2x/day (RT admin)
Budesonide (Pulmicort Turbohaler) 2inhales/day (RT admin)
Albuterol (Proventil) 0.83%-unit dose via neb 4x/day (RT admin)
~~Piperacillin tazobactam (zosyn) 2G IV bolus q 6 hr~~ **held d/t allergy**
Tobramycin (Nebcin) 90mg IV bolus q8hr
Gentamicin 130mg IV bolus q8hr
D50.45NaCL with 20 mEq KCL IV at 80 mL/hr continuous
650 mg PO acetaminophen q4 hrs for temp > 101.5F (38.6)
Pancrelipase (Pancreaze) 3 capsules PO w/ snacks and supplement.
O2 2-4L/min to maintain > 92%

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

Non-Pharmacologic Care Measures

Chest physiotherapy 4x/day
PT- stationary bike for 30 mins 2x/day
High calorie, high protein diet with 3 snacks daily

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

Stressors the client experienced?

Parents are divorced
Mother is remarried
Mother is thinking about having another baby
Frequent hospitalizations

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?)

Nutrition

• Proper medication administration and compliance. • Educate on high protein and high calorie diet • Importance of regular management and f/u care to prevent rehospitalizations.	PT RT Clinic where PICC was placed

Patient Resources
RN provided supplemental information about CF and how it can occur in future pregnancies Cystic fibrosis Foundation Claire’s Place

Reflection Questions

Directions: Write reflection including the following:

1. What was your biggest "take away" from participating in the care of this client?
   The biggest takeaway would be the importance of family involvement in pediatric care. Sometimes even in an older child the parents can help provide information that the child might not think is important. But it is also important that the child is included as well to show that they can also be apart of their care.

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

   I was surprised at how frequently this patient had been in the hospital due to his noncompliance with his treatments at home. I think that maybe one rehospitalization would be enough to prevent him from wanting to go back, especially if he needed to be isolated.

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

   One thing I would do differently is try to take some time to speak with the client and maybe see why he does not want to follow the treatment plan at home so that maybe after discharge he will comply and not have to be in the hospital again.

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

   This will impact my nursing practice by doing my best to take time when I can to help understand why there is noncompliance at home and maybe there is a way to change it. Using therapeutic communication may be an option to help in a situation like this especially in a complex family dynamic such as this.

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

   During this simulation the client is a 15-year-old adolescent. Cognitively he is where he should be. Physically he is delayed due to his disease he is underweight and just overall small for his age. In his chart the BMI and growth are below normal, and he is described as small. His nutrition is so poor he has a G-tube inserted to help increase nutritional intake along with vitamins and prescribed PO enzyme during feeds.