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

UPPER RESP – prepping inhaled air for the lungs.
Nose and nasal cavity – enter for airway, contains the cilia and mucus to trap bacteria and other particles, and humidifies air.
Sinuses- air filled cavities within the skull bones – help lighten the skull.
Pharynx – (nasopharynx, oropharynx, laryngopharynx) it is the throat and shares path for both air and food.
Larynx- voice box/ vocal cord housing, prevents food from entering the trachea with use of the epiglottis(flap of cartilage, covers the opening of the larynx), connects to the trachea.
LOWER RESP- conducts air to the lungs for gas exchange.
Trachea- conducts air into the lungs through the windpipe, reinforced with hyaline cartilage shaped as Cs to keep it open.
Bronchi – large branches on both L and R side and stem from the trachea, no cartilage and there is one for each lung.
Bronchioles- smaller branches that branch off from the main bronchi, the smooth muscle controls constriction and dilation- regulating airflow.
Lungs- R (3 lobes – upper, middle, lower) and L (2 lobes- upper and lower), protected by the rib cage and are enclosed by the pleura (2 layers – visceral and parietal) and contains pleural fluid which aids in lung expansion by reducing friction.
Alveolar ducts- connects the bronchioles to the alveoli
Alveoli- small air sacs where gas exchange is produced, lined with surfactant that keep the ducs from collapsing when gas is exchanged. They are surrounded by capillaries.
Diaphragm- main muscle of respiration and located under the lungs. Inhalation it expands drawing air in and moves in a downward motion, then recoils when air is exhaled.
GI SYSTEM
Mouth- entry point of food , teeth are used to manually breakdown food and salivary glands release enzymes (amylase and lingual lipase) to start breaking down carbohydrates.
Pharynx- passageway for food that leads into the esophagus and the epiglottis is a flap included to prevent food from entering the lungs and choking.
Esophagus- muscular tube that helps transport food into the stomach by peristalsis. The lower sphincter at the junction of the stomach opens to allow food in and prevents stomach contents from backing up.
Stomach- muscular organ that digests and mixes with food using enzymes and acids (pepsin – protein digestion, gastric lipase- fat breakdown, HCl- activates enzymes) which breaks down the food into a semi liquid mixture – chyme.
Small intestine- longest part of GI tract and where most absorption happens

- Duodenum- first section where chyme and digestive liquid mixes from the pancreas, liver and gb.
- Jejunum- middle, where most nutrient absorption in

NCLEX IV *(7)*: Reduction of Risk

Pathophysiology of Disease

genetic, autosomal recessive disorder and is a defect in the CFTR gene and controls the chloride channels within the epithelial cells in the body. Exocrine gland dysfunction. In CF- chloride is not moving out of the cells and water does not follow so secretions become thick and sticky. This allows for multi system defects that occur within the body.

Lungs – increased viscosity in the mucus glands and can cause obstructions in the airway. Most affected organ – causing air trapping – blocked bronchi, chronic infection and inflammation to the bronchial wall causing bacteria to colonize because of the stagnant mucus, hypoxia and resp. failure over time.

Pancreas – thick secretions cause a block in the pancreatic ducts and the enzymes cannot reach the small intestine. This results in pancreatic fibrosis which leads to malabsorption of fats, proteins and fat soluble vitamins. Steatorrhea (fatty, foul smelling stools), poor weight gain and FTT due to decreased digestion, and can often lead to diabetes. It is due to the diminished blood supply and changes to the pancreas over time- this leads to severe insulin deficiency (beta cell dysfunction) and insulin resistance

GI- an early sign in infants is meconium ileus (newborns intestines are blocked by the infants first stooling), acid reflux and distal intestinal obstruction.

Liver- bile becomes thick and can block bile ducts which can lead to biliary cirrhosis and fatty infiltration. Ultimately leading to portal htn.

Sweat Glands- chloride channels fail to reabsorb chloride and sodium in the sweat glands, resulting in the child loosing way too much Ch and Na. they often have salty skin and excessive salty sweat – hyponatremia and dehydration especially in summer

Fertility- males have congenital absence of the vas deferens which results in infertility and females have thick cervical mucus resulting in reduced fertility.

the blood stream takes place. - Ileum- final section, absorbs remaining nutrients such as b12 and bile salts, and connects the large intestine. Large intestine- absorbs water, salt, and electrolytes from indigestible waste which forms into solid stool. Contains the cecum, colon (ascending, transverse, descending and sigmoid), rectum(stores stool until ready for bm) and anus (external opening where waste leaves the body) Liver – produces bile (helps breakdown fats) Gallbladder- stores and concentrates bile and releases it into the small intestine when needed. Pancreas- behind the stomach, exocrine - produces enzymes (amylase, lipase, proteases, trypsin, etc.) which breaks down carbs, fats, and proteins. Endocrine - Produces insulin(beta) and glucagon(alpha) to regulate blood sugar.		

To Be Completed Before the Simulation

Anticipated Patient Problem: ineffective airway clearance

Goal 1: will demonstrate effective coughing and expectorate secretions 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?
Auscultate breath sounds q 2hr	Administer Bronchodilators as prescribed prn
Assess WOB q 1 hr prn in the room.	Elevate HOB to high fowlers and postural drainage PRN increased WOB
Assess O2 sat q 4hr	Administer supplemental oxygen PRN o2 sats below 95%
Assess RR and pattern q 4hr	Encourage deep breathing techniques and use of suction. PRN increased
Assess cough characteristics q 1 hr prn coughing	Educate use of huff cough and demonstrate ability to cough
Assess sputum color, consistency, and amount q 2hr	Administer mucolytics as prescribed PRN increased sputum.

Goal 2: o2 sat will remain above 95% on RA during my time of care.

To Be Completed Before the Simulation

Anticipated Patient Problem: risk for infection

Goal 1: temperature will remain between 36.5 and 37.5 degrees Celsius 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 temperature q 4hr	Administer antibiotics as prescribed prn infection
Assess s/sx of worsening infection; malaise, chills, and irritability prn in the room	Enforce and educate on strict hand hygiene upon entering and exiting the room prn with patient.
Assess appetite and diet q 3 hr prn hunger	Encourage a high calorie and high protein diet and educate use of enzymes to aid in digestion q mealtime.
Assess I&O q 8hr	Encourage adequate hydration of water and electrolytes q4hr prn thirst.
Assess caregiver knowledge of s/sx of worsening infections q shift	Educate caregivers on s/sx of increasing infection (increased fever, poor appetite, fatigue, change in sputum color, etc).
Assess patient and caregiver knowledge of infection prevention measures when d/c from hospital q shift.	Educate importance of avoiding crowded areas and disinfecting all equipment such as nebs to prevent bacteria growth in equipment and resp tract q shift.

Goal 2: will verbalize 2 ways to prevent infection during time of my care.

To Be Completed During the Simulation:

Actual Patient Problem #1: ineffective airway clearance
Goal: will demonstrate effective coughing and expectorate secretions during my time of care Met: ☐ Unmet:☐
Goal: o2 sat will remain above 95% on RA during my time of care. Met: ☐ Unmet:☐

Actual Patient Problem #2: risk for infection
Goal: temperature will remain between 36.5 and 37.5 degrees Celsius during my time of care. Met: ☐ Unmet:☐
Goal: will verbalize 2 ways to prevent infection during time of my care Met: ☐ Unmet:☐

Additional Patient Problems:
#3 imbalanced nutrition: less than body requirements
#4defficient knowledge
#5
#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
2	1214	Upon report – "recurrent fevers and T 38.3 in the clinic at 1015am , WBC 19, B. Ceprappcia present.	1214	Administered650 mg of acetomeniphen and admitted to inpatient. Explained use of contact precautions including gown and gloves to prevent infection spread as well as avoiding community spaces.	1220	Verbalized understanding of use for precautions and understanding he cannot be in the game room due to infection
1	1225	Ascultated breath sounds; wheezes in all lobes and productive cough, RR 26 and spo2 95% RA	1240	RT administered chest physiotherapy treatment and albuterol neb tx	1250	Auscultated breath sounds and had less wheezing in all fields and still coughing. RR24 spo2 95% RA
1,2	1230	Reviewed radiology report for the PICC placement , T 37.9 C and coughing HR 96	1240	administration of Tobramycin 90mg IV bolus and Gentamicin 130 mg IV bolus to prevent further infection	1300	PICC site free of signs of infection, Still coughing, T 37.9 C HR 94
3	1240	12th percentile for BMI as a 15y/o M	1250	Administered enteral feeding	1255	Regaining appetite back, wants to

		weighs 43.11 kg and is 155.2 cm, has not had much of an appetite at home		bolus after chest physiotherapy		order “real food” within diet
1,2	1245	Stated “sputum has been looking green” and presents with deep productive cough	1250	Maintained HOB elevated and encouraged huff coughing technique	1250	Less coughing occurred and spo2 95% RA
1,4	1250	Stated “skips a lot of his treatments for respiratory at home”	1250	Educated on importance of regularly completing treatments to reduce harmful effects of the CF.	1250	Next RT tx is prescribed for 2100. Reinforced by RN and RT.
3	1330	Stated “hungry and wants to eat” ordered Chicken breast, pork and beans with chocolate	1345	Administered pancrelipase enzyme PO before indulging in meal.	1350	Completed meal with no complications.
4	1330	Mom stated” thinking of having another child – what are the chances of a second baby having CF”	1330	Educated mom that both parents need to have the abnormal gene for the child to inherent it.		Verbalized understanding of specific genes.

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 , BMI wt in 12th % and ht less than 5th percentile, Burholderia-cepapcia bacteria present, CXR RLL opacity (PNA), bilat peribranchial thickening and increased hilar shadowing

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

Signs and Symptoms

Increased RR (24,26) , coughing, green sputum, mucus plugs, decreased appetite, barrel chest, FTT, decreased weight and BMI, wheezing in all lobes, fever, chronic infections

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

Contributing Risk Factors

Family hx / genetics

NCLEX IV *(7)*: Reduction of Risk

Therapeutic Procedures

Non-surgical

Nebulizer
Chest PT
Oxygen
Breathing exercises

Surgical

Lung transplant

Prevention of Complications

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

FTT, infection, malnutrition, respiratory failure, infertility, dehydration, bronchiectasis, diabetes, death

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

Medication Management

Acetomeniphen, budesonide inhaler, albuterol, tobramycin, gentamicin, pancrelipase enzyme, pulmozyme NEB, vitamin ADEK, zosyn, TOBI Neb

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

Non-Pharmacologic Care Measures

Chest physiotherapy, cough and deep breathing, postural drainage, stationary bike

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

Stressors the client experienced?

Chronic illness, reoccurring hospital visits, isolation, unable to do normal kid things, malnutrition

Client/Family Education

Document 3 teaching topics specific for this client.

- infection prevention measures
- med compliance
- high cal high protein meals and enzymes at mealtime

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

Multidisciplinary Team Involvement

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

RT, dietician, gastroenterology, surgeon, case manager, child life specialist, physician

Patient Resources

Genetic information regarding chances of child developing CF

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 take away from the care of the CF pt was that it is a full body disease, and it can really do so much damage to different areas of the body without proper treatment. There is so much supportive care and specialists used to help treat the CF population. Having a support system is also a large take away I discovered, with all the treatments and meds required, this can be challenging to have with out support of family and friends.

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

Something that surprised me in the care of this patient was how there can be so many unknowns regarding care of the CF population and how compliance goes a long way with treatment. The parents had good questions regarding future children that others may not need to think about when thinking of reproduction. Non-Compliance with treatment with treatment was common with this patient at home and it makes you wonder if that is solely the reason for readmissions and if so, why not keep up with treatment if it makes a difference in the pt health.

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

Something I would do differently with the care of the child is implement more resources and education for at home treatments: more breathing and coughing exercises, introduction or education regarding suctioning when secretions are a lot. Also, I would involve the family in more care when in the hospital instilling teaching in both mom and dad.

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

This simulation will impact my nursing care with this population is to take time with the education of the patient and caregiver especially with complex disease processes as such. It is so important to further appropriate care past discharge from the hospital and reinforcing education can help all aspects of retaining knowledge of the patient and the caregiver when aiding in care for a CF client.

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

The client had deviations of growth and development. He was 12th % in the weight and 5th % in the height for national averages. Since he has had chronic infections, he was unable to go into the game room and socialize with other children his age would normally be doing. During this age 15y olds generally start to gain more independence and rebellion starts to become common. Constantly being sick hinders his way to being able to rely on his parents less which results in a greater dependance on mom and dad and less interaction with other children that may not be battling CF. this can also result in a greater circle of infection due to denying treatments and not wanting to participate in further care due to his age of wanting to rebel against authority, which contributes to further infection.