ATI Real Life Student Packet
N201 Nursing Care of Special Populations
2023

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ATI Scenario: Cystic Fibrosis: Community Care

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

Respiratory: Respiratory tract is made up of upper and lower tracts. Upper involves nose, nasopharynx, oropharynx, laryngopharynx, larynx, trachea to the carina (bifurcation). Lower involves right and left bronchus, bronchioles, alveolar ducts, and the alveoli. O2 is taken through the tract where it ends up in the alveoli and the pores of Kahn, where the exchange occurs. CO2 from the capillaries is pushed into the alveoli and the o2 flows into the capillaries and is pushed into the heart. We have two lungs (R and L) R= 3 lobes L=2 lobes. Ventilation (inspiration and expiration) occurs because intrathoracic pressure is always changing. Elastic recoil Is the lungs returning to original size on expiration. Compliance is the measure of ease of elasticity and recoil. Resistance is airflow impeded during inspiration or expiration

GI tract: 30 ft and extends from mouth to anus
mouth to esophagus to stomach, small intestine, large intestine, rectum, anus. Also involves the liver pancreas and gallbladder. Food is chewed, salvia aids (analyse) in breakdown and sends it down via esophagus, enters stomach via esophageal sphincter. Stomach has mechanical and chemical digestion (HCL and Intrinsic factor [B12] secreted by parietal cells in the stomach). Then in small doses, dumps into small intestine. SI is for digestion and absorption (uptake nutrients to bloodstream). SI has three parts: duodenum, jejunum, and ilium. Peristalsis pushes food forward. Then it makes its way into large bowel: main object: water and electrolyte absorption and then to the rectum and then anus. Liver is largest internal organ and makes bilirubin to break down hgb

Reproductive: the job of the reproductive system is to produce and fertilize gametes (sperm or egg) and carry a fetus. The ovaries produce and store ovum/estrogen and the testes produce and store sperm and testosterone. Fallopian tubes connect the ovaries with the uterus and are the site of fertilization. The uterus is the site of development for the embryo. The vagina connects the cervix to the external female body parts and receives sperm. For males, the vas deferens transports sperm from testes to urethra and the penis delivers sperm to the female reproductive tract.

NCLEX IV *(7)*: Reduction of Risk

Pathophysiology of Disease

- CF is an autosomal recessive disorder
- Symptoms typically occur in childhood, but can evade dx until adulthood
- The CF gene is found on chromosome, creates a protein called CF transmembrane conductance regulator (CFTR), which when mutated (like in CF) increases secretions of smooth muscle, which produce overly thick and sticky mucous
- CF is known for having the greatest effect on the respiratory system, GI tract, and reproductive tract
- These thick and sticky mucous plugs up the ducts of organs and airway, causing scarring in organs and resulting in organ failure.
- Children with CF demonstrate decreased pancreatic secretions of bicarb and chloride and increase in sodium and chloride due to the mechanical obstruction cause by increased viscosity of mucous gland secretion
- Thick secretions lead to pancreatic fibrosis. Blockage of the pancreatic enzymes prevents the digestion and absorption of nutrients. This can cause steatorrhea (oily stool).
- CF is characterized by persistent chronic airway infections that cannot be cured. Chronic infections can also lead to chronic inflammation, which also leads to decrease in respiratory function, which can also contribute to narrowing lumen of airways. CF is known to be caused by *Staphylococcus aureus, H. Influenzae, Burkholderia cepacia.*
- Progresses from a disease of the small airways to involvement of larger airways and eventually causes destruction to lung tissue (scarring)
- S/Sx: wheezing, coughing, frequent pneumonia, failure to thrive/malnourishment, steatorrhea, bronchiectasis, recurrent lung infections, weight loss, increased sputum, decreased pulmonary function.
- This disease is characterized by periods of stability, and then periods of exacerbation. As CF progresses and worsens, periods of exacerbations become more frequent, bronchiectasis worsens, recovery takes longer, which ultimately leads to respiratory failure.

To Be Completed Before the Simulation

Anticipated Patient Problem: Impaired gas exchange

Goal 1: PT will remain free of signs of respiratory distress as evidence by clear lung sounds, unlabored respirations, and a respiratory rate WNL (adult 12-20) (Child 1–12-year-old: 18-40) 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?
Monitor VS (HR, RR) q4hr+PRN	Provide adequate rest between activities PRN
Assess sputum for color, amount, and consistency q4hr	Encourage chest physiotherapy q4hr+PRN
Assess bilateral lung sounds q4hr	Teach cough and deep breathing q12hr+PRN
Monitor oxygen saturation (Sp02) q2hr	Raise HOB to semi fowlers when spo2 is <93% on RA or oxygen source
Assess type of cough (nonproductive/productive) and pattern of cough q4hr+PRN	Give mucolytics/bronchodilators as ordered PRN
Assess level of consciousness q4hr	Apply oxygen via NC PRN

Goal 2: PT will maintain pulse ox of 93% or greater on RA while at rest during my time of care

To Be Completed Before the Simulation

Anticipated Patient Problem: Risk for infection

Goal 1: PT temperature will remain between 36° C- 38°C 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 r/t infection (Temperature 36-38 degrees Celsius, HR:60-100, RR:12-20)	Administer Antipyretic if temperature is greater than or equal to 100.4 PRN
Monitor WBC during my time of care	Administer abx as ordered PRN
Assess pt.'s hand hygiene q12hr	Educate about importance of strict handwashing q12hr+PRN
Assess sputum color and amount for purulent characteristics q4hr+PRN	Obtain a sputum specimen for culture and sensitivity as ordered.
Assess for systemic signs and symptoms of infection (malaise, chills, anorexia, etc.) q12hr	Administer acetaminophen as ordered for symptom relief PRN
Assess pt. level of knowledge about risk of infection and infection control q12hr	Educate pt. about importance of infection control around other CF patients (masking, six feet about, meticulous hand hygiene) q12hr

Goal 2: PT will have a WBC count between 5,000-10,000 during my time of care

To Be Completed During the Simulation:

Actual Patient Problem: Ineffective airway clearance
Goal: C.S will report a decrease in coughing after administering levalbuterol and Dornase during my time of care. Met: ☑ Unmet:☐
Goal: C.S will demonstrate an improvement in airway clearance as observed by no wheezing and no SOB during my time of care. Met: ☑ Unmet:☐

Actual Patient Problem: Readiness for Enhanced Knowledge
Goal:C.S will verbalize alternative ways to administer Pancrelipase with food (splitting open capsules and mix medication with food) during my time of care Met: ☑ Unmet:☐
Goal:C.S will demonstrate how to use a Mucus clearing device during my time of care. Met: ☑ Unmet:☐

Additional Patient Problems:

- 3. Risk for infection
- 4. Imbalance nutrition: less than body requirements
- 5. Risk for dysfunctional gastrointestinal motility

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	Day 1 0800	Molly Thompson received a referral from Dr Nelson to provide teaching to Courtney and her family about her new Dx (CF)	0830	Molly called Courtney's mom to set up a home visit	0835	Courtney's mom set the appt at 10 am
1	Day 2 1000	Courtney's dad (Richard) stated that Courtney had a cough that wouldn't go away. Stated that they doctor did a sweat test	Day 2 1005	Molly offered support and stated "I can help answer any questions that you have now"	Day 2 1005	Course crackles in bilateral lobes. Coutrney stated that she coughs a lot every day and finds it difficult to breathe
1,2, 4	Day 2 1010	Richard reported Courtney hardly eats anything. Kim stated that softball is what brought on noticing these symptoms. Kim concerned for cystic fibrosis	Day 2 1015	Molly set up another appt to meet with the family again	Day 3 1000	Molly arrived to see Courtney's family again
2	Day 3 1005	Courtney stated that she wants to tell her friends all about cystic fibrosis.	Day 3 1015	Molly educated the parents that it is important to let the school nurse know	Day 3 1020	Richard stated "it is important for others to know about Courtney's health

		Mother expresses concerns that kids will make fun of Courtney.		about Courtney's CF, in case of an emergency. Molly also taught about the increased sodium and chloride as well as meds and respiratory tx. Molly provided handouts		status". Richard also stated, "you made it so clear what cystic fibrosis is and how it affects the body".
2	Day 4 0800	Courtney gave the school nurse her medication	Day 4 0830	School nurse called Molly and requested for Courtney to join a support group and asked how to use mucous clearance device	0835	Molly agreed with the support group and stated, "that's great, we haven't talked about support groups yet". Molly also stated that "It's a device that facilitates removal of mucus"
2, 5	Day 5 1000	Courtney stated that "the Creon she takes with food is hard to swallow" Kim has concerns about Courtney's diet and medication.	Day 5 1005	Molly educated to administer pancrelipase and should take it with food. Also provided info on Levalbuterol and Dornase	Day 5 1010	Courtney said she liked applesauce and that method for medication works great.
1,2	Day 6 1005	Courtney stated that she is coughing more and having yellow sputum	Day 6 1010	Molly provided information about percussion, vibration, and postural drainage with an increase in cough for 45 mins long	Day 6 1015	Family responded saying that 45 mins is a lot but will do anything to keep Courtney healthy
1,2	Day 7 1730	Courtney stated that during softball games she coughs afterwards	Day 7 1745	Molly talked to the coach about CF and Courtney's chest PT. Taught Courtnye to still continue playing as long as her lungs allow	Day 7 1800	Courtney stated, "I'm so glad I get to keep playing". Couch said he would modify warm up.
1,2, 3	Day 8 1000	Kim inquired about other health conditions Courtney is at risk for	1005	Molly educated about delayed growth, delayed puberty, osteoporosis, Diabetes, etc.	1010	Kim stated "I read about some of that. It is very overwhelming to consider"
2	Day 9 1000	Courtney asked when Molly was going to come back to visit	Day 9 1005	Molly asked if anyone had any questions about CF. Molly gave a recommendation to call office or their provider with any questions. Molly offered pamphlet on parent support group	Day 9 1010	Richard stated, "We cannot thank you enough for all the education you have given our family". Kim stated "yeah you have been extremely helpful"

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

- Sweat test
- High chloride and sodium
- Stool analysis
- Chest Xray
- Pulmonary function tests

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

Signs and Symptoms

- Course crackles
- Productive cough
- Thick secretions
- Hyperactive bowel sounds
- Decreased appetite
- SOB
- Steatorrhea
- Weight loss

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

Contributing Risk Factors

- family hx

Therapeutic Procedures

Non-surgical

- Chest physiotherapy
- Mucus clearance device
- Rest when needed

Surgical

- Lung transplant

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)

- Delayed growth
- Osteoporosis
- Frequent respiratory infections
- Diabetes
- GI reflux
- Delayed puberty
- Intestinal blockage

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

Medication Management

- Pancrelipase 3 capsules PO with meals
- Azithromycin 5mg/kg/day PO at 1200
- Dornase Alfa 2.5mg via nebulizer
- Levalbuterol 2.5 mg via nebulizer QID
- Vitamin E 400 intentional units PO every day
- Multivitamin 2 tablets PO every day
- Probiotic (to prevent diarrhea from long term abx use)

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

Non-Pharmacologic Care Measures

- Chest physiotherapy
- Mucus clearance device
- Softball (exercise)

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

Stressors the client experienced?

Stress, anxiety, embarrassment from having to leave friend early to do treatments, loss of control, discomfort (SOB/unable to clear airway)

Client/Family Education

Document 3 teaching topics specific for this client.

• Administer Pancrelipase (Creon) with food (split capsules and pour meds into applesauce)

• Importance of high protein, high calorie meals d/t increase work of body (150% RDA for age/size

•importance of support groups for Courtney and parents to help with coping

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

Multidisciplinary Team Involvement

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

Community health nurse, School nurse, parents, coach, respiratory therapist, Gastroenterologist (GI issues), PCP

Patient Resources

Community support groups

Pamphlet of FAQ about CF for Courtney and parents

Reflection Paper

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 this simulation is education and follow up are such a big part of a new diagnosis. Not only for the patient and family, but others as well (school nurse and coach). I feel that more education was done with the parents than with the patient. The family needed multiple sessions to fully understand the education. With this simulation, there was not only education with what type of treatments to do and how to do them, but why medication is needed and the pathophysiology behind cystic fibrosis.

2. **What was something that surprised you in the care of this patient?**
   The thing that surprised me was how deep the education was. I know this is because Cystic Fibrosis is a very complicated illness and requires a lot of care, Multiple sessions were crucial because of the complexity of treatments and reinforcing education. Usually when education is done, it is done in the hospital or primary care office and is not done in many sessions. I was also surprised how realistic it was. The parents had many questions and needed reinforcement and reassurance. Toward the end of the simulation, there was a moment where Courtney had lost the excitement for doing her treatment and wanted to know if she had to do it. I thought this moment was very realistic and the nurses response was well worded.

3. **What is something you would do differently with the care of this client?**
   I think Molly the Nurse did a very good job at educated and offering support to Courtney and her family. If I had to change anything, I might have offered a little more education to the coach about CF, only because when the coach asked for more information, Molly referred him to the school. Nurse. Otherwise, I thought Molly did an excellent job.

4. **How will this simulation experience impact your nursing practice?**
   This simulation provided a good reminder on the importance of education and how not done right; it can harm the patient. I also learned how important it is the not only educate the patient in words that they understand, but the family and the people around them. If they had not been given the education (coaches and the school nurse), Courtney may have struggled more when she was engaging in school and softball, which are very big part of her life. Follow up education was also emphasized in this simulation, to ensure all questions are answered and the information really stuck.

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

   I think Courtney was experiencing normal development during the simulation. I believe that according to Erikson, Courtney is in industry vs inferiority. She wanted to know everything about CF, wanted to tell her friends all about it, and wanted to do everything herself so she could learn, the is normal for school aged children. I also observed that Courtney is in the Concrete operational stage according to Piaget. She was able to apply logic and had rationale interpretation when it came to understanding her illness and the education she received.