Pediatric Nursing Care Plan

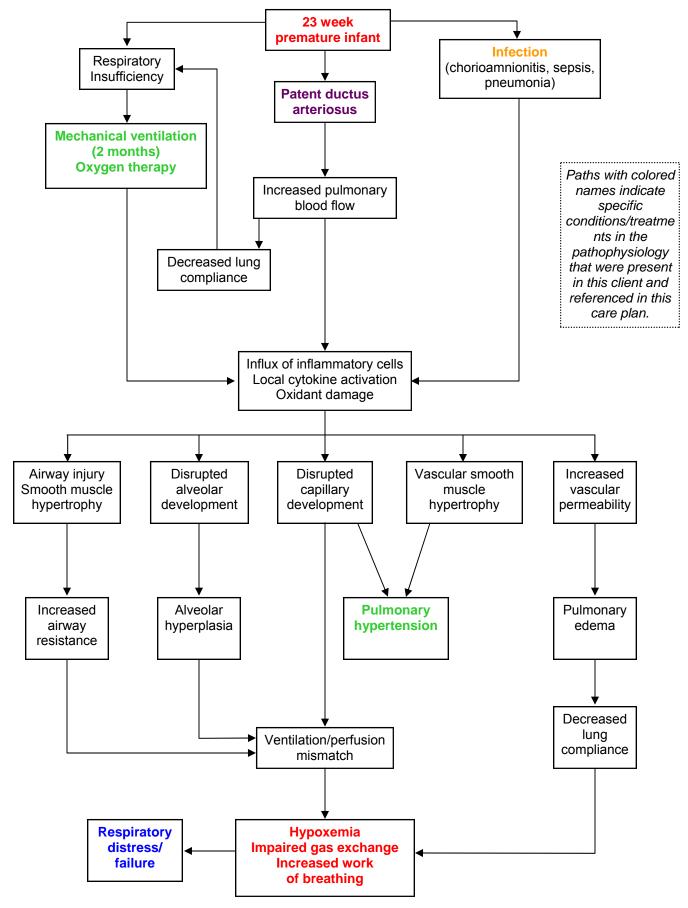
Craig Erickson

Huron School of Nursing

N3020 Maternal Child Nursing

November 12, 2008

Pathophysiology of Bronchopulmonary Dysplasia (BPD)



Data Collection

Room: 469-2 Initials: JP Age: 18 months

Weight: 9.6 kg Height: 76.5 cm Allergies: NKA

Admitting diagnosis and date: Respiratory distress, 10/24/08

Information obtained from report

Peds patient here for respiratory distress, frequent visitor to the unit, comp care,

GT receiving 40 mL/hour Neocate from 8P-8A; 10A-6P, 90 mL water flushes 4x per day

to GT, NKA, Oxygen 1.5L NC (keep sats at 94%), hourly sats and feedings

Current orders

The client is to remain on bed rest with a low level of activity to prevent stress

related episodes of pulmonary hypertension. His diet includes Neocate Junior at 40

mL/hour from 8PM-8AM and from 10AM-6PM with 65 mL of water given GT every six

hours. He is to remain on oxygen at 1.5L NC with saturation to be kept above 94%.

Medications

Medicine and IV orders: Generic name, trade name, dose, route, frequency	Safe dose? (Yes/No)	Why is this medicine being used in this patient?	What are the administration directions for this medication considering the route that is ordered?	Do you need to use any equipment to administer medicine?	Significant medication information
ipratropium bromide (Atrovent) 0.02%/2.5 mL, nebulizer	Safety of this drug has not been established in children this young	Open bronchioles (respiratory distress)	Given by respiratory therapist	Nebulizer	Upper respiratory tract infections, bronchitis, palpitations
ferrous sulfate (Ferinsol) 75 mg/0.6 mL bid, G- tube	Yes (max dose is 15 mg/day)	Anemia, low iron	Flush between medications	N/A	GI problems, dark stool
budesonide (Pulmicort) 0.5 mg/2mL bid, nebulizer	Yes (max dose is 0.5mg bid)	Reduce inflammation of respiratory tract	Given by respiratory therapist	Nebulizer	Headache, N/V, dyspepsia

sildenafil citrate (Viagra) 9 mg tab qid, G-tube	Yes (safe range is 2.4- 19.2 mg/dose)	Pulmonary hypertension	Flush between medications	N/A	Visual disturbances, N/V, headache, prolonged erection
furosemide (Lasix) 10 mg/mL, 1.9 mL bid, G-tube	Yes (safe range is 20- 40mg/dose and max 600mg/day)	Pulmonary hypertension	Flush between medications	N/A	Hypokalemia, hypotension, low electrolytes
hydrochlorothiazide (Hydrodiuril) 12.5 mg tab, 1.5 tab q12h, G-tube	Yes (max dose is 48 mg/day)	Pulmonary hypertension, diuretic	Flush between medications	N/A	Hypotension, dizziness, low electrolytes, N/V, weakness
levalbuterol hydrochloride (Xopenex) 0.63 mg/3 mL q4h PRN, nebulizer	Yes (as long as dose does not exceed 0.63 mg x3 in one day)	Wheezing	Given by respiratory therapist	Nebulizer	Rhinitis, bronchospasm, infection
fluticasone (Flonase) 50mg/ACT 1 spray both nostrils sid, NS	No, this medication is not recommended for infants (cleared by nurse/doctor)	Upper respiratory congestion	Suction nares to remove excess mucous, close opposite nare when delivering medication	N/A	Headache, dizziness, fatigue, edema
sucralfate (Carafate) 1 gm/10 mL, 1.7 mL bid, G- tube	Yes (safe range is 384- 768 mg/day)	Mucosal damage in GI tract, GERD	Flush between medications	N/A	Edema, rash, GI problems, respiratory difficulties
pediatric multivitamin 1 mL sid, G-tube	Yes	Tube feedings, use of multiple diuretics	Take with food	N/A	None
hydrocortisone 1% cream apply topically bid	Yes	Diaper rash	Apply small amount with gloved hand to diaper rash and cover	N/A	Rash, burning
acetaminophen (Tylenol infants) 80 mg/0.8 mL, 1.2 mL q4h PRN, G-tube	Yes (recommended dose for 12-23 mo is 120 mg q 4-6h)	Fever, pain	Flush between medications	N/A	Liver damage, hypoglycemia, low blood counts
potassium chloride (Kayciel) 20 mEq/ 15 mL, 8.3 mL qid, G-tube	No, max dose for this medication is 28.8 mEq/day (trough done and cleared by doctor)	Hypokalemia, multiple potassium wasting diuretics	Flush between medications	N/A	Hyperkalemia, cardiac side effects

phenobarbital (Solfotol) 20 mg/5 mL, 7mL sid, G- tube	Yes (safe range is 48- 57.6 mg/day)	Seizure disorder	Flush between medications	N/A	Hypotension, respiratory depression, rash
diazepam (Diastatacudial) 10 mg gel, 5 mg PRN, rectal	Yes (max dose is 10 mg/dose)	Seizure disorder	Ensure proper insertion of gel and adequate contact with mucous membranes	N/A	Drowsiness, malaise, ataxia, pain
metoclopramide (Reglan) 5 mg/5 mL, 1.7 mL qid, G- tube	Yes (safe range is 3.84- 7.68 mg/day)	GERD, delayed gastric emptying	Flush between medications (normally given 30 minutes before meals)	N/A	Constipation, diarrhea, drowsiness, psychological disturbances
lansoprazole (Prevacid) 15 mg tab, 1 tab sid, G- tube	Yes (safe dose for 10 kg child is 15 mg/day)	GERD	Flush between medications (normally given 1 hour before 1 st meal of the day).	N/A	Palpitations, dizziness, rash, edema, hyperglycemia, hypoglycemia

Information obtained from initial visit to room

Client general appearance: Client is a young male with respiratory problems, coarse lung sound in all lobes with slight flaring and suprasternal retractions. Client was sleeping in the crib with both rails up. His lips were dry and cracked. He had a GT and IV in the right forearm, both without redness or swelling. He was propped up in bed at a 45 degree angle using pillows to help with his breathing and prevent aspiration. Oxygen at 1.5 L was given through a nasal cannula with skin intact near tubing. The client was slow to interact and did not make eye contact. He did smile when he was shown his stuffed bear but was not verbal in any way. Head drop was apparent when he was picked up to be repositioned. Monitors for HR, BP, RR, O₂ NC, and feeding pump were all present.

Chart research

Significant past medical/surgical diagnoses:

chronic respiratory failure, acute respiratory failure, pulmonary hypertension, seizure disorder, MRCP, GERD, bilateral inguinal hernia, bronchopulmonary dysplasia, IVH, ventriculomegaly, nephrocalcinosis, retinopathy of prematurity, patent ductus arteriosis, Current diagnosis: respiratory distress

Surgery and date:

Repair of PDA (date?), planned for the near future (when respiratory status improves) are repair of bilateral inguinal hernias, placement of Nissen, and circumcision. Procedures and date:

Echocardiogram pH probe 10/07 (increased reflux episodes with normal pH), 11/07 (pulmonary hypertension noted), Cardiac catheterization 6/4/08 (systemic hypertension resolved with normal LV wall thickness and BNP WNL), Video swallow 8/5/08 (penetration and aspiration of small amounts of thin liquid barium, GER resulting in small amounts of vomitus), CXR 9/08 (baseline bilateral lung changes and haziness of severe BPD and baseline cardiomegaly), ENT workup for UAW noise 9/11/08 (floppy hypophayrnx and oropharynx with circumferential collapse on inspiration, minimal supraglottic collapse/laryngomalacia, generalized edema), 1 year stay in NICU with over 2 mos ventilation from birth

Objective and subjective data collection

Vitals: R-54, H-128, T-37.4 (axillary), BP-91/64, MAP-62, O₂-94% Other objective data: Wt 9.6 kg, Ht 76.5 cm, apical strong and regular, nail beds pink with brisk capillary refill (< 3 sec.), no edema noted, lung sounds coarse bilaterally, moist cough with slight retractions (+) and nasal flaring, 1.5L O2 NC with sats in the upper 90's, abdomen soft and non-tender, +BS x 4, skin warm and dry, no redness or drainage noted near R radial IV or G-tube, alert and smiling with interaction, responses/actions delayed for age, pain rating of 2 (FLACC), 0.5 cm circular wound with scab noted on right anterior thigh (catheter insertion site), 2 wet diapers during the morning with a total of 230 mL of yellow urine

Teaching needs of the client and their family

The teaching needs for my client revolve around the single mother and the care she will need to provide for her very sick child. The mother will need to be taught how to properly administer all the medications in the correct dose and frequency through her child's G-tube. The mother will also need to know how to properly use a nebulizer to deliver inhaled medications. She will need to understand how to store each medicine until its use. Mom will also need to be familiar with how assess the G-tube for patency, how to flush the tube, and how to assess the insertion site for infection (redness and swelling). The proper use of oxygen will also be an important point of teaching. Not only will the mother need to understand how to deliver the oxygen through the nasal cannula and assess for skin breakdown at the nares and behind the ears, she will also need to understand proper storage of the oxygen canisters and the need to avoid smoking or flames near the canisters.

In addition to the large number of medications this child requires, the mother will be responsible to know when her son's condition worsens to the point where she needs to bring him back to the hospital for care. Because of this client's fragile state and persistent lung and gastric problems, mom will need to be aware of the signs of respiratory distress above and beyond this child's baseline (coarse lung sounds, flaring, retractions, etc.). Mom will need to be taught to look for signs of infection including fever, rash, change in mental status (from delayed baseline), site specific redness and swelling, or discharge of any kind from around the G-tube site, nares, or mouth.

Because the mother is a single mom with other children, teaching will also involve teaching mom to be self aware. There is a high degree of stress involved for caring for a sick infant with persistent medical conditions that are not only physiological in nature but also psychological. Mom will need to be introduced to a social worker so that she can learn what her resources are from both the hospital as well as the state and local community. Mom will need to be taught how she can receive help with home care from a home health care worker. She will also need to learn about support groups that she can join to help her better deal with her child's condition. The mother needs to understand the importance of caring for herself in the midst of her child's illness. Unless mom is well, she will not be able to care for her child. Referral to a counseling service may be in order to help her cope with her large number of responsibilities. Because this mother has a history of neglect and non-compliance, she will also need to be made aware of the importance of following the directions she is given for care. Education should be provided on the nature of her son's disease.

For all areas of education, whether child related or self-care related, the mother should be asked to restate all directions to ensure proper understanding. The nurse should also be sure to explain all directions in a way that the mother can understand them. Because there are so many procedures involved in this child's care, the mom should be involved in the care of her child before he is discharged to gain hands-on experience, as well as having the opportunity to ask questions of the staff. Mom will also need to be given the name and numbers of her child's healthcare team along with who to call with questions concerning care.

Interdisciplinary collaboration needs

This child is a comprehensive care client and will need the aid of nearly all medical and psychosocial disciplines. The following is a list of possible disciplines and the care they may provide for this client:

Primary care physician/pediatrician – In the comprehensive care team this doctor is responsible for the overall care of this child and is used to dealing with children who are medically compromised and have complex medical conditions. The nurse would contact this physician first with any new findings (objective/subjective) or to have an order changed to meet his changing needs.

Specialists:

Pulmonologist and ENT – These doctors are specialists helping with the numerous respiratory issues that this child deals with on a daily basis. They are responsible for performing the diagnostic procedures, prescribing medications, and following up on lab results.

Gastroenterologist – This doctor is a specialist dealing with the gastrointestinal issues that this child faces, including GERD. This doctor is also responsible for running GI diagnostic procedures, prescribing medications, and following up on lab results.

Cardiologist – This doctor specializes in heart related issues and is responsible for creating a course of treatment related to this child's cardiomegaly and hypertension issues.

Pediatric surgeon – This doctor will be responsible for performing corrective surgery on this child when he is well enough to tolerate the procedure. He/she would be responsible for his hernia repair, Nissen placement, and circumcision. As a nurse dealing with these specialists I would be sure to understand and carry out the orders they give within my scope of practice and contact them directly with information when requested or relevant.

Physical therapist – This client would work with the physical therapist to retain the strength and flexibility that he has in his muscles. One example may be the use of ROM exercises. As a nurse I could provide continuity of care and work to carry out ROMs when the therapist is not present or as requested.

Nutritionist – This is a specialist who develops the dietary plan for my client. He/she is responsible for choosing feedings (type, quantity, and rate) as well as a schedule to meet the nutritional needs of this child taking into account his nasopharyngeal difficulties, GERD, and increased metabolic needs. I would follow the orders of this specialist regarding feedings and nutrition and let him/her know about any changes regarding his nutritional status (weight, dehydration, etc.).

Child life specialist – This specialist would be responsible for helping to make the hospital stay for this child and his family as comfortable as possible. He/she may come to play with, play videos/music for, hold, or rock the child. He may also take the child to play areas like the tree house and help to provide socialization so that the client is not

isolated. This is particularly important for this child as he spends much of his time in the hospital without his mother present.

Social worker – This child and his family are also in contact with social services to help them meet their physical and mental needs outside the hospital (see social services under the teaching subheading). This person would make sure that this child is being discharged to a safe environment and help to provide for any needs that could not be met by the family upon discharge by getting them in contact with various hospital, community, and state resources. As a nurse I may refer the family to this social worker when they bring up needs they have beyond the medical needs being met in the hospital. I may also work with the social worker to recommend and educate the client on support resources available in the community.

Developmental needs

At 18 months, this child falls into the infancy and toddlerhood range of growth and development. The following are some major developmental theorists and their theories concerning this child's needs at this point in his life:

Jean Piaget – Sensorimotor stage: Beginnings of thought (18 months-2 years)

According to Piaget, at this stage of development a child should achieve "the capacity for mental representation or symbolic thought," meaning that infants should be able to guess at the location of an object that is not present (Feldman, 2006). For example a child should be able to imagine that an object that is moved behind your back is still present. By this stage a child would already be able to integrate activities, interact with their environment, have a sense of object permanence, and act

intentionally to bring about a result instead of only mimicking the actions of others (Feldman, 2006).

Sigmund Freud – Oral (birth to 12-18 months) and anal (12-18 months to 3 years) stages

According to Freud, children in the oral stage should show satisfaction in being able to use their mouths to discover and explore by sucking, eating, placing objects in their mouths, or biting. In the anal stage, children should begin to find satisfaction in defecating or holding in feces. Late in this stage children would learn about societal norms concerning the use of the toilet (Feldman, 2006).

Lawrence Kohlberg – Premoral

Kohlberg, a developmental psychologist, worked to create a system that evaluated an individual's sense of right and wrong. At this stage of development Kohlberg would place a child in the premoral stage, unable to develop a sense of morality and have not come to fully understand the reasoning behind the rules placed on them by their parents or society (Feldman, 2006).

General developmental landmarks for this age include fast paced height and weight gain, the ability to push up, wiggle, and crawl. Children this age should be reaching for objects and grasping them firmly with their hands. At this stage children should also be able to recognize faces and shapes. Children should also be able to vocalize and begin to form syllables or short words. A sense of object permanence forms at this stage and children begin to interact with the world around them. Emotions are expressed through facial expression and a complexity in attachment begins to form (Feldman, 2006). The development of this child is markedly slower than any of these theorists suggest. In watching him interact with me, he did not show a sense of curiosity concerning the world around him and was seemingly uninterested in any interaction that I had with him. Even when my finger was placed in his hand, he failed/did not show interest in grasping it. The only object that elicited a response was his stuffed bear which caused him to smile when he saw it; however, when the bear was taken away his face lost expression and he regained a fairly persistent flat affect. He did not look to see where the bear might have gone when it was taken away and did not cry or motion for it to be brought back. During my time with this child he did not attempt to put anything in his mouth and rarely made motions with his mouth except to bring in air. His cognitive processes seemed absent as he appeared without fear or emotion much of the morning except in the presence of his bear.

This child's development has been greatly affected by several factors. First, his premature birth and lack of lung development led to his being placed on oxygen and a ventilator immediately after birth, which in turn led to his BPD and associated respiratory conditions (respiratory distress, respiratory failure, hypoxemia, etc.). Oxygen debt can severely affect brain function and development early in life. His complex medical condition has led to him spending most of his life in a hospital. The lack of continuity in care giving may also be contributing to his developmental delays. He is also the son of a single mother of low socioeconomic status who has a history of neglect and non-compliance. She rarely visits her son in the hospital and is unable to care for him at home for more than a few weeks because of his medical needs. This lack of parental

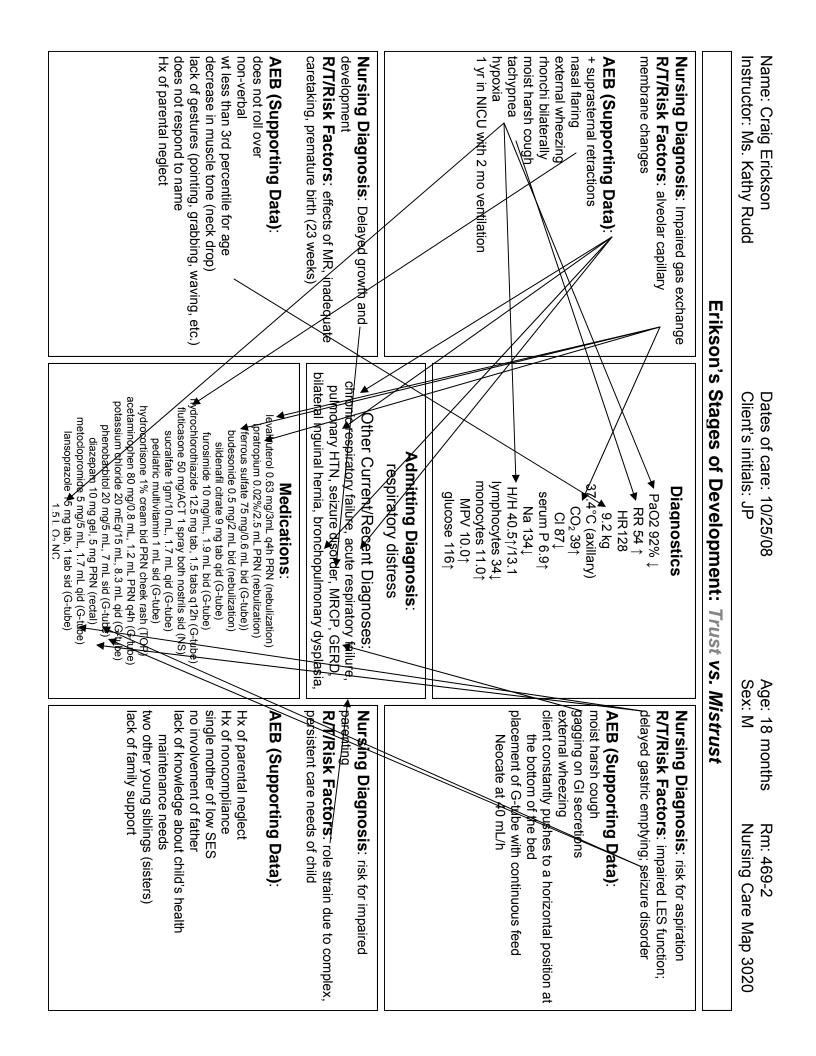
involvement, love, and attention may also be contributing to his delays. In short, the only constants in this child's life are his persistent medical conditions.

Nutritional needs

Because of the inability of my client to swallow along with his developmental delays, he will need to be fed through his G-tube for the foreseen future. Currently he is receiving Neocate Junior on continuous feed with two breaks during in a 24 hour period. The first feeding begins at 10 AM and runs until 6 PM. The second feeding runs from 8 PM to 8AM. Both feedings are run at 40 mL per hour. This rate was instituted by the nutritionist to help the client meet his caloric needs for optimum development. The low continuous nature of the feeds is to help with his GERD and lower the risk of aspiration. In addition, he received 65 mL of water every 6 hours to maintain hydration.

Medical treatments

This child receives a large number of medications daily to treat his medical conditions all of these should be given as prescribed and any adverse side effects should be noted and reported to the appropriate doctor immediately. In looking through this child's chart I did not see any orders for physical therapy, but he had just been admitted the day before. In addition, there were no diagnostic tests ordered for this client while I was present. If tests were ordered, I may be responsible for taking this child to the appropriate part of this hospital for his test(s). I may also be responsible for drawing blood or collecting urine for cultures, tests, or screenings. I would be responsible for accurately documenting my findings on a regular basis so that this child may be properly evaluated for his readiness for the aforementioned surgeries as his condition improves.



HURON SCHOOL OF NURSING Plan of Care

Nursing Diagnosis No. 1: impaired gas exchange **R/T**: alveolar capillary membrane changes

Client Goal (outcome): Client will remain free of increasing signs of respiratory distress.

Nursing Interventions	Rationales (cited)
Monitor respiratory rate, depth, and effort, including use of accessory muscles, nasal flaring, and abnormal breathing patterns.	Increased respiratory rate, use of accessory muscles, nasal flaring, abdominal breathing, and a look of panic in the client's eyes may be signs of hypoxia (Ackley p. 558)
Monitor the client's behavior and mental status for the onset of restlessness, agitation, confusion, and lethargy.	Changes in behavior and mental status can be early signs of impaired gas exchange (Ackley p. 558).
Monitor oxygen saturation continuously using pulse oximetry.	An oxygen saturation of less than 90% indicates significant oxygenation problems (Ackley p. 558).
Observe for cyanosis of the skin, especially note the color of tongue and oral mucous membranes.	Central cyanosis of the tongue and oral mucosa is indicative of serious hypoxia and is a medical emergency (Ackley p. 558).
Position client in semi-Fowler's position, with an upright posture of 45 degrees if possible.	Research has shown that being in a 45 degree upright position increases oxygenation and ventilation (Ackley p. 559)

Evaluation: Outcome was met, partially met, or unmet. Relevant information regarding partially met or unmet outcomes mentioned. If not met, why not? Modifications needed to outcome statement or interventions?

Outcome was met. Although there were signs of respiratory problems throughout the morning (rhonchi, nasal flaring, retractions), my client's condition did not worsen. Pulse oximetry was monitored hourly and remained around 94%. The head of his bed was kept in an upright position and he was kept propped up in his bed using pillows and blankets. Mucous membranes remained pink and moist. Mental status remained the same throughout the morning and client continued to smile respond to interaction.

HURON SCHOOL OF NURSING Plan of Care

Nursing Diagnosis No. 2: risk for aspiration

R/T: impaired LES function; delayed gastric emptying; seizure disorder

Client Goal (outcome): Client will maintain patent airway and current respiratory status.

Nursing Interventions	Rationales (cited)
Monitor respiratory rate, depth, and effort.	Signs of aspiration should be detected as soon
Note any signs of aspiration such as dyspnea,	as possible to prevent further aspiration and to
cough, cyanosis, wheezing, or fever.	initiate treatment that can be lifesaving (Ackley
	p. 198).
Auscultate lungs sounds frequently and note	Bronchial auscultation of lung sounds was
any new onset of crackles or wheezing.	shown to be specific in identifying clients at risk
	for aspirating (Ackley p. 198).
Keep head of bed elevated during and after	Maintaining a sitting position after meals can
feeding.	help decrease aspiration pneumonia. The
	number of clients developing a fever was
	significantly reduced when kept sitting upright
	after eating (Ackley p. 199).
Listen to bowel sounds frequently, noting if	Decreased or absent bowel sounds can
they are decreased, absent, or hyperactive.	indicate an ileus with possible vomiting and
	aspiration (Ackley p. 199).
Have suction machine available and suction	A client with aspiration needs immediate
immediately if aspiration does occur.	suctioning and may need further life saving
	interventions such as intubation (Ackley p.
	199).

Evaluation: Outcome was met, partially met, or unmet. Relevant information regarding partially met or unmet outcomes mentioned. If not met, why not? Modifications needed to outcome statement or interventions?

Outcome was partially met. The client was on continual G-tube feedings (40 mL Neocate/hour) which he tolerated well. The head of the bed was kept elevated, but the client would continually wiggle down the bed into a horizontal position. No new lungs sounds appeared during my time on the floor. However, as the client moved down in bed he did experience one instance of aspiration and coughed vigorously for 2 minutes. In the future closer consistent monitoring may be needed to prevent repositioning and aspiration.

References

- Ackley, B.J. & Ladwig, G.B. (2005). *Nursing diagnosis handbook: A guide to planning care* (7th ed.), St. Louis: Mosby.
- Feldman, R.S. (2006). *Development across the lifespan*. (4th ed.). New Jersey: Pearson.
- Ignatavicius, D. & Workman, M. (2006). *Medical-surgical nursing: Critical thinking for collaborative care*. (5th ed.). Philadelphia: Saunders.
- McCance, K. & Huether, S. (2006). *Pathophysiology: The biological basis for disease in adults and children.* (5th ed.). St. Louis: Mosby.
- Skidmore, L. (2007). *Mosby's drug guide for nurses*. (7th ed.). St. Louis: Mosby.
- Wong, D.L., Perry, S.E., Hockenberry, M.J., Lowdermilk, D.L., & Wilson, D. (2006). Maternal child nursing care. (3rd ed.). St. Louis: Mosby.