

Pediatric Process Paper

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Data Collection

Description of Child/Family

J.B. is a happy fifteen month old male who was born on October 6, 2010. He was admitted to Aultman Hospital on January 31, 2012 with a diagnosis of fever and otitis media. His mother stayed with him over night, and when his mother had to go to work his grandmother came to stay with him. Also, his grandfather and stepfather came to visit to see how he was doing. His mother works for InfoCision, and seemed very stressed and reluctant to leave her child, but said her boss had no compassion for her and her child that was sick, so she had to go. J.B. lives at home with his mother, stepfather and grandparents in Canton, Ohio. He is an only child, and is insured by the Buckeye Community Health Plan.

Developmental Assessment

The time that I spent with J.B. was pleasant, besides when he got upset when anyone would try to take his blood pressure or check his IV. He also was uneasy with the nurses in blue uniforms, but had an easier time trusting me with care since I was in a white uniform. That goes right along with Erik Erikson's theory of psychological development. Since J.B. is 15 months old he would be at Erikson's second stage of development, the trust versus mistrust stage is the first, which is from birth to one year of age. J.B. is definitely through that stage. The second stage is autonomy versus shame and doubt, which is one year to three years of age. This stage is when the toddler begins to gain a sense of independence, they are able to control their body excretions, and say no when asked to do something, and they are able to direct their motor activity. (Ball, Bindler, & Cowen, 2010). J.B. seemed to be in the beginning of this stage, because he was not

toilet trained yet, he could definitely say no when asked to do something, and was able to control his motor activity.

As I spoke to JB's grandmother about him, he cuddled with her and got comfortable enough, he fell asleep. He did not say much, he did say no a lot when he was asked to do things by his mother. He also pointed to his IV bandage a lot, and enjoyed being rocked by his grandma. By the end of the day J.B. and I were throwing a ball back and forth in the hospital room, that is said to be a developed fine motor skill for his age. For gross motor skill, J.B. was able to walk across the room, even though he was weak (Ball, Bindler, & Cowen, 2010). His grandmother said he normally is not like this at home, he usually is running around and playing with his toys.

J.B. weighs 10.4 kilograms (22.88 pounds) and is in the 25th percentile for weight for his age. He is 74 centimeters in height, which is in the 1st percentile for his age. His head circumference is 44 centimeters, which is in the 1st percentile for his age (ProHealth Care, 2011). Also, on the Centers for Disease Control and Prevention website, there are tables and graphs that show what J.B.'s head circumference-for age and weight-for-age percentiles (2011).

Nutrition Assessment

J.B.'s grandma stated that he is a good eater at home. For breakfast he eats oatmeal and fruit and drinks milk, for lunch she said he eats a full meal of chicken and rice, or sometimes just a snack of cheese and crackers. For dinner they usually give him those gerber frozen dinners and she said he loves those. J.B. should be getting around 1,000 to 1,300 calories daily, depending on his weight (Feldman, 2011). It seems that he would be getting the adequate amount of calories daily at home, according to his daily dietary intake. J.B.'s grandma stated that he loves to run round and play and go to play grounds and climb on things, even though it makes her very

nervous when he does that. J.B. shook his head yes and smiled when I asked him if he liked to go down the slides at play grounds.

During the clinical day, J.B. ate only ate snacks, and picked at his breakfast and lunch. His intake for the day was 240 milliliters of apple juice at 0800 hours, 120 milliliters of apple juice at noon, and another 120 milliliters of apple juice at 1250 hours, then he drank 30 milliliters of ginger ale at 1300 hours, and another 90 milliliters of ginger ale at 0615 hours. His IV was running at 40ml/hr, so his total intake from 0800 hours till 0630 hours was 940 milliliters. His output for the day was one diaper that was 214 milliliters at 0800 hours, another diaper that was 134 milliliters at 1200 hours, and another that was 140 milliliters at 1409 hours, ad lastly a diaper that was 188 milliliters at 0615 hours, so his total output for the day was 676 milliliters.

Pathophysiology

While in the hospital, J.B. was diagnosed with fever and otitis media.

Fever

Fever is when the bodies temperature is above 38 degrees Celsius (100.4 degrees Fahrenheit) or higher when taken rectally, and 37.8 degrees Celsius (100 degrees Fahrenheit) or higher when taken orally. When an infection is in the body the bodies temperature goes up and that results in a fever. The thermostat in the body is the called the hypothalamus and which it regulates our bodies temperature. When there is a rise in the hypothalamus set point, that is when the person will experience chills, and shivering, and vasoconstriction. Then the heat loss from the body lessens and the bodies temperature set pint is now set to a higher temperature. This then causes an elevated heart rate, respiratory rate, and metabolic rate, the skin will flush and be warm

to touch. Fever is actually the most common sign for an infectious disease in infants and in children (Ball, Bindler, & Cowen, 2010. p. 637-653). J.B. came into the ER with a temperature of 105 degrees Fahrenheit, was treated immediately, it then subsided and went down to 101 degrees Fahrenheit at 0315 hours that morning, it then stayed below the fever ranges the rest of the clinical day.

Otitis Media

The actual cause of otitis is unknown, but it is said that it is related to a eustachian tubal dysfunction. Also, when upper respiratory infections occur, the mucous membranes of the eustachian tube become inflamed and the air that is normally there is absorbed into the blood stream and fluid is pulled into the middle ear, and that results in bacteria growth, which then cause the infection. Some signs and symptoms of otitis media are; ear pain, redness of the tympanic membrane when looked at through a otoscope, and middle ear effusion. Others include, pulling on the ear, diarrhea, vomiting, and fever. Hearing impairment may occur if otitis media is chronic (Ball, Bindler, & Cowen, 2010. p. 809-810). J.B. was later diagnosed with otitis media, after displaying the signs and symptoms, and after they checked his ears for inflammation and fluid.

Treatment

Fever

To treat a fever usually tylenol or ibuprofen is administered, if fever is really high, the clothing should be removed and the child's temperature should be monitored very closely. The child should drink clear fluids, and they should be able to choose which ones they like. An frequent encouragement to drink more fluids should be part of the treatment. The antipyretics

should be alternated during fever treatment (Ball, Bindler, & Cowen, 2010. p. 655). J.B. was on a clear liquid diet and had an IV placed, he also had tylenol and ibuprofen alternating.

Otitis Media

To treat otitis media, anesthetic ear drops are prescribed, tylenol or ibuprofen could be taken for pain and to decrease inflammation Also, the child should need to be observed for 48-72 hours and if they have not improve then they will have to be treated with a course of antibiotics. Antibiotics like amoxicillin, augmentin, or cefuroxime (Ball, Bindler, & Cowen, 2010. p. 811-812). J.B. was prescribed rocephin for the infection, and tylenol and ibuprofen for pain and fever.

Medications

B.S. was on a few medication while he was in the hospital. He had two antibiotics, and two analgesics, he also had a continuous infusion. The table below describes each medication that has been prescribed.

Medication	Mechanism of action	Why has it been ordered?	Recommended dose	Is patient receiving a safe dose?
Azithromycin (Zithromax) 100mg (5ml) -orally, once a day	Inhibits protein synthesis at the level of the 50S bacterial ribosome. Bacteriostatic action against susceptible bacteria.	It was ordered to treat the infection causing the otitis media	The safe dose is 10mg/kg/day as a single dose not to exceed >500 mg/dose on first day. Then 5 mg/kg as a single dose not to exceed 250 mg/dose daily for 4 more days.	Yes. This is because 10 mg/kg/day is 10.4kg times the 10 mg, which is 104-500mg/day on the first day. The current safe dose range is then 5 mg/kg is 10.4kg times the 5mg, which is 52-250mg, He is receiving 100mg, so it falls into the safe range.
Ceftriaxone (rocephin) 500mg (5ml) IV PB, once a day 50ml/hr	Binds to bacterial cell wall, causing death, bactericidal	It was ordered to treat the bacteria growing in the ears	50mg/kg IM single dose (max 1g)	No. This is because 50mg/kg is 10.4kg times 50mg, which is 520mg. Safe dose range is 520mg-1000mg, he is receiving 500mg, so it

				falls below the range.
Acetaminophen (Tylenol) 156mg(1.56ml) -oral, q4h, PRN	It inhibits the synthesis of prostaglandins that may be mediators of pain and fever. It also is used for analgesia and antipyresis.	It was ordered PRN for mild pain or a temperature over 38.5 degrees Celsius. He was admitted with a fever.	The safe dose is 10-15 mg/kg/dose every 4-6 hours as needed. You are not to exceed 5 doses in 24 hours	Yes. This is because 10-15 mg/kg/dose is his weight of 10.4kg times the 10-15 mg, which makes it 104-156 mg/dose every 4-6 hours. The ordered dose of 156 mg every 4 hours is in the safe dose range.
Ibuprofen 104mg(5.2ml) orally, PRN q6-8hrs	Inhibition of prostaglandins synthesis, pain relief and anti-inflammatory.	It was ordered PRN to treat the symptoms of pain and fever	5mg/kg for temp. <102.5F not to exceed 40 mg/kg/day q4-6 hrs	Yes. This is because 5mg/kg is his weight 10.4kg times 5mg, which makes 52mg-416mg q4-6 hrs. the ordered dose of 104mg is in the range.
Continuous infusion NS 1,000 ml 40ml/hr	A controlled method of intravenous administration of drugs, fluids, or nutrients.	Restores water and sodium loss; maintains sodium and chloride at present levels	Up to 10 kg 100ml/kg/24hr	100ml times 10.4kg is 1040ml/24hr, his is 40ml/hr, 1040/24 is 43.33ml, so yes it is in the safe range.

Physical Assessment

For J.B's physical assessment there are many important areas that need to be looked at considering his condition. Since he has been diagnosed with fever, the number one assessment should be temperature. Also, continue to monitor his input and output, taking daily weights, checking his pulse rate and quality, checking skin turgor and capillary refill, assessing his level of consciousness, checking his blood pressures, and assessing his quality of respirations. Also, check for signs of fatigue and lethargy, check the skin for rashes and any other signs of infection. These are important to assess, because fever is the number one sign of infection. So if the fever is continually assessed and monitored than if any signs show, infection could be suspected. For otitis media, you would monitor the temperature, do a focused assessment on the ears, look into the ears with an otoscope and inspect the ear, also assess pain and hearing capabilities with tests.

These are important to assess because if not caught in time, child could have severe pain and eventually loss of hearing (Ball, Bindler, & Cowen, 2010).

J.B. came into the ER with a fever of 105 degree Fahrenheit. He then was admitted to the pediatrics unit, with fever and otitis media. His WBC were 7.62, he had low Sodium, his blood pressure was 101/36, and his pulse oxygen saturation was 95 percent, he was medicated with tylenol, then it went down to 101 degrees Fahrenheit and he was medicated with Motrin. His respirations were clear and easy. When I arrived on the floor, he had no fever, the rest of the clinical day, his lungs continued to stay clear, he was very sleepy and lethargic, most of day until around 1530 hours. In the morning his pulse continued to be around 94 percent then went up to 98 percent around 1530 hours. I continued to monitor his temperature and he stayed fever free the whole clinical day. His respirations were a little low in the morning, then were in the normal ranges later in the day. His signs of fever and otitis media decreased as the day went on.

Lab Values/Diagnostic Tests

<u>Abnormal Labs</u>	<u>Normal Value</u>	<u>Patient's Value</u>	<u>Analysis</u>
Glucose	60-105 mg/dL (Ball et al., 2010).	122 mg/dL (high)	Glucose is part of the serum electrolyte panel that can be helpful in determining the severity of dehydration (Ball et al., 2010. pg 1574).
<i>Blood Values:</i> -Lymphocytes -Monocytes -Neutrophils	45-76 3-6 15-35 (American Academy of Pediatrics, 2011)	9.6(low) 9.9(high) 80.3(high)	Patient has pending cultures that may validate these lab value abnormalities.
Urinary catheter/dipstic	1.010-1.030	Negative, Urine specific gravity	This measures urine's density and concentration. Since he has a

k – urine specific gravity		4.005	higher number, his urine is more concentrated and has a lower hydration level.
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All of J.B's other labs were normal, and all of the abnormal labs are consistent with what he has been diagnosed with.

Normal Growth and Development

A child's normal growth and development could be affected by the diagnosis of fever. If the fever is not able to be controlled and is too high of a temperature for the body to handle, brain damage will eventually occur. This will affect the child's learning development and my handicap the child, physical growth could be affected as well, because if the brain is damaged in certain areas, those areas to be musculature firing neurons. For otitis media, the article *Long-term effects of early-life otitis media on language development* stated, “fluctuating HL[hearing loss] between birth and 2 years had negative consequences on language scores at 27 months,” (Zumach et al., 2009). This statement from the study provides proof that the child may have developmental delays. If acute otitis media, turns into chronic, then they would be missing days of education at school, or even may have hearing loss, and this could set back the child even further developmentally in school. They would then have to get use to adaptive equipment and overcome the fear of using it and showing others that need it to be able to hear. Hearing loss could be a major road block for some children (Ball, Bindler, & Cowen, 2010).

J.B's growth and development has not been affected by his current diagnoses, but they very well could be if not properly cared for. His parents and grandparents all seemed very well aware of what was going on, and were willing to learn, anything the nurses and doctors told them, of how to help out J.B. to get him well again.

Data Grouping, Interpretation, and Nursing Diagnoses

Nursing Diagnosis #1

The primary nursing diagnosis that I have chosen is risk for infection related to presence of pathogens (Ball et al., 2010). My first piece of data is J.B. has had a high fever and is using tylenol and Motrin to keep it lowered. Fever is when the bodies temperature is above 38 degrees Celsius (100.4 degrees Fahrenheit) or higher when taken rectally, and 37.8 degrees Celsius (100 degrees Fahrenheit) or higher when taken orally (Ball, Bindler, & Cowen, 2010). The second piece of data is J.B was very lethargic and fatigued throughout the morning and into the afternoon. Lethargy is a situation that indicates moderate to severe dehydration. It is an altered state of consciousness where the child or infant may be aroused with moderate stimulation, but then falls asleep soon after (Ball et al., 2010). The third piece of data is J.B. was very irritable throughout the assessments and even with his grandmothers care. Irritability is when the person responded quickly to annoyance or seems as if they are impatient (Venes, 2009). The table below shows the goals, interventions, and outcomes of this diagnosis.

Primary Nursing Diagnosis	Risk for infection related to the presence of pathogens as evidence by fever, lethargy, and irritability (Ball et al., 2010. p. 815).
<u>Short Term Goal</u>	The child's temperature will begin to stay in the normal ranges, symptoms will subside, in the next 12 hours.
Nursing Intervention #1	Administer medication (antibiotics) exactly as directed. <i>Rationale:</i> Taking medications as prescribed minimizes chance for overgrowths of pathogens (Ball et al., 2010). <i>Nursing Action:</i> Throughout the shift, the antibiotics were given on time by the nurse or the nursing student. J.B. responded well to the antibiotic treatment

Nursing Intervention #2	<p>Educate parents and grandparents about completing the course of J.B's antibiotics and to examine the ears 2-3 days after completion of antibiotic treatment.</p> <p><i>Rationale:</i> If symptoms have not improved in 36 hours, treatment should be evaluated (Ball et al., 2010)</p> <p><i>Nursing Action:</i> During rounding the physicians and nurses came into J.B's room and explained the importance of finishing the antibiotic treatment and when he is discharged, he will have to finish another treatment as well.</p>
Evaluation of Short Term Goal	Goal partially met. J.B's fever stayed in the normal ranges the whole shift, and he was less irritable, and was alert and awake later on in the day.
<u>Long Term Goal</u>	The patient will maintain a normal temperature, and all signs of infection have disappeared, and his tympanic membranes will show no signs of inflammation within the next month,
Nursing Intervention #1	<p>Telephone the parents 2-3 days after initial examination.</p> <p><i>Rationale:</i> If symptoms have not improved in 36 hours, treatment should be evaluated (Ball et al., 2010).</p> <p><i>Nursing Action:</i> While doing the last assessment for the day, the grandma asked me if he will be discharged soon, I told they will continue to monitor him tonight, and explained that even though he will probably be discharged the next day it is very important to watch for possible signs of infection reoccurring.</p>
Nursing Intervention # 2	<p>Examine ears 3-4 days after completion of antibiotic treatment.</p> <p><i>Rationale:</i> Checkup determines if treatment is effective(Ball et al., 2010).</p> <p><i>Nursing Action:</i> The child was not discharged during the time that I was at the hospital, so I did not inform the parent's of this information.</p>
Evaluation of Long Term Goal	Goal is unable to be assessed due to the fact that the patient was not discharged from the hospital.

Nursing Diagnosis # 2

The secondary nursing diagnosis for J.B. is acute pain related to inflammation and pressure on tympanic membranes (Ball et al., 2010. p. 815). The first piece of data is J.B's expressive behavior he showed sings of this behavior most of the morning. Expressive behavior is defined as restlessness, moaning, crying, vigilance, irritability and sighing (Venes, 2009). The second piece of data is J.B's distraction behavior he behaved liked this a few times throughout the day, when with his grandma. These behaviors are pacing, seeking out other people and or/activities, and doing repetitive activities (Venes, 2009). The third piece of data is guarding and protective gestures when trying to assess him. These gestures are just has they are said, when someone is in pain, they tend to want to protect them self from having any more pin afflicted onto them. The table below shows the goals, interventions, and outcomes of this secondary diagnosis.

Secondary Nursing Diagnosis	Acute pain related to inflammation and pressure on tympanic membranes (Ball et al., 2010. p. 815).
<u>Short term Goal</u>	The child will show less symptoms of pain, in the next 12 hours.
Nursing Intervention #1	Give analgesic such as acetaminophen. <i>Rationale:</i> Analgesics alter perception or response to pain <i>Nursing Action:</i> During the time of my clinical I administered his analgesic and he took without hesitation.
Nursing Intervention # 2	Have child sit up, raise head on pillows, or lie on unaffected ear. <i>Rationale:</i> elevation decreases pressure from fluids (Ball et al., 2010). <i>Nursing Action:</i> During clinical I made sure J.B. was sleeping on his pillows, and the HOB was raised, he moved around a lot while he was sleeping, so frequent checks were needed.
Evaluation of Short Term	Goal met. J.B. was up and awake playing ball with me during

Goal	the last hour of the clinical day.
<u>Long Term Goal</u>	The child or parents will indicate the absence of pain throughout the next month.
Nursing Intervention # 1	<p>Continue to administer analgesic's as needed.</p> <p><i>Rationale:</i> analgesics alter perception or response to pain (Ball et al. 2010).</p> <p><i>Nursing Action:</i> J.B. continued to need analgesic therapy throughout the clinical day.</p>
Nursing Intervention # 2	<p>Educate the parents and grandparents rotating Motrin and acetaminophen while at home if child is showing signs of pain.</p> <p><i>Rationale:</i> The parents should know that the analgesics will alter there child's perception or response to pain.</p> <p><i>Nursing Action:</i> During rounding the physician and the nurses described to the grandmother the treatment for pain for J.B. if he experiences pain at home. The grandmother shook her head understanding.</p>
Evaluation of Long Term Goal	Goal partially met. The parent's and grandparents were informed about how to measure pain in J.B. and understood how to see signs and symptoms of pain, since J.B was not discharged during clinical day, goal was only partially met.

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