

**N433 - Focus Sheet 2 – Fall 2019**  
**Communicable, Hematologic, Neoplastic, Immunologic**

Use Ricci, Kyle & Carman and your ATI book as noted below. Some of the ATI chapters deal with specific neoplastic disorders that I am not including in lecture or on Exam 3 so focus on those disorders that are on the focus sheet.

As you fill out the focus sheet, also look at the Nursing diagnosis section at the end of each of the Ricci, Kyle, & Carman chapters to help you think about how this “information” is used in your assessment and implementation of nursing care (aka “how to apply it”).

**Infectious Disease/Communicable Disease**

*Utilize your textbook Ch. 37 and your ATI chapter 36*

**1. Terminology to define and understand**

- Communicability- period of time during which an infectious agent may be transferred directly or indirectly from an infected person to another person, from an infected animal to humans, or from an infected person to animals. Also known as the 'infectious period'
- Chain of infection- made up of six different links: pathogen (**infectious** agent), reservoir, portal of exit, means of transmission, portal of entry, and the new host

**2. What is your role as a nurse to break the chain of infection?**

- Hand hygiene
- encourage immunizations

**How do you approach a child to help them understand the procedures that help to break the chain of infection?**

- Assess child's and family's willingness to learn.
- Provide family with time to adjust to diagnosis.
- Repeat information.
- Teach in short sessions.
- Gear teaching to level of understanding of the child.
- Provide reinforcement and rewards.
- Use multiple modes of learning involving many senses.

**3. What are standard precautions? List one condition where you would follow these precautions.**

- Used for everybody
- Gloves
- Changing a diaper

**4. What are droplet precautions? List one condition where you would follow these precautions.**

- Gown, Gloves, Mask
- Rubella

**5. What are contact precautions? List one condition where you would follow these precautions.**

- Gown, Gloves
- MRSA

**6. What are airborne precautions? List one condition where you would follow these precautions.**

- Gown, Gloves, N95 Respirator
- TB

Communicable disease	transmission	Signs and symptoms	treatment	Vaccine to prevent	complications
Conjunctivitis: Bacterial: Staphylococcus aureus  Viral: adenovirus and influenza	Contact with the bacteria, virus, or allergen	Eyelid swelling, redness, thick discolored discharge, watery discharge, pruritus	Antibiotics for bacterial infection- symptom relief for viral infection- antihistamine for allergic reaction	No	Bacterial infection can spread if not treated - viral infection could cause herpes if not managed
Fifth's disease (erythema infectiosum)	Contact with infected blood, oropharyngeal route, and transplacentally	Slapped cheek rash is hallmark sign followed by generalized maculopapular rash- fever, arthralgia and generalized malaise	Prevention is the best strategy, hand hygiene after handling children, cleaning toys and surfaces that children have been in contact with, avoiding sharing food and drinks	No	If passed from mom to fetus it can cause spontaneous abortion, severe fetal anemia, congenital anomalies, etc
Rubella (german measles)	Direct or indirect contact with droplets primarily by nasopharynx	Maculopapular rash that begins on the face and spread head to	Treatment is mainly supportive, treat the symptoms	Yes	Encephalitis, and thrombocytopenia. Maternal rubella in

	al secretions but also in blood, stool, and urine. Can also be transmitted from mother to fetus	foot, disappears the same order it spread, lymphadenopathy, low grade fever, malaise, upper respiratory symptoms	occurring with antipyretics, antipruritics, and analgesics		pregnancy can result in miscarriage, fetal death, or congenital malformations
Rubeola (measles)	Direct or indirect contact with droplets primarily by nasopharyngeal secretions but also in blood, stool, and urine. Can also be transmitted from mother to fetus	Fever, cough, coryza, conjunctivitis, koplik spots, erythematous maculopapular rash proceeds from head downward and outward	Treatment is supportive including antipyretics, bed rest, and adequate fluid intake	Yes	Diarrhea, otitis media, and pneumonia. Young children may get acute encephalitis
Varicella (chicken pox)	Direct contact with infected persons' nasopharyngeal secretions or via air-borne spread, lesser degree by contact with unscabbed lesions → highly contagious → also transmitted from mother to fetus	Fever, malaise, anorexia, headache, mild abdominal pain, rash is often the first sign of disease, lesions appear on the scalp, face, trunk first then appear on extremities → initially intensely pruritic erythematous macules that evolve into papules and then form clear fluid filled vesicles	Treatment is mainly supportive → antipyretics, antipruritics, and skin care to prevent infection of lesions → antiviral therapy and immune globulin may be used in high risk patients	Yes	Bacterial superinfection of skin lesions, hepatitis, cerebellar ataxia, encephalitis, meningitis, glomerulonephritis, congenital infection, life threatening perinatal infection
Pertussis (whooping)	Contact with infected	Coughing 10-30 times in	Treatment is with antibiotics	Yes	Hypoxia, apnea,

cough)	droplets	a row followed by a whooping sound, redness of the face, progressive cyanosis, protrusion of the tongue, saliva, mucus, and tears flowing	including macrolide drugs, azithromycin, and erythromycin → antibiotics are recommended to treat everyone whose come in contact with the carrier as well		pneumonia, seizures, encephalopathy, and death
Infectious mononucleosis	Contact with infected saliva, respiratory droplets, sneezes, or by sharing food or utensils with an infected individual	Sore throat, fatigue, fever, swollen lymph nodes in neck and armpits, swollen tonsils, soft swollen spleen	Treatment is supportive with lots of rest, fluids and treating any secondary infections properly	No	Splenomegaly, hepatitis, jaundice, anemia, thrombocytopenia, impaired breathing
Mumps	Contact with infected droplets → respiratory isolation	High fever, parotitis, low grade fever, anorexia, headache, malaise, and in boys orchitis, possible upper respiratory symptoms	Treatment is supportive with antipyretics and analgesics, oral fluids encouraged	Yes	Meningitis, encephalitis, seizures, pancreatitis, and auditory neuritis which may result in hearing loss
Hand foot & mouth disease	Direct contact with infected fecal or oral secretions	High fever, vesicle on the tongue and oral mucosa, vesicles on hands and feet that are football shaped with erythematous rims	Treatment is supportive-encourage oral fluids and admin analgesics PRN	No	Dehydration, meningitis, encephalitis, and pulmonary edema

7. What are the guidelines for defining what is a fever based upon the following measurements: (Know both Celsius & Fahrenheit measurements)

- Oral: >37.8 C (100F)

- **Rectal:** >38 C (100.4 F)
- **Axillary:** >37.2 C (99 F)
- **Temporal:** >38 C (100.4 F)
- **Tympanic:** >38 C (100.4 F)

### 8. What is the rationale for utilizing antipyretic therapy?

Antipyretics are used to lower fever and increase comfort. They decrease the temperature set point by inhibiting the production of prostaglandins → as a result sweating and vasodilation occur and there is heat loss and a drop in temperature.

### 9. What is the difference between a fever and hyperthermia?

Hyperthermia- occurs when normal thermoregulation fails resulting in an unregulated rise in core temperature → May occur if the CNS of the child becomes impaired by disease, drugs, and abnormalities of heat production or thermal stressors, such as being left in a hot automobile or exertional heat stroke

Fever- infection or inflammation caused by bacteria, virus or other pathogen stimulate the release of endogenous pyrogens which act on the hypothalamus to trigger prostaglandin production. Prostaglandins increase the body's temperature set point which triggers a cold response resulting in shivering, vasoconstriction, and a decrease in peripheral perfusion to help decrease heat loss and allow the body's temperature to rise to the new set point therefore resulting in a fever

### 10. What is the dosing for Tylenol (Acetaminophen)? Advil/Motrin (Ibuprofen)?

Tylenol (Acetaminophen) - 10-15 mg/kg/dose

- No more than every 4 hours
- No more than 5 doses in a 24 hour period

Ibuprofen - 4-10 mg/kg/dose

- Only children older than 6 months of age
- No more than 4 doses in a 24 hour period

### 11. What are the signs and symptoms of Reye's syndrome? (See ATI Ch. 12)

Lethargy, Irritability, Combativeness, Confusion, Delirium, Profuse Vomiting, Seizures, Loss of consciousness

**RKC Chapter 46 - ATI Chapter 21, 39,40,41-Alteration in Cellular Regulation/Hematologic or Neoplastic Disorder. (Some of the ATI chapters deal with specific neoplastic disorders that I am not testing you over).**

### 1. Outline the differences in anatomy & physiology of pediatric clients AS WELL as the circumstances that make them more at risk for hematologic disorders and complications. I.e. Infants, Toddlers, Preschoolers, School-age, Adolescents.

- Premature birth resulting in decreased iron stores is a cause of iron deficiency anemia in infants.

- Toddlers who drink cows' milk are at risk for iron deficiency anemia. This milk is not a good source of iron.
- Preschoolers and school age children often do not take in enough vitamins, including iron.
- Adolescents are more at risk for iron deficiency anemia due to poor diet, rapid growth, menses, strenuous activities, and obesity.

**2. What is the recommended treatment for epistaxis? ATI Ch 21**

- Have the child sit up with the head tilted forward to prevent aspiration
- Apply pressure to the lower nose with the thumb and forefinger for at least 10 minutes
- If needed, pack cotton or tissue into the side of the nose that is bleeding.
- Encourage the child to breathe through mouth while nose is bleeding
- Apply ice across bridge of nose if bleeding continues

**3. Sickle Cell: ATI Ch 21**

- List the Clinical manifestations.
  - Pain, SOB, fatigue, pallor, jaundice, hands and feet cold to touch, dizziness, headache
- List the risks associated with sickle cell anemia.
  - Genetics, African Americans, Mediterranean, Indian, or Middle Eastern descent.
- List the signs and symptoms of vaso-occlusive crisis both acute & chronic.
  - Acute- Severe pain, usually in bones, joints, and abdomen. Swollen joints, hands, and feet. Abdominal pain, hematuria, obstructive jaundice, visual disturbances
  - Chronic- Increased risk of respiratory infections and osteomyelitis, Retinal detachment and blindness, systolic murmurs, renal failure and enuresis, liver cirrhosis, hepatomegaly, seizures, skeletal deformities
- List and prioritize the treatments for sickle cell anemia.
  - Administer oxygen as prescribed
  - Administer blood products
  - Maintain fluid and electrolyte balance
  - Manage pain
- List and prioritize the most common nursing- diagnosis for sickle cell anemia.
  - Impaired Gas Exchange
  - Ineffective Tissue Perfusion
  - Risk for Deficient Fluid Volume
  - Acute Pain

**4. Iron deficiency anemia: ATI Ch 21**

- List the causes
  - Inadequate dietary supply of iron
  - Premature birth resulting in decreased iron stores
  - Excessive intake of cow's milk in toddlers
  - Malabsorption disorders
  - Blood loss
- List the treatments for IDA, including dietary treatments.
  - Iron Supplements

- Packed RBCs
- Dietary sources- Iron-fortified cereals and formula, dried beans and lentils, peanut butter, green, leafy vegetables, iron-fortified breads and flour, poultry, red meat
- c. List the side effects of treatments for IDA/including medications and then list nursing education required in relationship to these treatments.
  - GI Upset- Administer on an empty stomach
  - Decreased absorption- Give with Vitamin C
  - Staining of teeth- Use a straw, brush teeth after
  - Stools turn tarry green- Educate family and child to expect

## 5. Lead poisoning

- a. List the causes of lead poisoning
  - Too much absorption of lead through lead-based paint, soil found near lead-based paint, water that flows through lead pipes, food stored in dishes that have lead on them, some toys or jewelry, some house remedies, such as greta and azarcon.
- b. List the reasons children are at higher risk for lead poisoning depending upon their age.
  - They absorb lead more easily than adults, and lead is more harmful to them. They are also more prone to eating things that they shouldn't. These things could contain lead.
- c. List the effect of lead poisoning on the child
  - It harms production of blood cells and the absorption of calcium. It can also cause brain and kidney damage. Symptoms include headaches, loss of appetite, behavioral problems, N/V, weight loss, pallor, feeling tired, and muscle and joint pain/weakness.
- d. List the implications/nursing interventions
  - Prevention of more exposure to lead
  - Monitor for/ Treat side effects
  - Chelator- A medication that attaches to lead and helps the body get rid of it
  - Calcium, iron, and Vitamin C supplements may be recommended

## 6. Leukemia: ATI Ch 40

- a. List the signs & symptoms
  - Early- Low grade fever, pallor, increased bruising and petechiae, enlarged liver, lymph nodes, joints, abdominal, leg, joint pain, constipation, headache, vomiting and anorexia, unsteady gait
  - Late- Pain, hematuria, ulcerations in the mouth, enlarged kidneys and testicles, manifestations of increased intracranial pressure
- b. List the labs test results you would expect to find with leukemia
  - Anemia, Low platelets, low neutrophils, immature WBCs
- c. List the effects of the treatments for leukemia
  - Chemotherapy
    - Nausea and Vomiting
    - Mucosal ulceration
    - Skin breakdown
    - Neuropathy

- Loss of appetite
- Hemorrhagic cystitis
- Alopecia
- Radiation
  - Fatigue
  - Infection
- d. What are the priority nursing interventions for the child with leukemia?
  - Provide emotional support
  - Encourage peer contact if appropriate
  - Assess pain
  - Use pharmacological and nonpharmacological interventions to provide pain management

## 7. Wilms tumor ATI Ch 39

### a. What are the Signs & Symptoms?

- Painless, firm, nontender abdominal swelling or mass
- Fatigue, malaise, weight loss
- Fever
- Hematuria
- Hypertension
- Dyspnea, Cough, SOB, and Chest Pain

### b. What are the nursing interventions included in the & treatment?

- Do not palpate the abdomen
- Use caution when bathing client to prevent trauma
- Assess physical delays
- Monitor for infection
- Provide oral hygiene
- Provide support to child and family
- Treatment- Surgical removal of tumor and kidney, preop chemo or radiation if both kidneys are involved, post op radiation/ chemo for large tumors, metastasis, recurrence, and residual disease

## 8. Describe nursing interventions for a severely ill/dying child based on developmental age/level.

### Infants:

- Provide unconditional love
- Provide trust
- Ensure the family is available

### Toddler:

- Provide familiarity and routine
- Maximize time with their parents
- Be consistent
- Provide favorite toys a
- Ensure physical comfort

### Preschool:

- Correct a misunderstanding that death is a punishment
- Be honest
- Use precise language

- Help the parents teach the child that though the family will miss the child it will continue to function without him or her

**School age:**

- Provide specific honest details
- Encourage the child to help make decision
- Help the child to establish a sense of control

**Young adolescent:**

- Reinforce their self esteem, self respect and their sense of worth
- Respect their need for privacy and alone time
- Respect their time with their peers
- Support the need for independence
- Encourage them to participate in decision making

**Older teen:**

- Support them with honest detailed explanations
- Allow them to be truly involved
- Listen to them

**RKC Chapter 47—ATI Chapters 35, Chap 29 pp 185-186 - Alteration in Immunity or Immunologic Disorders (Approximately 10 questions)(also covered to some degree in Chapter 37 as well as in the Immunization computer program)**

1. Development of Immunity/Immune response
  - Phagocytosis: reach adult level by 3-6 mo.
  - Passive immunity-breast milk and transplacental
  - Immunoglobulins reach adult level by 1 y/o
  - Frequent localized enlarged lymph nodes-children
  
2. Define and understand the effects of Primary Immunodeficiency versus secondary (acquired) immune deficiency.
  - Primary
    - o Hereditary or congenital
    - o Hypogammaglobulinemia
    - o Wiskott-aldrich syndrome
    - o Severe combined immune deficiency (SCID)
  - Secondary
    - o Result of chronic illness, malignancy, use of immunosuppressants, malnutrition/protein-losing state, prematurity, or HIV
  
3. Explain the Inflammatory response
  - First stage: Redness from dilation of arterioles bringing blood to the area, warmth of the area on palpation, edema, pain or tenderness, and loss of use of the affected area.
  - Second stage: Microorganisms have been killed. Fluid containing dead tissue cells and WBCs accumulates and exudate at the site of infection. The exudate leaves the body by draining into the lymph system.

- Third stage: Damaged tissue is replaced by scar tissue. Gradually, the new cells take on characteristics that are similar in structure and function to the old cells.
4. Systemic Lupus Erythematosus- signs & symptoms—Nursing implications
    - Autoimmune disorder affecting any organ system
    - Diagnosed after age 5 but usually between 15-45
    - S/Sx: alopecia, anemia, arthralgia, arthritis, fatigue, photosensitivity, pleurisy, raynaud's phenomenon, seizures, skin rashes, butterfly rash, stomatitis, thrombocytopenia, fever, painless ulcerations in oral cavity, hypertension, adventitious breath sounds, tender joints and abdomen
    - Nursing: preventing and monitoring for complications, education on healthy diet, regular exercise, and sleep, avoid the sun or UV rays (15 spf minimum), protect from the cold with layering, inspect for discoloration, monitor BUN, creatine, blood pressure, urine output for hematuria or nephritis
  5. Juvenile idiopathic arthritis—signs & symptoms—Nursing implications
    - Autoimmune, autoantibodies target the joints causing pain, redness, warmth, stiffness, and swelling. Stiffness in the morning or inactivity. May affect the eyes
    - s/sx: irritability, pain, withdrawal from play, difficulty getting child out of bed, fever for 2 weeks or more, pale/red rash on skin, limping gait, joints are red, warm, and tender, anemia, delayed growth, limping in the morning, rash
    - Nursing: manage pain, maintain mobility and promote a normal life, encourage eye exams, family support, NSAIDS, range of motion, swimming is useful, splinting, monitor for pressure ulcers, warm baths
  6. Explain how an allergic response occurs
    - When the IgE antibody is exposed to the antigen, rapid cell activation occurs and potent mediators and cytokines are released, resulting in change of blood vessels, bronchi, and mucus-secretion
  7. List the most common allergies including food allergies
    - Milk
    - Eggs
    - Peanuts
    - Tree nuts
    - Fish and shellfish
    - Wheat
    - Soy
    - Other foods to avoid in children under 1 for common allergies: cows milk, eggs, sesame seeds, kiwi fruit
    - Bee or wasp stings
    - Penicillin
    - Nsaids
    - Radiopaque dyes
    - latex
  8. Define the sequence and treatment for Anaphylactic reactions

- Epinephrine: intramuscular injection, dosage based on weight, gray safety release should never be removed until use. The thumb, fingers or hand should not be placed over the black tip. Form a fist over it, pull release, swing and jab into outer thigh at 90 degree angle and hold firmly for 10 seconds, remove and massage thigh for 10 seconds
- Diphenhydramine

9. What are the most common medications used for allergies?

- Histamine blockers, epinephrine, corticosteroids

10. What are the long-term effects of medications used for allergies i.e. signs and symptoms to watch for?

- Drowsiness, dry mouth, and stomach problems

11. What education should the nurse provide for the child & the family in relationship to allergies?

Educate them on manifestations associated with allergic reactions such as:

- Lip, tongue or palate pruritus
- Lip or tongue edema
- Urticaria, flushing, pruritus, angioedema
- Nasal pruritus, congestion, sneezing
- Stridor, tightness in the throat, dysphagia, dyspnea, tight chest, wheeze
- Tachycardia, chest pain, hypotension
- Syncope, feeling faint, aura of doom, lethargy, disorientation
- Bloating, abdominal pain, diarrhea, vomiting

Educate them about preventing and managing future episodes

Teach them how to use injectable epinephrine

Encourage carrying of pen with them at all times.

Call 911 after using epi pen

Educate epinephrine will make them feel like their heart is racing

Educate avoid food and known food allergies

Avoid bees

immunotherapy (allergy shots) may be a possibility

12. List safety education the nurse can provide related to allergies and treatments for allergies.

#### Education

- Educate family about prevention & management of future episodes
- Educate child & family on use of injectable epinephrine
- Carry it with child at all times
- Provide education for daycare providers, school nurses, teachers, & staff
- Wear a medic alert ID bracelet or necklace at all times

#### Treatments

- Focuses on supporting the airway, breathing, & circulation

- Administer IV fluids to provide volume expansion
- Administer epinephrine, diphenhydramine, &/or corticosteroids

#### Food allergy - therapeutic management

- Verifying the food allergy
  - Allergy skin-prick tests—May have false positives
- Radioallergosorbent blood tests—May have false positives
- Elimination diet is a preferred method to verify
  - Avoiding the allergen
- Treating the reaction with medications
  - Antihistamines & epinephrine (for anaphylaxis)