

N305 Focus Sheet 5 F19—Newborn, RKC Ch 17, 18, 23,24; ATI Ch 23-27 ; Newborn Assessment Power Point; breastfeeding power point; Newborn reflexes RKC 17 & 18; ATI Ch 23

**1. What does APGAR stand for?**

APGAR stands for appearance, pulse, grimace, activity, and respiration.

**2. When are APGAR scores assigned?**

It is assessed 1- 5 minutes after birth infant is born. The 5-minute score tells the health care provider how well the baby is doing outside the mother’s body.

**3. What is a “normal” APGAR score versus a score that requires an intervention?**

The score is 1-10 the better the score the better the newborn is doing. Normal scores are 7, 8, and 9.

**4. Describe the Initial assessment of a newborn immediately after birth?**

The provider will immediately clear the noses then mouth more any mucus. Basically clear the airways so that the baby can breathe.

**5. What are the normal expected ranges for a newborn for each of the following**

<b>weight</b>	Males: 3.6 kg (8lbs) range 2.9 to 4.2kg or (6lb 7oz – 9lb 5oz) Females: 3.5 kg (7lb 12 oz) range 2.8 to 4.0 kg (6 lb 3 oz – 8 lb 14 oz)
<b>Length (crown of head to to heel of foot)</b>	20 in (51 cm) range 19-21 in (48-53 cm)
<b>Head circumference (occipital to frontal)</b>	14 in (35 cm); range 13-15 in (33-37 cm)
<b>Chest circumference (nipple line)</b>	30-33 cm (12-13 in)
<b>Temperature</b>	(97.7 F-99.5 F); 36.5 C- 37.5 C
<b>Pulse</b>	120-160 bpm
<b>Respiration</b>	40-60 bpm
<b>Blood Pressure</b>	60/90 mmHg

**6. What does the New Ballard Scale (gestational age assessment) assess? (There is a PPT in the Resources with a link to at U-tube video on the New Ballard Scale)**

Assesses the neuromuscular and physical maturity of the newborn. Each assessment parameter displays at least 6 ranges of development along the continuum. (p156 ATI)

**7. Define AGA, SGA, LGA, IUGR, term, preterm or premature, post term or postdate, postmature.**

**AGA-** appropriate for gestational age

**SGA-** small for gestational age

**LGA-** large for gestational age

**IUGR-** intrauterine growth restriction; is a condition in which the baby does not grow to normal weight during pregnancy. This can be caused of IUGR which includes placenta abnormalities, high blood pressure, infections and smoking or alcohol abuse.

**Term-** The period between 39 weeks and 40 weeks.

**Preterm/ premature -** the period between 37 weeks and 38 weeks,

**Post term/ postdate-** the period between 40 weeks and 42 weeks.

**8. Review and summarize each component of the physical exam (Also see power point slides) (There is a PPT in the Resources with a link to at U-tube video on the newborn reflexes)**

**Posture:** The newborn would be curled up position with arms and legs in moderate flexion.

**Skin:** Skin color is pink with no jaundice, skin turgor should be present showing that they are well hydrated, cracks in hands and feet are present, vernix caseosa can be present in folds and creases, and lanugo vaires on amount. Typically it is located by ears, forehead, and shoulders.

**Milia** iis a small rise white spots on the nose, chin, and forehead that can be present. They will disappear on their own and parents should not squeeze them.

**Telangiectatic nevi** or stork bites are flat pink or red marks that easily blanch and are found on the back of the neck, nose, upper eyelids, and middle of the forehead. They usually fade by the second year of life.

**Nevus flammeus** or also known as a port wine stain is a capillary angioma below the surface of the skin that is purple or red, varies in size that is seen on the face, and does not blanch or disappear.

**Erythema toxicum** is a pink rash that appears suddenly anywhere on the body of a term newborn during the first 3 weeks. This is known as a newborn rash and has no treatment.

**Head:** the head should be 2-3 cm larger than the chest circumference. Anterior frontal should be palpated and approximately 5 cm on average and diamond shaped. Sutures should also be palpated, seperated, and overlapping (molding), a normal occurrence resulting from head compression during labor.

**Caput succedaneum** is localized swelling of the soft tissues of the scalp caused by pressure on the head during labor.

**Cephalohematoma** is a collection of blood between the periosteum and the skull bone that it covers.

**Eyes:** Assess the eyes for symmetry in size and shape. Each eye and the space between should be equal one third the distance from the inner to the outer canthus of both eyes to rule out chromosomal abnormalities. Pupillary and red light present.

**Ears:** When examining the placement of the ears draw an imaginary line through the inner to the outer canthus of the newborn's eye. The eye should be even either the upper tip of the pinna of the newborn's ear.

**Nose:** The nose should be midline, board with lack of bridge, and flat. Some mucus should be present, but no drainage.

**Mouth:** Assess for palpate closure and strength of sucking, lip movements should be symmetrical. Saliva should be scant, and excessive saliva can indicate a tracheoesophageal fistula. Epstein Pearls are expected to be found and are found on the gums at the junction of the soft and hard plates. Tongue should move freely, be symmetrical in shape and not protrude. Soft and hard palate should be intacted. Gums and tongue should be pink.

**Neck:** Neck should be short, thick, surrounded by skin folds and exhibit no webbing. Neck should be able to move freely from side to side and up to down.

**Chest:** Chest should be barrel-shaped, respirations are primarily diaphragmatic, clavicles should be intact and absence of retractions, nipples should be prominent, well formed, and symmetrical. Breast nodules can be 3-10 mm.

**Abdomen:** Umbilical cord should be odorless and exhibit no intestinal structures. Abdomen should be round, dome-shaped and nondistended. Bowel sounds should be present 15-20 min following birth.

**Anogenital:** Anus should be present, patent, and not covered by a membrane. Meconium should be passed within 24-48 hours after birth. Genitalia of men newborn induce rugae on scrotum. Testes should be present. Vaginal bleeding in newborn females is an expected finding. Hymenal tag should be present. Urine should be passed within 24 hours after birth.

**Extremities:** Assess for full range, symmetry, and motion and spontaneous movements. Assess for bowed legs and flat feet, which should be present because lateral muscles are more developed than the medial muscles. No click should be heard when abducting the hips, gluteal folds should be symmetrical.

**Spine:** Spine should be straight, flat, midline, and easily flexed.

#### **Reflexes:**

**Sucking & rooting reflex:** Elicit by stroking the cheek or edge of mouth. Newborn turns his head towards the side that was touched and starts to suck.

**Palmar grasp:** Elicit by placing examiner's finger in palm of newborn's hand. The newborn's fingers curl around the examiner's fingers.

**Plantar grasp:** Elicit by placing examiner's finger at base of newborn's toes. The newborn responds by curling toes downward.

**Moro reflex:** Elicit by allowing the head and trunk of the newborn in a semi-sitting position to fall backward to an angle at least 30 degree. The newborn will symmetrically extend and then abduct the arms at the elbows and fingers spread to form a "C".

**Tonic neck reflex (fencer position):** With the newborn in supine, neutral position, examiner turns newborn's head quickly to one side. The newborn's arm and leg on that side extend and opposing arm and leg flex.

**Babinski reflex:** Elicit by stroking the outer edge of sole of the foot, moving by towards toes. Toes will fan upward and out.

**Stepping:** Elicit by holding the newborn upright with feet touching a flat surface. The newborn responded with stepping movements.

#### **Senses:**

**Vision:** The newborn should be able to focus on objects 8-12 inches away from their faces. The eyes are sensitive to light, they prefer dim lighting. Pupils are reactive to light and blink reflex is stimulated.

**Hearing:** Hearing is similar to that of an adult once the amniotic fluid drains from the ears. Newborns exhibit selective listening to familiar voices and rhythms of intrauterine life.

**Touch:** Newborns should respond to tactile messages of pain and touch. The mouth is the most sensitive to touch in newborns.

**Taste:** Newborns can taste and prefer sweet to salty, sour, or bitter.

**Smell:** Newborns have a highly developed sense of smell, prefer sweet smells and can recognize the mother's smell.

**Habituation:** This is a protective mechanism whereby the newborn becomes accustomed to environmental stimuli. Response to a constant or repetitive stimulus is decreased. This allows the newborn to select stimuli that promotes continued learning, avoiding overload.

### **9. How is a newborn's blood type determined?**

The cord blood is collected at birth and lab tests are conducted to determine ABO blood and Rh status if the mother's blood type is O or she is Rh- negative.

### **10. What are the normal Expected laboratory values for a newborn?**

<b>HGB</b>	14-24 g/dL
<b>Platelets</b>	150,000-350,000
<b>HCt</b>	44%-64%
<b>Glucose</b>	40-6- mg/dL
<b>RBC count</b>	4.8 x 10 <sup>6</sup> to 7.1x 10 <sup>6</sup>
<b>Bilirubin</b> <b>24 hr</b> <b>48 hr</b> <b>3-5 days</b>	24hr: 2-6 mg/dL 48hr: 6-7 mg/dL 3-5 days: 4-6 mg/dL
<b>Leukocytes</b>	9,000-30,000/mm <sup>3</sup>

**11. What are the 3 primary complications noted with newborns? What are the nursing interventions for each of these complications?**

**Airway obstruction related to mucus:** mouth and nose are suctioned with a bulb syringe. Gentle percussion over the chest can help loosen secretions.

**Hypothermia:** monitor axillary temperature. Healthy newborn temperature averages 37C (98.6F) with a range of 36.5C to 37.5C (97.7F-99.5F). If temperature is unstable, place the newborn in a radiant warmer, and maintain skin temperature at approximately 36.5C (97.7F). Ideal method for promoting warmth and maintaining neonate's body temperature for stable newborn is early skin to skin contact with mom. If the infant does not remain skin to skin with mom during the first 1-2 hours after birth, the nurse places the thoroughly dried infant under the radiant warmer or in a warm incubator until body temperature stabilizes. Assess axillary temperature every hour until stable. All exams and assessments should be performed under a radiant warmer or during skin to skin contact with the mother.

**Inadequate oxygen supply:** monitor respirations and skin color for cyanosis. Stabilize the body temperature or clear airway as indicated, administer oxygen, and if needed, prepare for resuscitation.

**RKC Ch 18; ATI Ch 24**

**1. Summarize the physical assessment of a newborn**

Vital signs are done every 30mins x2, every 1 hour x2, and then every 8 hours, weight should be done daily, inspect the umbilical cord, the first 6-8 hours of life the body systems stabilize and pass through periods of adjustment, observe for periods of reactivity; first period of reactivity, period of reactivity inactivity, and second period of reactivity. Also perform a pain assessment using a tool the facility prefers following a painful procedure.

**2. When and how is Neonatal screening (sometimes called metabolic screening) done?** The Neonatal screening is done after the first 48 hours of age.

**What is the importance of this test?** It screens for rare potential serious disorders such as PKU, CF, and congenital hypothyroidism.

**Describe the collection sample procedure.** It starts with a heel prick or Guthrie test. Then goes into hearing and other exams.

**3. What are the signs of respiratory distress in the newborn? Signs of respiratory distress include:** cyanosis, apnea, nasal flaring, rapid breathing, shortness of breath and grunting sounds can be heard while breathing.

**4. Summarize the interventions for stabilization and resuscitation of the airway.**

The newborn clears most secretions through coughing but a bulb syringe removes the excess mucus in the respiratory tract. A C-section newborn is more susceptible to fluid remaining in the lungs over a vaginal birth newborn. If the bulb syringe is unsuccessful then a mechanical suction and/or back blows and chest thrusts can be used, as well as institution of emergency procedures. The bulb syringe should be kept with the newborn and the family should be asked to perform a demonstration to show that they understand bulb syringe techniques.

**5. Apply the nursing process to thermoregulation components and list appropriate nursing interventions**

Thermoregulation provides a neutral thermal environment that helps a newborn maintain a normal core temperature with minimal oxygen consumption and caloric expenditure. A newborn has a relatively large surface area to weight ratio, reduced metabolism per unit area, blood vessels close to the surface, and small amounts of insulation.

NI: core temperature varies within newborns but it should be kept at approximately 36.5C to 37 C (97.7- 98.6F). Heat loss occurs by four mechanisms : conduction, convection, evaporation, and radiation.

**Temperature stabilizes at 37C (98.6F) within 4 hours after birth if chilling is prevented.**

**6. What would you teach parents regarding:**

**Bathing-** begin once the newborn's temperature has stabilized at least 36.5C (97.7F) and gloves should be worn until the newborn's first bath to avoid exposure to body secretions.

**Diaper changes-** may need to change diaper 6-8 times a day

**Feeding-** started immediately following birth. Breastfeeding can start as soon as possible but with formula usually is started at about 2-4 hours of age.

**Newborn Sleep-** Sleep-wake states are variations of consciousness in the newborn consisting of 6 states along a continuum composed of deep sleep, light sleep, drowsy, quiet alert, active alert, and crying. Newborns sleep approximately 16-19 hours/day with periods of wakefulness gradually increasing.

**Elimination-** monitor elimination habits. Stools should appear yellow and seedy. Should void once within 24hours and void 6-8 times per 24hrs after 4 days. During the first month the infant should have at least 3 stools per day.

**Infection control-** newborns are at risk for infection the first few months of life because of immature immune systems. It is essential to prevent cross-contamination from newborn to newborn and between newborns and staff.

**Umbilical cord care-** The goal is to prevent or decrease risk for infection and hemorrhage. When bathing do not submerge the infant in water until the cord has fallen off. Assess stump and base for erythema, edema, and drainage with each diaper change and diapers should be folded down and away from umbilical cord stump.

**7. Medications to know:**

Medication	Indications (why is this needed for THIS patient?)	Nursing Implications (what are you watching for?)	Dose
Erythromycin	Antibiotic	Use a single dose unit to avoid	Apply a 1-2 cm

	ointment into the eyes to prevent ophthalmia neonatorum	cross contamination Side effects: chemical conjunctivitis, causing redness, swelling, drainage, and temporarily blurred vision for 24-48 hours. Reassure parents that this resolves on its own. Application can be delayed 1 hour after birth for baby friendly activities.	ribbon of ointment to the lower conjunctival sac of each eye
<b>Vitamin K (Aquamephyton)</b>	Prevent hemorrhagic disorders	Administer in vastus lateralis within 1 hour after birth	Administer 0.5-1 mg IM
<b>Hepatitis B</b>	Provides protection against hepatitis B	Recommended to be administered to all newborns, informed consent must be obtained	For newborns to healthy women, the recommended dosage schedule is at birth, 1 month, and 6 months.

### 8. Why is it important to monitor newborns for cold stress?

Ineffective thermoregulation can lead to hypoxia, acidosis, and hypoglycemia. Newborns who have respiratory distress are at higher risk for hypothermia.

#### What signs and symptoms are noted with this?

cyanotic trunk, depressed respirations

#### What treatment is used?

Warmed slowly over a period of 2-4 hours. Oxygen is administered to correct hypoxia and acidosis and hypoglycemia.

### 9. Why is it important to monitor newborns for hypoglycemia?

Frequently occurs in the first few hours of life secondary to the use of energy to establish respirations and maintain body heat. Blood glucose tests first 2 hours of life because the mother has diabetes mellitus, newborn are small or large, and greater than 42 weeks of gestation which makes them at higher risk for hypoglycemia.

#### What are the signs and symptoms?

Jitteriness, twitching, a weak, high pitched cry, irregular respiratory effort, cyanosis, lethargy, eye rolling, seizures, and blood glucose level less than 40 mg/dL be heel stick.

#### What is the treatment?

Mother breastfeeds immediately or gives donor breast milk or formula to elevate blood glucose levels. Brain damage can result if brain cells are depleted of glucose.

### ATI Ch 25 ; Breastfeeding powerpoint

#### 1. Describe the key nutritional needs of the newborn.

A newborn needs calcium, fat, folate, iron, protein and carbohydrates, zinc, and vitamin: A, B11, B2, B3, B6, B12, C, D, E, and K.

#### 2. According to the American Academy of Pediatrics, how often should newborns breastfeed?

Mother should be encouraged to offer a minimum of 8 feedings at the breasts every 24 hours and to nurse whenever the newborn shows early signs of hunger, such as increased alertness, physical activity, mouthing or rooting.

**What infant specific benefits have been found with breastfeeding?**

**The benefits of breastfeeding include;** stronger immune systems. Less diarrhea, constipation, gastroenteritis, gastroesophageal reflux, and preterm necrotizing enterocolitis (NEC), fewer colds and respiratory illnesses like pneumonia, respiratory syncytial virus (RSV) and whooping cough.

**3. List 4 interventions to promote successful breastfeeding.**

1. Formal breastfeeding education for mothers and families
2. Direct support of mother during breastfeeding
3. Training of primary care staff about breastfeeding and techniques for breastfeeding support
4. Peer support

**4. Breastmilk can be stored in each of the following for how long?**

- 4   hr at room temperature
- 4   days refrigerated in sterile bottles
- 6   months in frozen sterile containers in the freezer compartment of a refrigerator
- 12  months in a deep freezer

**5. How often should bottle-fed babies be feeding?**

At first babies would like a bottle every 2-3 hours, then as they grow every 3-4 hours is good.

**6. What should be assessed when determining proper nutrition for the newborn?**

Maturity level, history of labor, birth trauma, maternal risk factors, congenital defects, physical stability, state of alertness, and presence of bowel sounds

**7. What cues are exhibited by a newborn to show feeding readiness?**

Hand to mouth or hand to hand movements, sucking motions, rooting, and mouthing

**8. What techniques can you teach parents in order to wake a sleepy baby to feed?**

Unwrap the newborn, change the newborn's diaper, hold the newborn upright, and turn him from side to side, talk to the newborn, massage the newborn's back and rub his hands and feet, and apply a cool cloth to the newborns face.

**What about a fussy baby who needs comfort?**

Swaddle the newborn, hold the newborn close, move, and rock him gently, reduce the newborns environmental stimuli, and place the newborn skin to skin.

**9. What is failure to thrive?**

Slow weight gain and usually falls below the 5th percentile on the growth chart.

**ATI Ch 26**

**Since the majority of OB is about education/teaching, you are responsible for all information in this chapter, as you will use it clinically and during theory/exam.**

**RKC Ch 23 & 24; ATI Ch 27**

**1. Describe what the neonate going through substance withdrawal would look like.**

High-pitched, shrill cry, incessant crying, irritability, tremors, hyperactivity with an increased moro reflex, increased deep tendon reflexes, increased muscle tone, disturbed sleep patterns, hypertonicity, convulsions, nasal congestion with flaring, frequent yawning, skin mottling,

retractions, apnea, tachypnea greater than 60/min, sweating, temperature greater than 37.2 C, poor feeding, regurgitation, diarrhea, excessive, uncoordinated, constant sucking

**2. How can infants be tested for maternal drug use and what nursing care should be implemented for infants who are withdrawing?**

Blood tests should be done to differentiate between neonatal drug withdrawal and central nervous system disorders. CBC, blood glucose, electrolyte imbalance, thyroid-stimulating hormones, thyroxine, triiodothyronine, drug screen of urine or meconium to reveal the substance used by the mother, hair analysis.

NI: perform ongoing assessment of the newborn using the neonatal abstinence scoring system assessment as prescribed, elicit and assess the newborn's reflexes, monitor the newborn's ability to feed and digest intake, offer small frequent feedings, swaddle the newborn with legs flexed, offer non-nutritive sucking, monitor the newborn's fluids and electrolytes with skin turgor, mucous membranes, fontanels, daily weights, and I &O, reduce environmental stimuli

**3. What medications are often used to help with withdrawal symptoms?**

Morphine sulfate, phenobarbital

**4. Hypoglycemia in the newborn is defined as:**

The Newborn's source of glucose stops when the umbilical cord is clamped. A healthy term newborn's blood glucose level can drop to 30 mg/dL the first 1 to 2 hour following birth, if newborns have other physiological stress, they can experience hypoglycemia due to inadequate gluconeogenesis or increased use of glycogen stores

**5. What does a hypoglycemic infant look like?**

**How would they be treated?**

Poor feeding, jitteriness/ tremors, hypothermia, weak cry, lethargy, flaccid muscle tone, seizures/coma, irregular respirations, cyanosis, apnea

Treat: maintain skin-to-skin contact, initiate IV dextrose for a symptomatic newborn, provide frequent oral and/or gavage feedings or continuous parenteral nutrition early after birth, monitor neonates blood glucose level closely per facility protocol, monitor IV if neonate is unable to feed orally,

**6. RDS is a result of surfactant deficiency in the lungs causing poor gas exchange and ventilatory failure. What is surfactant?**

Lung surfactant restores surfactant and improves respiratory compliance for newborns who are premature and have RDS

**What complications arise from RDS?**

Pneumothorax, pneumomediastinum, retinopathy of prematurity, bronchopulmonary dysplasia, infection, intraventriculation

**7. What risk factors are included in the assessment for RDS?**

Preterm gestation, perinatal asphyxia, maternal diabetes mellitus, premature rupture of membranes, maternal use of barbiturates or narcotics close to birth, maternal hypotension, cesarean birth without labor, hydrops fetalis, maternal bleeding during the third trimester, hypovolemia, genetics; male gender, causeasian descent

**8. What does an RDS infant look like?**

Tachypnea, nasal flaring, expiratory grunting, retractions, labored breathing with prolonged expiration, fine crackles on auscultation, cyanosis, unresponsiveness, flaccidity, and apnea with decreased breath sounds

**9. Describe the order of interventions during the immediate period after the infant is born.presentation and care of the newborn.**

Agar scores are done following birth and initial assessments include external assessment, chest, abdomen, neurologic, other observations such as inspection of gross structural malformations, weight, length, head circumference, and chest circumference.

**10. SGA vs LGA, compare and contrast.**

	<b>SGA</b>	<b>LGA</b>
<b>Risk factors:</b>	Congenital or chromosomal anomalies, maternal infections, disease, or malnutrition, gestational hypertension and/or disease, maternal smoking, drug, or alcohol use, multiple gestations, placental factors (small placenta, placenta previa, decreased placental perfusion), fetal congenital infections such as rubella or toxoplasmosis	Newborns who are postmature, maternal diabetes mellitus during pregnancy (high glucose levels stimulate continued insulin production by the fetus), fetal cardiovascular disorder of transposition of the great vessels, genetic factors, maternal obesity, a mother who is multiparous
<b>Findings</b>	Weight below 10th percentile, normal skull, but reduced body dimensions, hair is sparse on scalp, wide skull sutures from inadequate bone growth, dry, loose skin, decreased subQ fat, decreased muscle mass, particularly over the cheeks and buttocks, thin, dry, yellow, and dull umbilical cord rather than gray, glistening, and moist, drawn abdomen rather than well-rounded, respiratory distress and hypoxia, wide eyed and alert, which is attributed to prolonged fetal hypoxia, hypoglycemia, and acrocyanosis	Weight above 90th percentile, large head, plump and full-faced, manifestations of hypoxia including tachypnea, retractions, cyanosis, nasal flaring, and grunting, birth trauma, sluggishness, hypotonic muscles, and hypoactivity, tremors from hypocalcemia, hypoglycemia, respiratory distress from immature lungs or meconium aspiration
<b>Care considerations</b>	Support respiratory efforts, and suction the newborn as necessary to maintain an open airway, provide a neutral thermal environment for the newborn, initiate early feedings, administer parenteral nutrition if necessary, maintain adequate hydration, conserve the newborns energy, prevent skin breakdown, and protect the newborn from infection	Prior to delivery: prepare the client for a possible vacuum-assisted or cesarean birth, prepare to place the client in McRoberts position (lithotomy position with legs flexed to chest to maximize pelvic outlet), prepare to apply suprapubic pressure to aid in the delivery of the anterior shoulder, which is located inferior to the maternal symphysis pubis, assess the newborn of birth trauma, such as a broken clavicle or Erb-Duchenne paralysis For the newborn who is LGA following delivery: obtain early and frequent heel sticks (Blood glucose test), initiate early feedings or IV therapy to maintain glucose levels

		within the expected reference range, provide thermoregulation with an isolette, identify and treat any birth injuries.
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**11. Discuss the variations between physiologic and pathologic jaundice.**

**How are they treated?**

Physiologic jaundice is benign and results from normal newborn physiology of increased bilirubin production due to the shortened lifespan of breakdown of fetal RBCs and liver immaturity. Pathologic jaundice is due to an underlying disease and appears before 24 hrs of age or is persistent after 14 days and caused by a blood group incompatibility or an infection, but can be the result of RBC disorder.

Treatment: phototherapy

**12. Congenital anomalies: Describe patent ductus arteriosus, Tetralogy of Fallot, and Down Syndrome.**

Patent ductus arteriosus: a non cyanotic heart defect in which the ductus arteriosus connecting the pulmonary artery and the aorta fails to close after birth.

Tetralogy of Fallot: cyanotic heart defect characterized by a ventricular septal defect, the aorta positioned over the ventricular septal defect, stenosis of the pulmonary valve, and hypertrophy of the right ventricles.

Down Syndrome: trisomy 21, which is the most common trisomy abnormality with 47 chromosomes in each cell