

COMPREHENSIVE MOCK EXAM 5

Supplemental to: Neonatology Board Review 2026-2027

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*American Board of Pediatrics (ABP) Neonatal-Perinatal Medicine Subspecialty Certification Examination —
200-question supplemental simulation, single-best-answer A–D format matching the parent book, with
comprehensive coverage of the current ABP Neonatal-Perinatal Medicine content domains*

Board-Review Questions

1. A 26-week infant develops grunting, retractions, and increasing oxygen need shortly after birth. Chest radiography shows diffuse reticulogranular opacities with low lung volumes. What is the principal pathophysiology?

- A. Fixed upper-airway obstruction
- B. Pulmonary surfactant deficiency
- C. Primary pulmonary venous congestion
- D. Delayed clearance of fetal lung fluid

2. A cyanotic newborn is suspected of having ductal-dependent congenital heart disease. Which medication should be started while the anatomy is being defined?

- A. Adenosine bolus
- B. Indomethacin therapy
- C. Prostaglandin E1 infusion
- D. Ibuprofen therapy

3. A stable 28-week infant is beginning enteral nutrition. When available and safe, which milk source is preferred because it reduces important preterm morbidities?

- A. Unfortified term formula as the default
- B. The infant's own mother's milk
- C. Sterile water followed by formula
- D. Cow milk designed for older infants

4. A newborn has hypotonia, upslanting palpebral fissures, a single transverse palmar crease, and an atrioventricular septal defect. Which diagnosis is most likely?

- A.** Trisomy 21
- B.** Turner syndrome
- C.** 22q11.2 deletion syndrome
- D.** Trisomy 13

5. A 25-week infant has a new grade III intraventricular hemorrhage on cranial ultrasonography. From which region does hemorrhage in extremely preterm infants commonly originate?

- A.** Hemorrhage centered in the choroid plexus
- B.** Hemorrhage centered in the cerebellar cortex
- C.** Hemorrhage arising from the germinal matrix
- D.** Hemorrhage centered in the corpus callosum

6. A 29-week infant is born after severe fetal growth restriction with absent end-diastolic flow in the umbilical artery. Placental pathology is most likely to show which process?

- A.** Acute chorioamnionitis
- B.** Maternal vascular malperfusion
- C.** Diffuse villous edema
- D.** Massive fetal thrombotic vasculopathy

7. A term infant develops respiratory distress, poor perfusion, and temperature instability 6 hours after birth. The mother had intrapartum fever and prolonged rupture of membranes. Which pathogen is a classic cause of early-onset neonatal sepsis?

- A. *Candida parapsilosis* after prolonged NICU stay
- B. Vertically acquired Group B streptococcal sepsis
- C. Respiratory syncytial virus from daycare exposure
- D. Coagulase-negative staphylococci from a central line

8. A 25-week infant has rising serum sodium and weight loss during the first days despite appropriate urine output. Which physiologic feature contributes most?

- A. Excess renal concentrating ability
- B. Markedly reduced glomerular filtration
- C. Increased renal free-water reabsorption
- D. High transepidermal and insensible water loss

9. An infant of a mother with diabetes develops symptomatic hypoglycemia shortly after birth. Which mechanism is most likely?

- A. Persistent neonatal hyperinsulinemia
- B. Primary glucagon excess
- C. Absent fetal glucose exposure
- D. Congenital cortisol overproduction

10. A term newborn is profoundly pale at birth with severe anemia, reticulocytosis, and no external bleeding. The maternal Kleihauer-Betke test shows a large fetal-cell burden. What is the most likely cause?

- A.** Iron deficiency from one missed feeding
- B.** Hemophilia without bleeding
- C.** Physiologic anemia of infancy
- D.** Massive fetomaternal hemorrhage

11. In a trial, bronchopulmonary dysplasia occurs in 20% of controls and 15% of treated infants. What is the absolute risk reduction?

- A.** Seventy-five percentage points
- B.** Twenty-five percentage points
- C.** Five percentage points
- D.** Thirty-five percentage points

12. A newly born term infant is apneic after the initial steps of resuscitation. The heart rate is 80/min. What is the next priority?

- A.** Start chest compressions immediately
- B.** Begin positive-pressure ventilation
- C.** Give intravenous epinephrine
- D.** Observe for spontaneous recovery

13. A 25-week infant with respiratory distress syndrome requires intubation because of increasing oxygen need despite noninvasive support. Which treatment directly addresses the underlying deficiency?

- A.** Inhaled nitric oxide for pulmonary vasodilation
- B.** Intratracheal exogenous surfactant
- C.** Prostaglandin E1 to maintain ductal patency
- D.** Loop diuretic therapy for pulmonary edema

14. A 27-week infant develops abdominal distention, bloody stools, temperature instability, and thrombocytopenia. Abdominal radiography shows pneumatosis intestinalis. What is the most likely diagnosis?

- A.** Hypertrophic pyloric stenosis
- B.** Meconium ileus
- C.** Hirschsprung disease
- D.** Necrotizing enterocolitis

15. Why does a 25-week infant have lower passive maternal IgG concentrations than a term infant?

- A.** Most placental IgG transfer occurs late in gestation
- B.** Higher fetal catabolism of maternal IgG
- C.** Lower maternal IgG synthesis during preterm labor
- D.** Urinary loss of IgG through immature kidneys

16. A former 28-week infant is assessed at 6 months chronologic age and was born 3 months early. Which age is most appropriate for interpreting early developmental milestones?

- A.** Gestational age of 28 weeks at birth
- B.** A standardized developmental age of 12 months
- C.** Corrected age of approximately 3 months
- D.** Chronologic age of 6 months without correction

17. A 27-week infant has a continuous murmur, bounding pulses, and a wide pulse pressure. Which diagnosis best explains these findings?

- A.** Coarctation with ductal closure
- B.** Critical pulmonary valve stenosis
- C.** Tetralogy of Fallot
- D.** Large left-to-right ductal shunt

18. Why are extremely preterm infants at risk for retinopathy of prematurity?

- A.** Accelerated retinal vascularization after early birth
- B.** Congenital infection disrupting retinal vessels
- C.** Maternal antibodies injuring retinal endothelium
- D.** Retinal vascular development is incomplete at preterm birth

19. A 27-week infant reaches full volumes of expressed human milk but has suboptimal protein and mineral intake. What nutritional modification is usually needed?

- A.** Increase feed volume without adding fortifier
- B.** Change to unfortified donor human milk
- C.** Fortify human milk with additional protein and minerals
- D.** Add carbohydrate without added protein or minerals

20. A term infant develops visible jaundice at 10 hours of age. What is the best interpretation?

- A.** Breastfeeding-associated jaundice from low intake
- B.** An early physiologic bilirubin rise
- C.** Observation without measuring bilirubin
- D.** Pathologic jaundice requiring prompt evaluation

21. A mechanically ventilated preterm infant receives excessively large tidal volumes despite modest peak pressures. Which form of ventilator-associated lung injury is most directly implicated?

- A.** Volutrauma from alveolar overdistention
- B.** Atelectrauma from repetitive alveolar collapse
- C.** Oxygen toxicity from excessive inspired oxygen
- D.** Biotrauma from inflammatory mediator release

22. A newborn has holoprosencephaly, cleft lip and palate, postaxial polydactyly, and severe growth restriction. Which chromosomal disorder is most likely?

- A.** Trisomy 13
- B.** Klinefelter syndrome
- C.** Williams syndrome
- D.** Trisomy 21

23. A term infant at 2 hours of age has moderate encephalopathy after a sentinel hypoxic-ischemic event and meets established eligibility criteria. Which therapy should be initiated promptly?

- A.** Delayed hypothermia beginning after the first day
- B.** Strict normothermia with supportive care
- C.** Prophylactic antiseizure medication without cooling
- D.** Prompt initiation of therapeutic hypothermia

24. A healthy term newborn develops scattered erythematous macules and papules with small central pustules on day 2. The infant is afebrile and feeding well. What is the most likely diagnosis?

- A.** Erythema toxicum neonatorum
- B.** Disseminated herpes simplex infection
- C.** Staphylococcal scalded skin syndrome
- D.** Congenital candidiasis with systemic illness

25. A pregnant patient at 29 weeks has preterm prelabor rupture of membranes and is expected to deliver within several days. Which antenatal intervention most directly lowers the newborn risk of respiratory distress syndrome?

- A.** Antenatal corticosteroid therapy
- B.** Latency antibiotics for membrane rupture
- C.** Magnesium sulfate for fetal neuroprotection
- D.** Short-term tocolysis to permit maternal transfer

26. A 24-week infant with a peripherally inserted central catheter develops sepsis at 4 weeks of age. Blood cultures repeatedly grow a skin commensal gram-positive coccus. Which organism is most likely?

- A.** Congenital *Toxoplasma gondii* infection
- B.** Coagulase-negative staphylococcal infection
- C.** Early-onset Group B streptococcal sepsis
- D.** Congenital *Treponema pallidum* infection

27. A very preterm infant is receiving gentamicin. Why are dosing intervals often longer than in older children?

- A.** Immature renal clearance prolongs drug elimination
- B.** Rapid hepatic metabolism of aminoglycosides
- C.** Pulmonary excretion of unchanged gentamicin
- D.** Increased extracellular volume as the main clearance pathway

28. A family presents in threatened labor at a gestational age near the local threshold of viability. Prognosis is uncertain and several reasonable care pathways exist. Which counseling approach is best?

- A.** Clinician-directed resuscitation based on gestational age
- B.** Parental choice without a balanced medical recommendation
- C.** Use individualized shared decision-making with the family
- D.** Defer all goals-of-care discussion until after delivery

29. A term infant has severe cyanosis. Echocardiography shows pulmonary atresia with an intact ventricular septum. Which circulation is necessary to maintain pulmonary blood flow initially?

- A.** A restrictive atrial septum
- B.** A closed foramen ovale
- C.** A patent ductus arteriosus
- D.** An intact ductus venosus

30. A ventilated preterm infant has diffuse atelectasis and low end-expiratory lung volume. Carbon dioxide is acceptable, but oxygenation is poor. Which ventilator adjustment most directly promotes alveolar recruitment?

- A.** Decrease positive end-expiratory pressure
- B.** Increase ventilator rate without changing lung volume
- C.** Shorten inspiratory time while keeping pressure unchanged
- D.** Increase positive end-expiratory pressure

31. A ventilated neonate with meningitis develops hyponatremia, low serum osmolality, inappropriately concentrated urine, and low urine output. Which disorder is most likely?

- A.** Nephrogenic diabetes insipidus
- B.** Osmotic diuresis from glucosuria
- C.** SIADH with inappropriate urine concentration
- D.** Central diabetes insipidus

32. A newborn has recurrent severe hypoglycemia. During a low glucose value, insulin is detectable and beta-hydroxybutyrate and free fatty acids are suppressed. Which diagnosis is most likely?

- A.** Congenital hyperinsulinism
- B.** Adrenal cortisol excess
- C.** Ketotic hypoglycemia
- D.** Untreated diabetes insipidus

33. A former 26-week infant at 5 weeks of age has a low hemoglobin concentration with an inappropriately modest reticulocyte response and frequent prior phlebotomy. Which diagnosis is most likely?

- A.** Hereditary spherocytosis with brisk hemolysis
- B.** Acute fetomaternal hemorrhage
- C.** Polycythemia from placental transfusion
- D.** Anemia of prematurity with low erythropoietin

34. A 25-week infant cannot receive adequate enteral nutrition during the first days after birth. Which parenteral component should generally be provided early to limit negative nitrogen balance?

- A.** Intravenous dextrose without amino acids
- B.** Intravenous lipid as the principal nitrogen source
- C.** Electrolyte solution without macronutrients
- D.** Early intravenous amino-acid provision

35. A therapy reduces the risk of a neonatal complication from 20% to 15%. What is the number needed to treat, using the absolute risk reduction?

- A.** One hundred
- B.** Five
- C.** Twenty
- D.** Ten

36. A growth-restricted newborn has a prominent occiput, micrognathia, clenched hands with overlapping fingers, and rocker-bottom feet. Which diagnosis is most likely?

- A.** Edwards syndrome (trisomy 18)
- B.** Down syndrome (trisomy 21)
- C.** Achondroplasia skeletal dysplasia
- D.** Beckwith-Wiedemann overgrowth syndrome

37. A term infant with hypoxic-ischemic encephalopathy has subtle recurrent lip smacking and eye deviation. Which test is best for determining whether these events are epileptic seizures?

- A.** Chest radiography
- B.** Continuous or prolonged EEG monitoring
- C.** Abdominal ultrasonography
- D.** Serum bilirubin concentration alone

- 38.** A ventilated neonate has a PaCO₂ of 72 mm Hg with adequate oxygenation and no evidence of air trapping. Which general change most directly lowers PaCO₂?
- A.** Reduce delivered tidal ventilation
 - B.** Decrease minute ventilation
 - C.** Increase effective alveolar ventilation
 - D.** Increase physiologic dead space
- 39.** A newborn has received 30 seconds of effective positive-pressure ventilation with visible chest movement, but the heart rate remains 50/min. What should be done next?
- A.** Continue ventilation alone for several more minutes
 - B.** Give epinephrine before beginning compressions
 - C.** Start coordinated chest compressions with ventilation
 - D.** Provide supplemental oxygen without compressions
- 40.** A newborn with hypoplastic left heart syndrome becomes gray and poorly perfused as the ductus arteriosus constricts. Which lesion best explains the deterioration?
- A.** Excess left-ventricular output
 - B.** Loss of ductal support for systemic blood flow
 - C.** Isolated tricuspid valve obstruction
 - D.** Loss of pulmonary venous return
- 41.** An infant with necrotizing enterocolitis suddenly deteriorates. Abdominal radiography shows free intraperitoneal air. What does this finding imply?
- A.** Severe intestinal ileus without perforation
 - B.** Pneumatosis confined to the bowel wall
 - C.** Portal venous gas without free perforation
 - D.** Pneumoperitoneum from intestinal perforation

42. A fetus is likely to be delivered at 27 weeks because of severe maternal preeclampsia. Which maternal medication is used before anticipated very preterm birth primarily for fetal neuroprotection?

- A.** Indomethacin administration
- B.** Furosemide administration
- C.** Magnesium sulfate infusion
- D.** Methylergonovine administration

43. A small-for-gestational-age newborn has petechiae, hepatosplenomegaly, thrombocytopenia, and periventricular calcifications. Which congenital infection is most likely?

- A.** Congenital rubella
- B.** Neonatal enterovirus infection
- C.** Congenital toxoplasmosis
- D.** Cytomegalovirus infection

44. A preterm infant on prolonged parenteral nutrition develops conjugated hyperbilirubinemia. Which strategy most directly helps reduce ongoing parenteral-nutrition-associated cholestasis when the gut is usable?

- A.** Increase the parenteral dextrose delivery rate
- B.** Increase soybean-based lipid exposure
- C.** Advance enteral feeding as tolerated
- D.** Prolong bowel rest despite a usable intestine

- 45.** A previously stable intubated infant suddenly becomes severely hypoxemic and bradycardic. Breath sounds are diminished and the ventilator shows poor delivered volume. What should be done first?
- A.** Assume sepsis and wait for cultures
 - B.** Rapidly assess tube, lungs, circuit, and equipment
 - C.** Increase enteral feeding volume
 - D.** Begin chronic diuretic therapy
- 46.** Which maternal immunoglobulin class normally crosses the placenta in clinically important amounts?
- A.** IgG
 - B.** IgA
 - C.** IgE
 - D.** IgM
- 47.** A 25-week infant is ready for discharge and has no major neurologic abnormality on examination. Which follow-up plan is most appropriate?
- A.** Avoid hearing and vision follow-up
 - B.** No developmental surveillance if the discharge examination is normal
 - C.** Wait until school failure occurs before screening
 - D.** High-risk developmental follow-up and early-intervention referral when indicated
- 48.** An infant develops treatment-requiring retinopathy of prematurity with high-risk retinal neovascular disease. Which therapy may be used to ablate the avascular peripheral retina?
- A.** Laser photocoagulation of avascular peripheral retina
 - B.** Intravitreal anti-VEGF injection without retinal ablation
 - C.** Cataract extraction to clear the visual axis
 - D.** Supplemental oxygen to promote retinal vessel growth

49. A neonate after severe hypoxic-ischemic injury develops polyuria, hypernatremia, and very dilute urine that concentrates after desmopressin. What is the diagnosis?

- A.** Acute glomerulonephritis
- B.** Renal salt retention
- C.** SIADH
- D.** Central diabetes insipidus

50. A newborn with dextro-transposition of the great arteries remains profoundly hypoxemic despite prostaglandin E1. Echocardiography shows very restrictive atrial-level mixing. What intervention is most likely to improve oxygenation promptly?

- A.** Pulmonary artery banding
- B.** Surgical ligation of the ductus
- C.** Indomethacin administration
- D.** Balloon atrial septostomy

51. A newborn has truncus arteriosus, hypocalcemia, and thymic hypoplasia. Which genetic diagnosis best unifies these findings?

- A.** Turner syndrome
- B.** 22q11.2 deletion syndrome
- C.** Fragile X syndrome
- D.** Tuberous sclerosis complex

52. A newborn has frequent electrographic seizures despite correction of glucose, calcium, and other reversible causes. Which medication has traditionally been used as a common first-line antiseizure agent in neonates?

- A. Adenosine
- B. Phenobarbital
- C. Indomethacin
- D. Caffeine

53. A 10-day-old infant has vomiting, dehydration, hyperkalemia, hyponatremia, and ambiguous genitalia. Which enzymatic disorder is most likely?

- A. Biotinidase deficiency
- B. Phenylalanine hydroxylase deficiency
- C. 21-hydroxylase deficiency
- D. Galactose-1-phosphate uridyltransferase deficiency

54. A small-for-gestational-age newborn is ruddy, lethargic, and hypoglycemic with a venous hematocrit of 69%. What disorder is present?

- A. Severe hemophilia A
- B. Autoimmune neutropenia
- C. Neonatal polycythemia
- D. Aplastic anemia

55. A screening test has very high sensitivity for a rare neonatal disorder. When the test result is negative, which inference is most justified?

- A. A negative result makes the disease less likely
- B. A negative result establishes absence with high confidence
- C. Predictive value is independent of disease prevalence
- D. A positive result is highly specific by definition

56. A 29-week infant has recurrent apnea with bradycardia after sepsis and metabolic causes have been excluded. Which medication is first-line pharmacologic therapy?

- A. Adenosine
- B. Caffeine citrate
- C. Prostaglandin E1
- D. Indomethacin

57. A healthy term infant loses 5% of birth weight by day 2, has normal urine output, and feeds well. What is the best interpretation?

- A. Early dehydration from inadequate milk transfer
- B. Expected early extracellular-fluid contraction
- C. Osmotic diuresis from neonatal hyperglycemia
- D. Renal salt wasting with volume depletion

58. Monochorionic diamniotic twins have marked discordance in amniotic fluid volume, with oligohydramnios in one sac and polyhydramnios in the other. What is the fundamental placental abnormality?

- A.** Independent placental abruption
- B.** Bilateral fetal renal agenesis
- C.** Unbalanced intertwin vascular anastomoses
- D.** Maternal uterine artery thrombosis

59. A newborn has hydrocephalus, chorioretinitis, and diffuse intracranial calcifications. Which congenital infection is most likely?

- A.** *Toxoplasma gondii* infection
- B.** Group B streptococcal sepsis
- C.** Cytomegalovirus infection
- D.** Congenital syphilis

60. A 5-day-old infant presents with shock, metabolic acidosis, cool legs, and markedly diminished femoral pulses. Which congenital lesion should be strongly suspected?

- A.** Small secundum atrial septal defect
- B.** Critical coarctation of the aorta
- C.** Mild pulmonary valve stenosis
- D.** Isolated patent foramen ovale

61. During neonatal resuscitation, chest compressions are required. Which compression-to-ventilation ratio is recommended for a primarily asphyxial newborn arrest?

- A.** Thirty compressions to two ventilations
- B.** One compression to three ventilations
- C.** Fifteen compressions to two ventilations
- D.** Three compressions to one ventilation

62. A term newborn develops sudden bilious vomiting and abdominal tenderness. Which diagnosis must be excluded urgently because bowel ischemia can progress rapidly?

- A.** Hypertrophic pyloric stenosis
- B.** Malrotation with midgut volvulus
- C.** Physiologic gastroesophageal reflux
- D.** Uncomplicated milk-protein intolerance

63. A term infant delivered by scheduled cesarean without labor develops tachypnea soon after birth. Radiography shows hyperinflation, perihilar streaking, and fluid in the fissures. What is the most likely diagnosis?

- A.** Surfactant-deficient respiratory distress syndrome
- B.** Congenital diaphragmatic hernia
- C.** Pulmonary interstitial emphysema
- D.** Transient tachypnea of the newborn

64. A large-for-gestational-age newborn has macroglossia, omphalocele, and recurrent hypoglycemia. Which syndrome is most likely?

- A.** Edwards syndrome (trisomy 18)
- B.** Cri-du-chat deletion syndrome
- C.** Beckwith-Wiedemann syndrome
- D.** Turner syndrome (monosomy X)

65. A term newborn develops recurrent focal clonic movements of the right arm at 12 hours of age. MRI later shows an acute left middle cerebral artery infarction. What diagnosis best describes the event?

- A.** Perinatal arterial ischemic stroke
- B.** Spinal muscular atrophy
- C.** Diffuse germinal-matrix hemorrhage
- D.** Benign neonatal sleep myoclonus

66. A newborn has rapidly rising unconjugated bilirubin, anemia, reticulocytosis, and a positive direct antiglobulin test. What mechanism is most likely?

- A.** Reduced hepatic bilirubin conjugation alone
- B.** Increased enterohepatic bilirubin recycling
- C.** Immune-mediated red-cell hemolysis
- D.** Extrahepatic obstruction causing cholestasis

67. A growing preterm infant receives adequate calories but persistently insufficient protein. Which growth component is most likely to be impaired?

- A.** Adipose tissue accretion
- B.** Expansion of total body water
- C.** Lean tissue accretion
- D.** Bone mineral deposition

68. A preterm infant has potassium 7.2 mmol/L and new QRS widening. What intervention is most urgent to reduce immediate arrhythmic risk?

- A.** Fluid restriction alone
- B.** Intravenous calcium gluconate
- C.** Enteral iron supplementation
- D.** Phototherapy

69. Newborn screening suggests primary congenital hypothyroidism in an asymptomatic infant. What is the key management principle?

- A.** Repeat thyroid testing after symptoms develop
- B.** Treat jaundice first and defer thyroid evaluation
- C.** Observe growth before deciding on hormone therapy
- D.** Prompt confirmation and early levothyroxine therapy

70. A term newborn has petechiae and an intracranial hemorrhage with a platelet count of 12,000/ μ L. The mother has a normal platelet count. Which diagnosis is most likely?

- A.** Vitamin K deficiency bleeding
- B.** Neonatal alloimmune thrombocytopenia
- C.** Hemophilia B
- D.** Maternal autoimmune thrombocytopenia

71. A confirmatory test has very high specificity. Which general inference is most justified when the result is positive in the proper clinical setting?

- A.** Disease prevalence has no effect on predictive value
- B.** A negative result is sufficient to exclude disease
- C.** A positive result strongly supports the diagnosis
- D.** High specificity implies equally high sensitivity

72. A term infant with meconium aspiration has patchy lung disease, air trapping, and severe hypoxemia. Which complication should be anticipated?

- A. Progressive atelectasis without air trapping
- B. Air leak and persistent pulmonary hypertension
- C. Low pulmonary resistance with left-to-right ductal flow
- D. Upper-airway obstruction causing inspiratory collapse

73. A ventilated preterm infant has hypotension, cool extremities, prolonged capillary refill, and echocardiographic evidence of poor ventricular systolic function. Which physiologic target is most directly addressed by an inotropic agent?

- A. Close the foramen ovale mechanically
- B. Lower hemoglobin oxygen affinity
- C. Increase blood viscosity
- D. Increase myocardial contractility and output

74. A neonate develops fever, irritability, diffuse tender erythema, superficial blistering, and a positive Nikolsky sign. Which diagnosis is most likely?

- A. Nevus simplex
- B. Scalded skin syndrome
- C. Erythema toxicum neonatorum
- D. Milia

75. A term infant of a mother with poorly controlled diabetes becomes jittery 1 hour after birth and has a plasma glucose of 24 mg/dL. What is the principal mechanism?

- A.** Persistent fetal hyperinsulinemia
- B.** Impaired placental glucose transport
- C.** Congenital cortisol excess
- D.** Absent pancreatic beta-cell mass

76. A newborn has cataracts, a patent ductus arteriosus, and sensorineural hearing loss. Which congenital infection is most likely?

- A.** Neonatal herpes simplex infection
- B.** Congenital listeriosis infection
- C.** Congenital rubella syndrome
- D.** Congenital toxoplasmosis infection

77. A newborn has respiratory depression after maternal opioid exposure near delivery. What is an important caution about using naloxone?

- A.** It can worsen ductal-dependent pulmonary blood flow
- B.** It reliably restores ventilation despite chronic opioid exposure
- C.** It directly reduces pulmonary surfactant activity
- D.** Acute withdrawal in an opioid-dependent infant

78. After extensive discussion, a family and clinical team choose comfort-focused care for an infant with a lethal condition. Which statement best describes appropriate care?

- A.** Withhold analgesia so neurologic status remains observable
- B.** Limit parental holding to reduce physiologic stress
- C.** Avoid oral care because nutrition is no longer curative
- D.** Comfort care remains active, skilled medical care

79. A female newborn has diffuse lymphedema of the hands and feet, a webbed neck, and left-sided obstructive heart disease. Which chromosomal disorder is most likely?

- A.** Trisomy 13
- B.** Prader-Willi syndrome
- C.** Turner syndrome
- D.** Klinefelter syndrome

80. A term newborn with persistent pulmonary hypertension has severe hypoxemic respiratory failure despite optimized ventilation, and echocardiography confirms elevated pulmonary pressures without structural ductal-dependent heart disease. Which selective pulmonary vasodilator may be appropriate?

- A.** Oral caffeine
- B.** Inhaled nitrogen
- C.** Intravenous indomethacin
- D.** Inhaled nitric oxide

81. A former 27-week infant has cystic periventricular white-matter injury and later develops increased lower-extremity tone more than upper-extremity tone. Which motor pattern is most likely?

- A.** Flaccid quadriplegia from peripheral neuropathy
- B.** Isolated facial palsy
- C.** Pure athetosis without spasticity
- D.** Spastic diplegic cerebral palsy

82. A former 25-week infant has elevated alkaline phosphatase, low serum phosphorus, and radiographic demineralization. Which nutritional problem is most likely?

- A.** Iron overload from breast milk
- B.** Excessive sodium deposition in bone
- C.** Metabolic bone disease of prematurity
- D.** Vitamin K toxicity

83. A very preterm infant develops late-onset sepsis despite no known primary immunodeficiency. Which innate immune limitation contributes to susceptibility?

- A.** Partial DiGeorge syndrome with thymic hypoplasia
- B.** Transient lymphopenia associated with critical illness
- C.** Excess mature neutrophil storage pools
- D.** Chronic granulomatous disease affecting phagocytes

84. A term infant with meconium aspiration has severe hypoxemia. Echocardiography shows pulmonary hypertension with right-to-left flow across the ductus arteriosus. What mechanism is driving the hypoxemia?

- A.** Low systemic resistance as the primary abnormality
- B.** Persistently elevated pulmonary vascular resistance
- C.** Low pulmonary resistance with left-to-right shunting
- D.** Pulmonary venous congestion without elevated arterial resistance

85. A former extremely preterm infant has a normal developmental screen at 9 months corrected age. How should this result be interpreted?

- A.** It eliminates the need for future screening
- B.** The screen excludes important motor disability
- C.** It guarantees normal school performance
- D.** Future screening can be deferred unless concerns emerge

86. A newborn has severe respiratory distress that improves when crying and worsens when the mouth is closed. A catheter cannot be passed through either nostril. Which diagnosis is most likely?

- A.** Tracheoesophageal fistula
- B.** Laryngomalacia
- C.** Bilateral choanal atresia
- D.** Unilateral vocal cord paresis

87. A newborn remains profoundly bradycardic despite effective ventilation and coordinated chest compressions. Vascular access is needed for epinephrine. Which route is preferred in the delivery room?

- A.** Intramuscular injection into the thigh
- B.** Intravenous access through the umbilical vein
- C.** Subcutaneous injection into the abdomen
- D.** Intra-arterial injection through the umbilical artery

88. A term infant is born with severe respiratory distress and a scaphoid abdomen. Prenatal imaging suggested a left congenital diaphragmatic hernia. What is the preferred initial respiratory strategy?

- A.** Intubate and decompress the stomach
- B.** Delay airway support for radiography
- C.** Begin oral feeding to reduce gastric air
- D.** Provide vigorous bag-mask ventilation

89. A newborn has excessive oral secretions, coughing and cyanosis with the first feeding, and an orogastric tube cannot be advanced into the stomach. Which anomaly is most likely?

- A.** Imperforate anus without fistulous connection
- B.** Esophageal atresia with distal TE fistula
- C.** Congenital duodenal atresia obstruction
- D.** Aganglionic Hirschsprung bowel disease

90. A term infant has severe perinatal asphyxia followed by oliguria and rising creatinine. Which renal injury is most likely?

- A.** Congenital nephrotic syndrome
- B.** Isolated renal glucosuria
- C.** Ischemic acute kidney injury
- D.** Congenital obstructive nephropathy

91. An infant of a mother with diabetes develops jitteriness on day 2 despite a normal glucose level. Which electrolyte abnormality is more common in this population?

- A.** Persistent neonatal hypernatremia
- B.** Neonatal hypocalcemia
- C.** Obligate neonatal hypermagnesemia
- D.** Severe neonatal hypercalcemia

92. A male newborn has persistent bleeding after circumcision. Platelet count and prothrombin time are normal, but the activated partial thromboplastin time is prolonged. Which diagnosis is most likely?

- A.** Disseminated intravascular coagulation
- B.** Immune thrombocytopenia
- C.** Factor VIII or IX deficiency (hemophilia)
- D.** Vitamin K deficiency with prolonged PT first

93. An observational study finds that antenatal corticosteroid exposure is associated with lower mortality in preterm infants, but exposed infants were also generally more mature at birth. Gestational age is an example of what?

- A.** A potential confounder
- B.** A randomization mechanism
- C.** A blinded outcome measure
- D.** A placebo effect

94. A hydropic fetus has severe anemia after maternal parvovirus B19 infection. Which fetal cell population is the major target of the virus?

- A.** Hepatic Kupffer cells
- B.** Pancreatic beta cells
- C.** Erythroid precursor cells
- D.** Mature neutrophils

95. A 10-day-old infant has clustered vesicular lesions and focal seizures. Neonatal herpes simplex virus infection is strongly suspected. What treatment should be started promptly?

- A.** Topical antifungal therapy alone
- B.** Intravenous acyclovir
- C.** Oral amoxicillin alone
- D.** Intramuscular palivizumab

96. A term infant has rhizomelic shortening of the limbs, macrocephaly, and frontal bossing. Which diagnosis is most likely?

- A.** Osteogenesis imperfecta
- B.** Thanatophoric skeletal dysplasia
- C.** Marfan syndrome
- D.** Achondroplasia

97. A newborn has profound hypotonia, weak cry, absent deep-tendon reflexes, and tongue fasciculations but is alert. Which localization is most likely?

- A.** Lower motor neuron disorder
- B.** Isolated cerebellar lesion
- C.** Primary visual-cortex injury
- D.** Upper motor neuron spasticity

98. A 34-week infant has recurrent bradycardia and desaturation during bottle feeding but is stable between feeds. Which developmental limitation is most likely?

- A.** Severe bronchopulmonary dysplasia limiting reserve
- B.** Laryngomalacia with dynamic airway obstruction
- C.** Primary intestinal malrotation
- D.** Esophageal dysmotility causing post-feed reflux

99. A newborn has an oxygen saturation of 96% in the right hand and 82% in a foot. Echocardiography shows right-to-left ductal shunting. How should the saturation difference be interpreted?

- A.** Preductal blood contains more desaturated ductal flow
- B.** The right hand is supplied from the descending aorta
- C.** The right hand is supplied by the descending aorta
- D.** An atrial-level shunt alone explains the limb difference

100. A former 25-week infant remains dependent on supplemental oxygen at 36 weeks postmenstrual age after a prolonged course of respiratory support. Which chronic lung disorder is most likely?

- A.** Persistent pulmonary interstitial emphysema
- B.** Acute foreign-body aspiration
- C.** Chronic aspiration-related lung disease
- D.** Postinfectious bronchiolitis obliterans

101. A ventilated preterm infant suddenly develops hypotension, severe desaturation, asymmetric chest movement, and absent breath sounds on the right. Transillumination is strongly positive on the right. What is the priority?

- A.** Give surfactant without addressing the air leak
- B.** Wait for a formal chest radiograph
- C.** Immediate decompression of a tension pneumothorax
- D.** Increase enteral fluid intake

102. A very preterm infant with a large patent ductus arteriosus develops increasing abdominal distention and reduced urine output. Which hemodynamic effect contributes to these findings?

- A.** Diastolic runoff with systemic organ hypoperfusion
- B.** Pulmonary venous obstruction reducing left-heart preload
- C.** Increased left-ventricular afterload from arch obstruction
- D.** Reduced pulmonary blood flow from ductal constriction

103. A very preterm infant is recovering from critical illness. Why is gradual enteral feeding desirable when clinically safe?

- A.** It supports intestinal adaptation and reduces parenteral exposure
- B.** It prevents feeding intolerance from developing
- C.** It makes protein fortification unnecessary
- D.** It permits avoidance of nutrient fortification

104. A newborn has multiple fractures after a nontraumatic delivery, blue sclerae, and generalized osteopenia. A defect in which protein is most likely?

- A.** Type IV collagen
- B.** Dystrophin
- C.** Type I collagen
- D.** Fibrillin-1

105. A 4-day-old infant becomes lethargic with vomiting and tachypnea. Ammonia is extremely elevated. What is the immediate principle of management?

- A.** Wait for genetic confirmation before therapy
- B.** Treat hyperammonemia as a metabolic emergency
- C.** Increase protein intake immediately
- D.** Assume the value is benign in neonates

106. A fetus has prolonged severe oligohydramnios beginning early in gestation because of bilateral renal agenesis. Which neonatal complication is the most direct consequence?

- A.** Persistent fetal polycythemia
- B.** Hypertrophic cardiomyopathy
- C.** Surfactant overproduction
- D.** Pulmonary hypoplasia

107. A newborn has snuffles, hepatosplenomegaly, generalized lymphadenopathy, and a diffuse rash involving palms and soles. Which congenital infection is most likely?

- A.** Congenital *Treponema pallidum* infection
- B.** Disseminated neonatal herpes simplex infection
- C.** Congenital cytomegalovirus infection
- D.** Congenital rubella syndrome

108. A male newborn has a distended bladder, poor urinary stream, bilateral hydronephrosis, and a thick-walled bladder. Which diagnosis is most likely?

- A.** Multicystic dysplastic kidney
- B.** Renal vein thrombosis
- C.** Posterior urethral valves
- D.** Urachal sinus without obstruction

109. A newborn becomes jaundiced and septic after milk feeding; blood culture grows *Escherichia coli*. The infant also has hepatomegaly and reducing substances in urine. Which metabolic disease is most likely?

- A.** Classic galactosemia
- B.** Phenylketonuria
- C.** Medium-chain acyl-CoA dehydrogenase deficiency
- D.** Maple syrup urine disease

110. A septic neonate has diffuse bleeding from venipuncture sites, thrombocytopenia, prolonged PT and aPTT, and low fibrinogen. Which disorder is most likely?

- A.** Disseminated intravascular coagulation
- B.** Physiologic anemia of infancy
- C.** Isolated hemophilia A
- D.** Fetal-neonatal alloimmune thrombocytopenia

111. In a randomized trial, several participants do not receive their assigned treatment. Which analysis best preserves the benefits of randomization?

- A.** Per-protocol analysis of adherent participants
- B.** As-treated analysis based on therapy received
- C.** Analyze by original randomized assignment
- D.** Complete-case analysis excluding missing outcomes

112. A vigorous 35-week infant is born after an uncomplicated delivery and does not require resuscitation. Which cord-management strategy is generally appropriate?

- A.** Milk the cord repeatedly regardless of condition
- B.** Immediate clamping to obtain routine cord blood gases
- C.** Delay cord clamping for a brief interval
- D.** Umbilical cord milking as a substitute for delayed clamping

113. A very preterm infant receiving positive-pressure ventilation develops multiple linear and cystic radiolucencies extending from the hila through the lung fields. What is the most likely diagnosis?

- A.** Pulmonary sequestration
- B.** Transient tachypnea of the newborn
- C.** Pleural effusion
- D.** Pulmonary interstitial emphysema

114. A newborn with trisomy 21 develops bilious vomiting. Radiography shows a classic double-bubble sign with little distal bowel gas. Which lesion is most likely?

- A.** Duodenal atresia
- B.** Hypertrophic pyloric stenosis
- C.** Hirschsprung disease
- D.** Gastroesophageal reflux

115. A 2-month-old infant has persistent thrush, severe viral infection, lymphopenia, and poor growth. Which immune disorder should be urgently considered?

- A.** Transient hypogammaglobulinemia of infancy
- B.** Severe combined immunodeficiency
- C.** Benign eosinophilia of prematurity
- D.** Isolated transient neonatal neutrophilia

116. A school-age child born at 25 weeks has normal gross motor function but struggles with attention, processing speed, and executive tasks. Which statement is most accurate?

- A.** Preterm neurodevelopmental morbidity can occur without cerebral palsy
- B.** Cognitive risk is confined to children with cerebral palsy
- C.** Normal motor function excludes cognitive risk
- D.** Learning problems generally require a history of seizures

117. A stable neonate has a regular narrow-complex tachycardia at 260/min that does not vary with stimulation. Vagal maneuvers fail. Which medication is appropriate next?

- A.** Synchronized cardioversion despite stable perfusion
- B.** Oral propranolol as immediate conversion therapy
- C.** Rapid intravenous adenosine
- D.** Continuous prostaglandin E1 infusion

118. A preterm infant does not pass automated auditory brainstem response screening before discharge. What should happen next?

- A.** Arrange timely diagnostic audiologic evaluation
- B.** Wait until speech delay appears
- C.** Avoid repeat or diagnostic testing
- D.** Assume hearing is normal because prematurity explains the result

119. A 26-week infant is primarily human-milk fed. Why is iron supplementation commonly needed during infancy?

- A.** Iron is unnecessary for erythropoiesis after birth
- B.** Human milk contains toxic excess iron
- C.** Prematurity causes permanent iron malabsorption
- D.** Preterm birth interrupts third-trimester iron accretion

120. A preterm infant is placed on high-frequency oscillatory ventilation for severe diffuse lung disease. Which setting is most closely related to lung recruitment and oxygenation?

- A.** Oscillatory frequency alone
- B.** Oscillatory amplitude
- C.** Oscillatory frequency
- D.** Inspiratory-to-expiratory timing

121. A newborn has micrognathia, glossoptosis, and a U-shaped cleft palate. What is the best description of this pattern?

- A.** Pierre Robin sequence
- B.** CHARGE syndrome
- C.** Beckwith-Wiedemann syndrome
- D.** VACTERL association

122. A cooled term infant with hypoxic-ischemic encephalopathy undergoes brain imaging during the first week. Which modality is most sensitive for defining the pattern of acute ischemic brain injury?

- A.** Cranial ultrasonography through the fontanelle
- B.** Brain MRI with diffusion imaging
- C.** Noncontrast computed tomography of the head
- D.** Amplitude-integrated EEG monitoring

123. A 3-week-old infant has persistent jaundice, pale stools, dark urine, and elevated direct bilirubin. Which diagnosis requires urgent evaluation?

- A.** Physiologic jaundice
- B.** Breast-milk jaundice alone
- C.** Gilbert syndrome
- D.** Biliary atresia

124. An extremely preterm infant develops sharply demarcated skin injury beneath pooled chlorhexidine after line placement. What is the most likely mechanism?

- A.** Congenital viral cytolysis
- B.** Normal epidermal maturation
- C.** Autoimmune blistering from maternal antibodies
- D.** Chemical injury through an immature skin barrier

125. A pregnant patient receives prolonged indomethacin therapy late in gestation. Which fetal cardiovascular effect is most concerning?

- A.** Isolated coronary artery dilation
- B.** Fetal sinus bradycardia from nodal suppression
- C.** Increased pulmonary arterial flow in utero
- D.** Premature restriction of the foramen ovale

126. A term infant is born to a mother known to be hepatitis B surface antigen positive. What prophylaxis should the newborn receive promptly after birth?

- A.** Hepatitis B vaccine alone after one year
- B.** Hepatitis B immune globulin without vaccine
- C.** Hepatitis B vaccine plus hepatitis B immune globulin
- D.** No prophylaxis if the infant appears well

127. Indomethacin can promote closure of a patent ductus arteriosus primarily by which mechanism?

- A.** Nitric oxide donation dilates the ductus
- B.** Beta-adrenergic agonism constricts pulmonary veins
- C.** Cyclooxygenase inhibition reduces prostaglandin synthesis
- D.** Adenosine receptor stimulation increases prostaglandins

128. Parents refuse an urgently needed blood transfusion for a critically bleeding newborn because of religious beliefs, and delay would pose a high risk of death. Which ethical principle most directly guides the team?

- A.** The physician should conceal the need for transfusion
- B.** Defer to parental refusal despite imminent lethal risk
- C.** Wait for a court order before any emergency stabilization
- D.** Transfer the infant without providing temporizing care

129. A newborn with congenital complete heart block has a ventricular rate of 45/min with hypotension and poor perfusion despite initial medical support. What definitive therapy is most likely needed?

- A.** Temporary or permanent cardiac pacing
- B.** Ductus arteriosus ligation
- C.** Balloon atrial septostomy
- D.** Pulmonary vasodilator therapy

130. A neonate on high-frequency oscillatory ventilation has persistent hypercapnia with adequate lung recruitment. Which adjustment generally increases carbon dioxide removal?

- A.** Increase mean airway pressure while leaving amplitude fixed
- B.** Increase oscillatory frequency substantially
- C.** Decrease oscillatory amplitude
- D.** Lower amplitude substantially

131. Prenatal ultrasonography shows one kidney replaced by multiple noncommunicating cysts with no identifiable normal parenchyma; the contralateral kidney is normal. What is the most likely diagnosis?

- A.** Posterior urethral valves
- B.** Autosomal recessive polycystic kidney disease
- C.** Bilateral renal agenesis
- D.** Multicystic dysplastic kidney

132. A neonate develops poor feeding, lethargy, abnormal tone, and urine with a characteristic sweet odor. Which disorder is most likely?

- A.** Galactosemia
- B.** Congenital hypothyroidism
- C.** Maple syrup urine disease
- D.** Ornithine transcarbamylase deficiency

133. A type O mother has a type A newborn with jaundice, anemia, reticulocytosis, and a positive direct antiglobulin test. Which antibody class mediates clinically important ABO hemolysis?

- A.** Maternal IgG antibodies
- B.** Fetal secretory IgA
- C.** Maternal IgE antibodies
- D.** Maternal IgM antibodies

134. A 900-g infant on parenteral nutrition has persistent glucose concentrations above the unit target. Which prescription should be reviewed first?

- A.** The intravenous lipid infusion rate
- B.** The parenteral amino-acid infusion rate
- C.** The phototherapy irradiance
- D.** The enteral carbohydrate delivery rate

135. A NICU tracks central-line infections monthly on a statistical process-control chart. Eight consecutive points appear above the center line after a practice change. What does this most suggest?

- A.** Expected common-cause variation around a stable mean
- B.** A nonrandom process shift or special-cause variation
- C.** A reason to widen control limits until the points fit
- D.** A signal that requires no process investigation

136. A newborn has vertebral anomalies, an imperforate anus, a ventricular septal defect, tracheoesophageal fistula, renal anomalies, and radial hypoplasia. Which association is most likely?

- A.** Noonan syndrome
- B.** Williams syndrome
- C.** VACTERL association
- D.** Pierre Robin sequence

137. A 25-week infant had a severe intraventricular hemorrhage. Serial head circumference increases rapidly and ultrasonography shows progressive ventricular enlargement. Which complication is developing?

- A.** Premature closure of the fontanelle
- B.** Craniosynostosis
- C.** Posthemorrhagic ventricular dilation
- D.** Isolated benign macrocephaly

138. A 30-week infant develops respiratory distress within minutes of birth. Which finding favors surfactant-deficient RDS over transient tachypnea?

- A.** Hyperinflation with fluid in fissures
- B.** Rapid resolution within several hours
- C.** Prominent perihilar vascular streaking
- D.** Low lung volumes with diffuse granular opacities

139. During positive-pressure ventilation of a bradycardic newborn, which finding most strongly indicates that ventilation is effective?

- A.** Persistent absent breath sounds
- B.** A rising heart rate with visible chest movement
- C.** Progressive abdominal distention alone
- D.** Increasing peripheral cyanosis alone

140. A 25-week infant has a patent ductus arteriosus on echocardiography but is on minimal respiratory support with stable perfusion and urine output. Which principle should guide treatment?

- A.** Treat based principally on gestational age
- B.** Treat based principally on ductal diameter
- C.** Treat based principally on murmur intensity
- D.** Base treatment on hemodynamic and clinical significance

141. A term newborn has marked abdominal distention and has not passed meconium by 48 hours. Rectal examination produces an explosive passage of stool and gas. Which diagnosis is most likely?

- A.** Hirschsprung disease
- B.** Necrotizing enterocolitis
- C.** Pyloric stenosis
- D.** Esophageal atresia

142. A fetus has persistent bradycardia at 55 beats/min. The mother has systemic lupus erythematosus and anti-Ro/SSA antibodies. What is the most likely diagnosis?

- A.** Transient sinus tachycardia
- B.** Premature atrial contractions
- C.** Congenital complete heart block
- D.** Fetal supraventricular tachycardia

143. A neonate with suspected late-onset sepsis is hemodynamically stable enough for lumbar puncture and has no contraindication. Why is cerebrospinal fluid evaluation important?

- A.** Lumbar puncture treats bacteremia directly
- B.** Meningitis may occur without a positive blood culture
- C.** Blood culture sensitivity is sufficient to exclude meningitis
- D.** A negative blood culture makes CNS infection unlikely enough to ignore

144. A preterm infant receiving prolonged parenteral nutrition develops a rising direct bilirubin concentration. Which laboratory pattern defines the hepatic problem?

- A.** Predominantly unconjugated hyperbilirubinemia
- B.** Low serum bicarbonate without bilirubin change
- C.** Conjugated hyperbilirubinemia
- D.** Isolated anemia without evidence of cholestasis

145. A preterm infant repeatedly coughs, desaturates, and develops wet respirations during oral feeds but is otherwise stable. What problem should be evaluated?

- A.** Primary surfactant deficiency
- B.** Oropharyngeal dysphagia with aspiration
- C.** Critical ductal-dependent systemic flow
- D.** Isolated apnea of prematurity during sleep

146. Placental transfer of maternal IgG depends primarily on which mechanism?

- A.** Transfer through fetal swallowing of amniotic fluid
- B.** Passive filtration of intact IgM
- C.** Fc receptor-mediated active transport
- D.** Direct fetal synthesis of maternal antibodies

147. Parents ask whether a single term-equivalent MRI can predict their preterm infant's exact future IQ. What is the best response?

- A.** MRI refines prognosis but cannot predict an exact outcome
- B.** MRI can assign a precise future cognitive percentile
- C.** A normal MRI predicts typical school performance
- D.** Structural MRI has little role in risk stratification

148. A newborn with Pierre Robin sequence has mild upper-airway obstruction that improves when prone under monitored inpatient conditions. Which initial principle is reasonable for mild disease?

- A.** Place a nasopharyngeal airway as the first step in mild disease
- B.** Proceed directly to mandibular distraction surgery
- C.** Perform tracheostomy before a positional trial
- D.** Use positional airway management with close monitoring

149. A neonate has persistent non-anion-gap metabolic acidosis with inappropriately high urinary pH despite otherwise stable perfusion. Which category of disorder should be considered?

- A.** Renal tubular acidosis
- B.** Isolated unconjugated hyperbilirubinemia
- C.** Respiratory alkalosis
- D.** Lactic acidosis from shock

150. A cyanotic infant with tetralogy of Fallot becomes acutely more cyanotic while crying. Which change worsens the right-to-left shunt across the ventricular septal defect?

- A.** An increase in systemic vascular resistance
- B.** A fall in systemic vascular resistance
- C.** A decrease in right-ventricular outflow obstruction
- D.** An increase in pulmonary blood flow

151. A newborn has coloboma, congenital heart disease, choanal atresia, genital hypoplasia, and ear anomalies. Which syndrome is most likely?

- A.** CHARGE syndrome
- B.** Trisomy 21
- C.** Beckwith-Wiedemann syndrome
- D.** Turner syndrome

152. After a difficult vacuum-assisted delivery, a newborn becomes pale and tachycardic. The scalp is diffusely boggy and swelling crosses suture lines. Which diagnosis is most concerning?

- A.** Subcutaneous fat necrosis
- B.** Cephalohematoma
- C.** Caput succedaneum from scalp edema
- D.** Subgaleal hemorrhage

153. A 3-day-old male infant develops lethargy, vomiting, respiratory alkalosis, and a very high plasma ammonia concentration with no major metabolic acidosis. Which disorder category is most likely?

- A.** Organic acidemia with marked ketoacidosis
- B.** A neonatal urea-cycle defect
- C.** Congenital chloride diarrhea
- D.** Isolated renal tubular acidosis

154. An unsensitized Rh-negative pregnant patient receives Rh immune globulin at recommended times. What is the principal purpose?

- A.** Increase fetal platelet production
- B.** Close the fetal ductus arteriosus
- C.** Prevent maternal RhD alloimmunization
- D.** Treat fetal anemia after it occurs

155. A NICU team tests a new handoff checklist on one shift, reviews problems the next morning, revises it, and tests the new version. Which quality-improvement method does this illustrate?

- A.** Root-cause analysis after a sentinel event
- B.** A prospective observational cohort study
- C.** A randomized controlled efficacy trial
- D.** Plan-Do-Study-Act cycles

156. A former 24-week infant with bronchopulmonary dysplasia is being prepared for discharge. Which follow-up issue is especially important?

- A.** Use routine follow-up without added respiratory surveillance
- B.** Stop respiratory follow-up once home oxygen is discontinued
- C.** Defer developmental surveillance until school age
- D.** Monitor respiratory morbidity and growth after discharge

157. Parents ask why their 27-week infant needs human-milk fortifier if breast milk is preferred. What is the best explanation?

- A.** Increase unfortified milk volume to meet protein needs
- B.** Fortification meets high preterm nutrient needs
- C.** Switch from maternal milk to standard term formula
- D.** Use unfortified donor milk at the same volume

158. A term infant is pale and hypotensive after an acute placental abruption with major fetomaternal blood loss. Which initial pathophysiologic problem is most likely to compound the risk of hypoxic-ischemic injury?

- A.** Excess pulmonary blood flow
- B.** Chronic systemic hypertension
- C.** Acute intravascular volume depletion
- D.** Primary hyperviscosity syndrome

159. A very preterm infant has candidemia. In addition to antifungal treatment and attention to vascular access, why is evaluation for dissemination important?

- A.** Candida can seed the eye, CNS, kidney, and other organs
- B.** Catheter colonization is the principal concern after cultures clear
- C.** A negative urine culture excludes invasive fungal foci
- D.** Dissemination is uncommon enough to forgo organ assessment

160. A newborn has massive cardiomegaly, severe tricuspid regurgitation, and an atrialized portion of the right ventricle. Which lesion is most likely?

- A.** Ebstein anomaly of the tricuspid valve
- B.** Total anomalous pulmonary venous return
- C.** Complete atrioventricular septal defect
- D.** Truncus arteriosus

161. A nonvigorous term infant is born through meconium-stained fluid and remains apneic with a heart rate of 80/min after initial steps. What is the best immediate action?

- A.** Start chest compressions before ventilation
- B.** Begin effective positive-pressure ventilation
- C.** Intubate for tracheal suctioning before providing ventilation
- D.** Delay ventilation while performing chest physiotherapy

162. A newborn has abdominal distention and failure to pass meconium. Contrast enema shows a microcolon with inspissated pellets in the terminal ileum. Which underlying disease should be considered?

- A.** Cystic fibrosis
- B.** Hirschsprung disease
- C.** Congenital hypothyroidism
- D.** Small-left-colon syndrome

163. A 3-week-old term infant has inspiratory stridor that is worse when supine and with feeding, but oxygenation and growth are preserved. Flexible laryngoscopy shows supraglottic collapse during inspiration. What is the diagnosis?

- A.** Vocal cord paralysis with fixed glottis
- B.** Tracheoesophageal fistula
- C.** Bilateral choanal atresia
- D.** Dynamic supraglottic collapse (laryngomalacia)

164. A neonate has multiple congenital anomalies. Which genomic test is specifically designed to survey the genome for submicroscopic copy-number gains and losses at higher resolution than a conventional karyotype?

- A.** Targeted single-gene sequencing
- B.** Conventional chromosome karyotype
- C.** Chromosomal microarray analysis
- D.** Routine state newborn metabolic screening

165. A newborn has a firm parietal scalp swelling that does not cross suture lines and appears several hours after birth. Which diagnosis is most likely?

- A.** Subgaleal hemorrhage
- B.** Caput succedaneum from scalp edema
- C.** Encephalocele
- D.** Cephalohematoma

- 166.** Why can severe unconjugated hyperbilirubinemia injure the neonatal brain?
- A.** Unbound bilirubin can cross the blood-brain barrier
 - B.** Bilirubin directly blocks renal filtration first
 - C.** Albumin-bound bilirubin freely enters neurons
 - D.** Conjugated bilirubin preferentially enters basal ganglia
- 167.** A critically ill preterm infant is growing poorly despite apparently adequate ordered calories. Which factor can increase true energy requirements or reduce delivered nutrition?
- A.** A healed umbilical cord stump
 - B.** A closed ductus venosus after birth
 - C.** Normal physiologic diuresis alone
 - D.** Illness-related expenditure and interrupted feeding
- 168.** A preterm infant receives indomethacin for a hemodynamically significant patent ductus arteriosus and then has reduced urine output. What mechanism best explains the renal effect?
- A.** Reduced prostaglandin-mediated renal vasodilation
 - B.** Direct stimulation of renal erythropoietin
 - C.** Increased renal nitric oxide synthesis
 - D.** Selective dilation of the afferent arteriole
- 169.** An extremely preterm infant is placed wet under a radiant warmer in a cool delivery room. Which mechanism causes particularly rapid heat loss immediately after birth?
- A.** Conductive warming by the mattress
 - B.** Reduced surface-area-to-mass ratio
 - C.** Evaporation from wet skin
 - D.** Endogenous heat production from brown fat

170. A newborn has a solid adrenal-region mass with elevated urinary catecholamine metabolites. Which tumor is most likely?

- A.** Retinoblastoma
- B.** Wilms tumor
- C.** Hepatoblastoma
- D.** Neuroblastoma

171. A randomized trial reports a relative risk of death of 0.70 with a 95% confidence interval of 0.45 to 1.10. Which interpretation is best?

- A.** The result is statistically significant for mortality benefit
- B.** The result is statistically significant for mortality harm
- C.** The interval establishes therapeutic equivalence
- D.** No statistical significance because the interval includes 1.0

172. A very preterm infant requires supplemental oxygen. Why should unnecessary hyperoxia be avoided?

- A.** It eliminates bronchopulmonary dysplasia risk
- B.** It permanently lowers pulmonary vascular resistance
- C.** It contributes to oxidative injury in lung and retina
- D.** It reliably prevents retinopathy of prematurity

173. A term infant with a large ventricular septal defect is initially asymptomatic but develops tachypnea and poor weight gain several weeks later. Why do symptoms often become more prominent after the newborn period?

- A.** Pulmonary blood flow progressively disappears
- B.** Systemic vascular resistance falls to fetal levels
- C.** Pulmonary vascular resistance falls after birth
- D.** The ductus venosus reopens

174. A newborn has a large segmental facial infantile hemangioma involving the upper face. Why may additional evaluation be needed?

- A.** The lesion suggests an underlying venous malformation syndrome
- B.** Segmental facial hemangioma with associated anomalies
- C.** The lesion predicts a consumptive coagulopathy in infancy
- D.** The lesion is characteristic of congenital infection

175. A growth-restricted fetus has a low middle cerebral artery pulsatility index during Doppler surveillance. What physiologic adaptation does this finding represent?

- A.** Cerebral vasodilation with blood-flow redistribution
- B.** Increased placental vascular resistance alone
- C.** Closure of the fetal ductus arteriosus
- D.** Cerebral vasoconstriction from hyperoxia

176. A 6-week-old infant has sensorineural hearing loss and a positive CMV PCR from saliva. Why is documentation of CMV infection in the first weeks of life important?

- A.** It makes neurodevelopmental follow-up unnecessary
- B.** It establishes whether CMV fully explains the hearing loss
- C.** It helps distinguish congenital from postnatal infection
- D.** It removes the need for confirmatory urine testing

177. Caffeine reduces apnea of prematurity primarily through which pharmacologic action?

- A.** Adenosine receptor antagonism
- B.** Cyclooxygenase inhibition
- C.** Dopamine depletion
- D.** Prostaglandin E receptor agonism

178. A family with limited English proficiency must make a high-stakes decision about neonatal surgery. What communication strategy is preferred?

- A.** Use gestures alone for informed consent
- B.** Avoid discussing risks because translation takes time
- C.** Rely on a minor sibling to interpret
- D.** Use a qualified medical interpreter

179. A woman is a known carrier of an X-linked recessive disorder. The father is unaffected. For each male pregnancy, what is the probability that the son will inherit the pathogenic maternal allele?

- A.** One hundred percent
- B.** Twenty-five percent
- C.** Fifty percent
- D.** Seventy-five percent

180. A cyanotic newborn has a PaO₂ of 45 mm Hg and a hemoglobin concentration of 21 g/dL. Which component contributes most to arterial oxygen content?

- A.** Oxygen bound to hemoglobin
- B.** Dissolved oxygen in plasma
- C.** Bicarbonate concentration
- D.** Serum chloride concentration

181. A 2-day-old infant has a generalized seizure and a bedside glucose of 18 mg/dL. What is the immediate priority?

- A.** Correct the severe hypoglycemia promptly
- B.** Give an antiseizure medication before correcting glucose
- C.** Obtain prolonged EEG before giving dextrose
- D.** Wait for a serum laboratory glucose before treating

182. A preterm infant gains weight rapidly but head circumference and length velocity remain poor. Why should clinicians follow all three measurements?

- A.** Weight provides the most reproducible estimate of lean growth
- B.** Length changes are too imprecise to influence nutrition plans
- C.** Head circumference primarily reflects short-term fluid balance
- D.** Weight alone may reflect fluid or fat rather than proportional growth

183. A 26-week infant with a central line and prolonged broad-spectrum antibiotics develops candidemia. Which feature best explains the high risk?

- A.** High concentrations of transplacental IgM
- B.** Immature host defenses plus invasive-device exposure
- C.** A mature epidermal barrier that traps fungi on the surface
- D.** Preserved commensal flora despite broad-spectrum antibiotics

184. A newborn with critical pulmonary stenosis has severe cyanosis. Which associated flow pattern commonly contributes to systemic desaturation?

- A.** Right-to-left shunting at the atrial level
- B.** Retrograde flow through pulmonary veins
- C.** Systemic-to-portal venous shunting
- D.** Left-to-right shunting through an intact ventricular septum

185. A former preterm infant has severe oral aversion, poor growth, and recurrent coughing with feeds after a prolonged NICU course. Which approach is best?

- A.** Use a multidisciplinary feeding and swallowing evaluation
- B.** Increase caloric density without evaluating swallow safety
- C.** Use behavioral desensitization without nutrition assessment
- D.** Use tube feeding without reassessing oral-motor skills

186. A newborn has a large, soft, transilluminating lateral neck mass that crosses tissue planes. Which lesion is most likely?

- A.** Cephalohematoma
- B.** Lymphatic malformation
- C.** Congenital branchial cleft cyst
- D.** Cervical teratoma with mixed tissue elements

187. A newborn remains pale with weak pulses after effective ventilation. There was a tight nuchal cord, placental bleeding, and concern for acute blood loss. Which additional intervention is most appropriate?

- A.** Administer a loop diuretic
- B.** Induce mild hyperventilation
- C.** Give intravascular volume expansion
- D.** Begin systemic vasodilator therapy

188. A very small preterm infant has an uncuffed endotracheal tube with a large audible leak. Which ventilator measurement may be especially unreliable?

- A.** Peripheral intravenous flow rate
- B.** Inspired oxygen concentration at the blender
- C.** Exhaled tidal-volume measurement
- D.** Incubator air temperature

189. A newborn has exposed bowel loops protruding through a right paraumbilical abdominal-wall defect without a covering sac. Which diagnosis is most likely?

- A.** Gastroschisis
- B.** Omphalocele
- C.** Umbilical hernia
- D.** Bladder exstrophy

190. A 900-g infant has hypernatremia from excessive free-water loss. Why should marked hypernatremia generally be corrected gradually once circulation is stabilized?

- A.** Rapid correction primarily causes osmotic demyelination
- B.** Rapid osmotic shifts can cause cerebral edema
- C.** Gradual correction prevents renal sodium excretion
- D.** Slow correction causes recurrent ductal constriction

191. A preterm infant becomes hypothermic. Which metabolic consequence is expected during cold stress?

- A.** Improved surfactant function from cooling
- B.** Decreased metabolic demand
- C.** Reduced catecholamine-driven thermogenesis
- D.** Increased oxygen and glucose consumption

192. A 700-g infant requires repeated red-cell transfusions during a long NICU stay. Which blood-bank strategy helps reduce exposure to multiple donors?

- A.** Pool blood from several donors for each transfusion
- B.** Use whole blood from a new donor each time
- C.** Use dedicated aliquots from a single donor unit
- D.** Avoid leukoreduction to preserve white cells

193. Investigators identify infants with necrotizing enterocolitis and matched infants without NEC, then compare prior exposure to an acid-suppressing medication. Which measure of association is most natural for this case-control design?

- A.** A risk difference between exposed and unexposed groups
- B.** A hazard ratio based on time to NEC
- C.** An incidence rate ratio calculated from person-time
- D.** An odds ratio comparing prior exposure

194. A mother receives betamethasone before an anticipated 30-week delivery. Which fetal pulmonary effect is most important?

- A.** Immediate closure of the ductus arteriosus
- B.** Accelerated surfactant and structural lung maturation
- C.** Suppression of pulmonary epithelial differentiation
- D.** Inhibition of fetal lung fluid absorption

195. Several infants in a NICU develop acute vomiting and diarrhea from a contagious enteric virus. Which infection-control measure is especially important?

- A.** Hand hygiene plus appropriate contact precautions
- B.** Share feeding equipment between infants
- C.** Stop environmental cleaning
- D.** Use the same gloves for an entire room

196. A fetus has a severe skeletal dysplasia with very short limbs and an extremely narrow thorax. Which neonatal complication most directly determines early survival?

- A.** Transient neonatal hypoglycemia
- B.** Pulmonary hypoplasia from thoracic restriction
- C.** Delayed closure of the ductus venosus
- D.** Isolated physiologic jaundice

197. A preterm infant has tremulous limb movements during examination. The movements stop when the limb is gently held and there is no eye deviation or autonomic change. What is the most likely interpretation?

- A.** A neonatal stroke is proven
- B.** A focal clonic seizure
- C.** Suppressible neonatal jitteriness
- D.** Status epilepticus by definition

198. A clinically well preterm infant has a small gastric residual before a feed but has a soft abdomen, normal stooling, and no systemic instability. What is the best general approach?

- A.** Diagnose NEC and start antibiotics from the residual finding
- B.** Reassess the whole clinical picture before labeling NEC
- C.** Withhold enteral feeds for a prolonged period despite stability
- D.** Obtain surgical consultation based on the residual alone

199. A septic neonate has cool extremities, weak pulses, prolonged capillary refill, and rising lactate. Which hemodynamic profile is most consistent with this cold-shock phenotype?

- A.** Normal output with isolated hypervolemia
- B.** Low cardiac output with compensatory vasoconstriction
- C.** High output with absent systemic resistance
- D.** High cardiac output with profound vasodilation

200. A preterm infant on nasal CPAP suddenly desaturates. The infant is breathing, but the neck is flexed and the nasal prongs are displaced. What should be done first?

- A.** Reposition the airway and restore the CPAP interface
- B.** Start prostaglandin E1 for presumed heart disease
- C.** Immediately intubate without checking the interface
- D.** Give a diuretic before reassessment

Answers

1. B. The early respiratory distress, low lung volumes, and diffuse granular pattern in an extremely preterm infant are classic for respiratory distress syndrome caused primarily by surfactant deficiency and alveolar instability. Delayed lung-fluid clearance causes transient tachypnea and usually hyperinflation rather than low-volume granular lungs.

2. C. Prostaglandin E1 maintains ductal patency and can be lifesaving when pulmonary or systemic blood flow depends on the ductus arteriosus. Indomethacin and ibuprofen promote ductal constriction, whereas adenosine treats selected supraventricular tachycardias.

3. B. Human milk from the infant's mother is preferred for preterm infants because it is associated with lower risks of necrotizing enterocolitis and other morbidities. Very preterm infants usually need fortification as feeds advance to meet nutrient needs.

4. A. The combination of characteristic facial features, hypotonia, and atrioventricular septal defect strongly suggests Down syndrome (trisomy 21). Trisomy 13 usually has major midline defects, Turner syndrome occurs in phenotypic females with monosomy X features, and 22q11.2 deletion has a different pattern.

5. C. The germinal matrix is highly vascular and fragile in very preterm infants, making it the typical origin of preterm intraventricular hemorrhage. Bleeding can extend into the ventricles and contribute to posthemorrhagic ventricular dilation.

6. B. Severe early fetal growth restriction with abnormal umbilical artery Doppler flow most strongly reflects placental insufficiency from maternal vascular malperfusion. Chorioamnionitis is an inflammatory process associated with infection; villous edema is nonspecific; fetal vascular malperfusion is linked more to obstruction of fetal placental circulation than the classic uteroplacental insufficiency pattern.

7. B. Early-onset sepsis is associated with vertically acquired organisms, classically Group B Streptococcus and gram-negative enteric bacilli. Coagulase-negative staphylococci and Candida are more characteristic of late-onset, device-associated NICU infection.

- 8. D.** Extremely preterm skin is thin and highly permeable, producing substantial transepidermal and other insensible water losses. This can cause hyponatremia and excessive weight loss unless fluid and humidity are adjusted. Preterm kidneys filter and concentrate imperfectly rather than retaining all water.
- 9. A.** Fetal exposure to maternal hyperglycemia stimulates pancreatic insulin secretion. After delivery, maternal glucose delivery stops abruptly while insulin remains elevated, predisposing to early hypoglycemia.
- 10. D.** A large transfer of fetal blood into the maternal circulation can cause severe neonatal anemia and shock. Demonstration of substantial fetal cells in maternal blood supports fetomaternal hemorrhage rather than physiologic postnatal anemia.
- 11. C.** Absolute risk reduction is the control event rate minus the treatment event rate: 20% minus 15% equals 5 percentage points. Relative measures answer a different question and should not be substituted for the absolute difference.
- 12. B.** Apnea or gasping, or a heart rate below 100/min after initial steps, indicates the need for effective positive-pressure ventilation. Chest compressions are reserved for persistent heart rate below 60/min despite adequate ventilation, and epinephrine comes later if ventilation and compressions fail.
- 13. B.** Exogenous surfactant replaces the deficient surface-active material responsible for alveolar collapse in neonatal RDS. Diuretics do not correct surfactant deficiency, routine inhaled nitric oxide is not a treatment for uncomplicated preterm RDS, and prostaglandin E1 is used for ductal-dependent heart disease.
- 14. D.** Pneumatosis intestinalis in a preterm infant with systemic illness and bloody stools is highly characteristic of necrotizing enterocolitis. Meconium ileus and Hirschsprung disease cause obstruction, while pyloric stenosis causes nonbilious vomiting rather than pneumatosis.
- 15. A.** Active Fc-receptor-mediated placental IgG transfer increases markedly during the third trimester. Very preterm delivery therefore interrupts passive antibody acquisition and leaves lower IgG concentrations at birth.
- 16. C.** During early childhood, corrected age accounts for the degree of prematurity when interpreting developmental progress. A 6-month-old infant born 3 months early is developmentally compared roughly with a 3-month-old term infant, while ongoing surveillance still considers the full clinical context.
- 17. D.** A significant left-to-right ductal shunt can produce a continuous murmur, bounding pulses, and widened pulse pressure from diastolic runoff. Critical pulmonary stenosis, tetralogy of Fallot, and closing-ductus coarctation more often impair forward flow and do not produce this classic pulse pattern.

- 18. D.** Normal retinal vascularization proceeds through late gestation. Preterm birth exposes an incompletely vascularized retina to altered oxygen and growth-factor conditions that can disrupt vascular development and lead to pathologic neovascularization.
- 19. C.** Unfortified human milk alone often does not meet the high protein, calcium, phosphorus, and energy needs of very preterm infants at usual fluid volumes. Human-milk fortification increases nutrient density while preserving the benefits of human milk.
- 20. D.** Visible jaundice during the first 24 hours is not typical physiologic jaundice and should prompt bilirubin measurement and evaluation for hemolysis or other pathologic causes. The timing alone does not establish breast-milk jaundice.
- 21. A.** Excessive tidal volume overdistends vulnerable preterm alveoli and produces volutrauma. Pressure, repetitive collapse, oxygen exposure, and inflammation can also injure the lung, but the defining exposure in this vignette is excessive delivered volume.
- 22. A.** Holoprosencephaly, clefting, polydactyly, and severe multisystem anomalies are classic for trisomy 13. The alternatives have distinct phenotypes and do not typically combine these midline and limb defects.
- 23. D.** For eligible term or near-term infants with moderate to severe hypoxic-ischemic encephalopathy, therapeutic hypothermia started within the treatment window reduces death or major neurodevelopmental disability. Hyperthermia and severe hypocapnia can worsen brain injury.
- 24. A.** Erythema toxicum is a benign, self-limited neonatal eruption that commonly appears in the first days of life in otherwise well term infants. Vesicular HSV and bacterial or fungal infections are more concerning when lesions, systemic findings, or distribution suggest invasive disease.
- 25. A.** Antenatal corticosteroids accelerate fetal lung maturation and reduce respiratory distress syndrome and other complications of prematurity when preterm birth is anticipated. Maternal diuretics and routine oxygen do not mature the fetal lung, and cesarean delivery without another indication does not provide this benefit.
- 26. B.** Coagulase-negative staphylococci are common causes of late-onset bloodstream infection in very preterm infants with central vascular catheters. The alternatives are congenital or early-onset pathogens with different transmission patterns.
- 27. A.** Gentamicin is cleared primarily by the kidneys, and neonatal glomerular filtration is immature, especially at low gestational age. Reduced clearance prolongs the half-life and supports gestation- and age-adjusted dosing intervals with therapeutic monitoring when indicated.
- 28. C.** Periviable counseling should integrate the best available outcome data, infant-specific factors, maternal preferences, local capabilities, and the family's goals and values. Shared decision-making is appropriate when more than one ethically supportable pathway exists.

- 29. C.** With pulmonary atresia, antegrade flow from the right ventricle to the pulmonary arteries is absent or severely limited, so ductal flow from the aorta is needed to perfuse the lungs. A restrictive atrial communication can worsen physiology rather than support it.
- 30. D.** Appropriate PEEP helps maintain functional residual capacity and recruit unstable alveoli, improving oxygenation when atelectasis is present. Eliminating distending pressure promotes collapse, and intentionally causing air trapping is not a safe recruitment strategy.
- 31. C.** Hyponatremia with hypo-osmolality and inappropriately concentrated urine indicates persistent antidiuretic hormone effect, as can occur with CNS disease. Diabetes insipidus produces dilute high-volume urine and tends toward hypernatremia.
- 32. A.** Inappropriately detectable insulin during hypoglycemia suppresses lipolysis and ketogenesis, causing low free fatty acids and ketones. This biochemical pattern is characteristic of hyperinsulinemic hypoglycemia.
- 33. D.** Anemia of prematurity reflects a low endogenous erythropoietin response, rapid growth, shortened red-cell lifespan, and iatrogenic blood loss. The modest reticulocyte response helps distinguish it from active hemolysis.
- 34. D.** Very preterm infants have high protein requirements and rapidly become catabolic without amino-acid provision. Early parenteral amino acids support protein accretion until enteral feeding can supply adequate nutrition.
- 35. C.** The absolute risk reduction is 0.05. Number needed to treat is the reciprocal, $1/0.05 = 20$, meaning 20 infants would need treatment to prevent one additional event over the studied time frame.
- 36. A.** The described pattern of severe growth restriction, clenched overlapping fingers, rocker-bottom feet, and craniofacial findings is characteristic of trisomy 18. The other disorders have different growth and limb patterns.
- 37. B.** Neonatal seizures are often electrographic-only or have subtle clinical signs. Continuous or prolonged EEG monitoring is the reference method for detecting electrographic seizures and assessing seizure burden.
- 38. C.** Carbon dioxide clearance is primarily determined by effective alveolar ventilation. Increasing useful minute ventilation lowers PaCO_2 , whereas decreasing ventilation or increasing dead space tends to raise it.
- 39. C.** When the heart rate remains below 60/min after at least 30 seconds of effective ventilation that moves the chest, coordinated chest compressions with ventilation are indicated. Oxygen without ventilation, routine bicarbonate, or stimulation alone does not address the persistent severe bradycardia.

- 40. B.** In hypoplastic left heart syndrome, systemic output depends on right-ventricular ejection through the ductus to the aorta. Ductal constriction therefore causes systemic hypoperfusion and shock. The other mechanisms do not describe the defining parallel-circulation dependence.
- 41. D.** Pneumoperitoneum in NEC indicates bowel perforation and is a major indication for urgent surgical evaluation and operative or drainage management depending on the infant and center. It is not a benign feeding finding.
- 42. C.** Antenatal magnesium sulfate given before anticipated early preterm birth reduces the risk of cerebral palsy in surviving infants. Indomethacin is a tocolytic in selected circumstances, furosemide is a diuretic, and methylergonovine is used for uterine atony after delivery rather than fetal neuroprotection.
- 43. D.** Congenital CMV commonly causes growth restriction, petechiae, hepatosplenomegaly, thrombocytopenia, microcephaly, and periventricular calcifications. Toxoplasmosis more classically causes diffuse intracranial calcifications, hydrocephalus, and chorioretinitis.
- 44. C.** Enteral nutrition stimulates bile flow and supports intestinal and hepatic adaptation. When clinically feasible, advancing enteral feeds and reducing parenteral exposure are central measures for parenteral-nutrition-associated cholestasis.
- 45. B.** Sudden deterioration in an intubated neonate requires immediate evaluation for displacement or obstruction of the endotracheal tube, pneumothorax, and equipment/circuit failure while supporting ventilation. Waiting for diagnostic tests can delay correction of a rapidly reversible airway problem.
- 46. A.** IgG is actively transported across the placenta and provides systemic passive immunity to the fetus. IgM is too large for meaningful placental transfer, while secretory IgA is supplied mainly through human milk at mucosal surfaces.
- 47. D.** Extremely preterm infants remain at increased risk for motor, cognitive, language, sensory, behavioral, and feeding difficulties even when the discharge examination is reassuring. Structured high-risk follow-up supports early identification and intervention.
- 48. A.** Laser photocoagulation reduces the ischemic retinal drive for pathologic neovascularization and remains an important treatment for selected severe ROP. Anti-VEGF therapy is also used in selected cases, but antibiotics and cataract surgery do not treat ROP.
- 49. D.** Central diabetes insipidus results from deficient vasopressin secretion and causes free-water loss, hypernatremia, and dilute urine. Improvement in urine concentration after desmopressin supports a central rather than nephrogenic defect.
- 50. D.** Transposition requires mixing between parallel systemic and pulmonary circulations. When atrial mixing is severely restricted, balloon atrial septostomy enlarges the communication and can rapidly improve oxygen delivery. Closing the ductus or restricting pulmonary flow would not correct inadequate mixing.

- 51. B.** Conotruncal heart disease, hypocalcemia from parathyroid hypoplasia, and thymic hypoplasia strongly suggest a 22q11.2 deletion. The other genetic conditions do not produce this classic developmental field defect.
- 52. B.** Phenobarbital remains a commonly used initial antiseizure medication for neonatal seizures, although response is incomplete in many infants and therapy should be tailored to etiology and current unit practice. The other drugs have respiratory, cardiac, or prostaglandin-related indications.
- 53. C.** Classic salt-wasting congenital adrenal hyperplasia from 21-hydroxylase deficiency causes deficient cortisol and aldosterone synthesis with androgen excess. The resulting salt loss, hyperkalemia, and genital virilization fit the presentation.
- 54. C.** A venous hematocrit of 65% or greater defines neonatal polycythemia. Hyperviscosity can contribute to lethargy, hypoglycemia, respiratory symptoms, and impaired microvascular flow, especially in growth-restricted infants.
- 55. A.** High sensitivity means most affected patients test positive, so a negative result is useful for ruling out disease when the test is applied appropriately. Predictive values still depend on disease prevalence, and high sensitivity does not imply perfect specificity.
- 56. B.** Caffeine is a methylxanthine respiratory stimulant widely used for apnea of prematurity. Prostaglandin E1 maintains ductal patency, indomethacin inhibits prostaglandin synthesis, and adenosine treats selected supraventricular tachycardias.
- 57. B.** Some early postnatal weight loss is expected as extracellular water contracts and diuresis occurs. A 5% loss with reassuring examination, urine output, and feeding is compatible with normal transition rather than severe dehydration or renal disease.
- 58. C.** Twin-twin transfusion syndrome results from unbalanced blood flow through placental vascular anastomoses in monochorionic gestations. The donor develops relative hypovolemia and oligohydramnios while the recipient develops hypervolemia and polyhydramnios. The other choices do not explain this paired monochorionic pattern.
- 59. A.** The classic triad of congenital toxoplasmosis includes chorioretinitis, hydrocephalus, and intracranial calcifications that are often diffuse. CMV more often produces periventricular calcifications and microcephaly.
- 60. B.** Critical coarctation can present when the ductus constricts, producing impaired lower-body perfusion, acidosis, weak femoral pulses, and shock. Small atrial defects, mild pulmonary stenosis, and a patent foramen ovale do not cause this systemic perfusion pattern.
- 61. D.** Neonatal arrest is usually respiratory in origin, so coordinated resuscitation emphasizes ventilation using a 3:1 compression-to-ventilation ratio. Adult and older-child ratios provide relatively fewer ventilations and are not the standard neonatal approach for an asphyxial arrest.

- 62. B.** Bilious emesis in a newborn is an intestinal-obstruction emergency until proven otherwise. Malrotation with volvulus can twist the mesenteric blood supply and cause rapid bowel necrosis, requiring prompt imaging and surgical management.
- 63. D.** Transient tachypnea results from delayed clearance of fetal lung fluid and is associated with cesarean delivery without labor. Hyperinflation, perihilar streaking, and fissural fluid support this diagnosis, unlike low-volume granular RDS or focal structural disease.
- 64. C.** Overgrowth, macroglossia, abdominal-wall defects, and neonatal hypoglycemia from hyperinsulinism are characteristic of Beckwith-Wiedemann syndrome. The alternatives are not overgrowth syndromes with this combination.
- 65. A.** Perinatal arterial ischemic stroke often presents with focal neonatal seizures and a territorial infarct on neuroimaging. Germinal-matrix hemorrhage is mainly a preterm disorder, and benign sleep myoclonus is not associated with a focal infarct.
- 66. C.** Anemia and reticulocytosis indicate increased red-cell destruction, while a positive direct antiglobulin test supports antibody-mediated hemolysis. Biliary obstruction causes conjugated hyperbilirubinemia rather than this hemolytic pattern.
- 67. C.** Protein is essential for lean mass and organ growth. Adequate calories cannot fully compensate for insufficient amino-acid supply, so disproportionate deficits in lean tissue and linear growth can occur.
- 68. B.** With severe hyperkalemia and electrocardiographic toxicity, intravenous calcium is given promptly to stabilize the cardiac membrane while additional therapies lower serum potassium. Calcium does not remove potassium but reduces immediate arrhythmic risk.
- 69. D.** Congenital hypothyroidism may be clinically subtle at birth, but delayed treatment can impair neurodevelopment. Abnormal screening requires prompt confirmatory testing and timely levothyroxine when the diagnosis is established or strongly supported.
- 70. B.** Fetal-neonatal alloimmune thrombocytopenia occurs when maternal antibodies target paternally inherited fetal platelet antigens. The mother may have a normal platelet count, while the fetus or newborn can have profound thrombocytopenia and intracranial hemorrhage.
- 71. C.** High specificity means few unaffected patients have false-positive results, so a positive test strongly supports disease. It does not guarantee high sensitivity, and predictive values remain influenced by pretest probability.
- 72. B.** Meconium can cause airway obstruction with ball-valve air trapping, chemical pneumonitis, surfactant dysfunction, air leak, and persistent pulmonary hypertension. The other options do not capture the major recognized complications of severe meconium aspiration.

- 73. D.** Inotropic support is used when impaired myocardial contractility contributes to low cardiac output and poor perfusion. It does not correct anemia by increasing viscosity, close intracardiac communications, or alter hemoglobin oxygen affinity.
- 74. B.** Staphylococcal exfoliative toxins can cause widespread superficial epidermal splitting, tenderness, blistering, and a positive Nikolsky sign. Benign neonatal eruptions such as erythema toxicum, milia, and nevus simplex do not cause this toxic blistering illness.
- 75. A.** Maternal hyperglycemia produces fetal hyperglycemia and compensatory fetal hyperinsulinemia. After the placental glucose supply stops at delivery, insulin remains high and can drive neonatal hypoglycemia. Placental transport failure, cortisol excess, and absent beta cells do not fit this common infant-of-diabetic-mother physiology.
- 76. C.** Congenital rubella syndrome classically includes cataracts, congenital heart disease such as PDA, and sensorineural hearing loss. The other infections have different characteristic organ patterns.
- 77. D.** Ventilatory support is the priority for neonatal respiratory depression. Naloxone can precipitate abrupt withdrawal and seizures in an infant with chronic opioid exposure, so its use requires careful clinical judgment rather than routine administration.
- 78. D.** A comfort-focused plan still requires active attention to warmth, symptom relief, feeding or mouth care as appropriate, family presence, and psychosocial and spiritual support. The goal changes from life prolongation to comfort, but clinical responsibility continues.
- 79. C.** Turner syndrome is associated with congenital lymphedema, webbed neck, and cardiovascular lesions such as coarctation. The other conditions do not fit the sex and characteristic phenotype.
- 80. D.** Inhaled nitric oxide selectively reduces pulmonary vascular resistance in appropriately selected term or near-term infants with hypoxemic respiratory failure and PPHN. Indomethacin constricts the ductus, caffeine stimulates respiration, and nitrogen is not therapeutic.
- 81. D.** Periventricular white-matter injury in preterm infants preferentially affects descending motor fibers to the legs and is associated with spastic diplegia. The other patterns point to different neuroanatomic injuries.
- 82. C.** Very preterm infants are vulnerable to inadequate calcium and phosphorus accretion because most fetal mineral transfer occurs late in gestation. Elevated alkaline phosphatase, low phosphorus, and demineralization support metabolic bone disease of prematurity.
- 83. A.** Preterm infants have quantitative and functional limitations in innate immunity, including relatively small neutrophil reserves and impaired chemotaxis and killing. These developmental limitations combine with invasive devices and immature barriers to increase infection risk.

- 84. B.** Persistent pulmonary hypertension of the newborn is defined by failure of pulmonary vascular resistance to fall normally after birth, promoting right-to-left extrapulmonary shunting and hypoxemia. The alternative mechanisms do not explain the observed right-to-left ductal flow.
- 85. D.** Some cognitive, language, attention, executive-function, and learning problems emerge only as developmental demands increase. A normal early screen is reassuring but does not replace longitudinal developmental surveillance.
- 86. C.** Newborns preferentially breathe through the nose, so bilateral choanal atresia can cause cyclic cyanosis relieved by crying. Failure to pass a nasal catheter supports posterior nasal obstruction.
- 87. B.** Umbilical venous catheterization provides rapid central venous access for resuscitation medications and volume. Intramuscular and subcutaneous delivery are too slow and unreliable in shock, and the umbilical artery is not the preferred route for epinephrine administration.
- 88. A.** In congenital diaphragmatic hernia, bag-mask ventilation can inflate bowel in the thorax and further compress the lungs. Initial management emphasizes endotracheal intubation, gentle ventilation, and gastric decompression while stabilizing pulmonary hypertension and perfusion.
- 89. B.** Inability to pass an enteric tube with pooling secretions and feeding-related respiratory symptoms strongly suggests esophageal atresia, commonly with a distal tracheoesophageal fistula. Distal intestinal obstruction would not prevent passage of the tube into the stomach.
- 90. C.** Systemic hypoperfusion during severe asphyxia can cause acute tubular and other ischemic kidney injury, leading to oliguria and rising creatinine. The temporal relationship does not fit chronic congenital renal disease.
- 91. A.** Infants of diabetic mothers have increased risk of early hypocalcemia, which can produce jitteriness or seizures. The other electrolyte patterns are not the characteristic association.
- 92. C.** Hemophilia due to factor VIII or IX deficiency produces an isolated intrinsic-pathway abnormality with prolonged aPTT and normal platelets and PT. DIC and vitamin K deficiency affect multiple coagulation factors, while thrombocytopenia lowers the platelet count.
- 93. A.** A confounder is associated with both the exposure and the outcome and can create or distort an observed association. Gestational age strongly affects neonatal mortality and may differ between exposed and unexposed groups, so it requires adjustment or design control.
- 94. C.** Parvovirus B19 has tropism for erythroid progenitor cells and can abruptly suppress fetal erythropoiesis, causing profound anemia, high-output failure, and hydrops. The alternative cell populations do not account for the characteristic aplastic anemia.
- 95. B.** Suspected neonatal HSV with skin, eye, mouth, CNS, or disseminated disease requires prompt intravenous acyclovir while diagnostic testing is pursued. Delayed therapy can worsen neurologic and systemic outcomes.

- 96. D.** Achondroplasia classically causes disproportionate short stature with rhizomelic limb shortening, macrocephaly, and frontal bossing. Osteogenesis imperfecta is dominated by bone fragility; Marfan syndrome causes long limbs; lethal skeletal dysplasias have more severe thoracic compromise.
- 97. A.** Hypotonia with weakness, absent reflexes, and tongue fasciculations localizes to the motor unit, particularly anterior horn cells or peripheral motor pathways. Central hypotonia more often preserves or increases reflexes and may include altered consciousness.
- 98. D.** Coordinated oral feeding requires mature integration of sucking, swallowing, and breathing. Late preterm infants may have intermittent discoordination that causes bradycardia, desaturation, or coughing during feeds despite otherwise stable respiration.
- 99. A.** The right hand is generally preductal, while lower-extremity blood is postductal. Right-to-left ductal shunting introduces desaturated pulmonary-artery blood into the descending aorta, producing lower postductal saturation. This does not by itself diagnose an atrial septal defect.
- 100. D.** Persistent oxygen or respiratory-support need around 36 weeks postmenstrual age in a very preterm infant is characteristic of bronchopulmonary dysplasia. Transient tachypnea resolves early, and the other choices do not describe the chronic prematurity-associated lung disease.
- 101. C.** The abrupt deterioration with unilateral absent breath sounds and hemodynamic compromise indicates tension pneumothorax. Emergency decompression should not be delayed for radiographic confirmation in an unstable infant.
- 102. A.** A large ductal left-to-right shunt can cause diastolic runoff from the systemic circulation and reduce mesenteric and renal perfusion, especially in very preterm infants. It does not obstruct pulmonary veins or eliminate pulmonary blood flow.
- 103. A.** Enteral feeding promotes gut maturation and reduces the duration of parenteral nutrition and its complications. It does not eliminate NEC risk, guarantee tolerance, or remove the need for nutrient fortification in very preterm infants.
- 104. C.** Osteogenesis imperfecta is most often caused by defects involving type I collagen and presents with bone fragility, fractures, and sometimes blue sclerae. Dystrophin, fibrillin-1, and type IV collagen defects cause different inherited disorders.
- 105. B.** Severe neonatal hyperammonemia can rapidly cause cerebral edema and permanent neurologic injury. Management requires immediate cessation of exogenous protein temporarily, provision of calories, nitrogen-scavenging or disease-specific therapy, and dialysis when indicated while the diagnosis is established.
- 106. D.** Adequate amniotic fluid and fetal breathing movements are important for lung development. Prolonged severe oligohydramnios early in gestation can cause pulmonary hypoplasia. The other findings are not direct consequences of absent amniotic fluid.

- 107. A.** Snuffles, hepatosplenomegaly, lymphadenopathy, and a palm-and-sole rash are classic manifestations of congenital syphilis. The other infections can cause systemic disease but do not produce this characteristic constellation.
- 108. C.** Posterior urethral valves are a cause of congenital bladder outlet obstruction in male infants and can produce a thick bladder, bilateral hydroureteronephrosis, and impaired urinary stream. The alternative conditions do not cause this classic lower-tract obstruction.
- 109. A.** Classic galactosemia can present after lactose exposure with liver dysfunction, jaundice, hypoglycemia, and a striking susceptibility to E coli sepsis. Immediate removal of galactose/lactose is essential while the diagnosis is confirmed.
- 110. A.** DIC causes systemic coagulation activation with consumption of platelets and clotting factors, producing prolonged coagulation times, low fibrinogen, and diffuse bleeding. The other disorders do not produce this broad consumptive pattern.
- 111. C.** Intention-to-treat analysis compares participants according to their original randomized assignment, preserving balance created by randomization and reducing bias introduced by postrandomization treatment changes or nonadherence.
- 112. C.** For vigorous infants who do not need immediate resuscitation, delayed cord clamping provides placental transfusion benefits and is generally recommended. Immediate clamping is not required solely because of late prematurity, while routine repeated cord milking and delaying all assessment are not equivalent strategies.
- 113. D.** Pulmonary interstitial emphysema results when ventilated gas dissects from overdistended alveoli into the pulmonary interstitium, producing characteristic linear or cystic lucencies. The radiographic pattern differs from retained lung fluid, pleural fluid, or a congenital lung mass.
- 114. A.** The double-bubble sign reflects a distended stomach and proximal duodenum and is classic for duodenal obstruction such as duodenal atresia. The association with trisomy 21 is well recognized.
- 115. B.** Severe, recurrent, or opportunistic infections with lymphopenia and failure to thrive raise concern for severe combined immunodeficiency. This requires prompt immune evaluation and infection precautions rather than attribution to normal neonatal immune immaturity.
- 116. A.** Neurodevelopmental outcomes after extreme prematurity extend beyond cerebral palsy. Attention, executive function, processing speed, language, and academic performance can be affected even in children with normal gross motor examinations.
- 117. C.** Adenosine is first-line acute therapy for stable re-entrant supraventricular tachycardia when vagal maneuvers fail because it transiently blocks atrioventricular nodal conduction. Prostaglandin E1 treats ductal-dependent lesions, and epinephrine is not the routine treatment for stable SVT.

118. A. A failed newborn hearing screen requires timely follow-up because congenital or acquired hearing loss benefits from early diagnosis and intervention. Prematurity and NICU exposures increase, rather than eliminate, the need for follow-up.

119. D. Most fetal iron accretion occurs late in gestation, so very preterm infants are born with lower iron stores and have rapid postnatal growth and phlebotomy losses. Supplementation helps prevent iron deficiency once clinically appropriate.

120. C. On high-frequency oscillatory ventilation, mean airway pressure is the major determinant of lung volume and recruitment and therefore strongly influences oxygenation. Frequency and amplitude affect ventilation mechanics, while tube position and humidification are important but are not the primary recruitment control.

121. A. Mandibular hypoplasia can lead to posterior tongue displacement and interfere with palatal closure, creating the linked abnormalities of Pierre Robin sequence. The other named patterns contain different core anomalies.

122. B. MRI with diffusion-weighted sequences is sensitive for acute neonatal hypoxic-ischemic injury and helps define injury patterns and prognosis. Cranial ultrasonography remains useful for bedside screening but is less sensitive for many cortical and deep-gray injuries.

123. D. Acholic stools and conjugated hyperbilirubinemia indicate cholestasis. Biliary atresia is time-sensitive because earlier diagnosis and surgical intervention improve the chance of bile drainage.

124. D. Extremely preterm skin has an immature barrier and is vulnerable to chemical burns from antiseptic pooling or prolonged contact. The localized temporal relationship to chlorhexidine makes chemical injury more likely than autoimmune or infectious disease.

125. B. Indomethacin inhibits prostaglandin synthesis and can constrict the fetal ductus arteriosus, particularly with later gestational exposure. The alternative lesions are not characteristic prostaglandin-inhibition effects.

126. C. Infants born to HBsAg-positive mothers require both hepatitis B vaccine and hepatitis B immune globulin promptly after birth to reduce perinatal transmission. Clinical appearance does not indicate whether transmission has occurred.

127. C. Indomethacin inhibits cyclooxygenase and lowers prostaglandin synthesis, favoring ductal constriction. The same prostaglandin inhibition can reduce renal and mesenteric perfusion in susceptible infants.

128. D. Parents generally have broad authority, but that authority is limited when refusal places a child at substantial risk of serious harm or death. Emergency treatment and legal or ethics pathways may be required to protect the infant's best interests while respecting the family and communicating transparently.

- 129. A.** Symptomatic congenital complete heart block with severe bradycardia and compromised cardiac output may require pacing. Ductal ligation, atrial septostomy, and pulmonary vasodilation address different cardiovascular problems.
- 130. C.** Increasing oscillatory amplitude increases tidal displacement and generally improves carbon dioxide elimination on HFOV. Lowering amplitude reduces ventilation. The goal is effective oscillation rather than eliminating visible chest vibration.
- 131. D.** A multicystic dysplastic kidney is typically nonfunctional and replaced by variably sized noncommunicating cysts, often unilaterally. ARPKD usually causes enlarged echogenic kidneys bilaterally, and outlet obstruction has a different urinary-tract pattern.
- 132. C.** Maple syrup urine disease results from impaired branched-chain alpha-ketoacid dehydrogenase activity and can cause early encephalopathy with a characteristic sweet odor. Urea-cycle disorders can cause hyperammonemia but lack the classic odor.
- 133. A.** Only IgG crosses the placenta in substantial amounts. Type O mothers may have IgG anti-A or anti-B antibodies capable of causing neonatal immune hemolysis, whereas IgM does not significantly cross the placenta.
- 134. D.** Preterm infants can have limited insulin response and significant stress hyperglycemia, but excessive glucose delivery should first be excluded by reviewing the glucose infusion rate. Calcium, phototherapy, and humidity do not directly determine glucose delivery.
- 135. B.** A sustained run on one side of the center line is a classic signal that the process may have shifted beyond expected random common-cause variation. Such a signal should prompt investigation of the change and confirmation that improvement is sustained.
- 136. C.** The combination maps directly to VACTERL: vertebral, anorectal, cardiac, tracheoesophageal, renal, and limb abnormalities. The alternative syndromes do not characteristically include this multi-system pattern.
- 137. C.** Blood and inflammatory debris can impair cerebrospinal-fluid circulation after severe IVH, leading to progressive ventricular dilation and sometimes hydrocephalus. Serial ultrasound and head-growth trends are used to monitor progression.
- 138. D.** RDS classically produces low lung volumes and diffuse reticulogranular opacity from alveolar collapse. Transient tachypnea more often produces hyperinflation, perihilar streaking, and interlobar fissural fluid and improves relatively quickly.
- 139. B.** The most important response to neonatal ventilation is an increase in heart rate, and visible chest movement supports adequate lung inflation. Worsening cyanosis, absent breath sounds, or isolated abdominal distention suggests ineffective ventilation or another problem.

- 140. D.** Management of PDA in very preterm infants should integrate clinical status and hemodynamic significance rather than treating an echocardiographic finding in isolation. Murmur intensity and gestational age alone are insufficient to determine benefit from closure.
- 141. A.** Delayed meconium passage, distal obstruction, and explosive stool after rectal examination suggest Hirschsprung disease due to aganglionosis of the distal bowel. The other disorders present with different anatomic and age patterns.
- 142. C.** Maternal anti-Ro/SSA and anti-La/SSB antibodies can injure the fetal atrioventricular conduction system and produce congenital complete heart block. The marked persistent bradycardia is incompatible with supraventricular or sinus tachycardia, and isolated premature atrial beats do not explain the fixed slow ventricular rate.
- 143. B.** Neonatal meningitis can accompany sepsis and may occasionally be present despite negative blood cultures. When clinically feasible and safe, CSF evaluation helps guide antibiotic selection and duration.
- 144. C.** Parenteral-nutrition-associated liver disease commonly manifests as cholestasis with an elevated conjugated (direct) bilirubin. An isolated unconjugated bilirubin elevation reflects different physiology.
- 145. B.** Reproducible respiratory symptoms during feeding suggest impaired suck-swallow-breathe coordination and aspiration. Apnea of prematurity is not specifically feed-triggered, surfactant deficiency is an early lung disease, and ductal-dependent shock has a different clinical pattern.
- 146. C.** The neonatal Fc receptor in placental syncytiotrophoblast mediates selective active transport of maternal IgG. This process explains both the class specificity and the gestational-age dependence of passive antibody transfer.
- 147. A.** Neonatal MRI findings can refine risk estimates, especially when major injury is present, but development is influenced by many biologic and environmental factors. Imaging should inform counseling probabilistically rather than being presented as deterministic.
- 148. D.** Pierre Robin sequence can cause tongue-base obstruction from micrognathia. Mild obstruction may improve with carefully monitored positioning, while more severe disease may require nasopharyngeal airway or surgical approaches and feeding support.
- 149. A.** Renal tubular acidosis causes impaired renal acid handling and typically a hyperchloremic, non-anion-gap metabolic acidosis. Inappropriately alkaline urine can support a distal acidification defect. Shock-related lactic acidosis usually raises the anion gap.
- 150. B.** A fall in systemic vascular resistance favors ejection from the right ventricle across the VSD into the aorta when right-ventricular outflow is obstructed, worsening cyanosis. Raising systemic resistance or reducing outflow obstruction tends to decrease the right-to-left shunt.

- 151. A.** Coloboma, heart disease, choanal atresia, genital abnormalities, and ear anomalies form the classic CHARGE pattern. The other disorders do not combine these specific developmental defects.
- 152. D.** Subgaleal hemorrhage occurs in the potential space beneath the scalp aponeurosis, can cross sutures, and can accommodate a large blood volume leading to shock. Cephalohematoma is subperiosteal and does not cross suture lines.
- 153. B.** Severe hyperammonemia with respiratory alkalosis and little or no metabolic acidosis is a classic clue to a urea-cycle defect. Organic acidemias more often produce a significant anion-gap metabolic acidosis and ketosis.
- 154. C.** Rh immune globulin prevents maternal sensitization to RhD-positive fetal erythrocytes and thereby reduces hemolytic disease in current or future pregnancies. It is prophylactic rather than a treatment for established severe fetal anemia.
- 155. D.** Plan-Do-Study-Act cycles use small iterative tests of change: plan an intervention, do the test, study the results, and act on what was learned. The approach supports rapid learning before wider implementation.
- 156. D.** Infants with BPD remain at risk for respiratory symptoms, rehospitalization, growth problems, pulmonary hypertension, and neurodevelopmental issues after discharge. Stopping oxygen does not eliminate risk, and routine preventive and developmental care remains important.
- 157. B.** Human milk remains preferred, but very preterm infants need more protein, minerals, and sometimes calories than unfortified milk provides at tolerable volumes. Fortification supplements rather than replaces the biologic benefits of human milk.
- 158. C.** Placental abruption can abruptly reduce fetal oxygen delivery and cause acute blood loss. Intravascular depletion further lowers systemic perfusion and oxygen delivery, increasing the risk of hypoxic-ischemic injury. The other choices do not match the acute hemorrhagic setting.
- 159. A.** Neonatal candidemia can disseminate hematogenously to multiple organs, including the CNS, eyes, kidneys, heart, and other sites. Management therefore includes assessment for invasive foci according to the clinical situation.
- 160. A.** Ebstein anomaly is characterized by apical displacement of the tricuspid valve, atrialization of part of the right ventricle, and often severe tricuspid regurgitation. The other lesions have different defining anatomic abnormalities.
- 161. B.** Current neonatal resuscitation prioritizes ventilation for a nonvigorous infant with apnea or bradycardia; routine tracheal suctioning for meconium should not delay ventilation. Compressions are not indicated until effective ventilation has been provided and the heart rate remains below 60/min.

- 162. A.** Meconium ileus with thick obstructing meconium and a small unused colon is strongly associated with cystic fibrosis. Other causes of delayed meconium passage exist, but this imaging pattern should prompt CF evaluation.
- 163. D.** Dynamic inspiratory collapse of supraglottic structures with position-dependent stridor is typical of laryngomalacia. Choanal atresia causes nasal obstruction, vocal cord paralysis has different laryngoscopic findings, and tracheoesophageal fistula primarily causes feeding-related aspiration symptoms.
- 164. C.** Chromosomal microarray surveys the genome for submicroscopic deletions and duplications and has much higher copy-number resolution than conventional karyotyping. Exome or genome sequencing may be appropriate in broader diagnostic pathways, but the test specifically described by genome-wide copy-number detection is chromosomal microarray.
- 165. D.** A cephalohematoma is a subperiosteal blood collection and is therefore confined by cranial sutures. It is usually less dangerous than a large subgaleal hemorrhage but can contribute to jaundice and anemia.
- 166. A.** The neurotoxic fraction is unbound unconjugated bilirubin, which can cross the blood-brain barrier and deposit in vulnerable brain regions. Albumin binding normally limits tissue entry, so factors that increase the unbound fraction raise risk.
- 167. D.** Critical illness can increase metabolic expenditure, while procedures, feeding intolerance, and fluid restrictions can reduce actual nutrient delivery. Ordered calories may therefore overstate effective intake.
- 168. A.** Cyclooxygenase inhibition lowers prostaglandin synthesis. In vulnerable neonates, renal prostaglandins help maintain renal perfusion, so inhibition can reduce renal blood flow and urine output.
- 169. C.** Evaporation of amniotic fluid from wet skin is a major source of immediate heat loss, especially in preterm infants with a large surface-area-to-mass ratio and limited thermal reserves. Drying or plastic wrapping strategies reduce this loss depending on gestation.
- 170. D.** Neuroblastoma arises from sympathetic neural crest tissue and often originates in the adrenal gland. Catecholamine metabolite elevation supports the diagnosis; the alternative tumors arise from kidney, liver, or retina.
- 171. D.** For a relative risk, the null value is 1.0. Because the confidence interval includes 1.0, the result is compatible with both benefit and no effect at the conventional 5% two-sided significance level; it does not prove equivalence.
- 172. C.** Preterm antioxidant defenses are immature, and excessive oxygen exposure contributes to oxidative injury implicated in bronchopulmonary dysplasia and retinopathy of prematurity. Hyperoxia does not prevent these disorders and can itself be harmful.

173. C. As pulmonary vascular resistance falls over the first weeks, left-to-right flow across a large VSD increases, raising pulmonary blood flow and causing heart-failure symptoms. The other changes are not normal postnatal physiology.

174. B. Large segmental facial hemangiomas can be associated with syndromic structural abnormalities, including cerebrovascular and cardiac anomalies, and may warrant targeted evaluation. Small focal hemangiomas often follow a benign natural history.

175. A. The fetal brain-sparing response to chronic hypoxemia includes cerebral vasodilation and redistribution of cardiac output toward the brain, reflected by lower cerebral arterial resistance. It is not a response to hyperoxia and does not by itself diagnose ductal closure.

176. C. To establish congenital CMV, viral detection must occur early enough that postnatal acquisition is unlikely. A later positive test may not reliably distinguish congenital infection from postnatal exposure.

177. A. Caffeine is a methylxanthine that antagonizes adenosine receptors, increasing respiratory drive and improving diaphragmatic function. Its mechanism is distinct from cyclooxygenase inhibition or prostaglandin receptor stimulation.

178. D. Qualified medical interpreters improve accuracy, confidentiality, and informed decision-making. Family members, especially children, should not be relied on for high-stakes medical interpretation when professional interpretation is available.

179. C. A carrier mother transmits one of her two X chromosomes to each child at random. Each son receives his Y chromosome from the father and therefore has a 50% chance of receiving the maternal X chromosome carrying the pathogenic allele.

180. A. Most arterial oxygen content is carried bound to hemoglobin; dissolved oxygen contributes only a small fraction. This explains why hemoglobin concentration and saturation are central determinants of oxygen-carrying capacity.

181. A. Severe hypoglycemia is a reversible cause of neonatal seizures and can itself injure the brain. Rapid confirmation and treatment of the low glucose should occur while the seizure and underlying cause are evaluated.

182. D. Serial weight, length, and head circumference provide complementary information. Weight can change with fluid balance or adiposity, whereas linear and head growth help assess lean tissue, skeletal growth, and brain growth.

183. B. Extremely preterm infants have immature skin and immune defenses and often require central venous access and broad-spectrum antibiotics, all of which increase invasive Candida risk. The alternative statements are opposite to neonatal immune physiology.

184. A. When right-sided filling pressures are high and pulmonary outflow is critically obstructed, blood may cross an atrial communication from right to left, causing cyanosis. The other proposed shunts do not describe the expected physiology.

185. A. Complex post-NICU feeding problems may involve dysphagia, oral-motor skill, sensory aversion, respiratory coordination, nutrition, and caregiver interaction. Multidisciplinary assessment can address safety, nutrition, and developmental feeding skills together.

186. B. Lymphatic malformations are often soft, multiloculated lesions that can infiltrate across tissue planes and may threaten the airway. Their behavior differs from localized cysts or scalp blood collections.

187. C. When shock is suspected from acute blood loss and the infant has poor perfusion despite ventilation, volume expansion is appropriate. Fluid restriction and diuresis worsen hypovolemia, and hyperventilation does not restore circulating volume.

188. C. A substantial leak around an uncuffed neonatal endotracheal tube can cause the ventilator to underestimate exhaled tidal volume and complicate volume-targeted ventilation. The oxygen blender, incubator temperature, and IV pump are not directly affected by the airway leak.

189. A. Gastroschisis is typically a right-sided paraumbilical defect with uncovered bowel directly exposed to amniotic fluid. Omphalocele is midline at the umbilical ring and is covered by a membrane unless ruptured.

190. B. With sustained hypernatremia, brain cells adapt osmotically. Lowering serum sodium too rapidly can drive water into the brain and contribute to cerebral edema. Correction therefore requires careful fluid calculation and serial monitoring.

191. D. Nonshivering thermogenesis and stress responses increase metabolic rate, oxygen use, and glucose consumption. In a vulnerable preterm infant, cold stress can therefore worsen hypoglycemia, hypoxemia, and acidosis.

192. C. Dividing one compatible donor unit into neonatal aliquots can allow multiple small transfusions from the same donor, reducing donor exposures. Pooling or changing donors increases exposure rather than limiting it.

193. D. Case-control studies begin by selecting participants based on outcome status, so risks or incidence proportions generally cannot be directly estimated from the sampled groups. The odds ratio is therefore the standard measure of association and can approximate a risk ratio when the outcome is uncommon.

194. B. Antenatal corticosteroids promote biochemical and structural lung maturation, including surfactant production, and reduce respiratory morbidity after preterm birth. They do not suppress epithelial maturation, prevent lung fluid absorption, or act by closing the ductus arteriosus.

- 195. A.** Enteric viruses can spread rapidly by hands, surfaces, and shared equipment. Rigorous hand hygiene, contact precautions as indicated, cohorting strategies, and environmental cleaning are central to outbreak control.
- 196. B.** In severe skeletal dysplasias with a markedly small thoracic cage, inadequate space for lung growth can cause lethal pulmonary hypoplasia. The other neonatal conditions are not the central survival-limiting consequence of thoracic restriction.
- 197. C.** Jitteriness is typically stimulus-sensitive and suppressible by gentle flexion or holding of the limb, unlike clonic seizures, which are not usually suppressible and may have associated ocular or autonomic features.
- 198. B.** Isolated gastric residuals have limited specificity for serious intestinal disease. Feeding decisions should integrate abdominal examination, stool findings, vital signs, laboratory trends, and other evidence rather than diagnosing NEC from residual volume alone.
- 199. B.** Cold shock reflects inadequate cardiac output with increased systemic vascular resistance and peripheral vasoconstriction, producing cool extremities and delayed refill. A vasodilated high-output state is the contrasting warm-shock phenotype.
- 200. A.** With spontaneous breathing and an obvious positional/interface problem, the fastest corrective step is to open the airway and restore effective CPAP delivery, then reassess. Intubation may become necessary if noninvasive support fails, but should not precede correction of an immediately reversible problem.