COMPREHENSIVE MOCK EXAM 8

Supplemental to: Neonatology Board Review 2026-2027

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American Board of Pediatrics (ABP) Neonatal-Perinatal Medicine subspecialty certifying examination — 200-question MEDREV simulation, single-best-answer A–D, domain-weighted to the ABP content outline

Board-Review Questions

1. A preterm infant with severe RDS is placed on high-frequency oscillatory ventilation. Which variable primarily controls carbon dioxide removal on HFOV?

A. Changes in oscillatory tidal volume or amplitude strongly affect carbon dioxide clearance, with frequency also influencing delivered oscillatory volume.

B. Mean airway pressure alone determines carbon dioxide removal and has no important effect on lung recruitment or oxygenation.

C. Inspired oxygen concentration is the principal determinant of carbon dioxide clearance because diffusion follows the oxygen gradient.

D. High-frequency oscillatory ventilation primarily controls carbon dioxide with mean airway pressure, while oscillatory amplitude has little influence on ventilation.

2. A newborn has persistent respiratory distress and a chest radiograph shows multiple cystic air-filled lesions in one lower lobe. Prenatal imaging had shown an echogenic lung mass. Which diagnosis is most likely?

A. Congenital pulmonary airway malformation, whose postnatal appearance can include cystic lesions within an affected lobe.

B. Transient tachypnea of the newborn, which produces fissural fluid and perihilar streaking rather than a focal congenital cystic mass.

C. Meconium aspiration syndrome, which produces patchy air-space disease and hyperinflation rather than a localized congenital cystic malformation.

D. Pulmonary interstitial emphysema from ventilation, which requires prior positive-pressure exposure and is not usually detected as a fetal lung mass.

3. A very preterm infant has cystic lesions in the periventricular white matter on cranial ultrasound several weeks after birth. Which diagnosis is most likely?

A. Germinal-matrix hemorrhage alone, which is confined to the caudothalamic groove and does not produce cystic periventricular white-matter loss.

B. Arachnoid cyst, which is an extra-axial congenital lesion rather than acquired bilateral periventricular white-matter injury.

C. Subgaleal hemorrhage, which is extracranial and cannot create cystic changes within the periventricular brain.

D. Cystic periventricular leukomalacia, a form of preterm white-matter injury associated with later motor impairment.

4. A 39-week newborn required prolonged resuscitation and now has encephalopathy at 2 hours of age. Which finding most strongly supports evaluation for therapeutic hypothermia?

A. Isolated transient tachypnea with normal tone and feeding because respiratory distress alone predicts hypoxic-ischemic brain injury.

B. Any neonatal seizure occurring after 24 hours regardless of gestational age, timing, or evidence of a hypoxic-ischemic event.

C. Apgar score of 8 at 5 minutes with a normal neurologic examination and no evidence of metabolic acidosis.

D. Evidence of significant perinatal hypoxia-ischemia together with moderate or severe encephalopathy within the treatment window.

5. A newborn with severe symmetric fetal growth restriction has a short sternum, prominent heels, and persistent clenched fists in which the second and fifth fingers overlap adjacent digits. Which chromosomal diagnosis best fits this pattern?

A. Trisomy 21, which usually presents with sandal-gap toes and hypotonia rather than persistent clenched overlapping fingers.

B. Turner syndrome, which is associated with webbed neck and lymphedema but not the classic overlapping-finger pattern.

C. Trisomy 18, which commonly presents with severe growth restriction and the characteristic hand and foot abnormalities described.

D. Klinefelter syndrome, which generally has no distinctive severe dysmorphic neonatal phenotype or multiple congenital anomalies of this type.

6. A newborn after neurosurgery has persistent hypernatremia, very high urine output, and dilute urine despite rising serum osmolality. Which disorder is most likely?

A. Acute glomerulonephritis, which typically causes salt and water retention with oliguria rather than large volumes of dilute urine.

B. Central diabetes insipidus from inadequate antidiuretic hormone secretion, causing inability to concentrate urine despite rising serum osmolality.

C. SIADH, which causes water retention, hyponatremia, and inappropriately concentrated urine rather than polyuric hypernatremia.

D. Primary aldosterone excess, which causes sodium retention but does not explain profoundly dilute urine during hyperosmolality.

7. A preterm infant on fortified milk has excessive weight gain with generalized edema but poor linear and head growth. Which interpretation is most appropriate?

A. Weight alone may overestimate nutritional growth when fluid retention is present, so length, head circumference, body composition clues, and fluid status matter.

B. Rapid weight gain proves adequate protein accretion even when length and head circumference remain static for several weeks.

C. Edema indicates that caloric intake is inadequate and should automatically trigger higher fluid volume regardless of cardiopulmonary status.

D. Head circumference is less useful after full enteral feeds are reached, so weight and length should become the principal measures of nutritional progress.

8. A newborn has persistent omphalitis, delayed umbilical cord separation, marked neutrophilia, and poor pus formation. Which immune defect is most likely?

A. Selective IgA deficiency, which does not explain delayed cord separation or severe early bacterial soft-tissue infection.

B. Chronic granulomatous disease, which primarily impairs oxidative killing after neutrophils have migrated normally and does not typically cause delayed cord separation.

C. X-linked agammaglobulinemia, which usually becomes clinically apparent later as maternal IgG wanes and does not cause marked neonatal neutrophilia.

D. Leukocyte adhesion deficiency causing impaired neutrophil migration into tissues, with persistent leukocytosis, delayed cord separation, and little pus formation despite bacterial infection.

9. A newborn develops a flank mass, hematuria, thrombocytopenia, and hypertension. Doppler ultrasonography shows absent flow in a renal vein. Which diagnosis is most likely?

A. Posterior urethral valves, which produce a unilateral flank mass with renal-vein flow obstruction and thrombocytopenia.

B. Renal vein thrombosis, a neonatal thrombotic disorder associated with dehydration, sepsis, diabetes exposure, and other risk factors.

C. Wilms tumor, which is common in the first days after birth and characteristically causes thrombocytopenia from platelet consumption in the renal vein.

D. Nephrocalcinosis, which usually presents with gross hematuria, a palpable unilateral mass, and abrupt renal-vein occlusion.

10. A growth-restricted preterm infant is started on aggressive nutrition after several days of low intake. Serum phosphorus falls rapidly. What phenomenon should be considered?

A. Renal phosphate wasting from mature proximal tubules is expected because growth-restricted newborns have greater nephron mass than appropriate-size infants.

B. The change excludes nutritional disease because phosphorus typically rises, rather than falls, whenever protein and calories are introduced.

C. A refeeding-like shift with increased intracellular phosphate demand can occur when nutrition is advanced after significant fetal or postnatal undernutrition.

D. Phosphate falls because amino acids directly chelate phosphate in plasma and prevent tissue uptake during anabolic growth.

11. A newborn has pulmonary atresia with ventricular septal defect and ductal-dependent pulmonary blood flow. After prostaglandin E1 is started, which adverse effect requires particular vigilance?

A. Apnea can occur, so respiratory support and monitoring should be immediately available.

B. Severe persistent hypertension is expected because prostaglandin E1 is a potent systemic vasoconstrictor in neonates.

C. Marked hyperglycemia is the characteristic toxicity and usually requires continuous insulin before the first dose.

D. Ductal closure is accelerated, so oxygen saturation should fall within minutes if the infusion is working normally.

12. A preterm infant treated with prolonged furosemide develops echogenic foci in both renal pyramids. What is the most likely diagnosis?

A. Nephrocalcinosis related to hypercalciuria and prematurity, seen as medullary echogenicity from calcium deposition in a preterm infant exposed to loop diuretics.

B. Bilateral renal vein thrombosis, which can enlarge the kidneys and produce hematuria or thrombocytopenia but does not usually create symmetric medullary echogenic calcium deposits.

C. Autosomal recessive polycystic kidney disease, which can produce enlarged echogenic kidneys but not the acquired medullary calcification pattern after prolonged loop-diuretic exposure.

D. Acute pyelonephritis, which can alter renal echogenicity during infection but does not characteristically produce bilateral pyramidal calcifications after prolonged furosemide exposure.

13. A mechanically ventilated infant has worsening oxygenation from diffuse atelectasis. Which ventilation adjustment most directly promotes alveolar recruitment?

A. Decrease end-expiratory pressure to zero so collapsed alveoli can empty substantially between breaths and reopen more easily.

B. Lower mean airway pressure while increasing respiratory rate because recruitment depends primarily on minute ventilation rather than distending pressure.

C. Increase end-expiratory distending pressure cautiously while monitoring lung volume and hemodynamic response.

D. Induce hypocapnia by markedly increasing tidal volume because low carbon dioxide is the most reliable marker of adequate lung recruitment.

14. On day 4, a breast-fed newborn who did not receive prophylactic phytonadione has persistent oozing from heel-stick and circumcision sites. Platelets and fibrinogen are normal, but the prothrombin time is markedly prolonged. Which diagnosis best explains the bleeding?

A. Disseminated intravascular coagulation, which usually includes thrombocytopenia, low fibrinogen, and evidence of systemic illness.

B. Fetal-neonatal alloimmune thrombocytopenia, which causes severe thrombocytopenia rather than a normal platelet count with isolated coagulation-factor dysfunction.

C. Hemophilia A, which typically prolongs the aPTT rather than causing a markedly prolonged PT from multiple vitamin K-dependent factors.

D. Vitamin K deficiency bleeding due to inadequate activity of vitamin K-dependent coagulation factors.

15. A hydrophilic intravenous antibiotic has a larger volume of distribution per kilogram in a very preterm infant than in an older child. What neonatal characteristic best explains this?

A. The placenta continues to sequester intravenous drug after birth, effectively expanding the infant's distribution volume for several weeks.

B. High body-fat stores in extremely preterm infants draw hydrophilic drugs out of the circulation and into adipose tissue.

C. Preterm infants have a lower extracellular water fraction, so hydrophilic drugs remain concentrated almost entirely in plasma.

D. Preterm infants have a high proportion of total body and extracellular water, increasing distribution of water-soluble drugs.

16. A 25-week infant on CPAP has rising oxygen needs and increasing work of breathing. Chest radiograph remains consistent with RDS. What is the most appropriate next consideration?

A. Administer exogenous surfactant using an approach that minimizes invasive ventilation when feasible.

B. Begin inhaled nitric oxide routinely because surfactant deficiency is primarily a pulmonary vascular disorder in extremely preterm infants.

C. Give repeated diuretic doses as first-line therapy because pulmonary edema is the principal cause of early RDS in the first hours after birth.

D. Stop distending pressure and switch to room-air observation because increasing oxygen need indicates CPAP-induced lung injury rather than RDS progression.

17. A postoperative neonate gains weight over 24 hours while serum sodium falls to 124 mEq/L. Serum osmolality is low, urine output is modest, and the urine remains concentrated with measurable sodium despite no peripheral edema. What diagnosis is most likely?

A. Syndrome of inappropriate antidiuretic hormone secretion should be considered in the appropriate euvolemic clinical context.

B. Central diabetes insipidus is most likely because it causes concentrated urine and hyponatremia when antidiuretic hormone is absent.

C. Primary hyperaldosteronism is most likely because it causes renal sodium wasting and low serum osmolality in newborns.

D. Nephrogenic diabetes insipidus is most likely because it causes concentrated urine despite excessive free-water loss.

18. A newborn remains severely bradycardic despite effective ventilation and coordinated chest compressions. Which route is preferred for epinephrine during neonatal resuscitation?

A. Use intramuscular epinephrine because muscle absorption is more predictable than umbilical venous delivery during low cardiac output.

B. Use intravascular epinephrine, commonly through an umbilical venous catheter, when access can be obtained promptly.

C. Use oral epinephrine through an orogastric tube because gastric absorption remains reliable during neonatal cardiopulmonary resuscitation.

D. Use subcutaneous epinephrine because slower absorption reduces the risk of post-resuscitation hypertension in newborns.

19. Parents of an infant with a life-limiting condition ask whether palliative care means stopping all disease-directed treatment. What is the best response?

A. Palliative care is limited to opioid administration during the final hours of life and does not include communication or psychosocial support.

B. Palliative care can be provided alongside intensive or disease-directed treatment and focuses on comfort, communication, family support, and goals of care.

C. Palliative care begins primarily after life-prolonging therapies have been withdrawn and cannot coexist with intensive-care treatment.

D. Palliative care requires transfer out of the NICU because monitoring and symptom-focused care are mutually incompatible.

20. A newborn sustains rib and long-bone fractures with routine handling. Radiographs show diffuse osteopenia, and examination reveals blue sclerae. Which diagnosis is most likely?

A. Achondroplasia, which alters endochondral bone growth but does not typically cause multiple fractures and generalized undermineralization at birth.

B. Hypophosphatasia, which can cause severe undermineralization and fractures but is less consistent with blue sclerae and a collagen-pattern bone-fragility phenotype.

C. Osteogenesis imperfecta from a collagen-related bone fragility disorder, producing generalized osteopenia and recurrent fractures with minimal trauma, often with blue sclerae.

D. Thanatophoric dysplasia, which is characterized primarily by severe micromelia and a narrow thorax rather than diffuse bone fragility with blue sclerae.

21. A study is designed to show that a new treatment is not unacceptably worse than standard therapy by more than a prespecified margin. What type of trial is this?

A. A diagnostic accuracy study, which compares sensitivity and specificity rather than treatment outcomes.

B. A noninferiority trial, in which the margin must be clinically justified before outcomes are analyzed.

C. A case series, which requires a randomized comparator and a predefined noninferiority margin by definition.

D. A superiority trial, which tests whether two treatments are exactly equivalent within a prespecified margin.

22. A preterm infant with a large PDA has worsening pulmonary edema and systemic hypoperfusion. The team is considering cyclooxygenase inhibition. Which adverse effect is important to monitor?

A. Severe hyperglycemia is the principal dose-limiting toxicity because cyclooxygenase inhibitors directly inhibit pancreatic insulin release.

B. Reduced renal perfusion with oliguria and rising creatinine can occur during indomethacin or ibuprofen treatment.

C. Profound neutrophilia is expected because cyclooxygenase inhibition stimulates neonatal granulocyte production.

D. Persistent hypercalcemia is common because prostaglandin blockade increases parathyroid hormone secretion in preterm infants.

23. A newborn has conotruncal heart disease, hypocalcemia, and markedly reduced thymic tissue. Which genetic lesion should be suspected?

A. A 7q11.23 deletion causing Williams syndrome, which can produce cardiovascular disease but more typically supravalvar aortic stenosis than thymic hypoplasia with hypocalcemia.

B. A paternal 15q11-q13 deletion causing Prader-Willi syndrome, which can cause neonatal hypotonia and feeding difficulty but not this conotruncal-hypocalcemic-thymic pattern.

C. A 22q11.2 deletion affecting pharyngeal pouch development, causing conotruncal heart disease, hypoparathyroidism, and thymic hypoplasia.

D. An FMR1 full mutation causing fragile X syndrome, which may affect neurodevelopment but does not explain congenital thymic hypoplasia with hypocalcemia and conotruncal disease.

24. A very preterm infant has rising creatinine and falling urine output after a hypotensive septic episode. What is the most likely kidney problem?

A. Normal transitional renal physiology explains any creatinine rise after sepsis, so urine output and medication dosing do not need reassessment.

B. Acute kidney injury from impaired renal perfusion and possible intrinsic tubular injury should be suspected and nephrotoxic exposures reviewed.

C. Chronic kidney disease is established immediately because any increase in creatinine during the first month is irreversible in preterm infants.

D. Postrenal obstruction is certain because septic shock cannot reduce neonatal glomerular filtration unless an anatomic blockage is present.

25. A meta-analysis of neonatal trials shows substantial heterogeneity across studies. What does heterogeneity indicate?

A. The pooled estimate must be false because any heterogeneity invalidates meta-analysis and requires discarding most included study.

B. Heterogeneity means publication bias has been proven, even when small-study effects and missing negative studies have not been assessed.

C. The estimated treatment effects vary across studies more than would be expected from sampling error alone, prompting exploration of clinical and methodological differences.

D. All studies have identical populations and methods, so pooling them is automatically valid without examining study-level differences.

26. Computed tomography obtained after recurrent neonatal cyanosis shows bilateral congenital occlusion of the posterior nasal apertures. Which diagnosis best names this lesion?

A. Tracheoesophageal fistula, which causes coughing and choking with feeds rather than an inability to pass a nasal catheter bilaterally.

B. Bilateral choanal atresia from congenital obstruction of both posterior nasal apertures, producing neonatal nasal airway compromise.

C. Laryngomalacia, which causes inspiratory stridor from supraglottic collapse and generally does not improve specifically with crying by opening the oral airway.

D. Unilateral vocal-cord paralysis, which can cause a weak cry or stridor but does not obstruct both posterior nasal passages.

27. A growth-restricted term newborn has hematocrit of 72% and is lethargic with hypoglycemia. Which disorder is present?

A. Symptomatic neonatal polycythemia with hyperviscosity should be considered, and management depends on symptoms and confirmed venous hematocrit.

B. Anemia of prematurity is present because a high hematocrit reflects plasma-volume expansion rather than increased red-cell mass.

C. Hemophilia is most likely because hyperviscosity from factor VIII deficiency causes lethargy and hypoglycemia in growth-restricted infants.

D. Vitamin K deficiency is the primary diagnosis because it increases hematocrit by reducing plasma clotting-factor concentration.

28. A 25-week infant is cared for in a low-humidity environment and has brisk urine output. Over 72 hours, weight falls substantially and serum sodium increases to 154 mEq/L despite no sodium excess in the infusate. What is the most likely explanation?

A. Free-water loss from high insensible water loss is common in extremely preterm infants and can cause hypernatremia if fluid replacement is insufficient.

B. Hypernatremia in the first days of life is diagnostic of diabetes insipidus and should be treated with desmopressin before assessing fluid balance.

C. The hypernatremia proves primary renal sodium retention because immature kidneys concentrate urine more effectively than term kidneys.

D. Excess intracellular water shifts into plasma during normal transition, producing hypernatremia despite a positive water balance.

29. A newborn has improved after resuscitation that included prolonged ventilation and chest compressions. Which post-resuscitation principle is most important?

A. Restrict glucose monitoring because transient stress hyperglycemia eliminates the possibility of later hypoglycemia after resuscitation.

B. Maintain supraphysiologic oxygen saturation for several hours because hyperoxia improves cerebral oxygen delivery after an asphyxial event.

C. Induce mild hyperthermia to increase cerebral metabolism and accelerate lactate clearance after successful resuscitation.

D. Provide close monitoring and avoid secondary injury from hypoxemia, hyperoxia, hypocapnia, hypoglycemia, hyperthermia, or hemodynamic instability.

30. A critically cyanotic newborn has severe pulmonary edema despite no primary lung disease. Echocardiography shows a common pulmonary venous confluence descending through the diaphragm before reaching the systemic venous circulation, with marked flow restriction. Which congenital heart lesion is present?

A. A small ventricular septal defect, which causes pulmonary venous hypertension before pulmonary vascular resistance falls after birth.

B. Unobstructed partial anomalous pulmonary venous return, which usually causes immediate severe cyanosis and pulmonary edema at birth.

C. Obstructed total anomalous pulmonary venous return, a surgical emergency causing severe pulmonary venous hypertension and hypoxemia.

D. Isolated patent foramen ovale, which produces pulmonary venous obstruction when left atrial pressure exceeds right atrial pressure.

31. A 5-week-old infant has persistent direct hyperbilirubinemia, pale stools, and dark urine. Which diagnosis must be excluded promptly because earlier surgery improves outcome?

A. Gilbert syndrome, which causes mild unconjugated hyperbilirubinemia and does not produce cholestasis in a young infant.

B. Physiologic jaundice, which is unconjugated and does not cause pale stools or bilirubin in the urine.

C. Breast milk jaundice, which produces prolonged unconjugated hyperbilirubinemia with normally pigmented stools.

D. Biliary atresia, an obstructive cholangiopathy requiring urgent evaluation and timely surgical management.

32. A term infant with established meconium aspiration syndrome needs escalating ventilator pressures and oxygen. Which pair of complications should the team specifically anticipate as the lung disease becomes more severe?

A. Severe surfactant overproduction usually produces progressive bradypnea and low lung volumes without pulmonary vascular involvement.

B. Isolated pleural effusion is the defining complication because meconium directly increases fetal hydrostatic pressure in the pleural space.

C. Air leak and persistent pulmonary hypertension are important complications of meconium aspiration syndrome.

D. Pulmonary hypoplasia from chronic oligohydramnios is inevitable after any exposure to meconium-stained amniotic fluid.

33. A preterm infant has a hemodynamically significant patent ductus arteriosus. Which finding most strongly supports substantial left-to-right ductal shunting?

A. Left atrial and left ventricular volume loading with diastolic flow reversal in the descending aorta.

B. An isolated patent foramen ovale with normal chamber dimensions and normal descending-aortic diastolic flow.

C. Persistent right-to-left ductal flow throughout systole and diastole after pulmonary vascular resistance has normalized.

D. A small left atrium with isolated right-ventricular hypertrophy and no evidence of systemic steal.

34. A cyanotic newborn has a single loud second heart sound and severe hypoxemia that improves little with oxygen. Echocardiography shows the aorta arising from the right ventricle and the pulmonary artery from the left ventricle. What is the immediate physiologic priority?

A. Maintain or create adequate mixing between the parallel circulations, including prostaglandin support and urgent atrial septostomy when mixing is restrictive.

B. Give pulmonary vasodilators alone because transposition is primarily caused by elevated pulmonary vascular resistance after birth.

C. Reduce interatrial communication because atrial mixing increases systemic desaturation in complete transposition.

D. Close the ductus arteriosus with indomethacin because ductal flow worsens most forms of cyanotic congenital heart disease.

35. A newborn has persistent hypoglycemia with inappropriately detectable insulin, low ketones, and low free fatty acids during the episode. What disorder is most likely?

A. Growth hormone deficiency, which can contribute to neonatal hypoglycemia but would not explain inappropriately persistent insulin with suppressed ketone and free-fatty-acid production.

B. Congenital hyperinsulinism causing inappropriate insulin action during hypoglycemia, with suppression of ketone and free-fatty-acid production.

C. A fatty-acid oxidation disorder, which can cause hypoketotic hypoglycemia but should not produce inappropriately detectable insulin during the hypoglycemic episode.

D. Primary adrenal insufficiency, which may cause hypoglycemia and electrolyte abnormalities but does not account for persistent insulin action with suppression of lipolysis and ketogenesis.

36. One monochorionic twin is pale and anemic while the co-twin is plethoric and polycythemic, without major amniotic-fluid discordance. Which condition is most likely?

A. Fetal-neonatal alloimmune thrombocytopenia, which produces discordant red-cell masses between monochorionic twins through platelet-specific antibodies.

B. Twin anemia-polycythemia sequence from slow unbalanced transfusion through very small placental vascular anastomoses.

C. Rh hemolytic disease, which affects primarily one monochorionic twin because maternal IgG cannot cross into both fetal circulations.

D. Classic twin-to-twin transfusion syndrome, which typically produces identical hemoglobin values and differs primarily in amniotic-fluid volume.

37. What is the principal immunologic benefit of secretory IgA in human milk?

A. It replaces neutrophil function in preterm infants and therefore eliminates the risk of late-onset sepsis during hospitalization.

B. It crosses the neonatal gut intact into the bloodstream and becomes the infant's principal long-term circulating immunoglobulin.

C. It provides mucosal immune protection in the gastrointestinal tract without requiring systemic absorption in large amounts.

D. It activates complement so strongly that intestinal bacterial colonization is substantially prevented in breastfed infants.

38. A newborn has superficial pustules present at birth that rupture easily and leave hyperpigmented macules with a collarette of scale. Which diagnosis is most likely?

A. Transient neonatal pustular melanosis, a benign eruption present at birth in which fragile pustules leave hyperpigmented macules and collarettes of scale.

B. Erythema toxicum neonatorum, which usually develops after birth on an erythematous base and does not characteristically leave persistent hyperpigmented macules.

C. Congenital syphilis, which causes a more diffuse multisystem illness and palm-and-sole rash rather than this benign pustular sequence.

D. Neonatal HSV infection, which produces grouped vesicles or erosions and requires urgent antiviral evaluation rather than leaving benign pigmented spots.

39. A term infant has severe hypoxemic respiratory failure despite optimized ventilation. The oxygenation index is rising. What does the oxygenation index incorporate?

A. Mean airway pressure, inspired oxygen concentration, and arterial oxygen tension to quantify severity of hypoxemic respiratory failure.

B. Preductal saturation, postductal saturation, and heart rate to diagnose congenital heart disease without arterial blood sampling.

C. Tidal volume, respiratory rate, and arterial carbon dioxide tension to quantify primarily the adequacy of ventilation.

D. Serum lactate, mean arterial pressure, and hemoglobin concentration to estimate systemic oxygen delivery independent of lung function.

40. Positive-pressure ventilation has been started for an apneic newborn, but the heart rate remains 70/min and there is no visible chest movement. What should happen next?

A. Stop ventilation and provide tactile stimulation because persistent bradycardia after a few breaths suggests vagal suppression.

B. Administer sodium bicarbonate because absent chest movement indicates metabolic acidosis rather than inadequate ventilation.

C. Begin chest compressions immediately and defer airway correction until after sixty seconds of compressions.

D. Perform ventilation corrective steps to establish chest movement before escalating to chest compressions.

41. A term infant is delivered through thick meconium, is gasping, and has a heart rate of 90/min after drying and positioning. Which resuscitation action should not be delayed simply to perform routine tracheal suctioning?

A. Perform gastric lavage before airway support because swallowed meconium is the main determinant of meconium aspiration syndrome.

B. Prioritize the usual initial steps and effective ventilation when indicated rather than routinely intubating solely to suction meconium.

C. Perform routine endotracheal intubation and tracheal suctioning before any ventilation because meconium exposure overrides heart-rate assessment.

D. Avoid positive-pressure ventilation until visible meconium has been removed from below the vocal cords to prevent distal aspiration.

42. A 1.9-kg newborn is delivered to a mother who is hepatitis B surface-antigen positive. Which immediate postexposure strategy is indicated during the first 12 hours after birth?

A. Give hepatitis B vaccine alone in most cases because immune globulin adds no protection when maternal surface antigen is positive.

B. Give hepatitis B immune globulin alone and delay active vaccination until one year because newborn vaccine responses are ineffective after exposure.

C. Delay both interventions until infant hepatitis B surface antigen testing is available because prophylaxis can obscure the diagnosis.

D. Give hepatitis B vaccine and hepatitis B immune globulin at separate sites within 12 hours, with the vaccine schedule adjusted for birth weight as needed.

43. Prenatal imaging showed vertebral segmentation defects and a single umbilical artery. After birth, the infant has an imperforate anus, radial hypoplasia, a ventricular septal defect, and inability to pass an orogastric tube into the stomach. Which diagnosis best describes this malformation pattern?

A. CHARGE syndrome, in which coloboma and choanal atresia are central features and radial limb defects are not part of the defining acronym.

B. Noonan syndrome, which is characterized by RASopathy features and pulmonary stenosis rather than the described malformation cluster.

C. VACTERL association, defined by a nonrandom clustering of vertebral, anorectal, cardiac, tracheoesophageal, renal, and limb anomalies.

D. Trisomy 21, which can include cardiac and gastrointestinal disease but does not specifically define this six-system association.

44. A preterm infant is receiving gentamicin for sepsis. Why is therapeutic drug monitoring particularly useful?

A. Trough concentrations are irrelevant because aminoglycoside toxicity depends primarily on the peak level after the first dose.

B. Drug levels are unnecessary in preterm infants because body water and renal function are more predictable than in term infants or older children.

C. Gentamicin has a narrow therapeutic window and neonatal clearance varies with gestation, postnatal age, renal function, and illness.

D. Gentamicin is metabolized entirely by the liver, so serum concentrations measure hepatic enzyme induction rather than renal elimination.

45. A newborn has differential cyanosis with lower-extremity oxygen saturation lower than right-hand saturation. Which physiology can produce this finding?

A. Right-to-left shunting through the ductus arteriosus can deliver desaturated blood preferentially to the descending aorta.

B. A small muscular ventricular septal defect causes selective desaturation of the lower body by directing venous blood into the descending aorta.

C. Pulmonary venous obstruction produces oxygenated ductal blood that bypasses the lower body and enters primarily the right subclavian artery.

D. An isolated atrial septal defect produces desaturated blood primarily in the upper body because the brachiocephalic vessels arise before the atrial shunt.

46. A preterm infant develops pulmonary interstitial emphysema while mechanically ventilated. Which strategy is most appropriate?

A. Reduce ventilator pressures and tidal-volume exposure while maintaining adequate gas exchange, sometimes using high-frequency ventilation for severe disease.

B. Give repeated surfactant primarily to dissolve interstitial air collections after they have formed in the lung interstitium.

C. Increase peak inspiratory pressure to force interstitial gas back into the alveoli and restore uniform ventilation.

D. Eliminate all PEEP immediately because pulmonary interstitial emphysema is caused primarily by positive end-expiratory pressure.

47. Prenatal studies showed placentomegaly and organomegaly. After delivery, the infant has macroglossia, hemihyperplasia, ear pits, and persistent hyperinsulinemic hypoglycemia. Which imprinting disorder is most likely?

A. Trisomy 18, which usually causes severe growth restriction and multiple anomalies rather than macrosomia and hyperinsulinemic hypoglycemia.

B. Turner syndrome, which is associated with growth limitation and lymphedema rather than neonatal overgrowth with omphalocele.

C. Prader-Willi syndrome, which typically causes hypotonia and poor feeding in the newborn rather than prenatal overgrowth and macroglossia.

D. Beckwith-Wiedemann syndrome, an overgrowth disorder associated with macroglossia, abdominal-wall defects, and neonatal hypoglycemia.

48. A newborn has recurrent inspiratory stridor that worsens with feeding and when supine but improves when prone. Flexible laryngoscopy shows collapse of supraglottic structures during inspiration. What is the diagnosis?

A. Laryngomalacia, the most common congenital cause of stridor in otherwise stable young infants.

B. Bilateral choanal atresia, which causes cyanosis relieved by crying rather than dynamic supraglottic collapse on laryngoscopy.

C. Tracheoesophageal fistula, which typically presents with coughing and choking during feeds rather than isolated dynamic inspiratory stridor.

D. Subglottic stenosis, which produces a fixed narrowing below the vocal cords rather than inspiratory supraglottic collapse.

49. A newborn has profound lymphopenia and a positive newborn screen for severe combined immunodeficiency. What is the most important immediate precaution?

A. Delay immune evaluation until recurrent infections develop because neonatal lymphopenia is typically physiologic during the first month.

B. Give routine live vaccines early because controlled exposure accelerates T-cell maturation in severe combined immunodeficiency.

C. Avoid live vaccines and use infection-prevention measures while confirmatory immune evaluation and definitive therapy are arranged.

D. Administer high-dose corticosteroids to stimulate lymphocyte production before repeating the screening test.

50. At 36 hours of age, an otherwise healthy newborn develops crops of fleeting erythematous patches with tiny central pustules over the trunk. The palms and soles are spared, and the infant remains well. Which diagnosis is most likely?

A. Staphylococcal scalded skin syndrome, which causes diffuse tenderness, superficial blistering, and systemic illness rather than stable benign pustules.

B. Congenital candidiasis, which can produce diffuse papules and pustules but often begins at birth and may be followed by desquamation.

C. Erythema toxicum neonatorum, a benign self-limited eruption in an otherwise well newborn.

D. Disseminated neonatal herpes, which usually causes vesicles or erosions and may progress to systemic illness rather than a benign transient pustular eruption.

51. A preterm infant receiving caffeine develops unexplained persistent tachycardia and feeding intolerance after a dosing error is suspected. What is the most appropriate next step?

A. Review the administered dose and consider measuring a caffeine level when toxicity or unusual pharmacokinetics is suspected.

B. Give naloxone because methylxanthine toxicity is mediated by endogenous opioid accumulation in the immature liver.

C. Stop cardiorespiratory monitoring because caffeine adverse effects are limited to transient skin flushing in preterm infants.

D. Double the maintenance dose because tachycardia indicates inadequate central respiratory stimulation rather than possible toxicity.

52. Prenatal polyhydramnios and a persistently small fetal stomach were noted. After birth, an infant has copious secretions, and radiography shows an orogastric tube coiled in the upper mediastinum with gas present in the abdomen. Which diagnosis is most likely?

A. Malrotation without volvulus, which causes bilious vomiting but does not prevent passage of a tube through the esophagus.

B. Hypertrophic pyloric stenosis, which allows an orogastric tube to pass into the stomach and causes nonbilious vomiting weeks later.

C. Esophageal atresia with or without a tracheoesophageal fistula, with the proximal pouch preventing tube passage and a distal fistula suggested by gas in the abdomen.

D. Hirschsprung disease, which affects distal bowel innervation and does not cause immediate choking with feeds or esophageal obstruction.

53. A 29-week infant who recently reached near-full enteral feeds becomes lethargic with abdominal distention and bloody stool. Abdominal imaging demonstrates portal venous gas and bowel-wall pneumatosis. Which diagnosis is most likely?

A. Meconium ileus, which is usually present from birth with distal intestinal obstruction rather than new systemic illness after feeds are established.

B. Spontaneous intestinal perforation, which usually presents with an isolated focal perforation and does not characteristically produce pneumatosis intestinalis.

C. Necrotizing enterocolitis, which requires bowel rest, gastric decompression, antibiotics, and close assessment for perforation or clinical deterioration.

D. Hirschsprung disease, which causes delayed meconium passage and distal obstruction but does not typically cause pneumatosis in this acute presentation.

54. On day 5, a 23-week infant exposed to indomethacin and hydrocortisone abruptly develops a tense abdomen. Imaging shows a solitary intestinal perforation with free air but no pneumatosis or portal venous gas. Which diagnosis is most likely?

A. Spontaneous intestinal perforation, which can occur in extremely preterm infants as a focal perforation distinct from classic NEC.

B. Hirschsprung-associated enterocolitis, which typically causes an isolated ileal perforation in extremely preterm infants during the first week.

C. Meconium plug syndrome, which commonly causes free air from focal bowel-wall necrosis after exposure to indomethacin and steroids.

D. Necrotizing enterocolitis is certain because most neonatal intestinal perforation must be preceded by pneumatosis and bloody stool.

55. A fetus at 31 weeks is likely to be delivered because of rapidly progressive maternal disease. Which maternal medication is used shortly before anticipated early preterm birth primarily for fetal neuroprotection?

A. Maternal calcium gluconate given prophylactically to prevent neonatal seizures related to prematurity.

B. Maternal indomethacin administered immediately before birth to reduce cerebral blood flow and prevent periventricular leukomalacia.

C. Maternal magnesium sulfate given before anticipated early preterm birth when the gestational-age criteria for neuroprotection are met.

D. Maternal phenobarbital administered before delivery to reduce the incidence of neonatal intraventricular hemorrhage.

56. During the first day after birth, an infant of a mother with marked gestational hyperglycemia is found to have disproportionate interventricular septal hypertrophy that narrows the left-ventricular outflow tract. Which prenatal metabolic mechanism most likely produced this myocardial change?

A. Maternal diabetes causes fetal hypoinsulinemia, leading to myocardial atrophy and fixed subaortic stenosis.

B. Maternal hyperglycemia selectively injures the fetal coronary arteries, producing an acquired postnatal obstructive cardiomyopathy.

C. Fetal hyperinsulinemia related to maternal diabetes can produce transient hypertrophic cardiomyopathy and septal thickening.

D. Placental insulin crosses into the fetal circulation and directly stimulates permanent asymmetric septal hypertrophy.

57. A premature infant with BPD is receiving chronic diuretic therapy. Which issue deserves ongoing surveillance?

A. Severe polycythemia is a predictable direct effect of loop diuretics and is the main reason to stop therapy.

B. Electrolyte disturbances, nephrocalcinosis, and effects on growth should be weighed against any respiratory benefit.

C. Diuretics prevent most forms of pulmonary hypertension in BPD, so echocardiographic surveillance is no longer necessary once therapy begins.

D. Permanent suppression of surfactant synthesis is the expected therapeutic mechanism and should be confirmed with serial tracheal aspirates.

58. An Rh-negative mother with anti-D antibodies delivers an anemic jaundiced infant with a positive direct antiglobulin test. Which mechanism explains the disease?

A. The placenta actively removes fetal red cells carrying D antigen, producing anemia without an immune mechanism in the newborn.

B. Fetal red cells produce anti-D antibodies against maternal erythrocytes, causing secondary neonatal hemolysis.

C. Maternal IgM antibodies cross the placenta in large amounts and bind fetal red cells after delivery.

D. Maternal IgG antibodies cross the placenta and destroy fetal red cells carrying the target antigen.

59. A large-for-gestational-age newborn of a diabetic mother needs progressively higher glucose infusion rates to maintain normoglycemia. Which mechanism is most likely?

A. Fetal beta cells become unable to secrete insulin after chronic maternal hyperglycemia, causing low glucose through impaired hepatic glycogen storage.

B. Maternal insulin crosses the placenta in large amounts and continues circulating in the newborn for several days after birth.

C. Placental glucose transport abruptly reverses after delivery, actively pumping neonatal glucose back into the maternal circulation through the cord stump.

D. Persistent fetal hyperinsulinemia after interruption of maternal glucose supply causes increased glucose utilization and suppressed endogenous production.

60. A newborn with a U-shaped cleft palate has a very small mandible and recurrent desaturation because the tongue falls posteriorly during sleep. Which sequence is most likely?

A. Pierre Robin sequence, in which mandibular hypoplasia leads to posterior tongue displacement and often a cleft palate.

B. Choanal atresia, which causes posterior nasal obstruction but not glossoptosis from a small mandible.

C. Treacher Collins syndrome, which can include micrognathia and cleft palate but would usually have additional craniofacial findings such as malar hypoplasia and external-ear anomalies.

D. Laryngomalacia, which is caused by supraglottic collapse and does not explain congenital micrognathia or a cleft palate.

61. A 26-week infant is admitted after delivery with an axillary temperature of 34.8°C. Why is hypothermia particularly hazardous?

A. Preterm infants generate excess heat because of abundant brown fat, so a low measured temperature usually indicates thermometer error rather than physiologic risk.

B. Cold stress increases oxygen and glucose consumption and can worsen hypoglycemia, acidosis, and respiratory instability.

C. Cold stress lowers metabolic demand, so moderate hypothermia is protective for most preterm infants even without hypoxic-ischemic encephalopathy.

D. Hypothermia improves surfactant function and reduces pulmonary vascular resistance, making rewarming unnecessary when oxygenation is adequate.

62. An infant has a coloboma and unilateral choanal atresia. Further evaluation finds semicircular-canal abnormalities, feeding dysfunction, and a conotruncal heart defect. Which syndrome best unifies these findings?

A. Pierre Robin sequence, which consists primarily of micrognathia, glossoptosis, and airway obstruction and does not explain the multisystem findings.

B. CHARGE syndrome, commonly related to pathogenic variants in CHD7 and characterized by coloboma, heart disease, choanal atresia, developmental issues, genital findings, and ear anomalies.

C. VACTERL association, which requires a pattern of vertebral, anal, cardiac, tracheoesophageal, renal, and limb anomalies rather than coloboma and choanal atresia.

D. Williams syndrome, which is associated with supravalvar aortic stenosis and characteristic neurodevelopmental features rather than choanal atresia and coloboma.

63. A newborn delivered without labor has a respiratory rate of 76/min at 2 hours of age, mild oxygen requirement, hyperinflated lungs, and interlobar fissural fluid on chest imaging; symptoms begin to improve over the next day. Which diagnosis best explains this course?

A. Congenital diaphragmatic hernia, which generally produces bowel loops in the chest and a scaphoid abdomen rather than fissural fluid.

B. Neonatal respiratory distress syndrome from surfactant deficiency, which is more likely to show low lung volumes and diffuse granular opacities than fissural fluid and prominent perihilar markings.

C. Transient tachypnea of the newborn from delayed fetal lung-fluid clearance after cesarean birth, classically producing perihilar streaking and fissural fluid.

D. Meconium aspiration syndrome, which requires meconium-stained fluid and typically produces coarse patchy infiltrates with hyperinflation.

64. A newborn has profound weakness, absent reflexes, paradoxical breathing, and tongue fasciculations. Which diagnosis should be considered urgently?

A. Benign congenital hypotonia, which should not produce progressive respiratory weakness or tongue fasciculations.

B. Hypoxic-ischemic encephalopathy, which causes a central encephalopathy with altered consciousness rather than isolated lower-motor-neuron findings.

C. Spinal muscular atrophy, an anterior horn cell disorder causing profound symmetric weakness, absent reflexes, tongue fasciculations, and respiratory compromise.

D. Prader-Willi syndrome, which can cause neonatal hypotonia but generally preserves reflexes and does not cause tongue fasciculations from anterior horn cell loss.

65. On day 7, a 30-week infant has recurrent pauses in breathing lasting more than 20 seconds with associated bradycardia. Temperature, glucose, hematocrit, and infection evaluation are reassuring. Which medication is first-line therapy?

A. Caffeine citrate, which stimulates respiratory drive and reduces apnea of prematurity.

B. Furosemide, which treats apnea by reducing interstitial lung water even when there is no pulmonary edema.

C. Propranolol, which reduces bradycardic events by limiting sympathetic surges during periodic breathing.

D. Morphine, which stabilizes respiratory rhythm by reducing the infant's response to carbon dioxide fluctuations.

66. A ventilated preterm infant with evolving BPD has repeated episodes of hypocapnia. Why is marked hypocapnia undesirable?

A. Hypocapnia increases cerebral blood flow and therefore produces intraventricular hemorrhage exclusively through hyperperfusion.

B. Low carbon dioxide directly destroys surfactant molecules and is the main cause of recurrent respiratory distress syndrome after the first week.

C. Excessively low carbon dioxide can reduce cerebral blood flow and has been associated with neurologic injury in very preterm infants.

D. Hypocapnia causes pulmonary vasodilation severe enough to produce consistent left-to-right ductal steal in most preterm infants.

67. A newborn has repetitive rhythmic clonic movements of one arm that continue despite gentle restraint and are associated with an ictal EEG pattern. What are these events?

A. Benign jitteriness, which is stimulus-sensitive, suppresses with restraint, and has no ictal EEG correlate.

B. Normal Moro reflex activity, which is bilateral, stimulus-related, and not associated with sustained focal rhythmic movements.

C. Neonatal seizures, because the stereotyped movements persist with restraint and have electrographic correlation.

D. Sleep myoclonus, which occurs primarily while asleep, stops with arousal, and lacks an ictal EEG pattern.

68. A breastfed very preterm infant approaches discharge. Which micronutrient supplement commonly requires an explicit outpatient plan?

A. Iron supplementation is commonly needed because preterm infants have low iron stores and rapid postnatal growth.

B. Routine high-dose vitamin A injections are required for most discharged preterm infant until two years of age.

C. Folate should be withheld because rapid erythropoiesis after discharge increases the risk of folate toxicity in former preterm infants.

D. Copper supplementation should replace iron because human milk contains no bioavailable copper for preterm infants.

69. A stable 28-week infant has minimal enteral feeds started on day 2. What is the main rationale for small early enteral feed exposure?

A. Trophic feeds provide all required calories and protein, allowing parenteral nutrition to be discontinued immediately after the first feeding.

B. Trophic feeds prevent all episodes of NEC by keeping the bowel empty enough to avoid bacterial colonization.

C. Trophic feeds stimulate gut maturation and motility while full nutritional requirements are still supplied by parenteral nutrition.

D. Trophic feeds are used primarily to induce osmotic diarrhea so excess bilirubin is eliminated through the gastrointestinal tract.

70. A newborn has a regular narrow-complex tachycardia at 260/min, poor feeding, and mild hepatomegaly. The infant is hemodynamically stable. Which initial therapy is appropriate?

A. Observe without treatment because a heart rate above 250/min is a normal sinus response to feeding in a newborn.

B. Administer atropine because most neonatal supraventricular tachycardia is caused by excessive vagal tone at the atrioventricular node.

C. Give synchronized cardioversion immediately in most stable infant before attempting vagal maneuvers or adenosine.

D. Attempt vagal maneuvers and give rapid intravenous adenosine if the rhythm is consistent with re-entrant supraventricular tachycardia.

71. During consent for neonatal surgery, the parents speak little English and an adult relative offers to translate complex risks. Which communication practice best supports valid informed consent?

A. Use a qualified medical interpreter and confirm understanding rather than relying on a minor child or untrained family member to interpret.

B. Ask an older sibling to interpret because family members are more likely than trained interpreters to convey complex risk information accurately.

C. Provide the consent form in English primarily because signing the form itself establishes informed consent regardless of comprehension.

D. Use any bilingual visitor in the waiting room because formal interpretation is unnecessary when the decision is urgent but not emergent.

72. A newborn with severe pulmonary hypertension is receiving inhaled nitric oxide. What is its principal intended hemodynamic effect?

A. Potent constriction of pulmonary arteries in poorly ventilated regions to reduce intrapulmonary shunting.

B. Immediate reduction in pulmonary blood flow by decreasing right-ventricular contractility and oxygen consumption.

C. Selective pulmonary vasodilation in ventilated lung regions, lowering pulmonary vascular resistance with relatively little systemic vasodilation.

D. Direct systemic arteriolar vasoconstriction that raises systemic vascular resistance and closes the ductus arteriosus.

73. A 30-hour-old infant develops rapidly rising unconjugated bilirubin, anemia, reticulocytosis, and a positive direct antiglobulin test. What mechanism is most likely?

A. Immune-mediated hemolysis is increasing bilirubin production faster than the newborn can conjugate and excrete it.

B. Biliary obstruction is preventing conjugated bilirubin excretion and therefore causing isolated unconjugated hyperbilirubinemia with reticulocytosis.

C. Breast milk jaundice is causing acute red-cell destruction through maternal antibodies in the first 24 to 36 hours.

D. Physiologic jaundice alone is causing the anemia because normal bilirubin transition routinely produces marked reticulocytosis and a positive antiglobulin test.

74. A NICU wants to reduce central-line-associated bloodstream infections. Which strategy best reflects a systems-based quality approach?

A. Use a standardized insertion and maintenance bundle, track adherence and infection rates, and provide feedback to improve reliability.

B. Focus primarily on assigning blame to the person who inserted each infected line because system design rarely contributes to central-line infection.

C. Change antibiotics after most infection but do not measure line-care practices because process data cannot improve patient outcomes.

D. Rely on individual clinician memory because standardization reduces flexibility and therefore increases preventable variation.

75. A jaundiced newborn has a direct bilirubin concentration that is clearly elevated. Which statement is most accurate?

A. Phototherapy is the primary treatment because conjugated bilirubin is rapidly converted into water-soluble photoisomers in the skin.

B. Direct hyperbilirubinemia is a normal component of physiologic jaundice during the first two months and does not require evaluation if weight gain is adequate.

C. Conjugated hyperbilirubinemia is pathologic and warrants evaluation for hepatobiliary, infectious, metabolic, and other causes.

D. A high direct bilirubin level is reassuring because conjugated bilirubin cannot reflect serious liver or biliary disease in newborns.

76. An infant has microcephaly, petechiae, sensorineural hearing loss, and periventricular calcifications. Which test best establishes congenital cytomegalovirus infection?

A. CMV IgG testing at 6 months because maternal antibody has disappeared and therefore proves infection was present at birth.

B. A blood culture for CMV at 2 months because later viral detection distinguishes congenital infection from postnatal acquisition.

C. Maternal CMV IgM alone because neonatal testing is unnecessary when the mother had evidence of infection during pregnancy.

D. CMV nucleic acid testing of saliva or urine obtained within the first 3 weeks of life, with urine confirmation of a positive saliva screen.

77. A newborn has generalized edema, a broad forehead, widely spaced eyes, and severe pulmonary valve stenosis. Genetic testing identifies a pathogenic PTPN11 variant. Which diagnosis is confirmed?

A. Noonan syndrome, a RAS-MAPK pathway disorder associated with characteristic facies, lymphatic abnormalities, pulmonary stenosis, and hypertrophic cardiomyopathy.

B. Turner syndrome, which is a sex-chromosome disorder rather than a PTPN11-related condition.

C. Williams syndrome, which is caused by a 7q11.23 microdeletion rather than a pathogenic PTPN11 variant.

D. DiGeorge syndrome, which most often results from a 22q11.2 deletion and is associated with conotruncal rather than pulmonary valve lesions.

78. A former 25-week infant is seen at 8 months chronologic age, 5 months corrected age. Which age should be used when interpreting early developmental milestones?

A. Use gestational age at birth as the developmental age until the child reaches school age regardless of postnatal time elapsed.

B. Use chronologic age primarily because correction for prematurity is rarely appropriate after NICU discharge.

C. Use corrected age for prematurity during early childhood while also tracking the child's actual chronologic age for preventive care.

D. Subtract one full year from chronologic age for most infant born before 32 weeks, independent of actual degree of prematurity.

79. A former extremely preterm infant has poor postdischarge growth and increasing developmental delay. Which follow-up principle is most appropriate?

A. Treat developmental delay primarily after weight reaches the 50th percentile because therapy is ineffective during periods of suboptimal growth.

B. Evaluate nutrition and growth together with medical, sensory, neurologic, and family factors because growth and development are interdependent.

C. Increase calories without reassessing feeding safety because aspiration and oral-motor dysfunction do not contribute to poor growth in high-risk infants.

D. Assume the pattern reflects genetics alone because postdischarge nutrition has little relationship to brain growth or developmental progress.

80. A preterm infant on mechanical ventilation develops sudden oxygen desaturation and hypotension. The right chest is hyperexpanded with absent breath sounds. What is the most urgent action?

A. Treat a suspected tension pneumothorax immediately with decompression rather than waiting for confirmatory imaging in an unstable infant.

B. Give surfactant before any procedure because sudden unilateral hyperexpansion is a typical recurrence of diffuse RDS.

C. Obtain a CT scan before intervention because bedside examination cannot distinguish pneumothorax from pulmonary interstitial emphysema.

D. Increase inspiratory pressure to recruit the silent right lung because unilateral absent breath sounds most often indicate lobar atelectasis.

81. A newborn has episodic stiffening and abnormal eye deviation, but bedside observation cannot determine whether events are seizures. What is the best diagnostic tool?

A. Serum prolactin measured after each event reliably confirms neonatal seizures regardless of seizure type or timing.

B. Continuous or prolonged EEG monitoring is the standard way to identify electrographic neonatal seizures and quantify seizure burden.

C. Routine head circumference measurement can distinguish epileptic from nonepileptic events without electrical brain monitoring.

D. Cranial ultrasound alone identifies most seizure because neonatal seizures typically arise from visible structural lesions.

82. A pregnant patient has high-titer anti-D alloantibodies and fetal Doppler studies suggest anemia. Which fetal Doppler finding is used to noninvasively screen for clinically important fetal anemia?

A. A persistently closed fetal ductus venosus provides a specific measurement of fetal red-cell mass in alloimmune disease.

B. An isolated increase in maternal uterine artery resistance directly quantifies fetal hemoglobin and determines transfusion volume.

C. An increased peak systolic velocity in the fetal middle cerebral artery supports significant fetal anemia.

D. A decreased peak systolic velocity in the fetal middle cerebral artery is the characteristic response to reduced blood viscosity.

83. A term infant is markedly hypotonic. The infant is alert, has facial weakness, absent deep tendon reflexes, and weak respiratory effort. Which localization is most likely?

A. Benign sleep state is most likely because respiratory weakness and absent reflexes are expected findings in healthy sleepy term infants.

B. A peripheral motor-unit disorder is suggested by weakness with absent reflexes and preserved alertness.

C. Central hypotonia is certain because all neonatal hypotonia originates in the brain and preserves brisk reflexes primarily in older children.

D. A primary sensory disorder is most likely because absent reflexes with weakness indicates loss of vision and hearing rather than motor dysfunction.

84. A term infant has encephalopathy after a sentinel hypoxic event. MRI on day 5 shows bilateral basal ganglia and thalamic injury. What does this pattern suggest?

A. The pattern is typical of mild chronic placental insufficiency primarily and is not seen after abrupt catastrophic hypoxic events.

B. This pattern is specific for congenital CMV because periventricular calcifications evolve into bilateral basal ganglia infarction after birth.

C. Deep gray injury excludes hypoxic-ischemic encephalopathy and instead proves a benign metabolic transition with no prognostic significance.

D. A severe acute profound hypoxic-ischemic insult can preferentially injure deep gray nuclei.

85. An extremely preterm infant has evolving bronchopulmonary dysplasia and remains oxygen dependent at 36 weeks postmenstrual age. Which statement best describes modern BPD?

A. It is primarily an infectious pneumonia caused by prolonged oxygen exposure and resolves once airway cultures become negative.

B. It is defined primarily by radiographic fibrosis and can be diagnosed primarily in infants who received invasive ventilation for at least four weeks.

C. It occurs primarily after term birth because preterm lungs lack enough mature alveoli to develop chronic inflammatory lung disease.

D. It reflects disrupted lung development and injury in an immature lung, often with impaired alveolar and vascular growth rather than only fibrotic ventilator damage.

86. A 24-week infant has human milk feeds advanced slowly and is clinically stable. Which practice is most protective against NEC?

A. Prioritize mother's own milk, use donor human milk when necessary, and advance feeds using a consistent evidence-based protocol.

B. Use routine broad-spectrum oral antibiotics with each feed because suppressing intestinal bacteria reliably prevents NEC without harm.

C. Use hyperosmolar concentrated formula from the first feed because high nutrient density improves intestinal barrier maturation faster than human milk.

D. Delay all enteral nutrition for several weeks because prolonged fasting consistently lowers NEC risk compared with cautious early feeding.

87. A 25-week infant on broad-spectrum antibiotics and parenteral nutrition develops thrombocytopenia and persistent sepsis; blood culture grows Candida albicans. Which complication should be sought?

A. Candida bloodstream infection in preterm infants is typically limited to the catheter and rarely disseminates to deep organs.

B. Disseminated candidiasis can involve the kidneys, eyes, heart, brain, and other organs, so evaluation extends beyond the bloodstream.

C. The infection can be considered cured after one negative culture even if the infant remains unstable and the central catheter is still in place.

D. Topical nystatin alone is sufficient because systemic antifungals have no role once Candida is recovered from blood.

88. After a difficult delivery, one arm has absent shoulder abduction and weak elbow flexion, while finger flexion and grasp remain strong. Which nerve injury pattern is most likely?

A. Upper brachial plexus injury involving C5-C6, classically producing an Erb palsy pattern.

B. Clavicular fracture alone, which may reduce arm movement from pain but does not produce the characteristic fixed posture of an upper plexus lesion.

C. Lower brachial plexus injury involving C8-T1, which more often weakens the hand and may be associated with Horner syndrome.

D. Radial nerve palsy, which primarily causes wrist drop while shoulder abduction and elbow flexion are relatively preserved.

89. A newborn fails automated auditory brainstem response screening in both ears before discharge. What is the appropriate next step?

A. Repeat diagnostic audiology on the usual surveillance schedule because a normal newborn screen does not exclude later-onset or progressive hearing loss.

B. Diagnose bilateral permanent hearing loss immediately because false-positive newborn hearing screens do not occur.

C. Order temporal-bone surgery because a failed screen indicates congenital ossicular fixation in nearly all newborns.

D. Arrange timely repeat screening or diagnostic audiologic evaluation according to the hearing-screening pathway rather than assuming permanent deafness.

90. A very preterm infant meets criteria for retinopathy of prematurity screening. Why must examinations be timed by postmenstrual and postnatal age rather than waiting for visible eye symptoms?

A. primarily birth weight matters for timing because postmenstrual age does not influence when pathologic retinal neovascularization develops.

B. ROP can progress silently before external symptoms appear, and scheduled retinal examinations are timed to the expected course of retinal vascular development.

C. ROP typically causes obvious red-eye symptoms before retinal detachment, so screening is unnecessary in infants who appear visually attentive.

D. Routine retinal examination should begin immediately in the delivery room because severe ROP is fully developed at birth in very preterm infants.

91. A newborn with generalized hypotonia has a flat facial profile, a wide gap between the first two toes, duodenal atresia, and an atrioventricular septal defect. Which diagnosis is most likely?

A. Trisomy 18, which more often features clenched hands with overlapping fingers, growth restriction, and multiple severe anomalies.

B. 22q11.2 deletion syndrome, which more often produces conotruncal defects, hypocalcemia, and thymic hypoplasia than this phenotype.

C. Turner syndrome, which usually occurs in phenotypic females and is more strongly associated with coarctation and left-sided heart disease.

D. Trisomy 21, which is strongly associated with neonatal hypotonia and atrioventricular septal defects.

92. A stable newborn has a small membranous defect over the vertex where skin is absent and a thin translucent covering overlies the area. Which diagnosis is most likely?

A. Aplasia cutis congenita, which may be isolated or associated with genetic, vascular, or teratogenic conditions.

B. Nevus sebaceous, which presents as an intact yellow-orange plaque rather than congenital absence of skin.

C. Subgaleal hemorrhage, which causes diffuse fluctuant scalp swelling rather than a localized congenital skin defect.

D. Erythema toxicum, which produces transient inflammatory lesions and does not cause a fixed scalp defect at birth.

93. A newborn has rapidly increasing head circumference, bulging fontanelle, and setting-sun eyes. Cranial ultrasound shows marked ventricular enlargement. What is the primary concern?

A. Progressive hydrocephalus with raised intracranial pressure requiring urgent evaluation of the cause and need for cerebrospinal-fluid diversion.

B. Subgaleal hemorrhage is most likely because extracranial blood directly enlarges the cerebral ventricles.

C. Benign enlargement of the subarachnoid spaces is certain because bulging fontanelle and setting-sun eyes are normal findings during rapid neonatal growth.

D. Craniosynostosis is most likely because premature suture closure usually causes rapid head growth with a tense fontanelle.

94. A term newborn has severe thrombocytopenia and diffuse petechiae but is otherwise well. Maternal platelet count is normal, and a previous sibling had intracranial hemorrhage. Which diagnosis is most likely?

A. Congenital leukemia, which would more often produce systemic illness, organomegaly, or abnormal circulating cells rather than isolated alloimmune thrombocytopenia.

B. Fetal-neonatal alloimmune thrombocytopenia caused by maternal antibodies against a paternally inherited fetal platelet antigen.

C. Vitamin K deficiency bleeding, which causes coagulation-factor deficiency rather than isolated profound thrombocytopenia with maternal normal platelets.

D. Maternal immune thrombocytopenia, which generally requires maternal thrombocytopenia and does not recur with severe antigen-specific disease in otherwise healthy mothers.

95. A small-for-gestational-age term infant develops a focal seizure at 3 hours of age. A rapidly confirmed plasma glucose concentration is 26 mg/dL. What is the most appropriate immediate treatment?

A. Give prompt intravenous dextrose because the infant has symptomatic severe hypoglycemia.

B. Give primarily sterile water by mouth because enteral free water rapidly stimulates hepatic glycogenolysis in symptomatic newborns.

C. Observe and repeat the glucose in four hours because neurologic symptoms are expected during normal transitional hypoglycemia.

D. Begin insulin infusion because a low plasma glucose in the first hours indicates excessive hepatic glucose production after birth.

96. A newborn with a large myelomeningocele has lower-extremity weakness and hydrocephalus. Which associated brain malformation is common?

A. Dandy-Walker malformation, which involves posterior fossa and fourth-ventricular abnormalities but is not the classic hindbrain lesion accompanying an open myelomeningocele.

B. Agenesis of the corpus callosum, which may coexist with other CNS anomalies but does not specifically account for hindbrain herniation associated with an open neural tube defect.

C. Holoprosencephaly, which reflects failed forebrain cleavage and is associated with midline facial anomalies rather than the hindbrain abnormality linked to myelomeningocele.

D. Chiari II malformation with hindbrain displacement through the foramen magnum, strongly associated with open myelomeningocele and hydrocephalus.

97. A very-low-birth-weight infant has no maternal milk available. Which enteral feeding choice best reduces the risk of necrotizing enterocolitis compared with preterm formula?

A. Pasteurized donor human milk is preferred when mother's own milk is unavailable, recognizing that fortification is usually still needed.

B. Sterile water with parenteral amino acids is preferred because enteral protein exposure should be avoided until 34 weeks postmenstrual age.

C. Diluted term formula is preferred because reducing caloric density eliminates the risk of necrotizing enterocolitis during feed advancement.

D. Concentrated preterm formula is preferred because higher osmolality consistently prevents intestinal inflammation in very-low-birth-weight infants.

98. Monochorionic twins have a marked prenatal size discordance, polyhydramnios in one sac, and oligohydramnios in the other. Which placental mechanism best explains twin-to-twin transfusion syndrome?

A. Delayed closure of both fetal ductus arteriosi creates a pressure gradient that transfers blood across the dividing amniotic membrane.

B. Separate dichorionic placentas fuse late in gestation, allowing maternal blood to pass directly from one fetal circulation to the other.

C. Unbalanced blood flow through vascular anastomoses in a shared monochorionic placenta produces a donor-recipient circulation.

D. A single umbilical artery in the smaller twin diverts blood through the maternal intervillous space into the larger twin.

99. A 900-g infant on fortified human milk has rising alkaline phosphatase and low serum phosphorus. Which nutritional problem is most likely?

A. Excess iron supplementation is the usual cause because iron directly blocks intestinal phosphorus absorption in preterm infants.

B. Protein intolerance is diagnostic because low phosphorus indicates excessive amino-acid delivery rather than insufficient mineral intake.

C. Vitamin K deficiency is the most likely cause because it produces elevated alkaline phosphatase and isolated low phosphorus without bleeding.

D. Metabolic bone disease of prematurity from inadequate mineral accretion should be considered and calcium-phosphorus intake reviewed.

100. A vigorous 29-week infant is born without placental abruption or other need for immediate resuscitation. Before transfer to the warmer, which umbilical-cord strategy is generally preferred when obstetric conditions permit?

A. Leave the cord unclamped until spontaneous placental separation because several minutes of transfusion is required to obtain neonatal benefit.

B. Delay umbilical cord clamping briefly while maintaining thermal care, unless an obstetric or neonatal reason requires immediate clamping.

C. Clamp the cord immediately in most preterm birth because placental transfusion consistently increases severe intraventricular hemorrhage.

D. Milk the intact cord repeatedly in most extremely preterm infant because this is established as safer than delayed cord clamping at all gestations.

101. A jaundiced term infant develops poor feeding followed by retrocollis, intermittent opisthotonus, and a piercing cry. What bilirubin-related complication is most concerning?

A. Neonatal opioid withdrawal, which can cause irritability and hypertonia but would not explain the classic progression of neurologic dysfunction in a severely jaundiced infant.

B. Hypocalcemic tetany, which can produce jitteriness or seizures but does not characteristically cause retrocollis and opisthotonus in the setting of marked unconjugated hyperbilirubinemia.

C. Acute bilirubin encephalopathy, with early lethargy and hypotonia progressing to hypertonia, an abnormal cry, and opisthotonus.

D. Bacterial meningitis, which can cause lethargy and seizures but requires infectious evidence and does not specifically explain the bilirubin-associated pattern of evolving tone abnormalities.

102. A critically ill preterm infant has refractory hypotension, hyponatremia, and low cortisol for the clinical context. Which endocrine problem may contribute?

A. Primary hyperaldosteronism is the usual cause because excess aldosterone directly produces hyponatremia and persistent vasodilation.

B. Hyperparathyroidism should be assumed because parathyroid hormone is the principal neonatal regulator of systemic vascular resistance.

C. Congenital hyperthyroidism is the most likely explanation because thyroid hormone deficiency consistently causes catecholamine-resistant shock in the first hours.

D. Relative adrenal insufficiency can contribute to vasopressor-resistant hypotension in some critically ill preterm infants.

103. A 27-week infant develops grunting, retractions, and a diffuse reticulogranular pattern with air bronchograms shortly after birth. What is the primary pathophysiologic problem?

A. Surfactant deficiency causes low lung compliance, alveolar collapse, ventilation-perfusion mismatch, and increased work of breathing.

B. Primary ciliary dyskinesia causes immediate diffuse microatelectasis because neonatal cilia are required for surfactant secretion.

C. Excess surfactant lowers alveolar surface tension too much, causing diffuse overdistention and pulmonary air trapping.

D. Pulmonary venous obstruction is the usual cause of the granular radiographic pattern in extremely preterm infants.

104. A preterm infant on noninvasive support has frequent abdominal distention from swallowed air but no signs of NEC. Which practical measure can reduce this problem?

A. Increase enteral feeding volume rapidly because a fuller stomach prevents additional air entry during noninvasive ventilation.

B. Begin broad-spectrum antibiotics because CPAP-associated abdominal distention is diagnostic of early necrotizing enterocolitis.

C. Use an orogastric tube for intermittent or continuous gastric decompression while continuing necessary distending pressure.

D. Stop all positive airway pressure immediately because benign gaseous distention proves intestinal ischemia from CPAP.

105. Within hours of birth, an infant develops bullae at heel-stick, adhesive, and diaper-friction sites, with additional oral erosions after suctioning. Which diagnosis should be considered?

A. Erythema toxicum, which produces sterile pustules on an erythematous base rather than trauma-induced blistering and erosions.

B. Miliaria, which causes tiny sweat-duct papules and vesicles but not extensive friction-induced skin separation.

C. Nevus simplex, which is a capillary malformation and does not cause blistering after mechanical trauma.

D. Epidermolysis bullosa, an inherited skin-fragility disorder requiring gentle handling and multidisciplinary wound care.

106. A pale newborn is delivered after a placental abruption. Hemoglobin is very low, reticulocyte count is initially modest, and maternal testing demonstrates a large fetomaternal hemorrhage. What is the cause?

A. Acute fetal blood loss into the maternal circulation causing neonatal anemia and possible hypovolemic shock.

B. Anemia of prematurity, which develops gradually over weeks and does not present as profound anemia and shock immediately after birth.

C. Rh hemolytic disease, which requires maternal antibodies and causes immune red-cell destruction rather than direct fetal blood loss into maternal blood.

D. Hereditary spherocytosis, which can cause hemolysis but does not explain a large measured fetomaternal hemorrhage after placental abruption.

107. A patient with preterm prelabor rupture of membranes at 31 weeks is likely to deliver within 48 hours and has no evidence of intraamniotic infection. Which maternal treatment most directly promotes fetal lung maturation and lowers major prematurity-related morbidity?

A. Administer a course of antenatal corticosteroids before delivery if maternal and fetal status permit the brief treatment window.

B. Delay delivery for seven days regardless of maternal deterioration so fetal lung maturation can be completed without interruption.

C. Give maternal furosemide before delivery to reduce fetal lung water and improve postnatal pulmonary compliance.

D. Begin maternal indomethacin primarily to constrict the fetal ductus arteriosus before preterm delivery occurs.

108. A preterm infant receiving intravenous lipid develops a triglyceride concentration that is markedly elevated. What is the appropriate response?

A. Ignore the result because preterm infants cannot develop clinically relevant hypertriglyceridemia during parenteral nutrition.

B. Add a large glucose bolus because dextrose rapidly clears triglycerides by suppressing lipoprotein lipase activity.

C. Increase the lipid infusion because hypertriglyceridemia indicates inadequate delivery of essential fatty acids to peripheral tissues.

D. Reassess the lipid infusion rate and overall clinical context, reducing or temporarily holding lipid if levels remain excessive.

109. A 30-week infant has frequent emesis but is otherwise well, has a soft abdomen, and continues to pass stool. What is the best approach to interpreting gastric residuals and feeding tolerance?

A. Assess the whole clinical picture rather than using residual volume alone as a reason to stop feeds in an otherwise stable infant.

B. Stop all enteral feeds whenever any residual is present because residual volume alone reliably predicts necrotizing enterocolitis.

C. Use residual pH as the sole criterion for advancing feeds because abdominal examination and systemic signs add little information.

D. Increase feeding volume whenever residuals are green because bilious residuals prove rapid gastric emptying rather than possible pathology.

110. A term newborn has a harsh systolic murmur, weak pulses, and severe left-ventricular dysfunction. Echocardiography shows critical aortic stenosis. Why can prostaglandin E1 be helpful?

A. Prostaglandin directly dilates the stenotic aortic valve and serves as definitive therapy for fixed valvar obstruction.

B. Maintaining ductal patency can support systemic perfusion while urgent catheter-based or surgical relief of the obstruction is arranged.

C. Closing the ductus increases left-ventricular preload and reliably restores antegrade flow across a critically stenotic aortic valve.

D. The drug lowers pulmonary vascular resistance enough to eliminate the need for left-ventricular output in critical aortic stenosis.

111. A preterm infant receiving parenteral nutrition for several weeks develops direct hyperbilirubinemia. Which strategy may reduce progression of parenteral-nutrition-associated cholestasis?

A. Give routine phototherapy for the conjugated bilirubin because direct bilirubin is efficiently photoisomerized in the skin.

B. Advance enteral nutrition as tolerated and avoid excessive parenteral calories while reviewing lipid strategy and other cholestasis causes.

C. Eliminate all enteral feeds because intestinal stimulation increases enterohepatic bile acid circulation and worsens cholestasis.

D. Increase total parenteral calories above estimated needs because overfeeding accelerates bile flow and prevents hepatic fat deposition.

112. A neonatal infection assay has a specificity of 98%. Which statement best describes what that number tells you about infants who truly do not have the infection?

A. Among infants who do not have the target condition, about 98% will test negative.

B. The test result is 98% reproducible between laboratories, which describes reliability rather than specificity.

C. Among infants with the target condition, about 98% will test positive, which describes sensitivity.

D. Among infants with positive results, 98% must truly have disease regardless of prevalence, which describes positive predictive value.

113. A term infant with persistent abdominal distention undergoes contrast enema showing a narrow distal rectum and a transition to dilated proximal colon. Which diagnosis is most likely?

A. Hirschsprung disease from congenital distal aganglionosis, producing a narrow rectum, transition zone, and proximal functional obstruction.

B. Biliary atresia, which causes cholestatic jaundice and pale stools rather than neonatal distal intestinal obstruction.

C. Meconium ileus, which is caused by thick distal small-bowel meconium and is strongly associated with cystic fibrosis rather than a rectal transition-zone disorder.

D. Pyloric stenosis, which causes gastric-outlet obstruction and nonbilious vomiting rather than delayed meconium passage and distal colonic obstruction.

114. A newborn has severe hypotonia, weak cry, poor suck, and requires tube feeding. Reflexes are present. Which diagnosis should be considered when genetic testing shows loss of paternally expressed genes at 15q11-q13?

A. Angelman syndrome, which results from loss of maternally expressed UBE3A function and usually becomes apparent later with developmental and neurologic features.

B. Prader-Willi syndrome, which often presents in the neonatal period with profound hypotonia and feeding difficulty.

C. Spinal muscular atrophy, which produces anterior horn cell weakness but is not caused by an imprinting defect at 15q11-q13.

D. Myotonic dystrophy, which can cause neonatal hypotonia but follows a repeat-expansion mechanism rather than paternal 15q11-q13 loss.

115. A breastfed infant has prolonged hospitalization with little sunlight exposure. Which nutrient is routinely considered because human milk alone may not provide the recommended amount?

A. Vitamin D supplementation is generally required to support calcium absorption and bone health.

B. Vitamin E should be given in pharmacologic doses to most infants because human milk contains no antioxidant activity.

C. Vitamin C should be avoided because it prevents intestinal calcium absorption in breastfed newborns.

D. Vitamin B12 supplementation is universally required because maternal status does not influence its concentration in human milk.

116. A 46,XX newborn with virilized external genitalia returns on day 8 with poor feeding, shock, serum sodium 123 mEq/L, potassium 7.0 mEq/L, and low glucose. Which diagnosis should be considered urgently?

A. Salt-wasting congenital adrenal hyperplasia, most commonly from 21-hydroxylase deficiency.

B. Pyloric stenosis, which typically produces metabolic alkalosis with hypochloremia and does not explain ambiguous genitalia.

C. Congenital hypothyroidism, which usually produces hypernatremia and hypokalemia from excessive mineralocorticoid activity.

D. Central diabetes insipidus, which produces hypernatremic dehydration and dilute urine rather than hyperkalemic salt wasting.

117. A newborn of a mother with anti-Ro/SSA antibodies has persistent bradycardia at 55/min and atrioventricular dissociation. What is the most likely diagnosis?

A. Sinus bradycardia from transient neonatal hypothermia, which should preserve one-to-one atrioventricular conduction.

B. Patent ductus arteriosus with systemic steal, which causes atrioventricular dissociation through reduced coronary perfusion.

C. Supraventricular tachycardia with blocked atrial beats, which typically produces a ventricular rate above 200/min.

D. Congenital complete heart block associated with transplacental maternal autoantibodies.

118. A critically ill newborn has two medically reasonable treatment paths with different burdens and uncertain outcomes. What is the best decision-making approach?

A. Make the decision entirely within the clinical team because families cannot meaningfully participate when neonatal outcomes are uncertain.

B. Present primarily the option the attending personally prefers because discussing alternatives increases decisional conflict without benefit.

C. Ask the parents to choose without clinician guidance because any medical recommendation improperly interferes with parental autonomy.

D. Use shared decision-making that clearly explains prognosis and options, elicits family values, and makes a recommendation when appropriate.

119. A newborn with 22q11.2 deletion has an absent thymic shadow and very low T-cell numbers. Why is immune assessment essential before routine immunization?

A. The degree of T-cell deficiency is variable, and severe deficiency changes the safety of live vaccines and transfusion practices.

B. most infants with 22q11.2 deletion have normal T-cell immunity, so immune testing is unnecessary if calcium is corrected.

C. The primary immune defect is isolated neutrophilia, which makes live viral vaccines ineffective but rarely unsafe.

D. primarily B-cell function is affected, so T-cell counts do not influence infection risk or vaccine decisions in this condition.

120. A spontaneously breathing 29-week infant has moderate respiratory distress soon after birth but is maintaining an adequate heart rate. Which initial respiratory approach is generally favored?

A. Delay respiratory support until arterial carbon dioxide exceeds 80 mm Hg because early CPAP interferes with normal functional residual capacity.

B. Intubate most infant below 30 weeks immediately and provide high tidal-volume ventilation to prevent any spontaneous atelectasis.

C. Use noninvasive continuous positive airway pressure while minimizing unnecessary intubation, with surfactant considered if oxygen or pressure needs rise.

D. Provide supplemental oxygen by hood without positive pressure because CPAP increases the risk of surfactant deficiency in preterm lungs.

121. Umbilical arterial blood gas after a difficult delivery shows severe metabolic acidemia. Which interpretation is most appropriate?

A. Any umbilical arterial pH below normal proves permanent neurologic injury and makes the postnatal neurologic examination unnecessary.

B. Umbilical venous gas is typically a more direct measure of fetal metabolic status than the arterial sample because it reflects blood returning from the fetus.

C. A normal base deficit excludes intrapartum hypoxia even when there was a sentinel event and the infant has severe encephalopathy.

D. Cord acidemia supports significant fetal metabolic stress but must be interpreted with the clinical course and neurologic findings rather than used alone to diagnose HIE.

122. A term infant develops respiratory distress, temperature instability, and hypotension at 8 hours of age. Maternal GBS status was positive and intrapartum prophylaxis was inadequate. What is the most appropriate approach?

A. Observe without cultures because maternal GBS colonization causes disease primarily after 72 hours of age.

B. Give oral antibiotics primarily because systemic therapy is unnecessary until meningitis signs appear.

C. Obtain cultures and observe without empiric antibiotics initially, reserving treatment for microbiologic confirmation despite the infant's clinical symptoms.

D. Treat this symptomatic infant promptly for possible early-onset sepsis after obtaining appropriate cultures without delaying stabilization or antibiotics.

123. A newborn has alobar holoprosencephaly, microphthalmia, an occipital scalp defect, and postaxial polydactyly. Which chromosomal disorder best fits?

A. Turner syndrome, which may cause lymphedema and coarctation but not the typical combination of clefting and postaxial polydactyly.

B. Trisomy 13, which is associated with midline facial defects, polydactyly, severe neurologic abnormalities, and congenital heart disease.

C. 47,XXY Klinefelter syndrome, which is not associated with this pattern of severe structural malformations in the newborn period.

D. Trisomy 21, which commonly causes atrioventricular septal defects but is not characteristically associated with holoprosencephaly and polydactyly.

124. A preterm infant with cholestasis needs ongoing parenteral lipid. Which statement about lipid emulsions is most accurate?

A. Lipid must be stopped for a prolonged period at the first rise in direct bilirubin because essential fatty-acid deficiency cannot occur during neonatal hospitalization.

B. All intravenous lipid formulations have identical hepatic effects, so changing lipid strategy cannot influence parenteral-nutrition-associated liver disease.

C. The type and dose of intravenous lipid can influence cholestasis risk, and therapy should provide essential fatty acids while avoiding excessive lipid exposure.

D. Increasing soybean-oil lipid above usual energy requirements is the preferred treatment for established cholestasis because phytosterols stimulate bile flow.

125. A newborn has generalized lymphatic edema, hypertelorism, low-set ears, and a dysplastic pulmonary valve with significant stenosis. Which diagnosis is most likely?

A. Beckwith-Wiedemann syndrome, which features overgrowth, macroglossia, abdominal-wall defects, and neonatal hypoglycemia rather than pulmonary stenosis.

B. Turner syndrome, which requires complete or partial loss of an X chromosome and does not occur as the classic diagnosis in a 46,XY male.

C. Noonan syndrome, a RASopathy that can resemble Turner syndrome but occurs in both sexes and often includes pulmonary valve stenosis.

D. Williams syndrome, which is most strongly associated with supravalvar aortic stenosis and a different characteristic facial phenotype.

126. A cyanotic infant has tetralogy of Fallot and suddenly becomes deeply blue and irritable during feeding. What is the immediate bedside maneuver?

A. Give a rapid diuretic bolus because acute cyanosis is caused by pulmonary edema from excessive pulmonary blood flow.

B. Lay the infant flat with legs extended to reduce systemic vascular resistance and promote right-ventricular emptying.

C. Begin prostaglandin infusion primarily to close the ductus because ductal flow is the usual trigger for a hypercyanotic spell.

D. Place the infant in a knee-chest position and provide calming, oxygen, and further therapy to reduce right-to-left shunting.

127. A former preterm toddler has normal motor skills but significant language delay and difficulty with attention and executive function. Which statement is most accurate?

A. Executive-function difficulties are caused primarily by hearing loss and should not be attributed to prematurity-related brain development.

B. Normal gross motor development excludes clinically meaningful neurodevelopmental sequelae of prematurity in later childhood.

C. Language delay in former preterm infants typically resolves spontaneously and therefore does not warrant early speech-language evaluation.

D. Neurodevelopmental morbidity after prematurity can involve language, cognition, behavior, and executive function even without cerebral palsy.

128. A newborn with a structurally normal heart has severe sepsis, low systemic vascular resistance, bounding pulses, and hypotension. Which hemodynamic pattern is most likely?

A. Obstructive shock from ductal closure is the primarily neonatal shock state that can produce bounding pulses and warm extremities.

B. Pure cardiogenic shock is expected to cause low systemic vascular resistance and a hyperdynamic circulation in most septic newborn.

C. Distributive shock with pathologic vasodilation can produce low blood pressure despite normal or increased cardiac output early in the course.

D. Hypovolemic shock typically produces vasodilation and wide pulse pressure before any reduction in circulating blood volume occurs.

129. Investigators estimate a treatment relative risk of 0.76 for the primary outcome, with a 95% confidence interval extending from 0.55 to 1.06. Which conclusion is justified by this interval?

A. The point estimate suggests lower risk with treatment, but the interval includes 1.0, so the result is not statistically significant at the conventional two-sided 0.05 level.

B. The confidence interval proves that 80% of treated infants benefited and that the true effect cannot differ from the point estimate.

C. The treatment is proven harmful because most relative risk below 1.0 indicates an increased event rate in the treatment group.

D. The result is statistically significant because the confidence interval does not include zero, which is the null value for relative risk.

130. A preterm infant is being considered for extubation after RDS. Which finding most supports extubation readiness?

A. Severe hemodynamic instability requiring rapid escalation of vasoactive support while spontaneous respiratory effort remains absent.

B. A need for progressively higher peak pressure to maintain the same tidal volume despite worsening diffuse atelectasis.

C. Persistent frequent apnea requiring repeated stimulation despite maximal ventilatory support and escalating oxygen need.

D. Stable gas exchange on low ventilator settings with reliable spontaneous respiratory effort and a manageable oxygen requirement.

131. A growth-restricted preterm infant born after severe placental insufficiency has an absolute neutrophil count of 650/µL on day 1 but is clinically well. Which association is most likely?

A. Maternal hypertension causes consistent congenital agranulocytosis that persists unless the infant receives bone marrow transplantation.

B. Maternal hypertension and placental insufficiency can be associated with transient neonatal neutropenia from reduced neutrophil production.

C. The neutropenia is diagnostic of severe combined immunodeficiency because preeclampsia does not affect neonatal myeloid production.

D. Transient neutropenia in this setting is caused primarily by passive transfer of maternal insulin across the placenta.

132. A neonatal study reports an odds ratio of 2.0 for an outcome in exposed versus unexposed infants. Which interpretation is correct?

A. The odds of the outcome are twice as high in the exposed group, although the odds ratio is not always numerically equal to the risk ratio.

B. The result means the outcome occurs in 200% of exposed infants, so the reported study estimate is mathematically very unlikely.

C. Exactly twice as many exposed infants must develop the outcome because odds ratios and absolute risks are interchangeable at all event rates.

D. The exposure prevents half of all outcomes because an odds ratio above 1.0 indicates benefit rather than increased odds.

133. A 26-week infant has a grade III intraventricular hemorrhage with progressive ventricular enlargement. Which complication requires ongoing surveillance?

A. Hydrocephalus cannot develop after germinal-matrix hemorrhage because blood is confined for a prolonged period to the ventricular system.

B. Serial head circumference is unnecessary because ventricular size typically normalizes within several days after a grade III hemorrhage.

C. Posthemorrhagic ventricular dilatation can progress and may require serial cranial imaging and neurosurgical intervention.

D. The major expected complication is obstructive choanal atresia from elevated intracranial pressure rather than progressive ventricular dilatation.

134. A newborn has bowel herniating through a right-sided abdominal wall defect without a covering membrane. Which diagnosis is most likely?

A. Bladder exstrophy, which exposes bladder mucosa in the lower abdomen rather than free bowel through a paraumbilical defect.

B. Omphalocele, in which herniated abdominal contents are usually covered by a membrane and enter through the umbilical ring.

C. Gastroschisis, in which exposed bowel protrudes through a paraumbilical defect and requires protection from fluid and heat loss.

D. Umbilical hernia, which is skin-covered and does not expose bowel directly to the environment at birth.

135. A newborn has rhizomelic limb shortening, macrocephaly with frontal bossing, and a small thorax but normal intelligence is expected if complications are avoided. Which skeletal dysplasia is most likely?

A. Campomelic dysplasia, which typically includes bowed long bones and sex-development abnormalities rather than classic frontal bossing with rhizomelia.

B. Osteogenesis imperfecta type II, which is characterized by multiple fractures, undermineralization, and deformity rather than isolated rhizomelic shortening.

C. Thanatophoric dysplasia, which is usually lethal in the neonatal period because of severe thoracic restriction and much more extreme skeletal abnormalities.

D. Achondroplasia, an FGFR3-related skeletal dysplasia with rhizomelic shortening, macrocephaly, frontal bossing, and risk of foramen-magnum compression.

136. Prenatal ultrasonography shows ventriculomegaly and scattered intracranial calcifications. After birth, ophthalmologic examination reveals chorioretinitis. Which congenital infection is most likely?

A. Congenital toxoplasmosis, classically associated with chorioretinitis, hydrocephalus, and diffuse intracranial calcifications.

B. Congenital CMV infection, which can cause intracranial calcifications and sensorineural hearing loss but more often produces periventricular rather than diffuse calcifications with the classic toxoplasmosis triad.

C. Congenital rubella syndrome, which is associated with cataracts, sensorineural deafness, and congenital heart disease rather than hydrocephalus with diffuse intracranial calcifications.

D. Neonatal HSV infection, which may cause encephalitis and vesicular skin disease but is not characterized by the hydrocephalus-chorioretinitis-diffuse calcification pattern.

137. A breastfed 5-day-old term infant has 14% weight loss, poor feeding, scant urine, and serum sodium of 161 mEq/L. What is the main management principle?

A. Lower the serum sodium to normal within one hour using large hypotonic fluid boluses to prevent ongoing neuronal dehydration.

B. Restrict all fluids because high serum sodium indicates excessive total-body water rather than dehydration in a newborn.

C. Restore circulation if needed and correct hypernatremic dehydration gradually while urgently addressing inadequate milk transfer.

D. Give desmopressin immediately because breastfeeding-associated hypernatremia is usually caused by central diabetes insipidus.

138. A 2-day-old infant develops poor perfusion, metabolic acidosis, weak femoral pulses, and differential upper- and lower-extremity blood pressures as the ductus begins to close. Which lesion is most likely?

A. A tiny muscular ventricular septal defect causing abrupt systemic shock when pulmonary vascular resistance falls.

B. Critical coarctation of the aorta causing ductal-dependent systemic blood flow.

C. A small secundum atrial septal defect producing isolated right-sided volume loading without systemic hypoperfusion.

D. Mild pulmonary valve stenosis producing lower-extremity pulse deficits because of reduced pulmonary venous return.

139. Serial fetal studies show severe early-onset growth restriction with abnormal umbilical artery Doppler flow. Which neonatal problem is particularly likely after delivery?

A. Persistent neonatal hyperglycemia is expected because placental insufficiency produces excessive fetal glycogen stores before delivery.

B. Hypoglycemia, temperature instability, and hematologic abnormalities related to chronic placental insufficiency should be anticipated.

C. Isolated macrocytosis without other metabolic problems is the characteristic neonatal consequence of abnormal umbilical artery Doppler flow.

D. Marked postnatal hyperthermia is typical because growth-restricted infants have increased brown-fat reserves and reduced surface-area heat loss.

140. A newborn develops purulent conjunctivitis at 3 days of age with marked eyelid edema. Which organism is especially important because untreated infection can rapidly damage the cornea?

A. Cytomegalovirus, which causes chorioretinitis rather than a hyperpurulent anterior conjunctivitis in the first days after birth.

B. Candida albicans, which usually causes diffuse congenital skin lesions rather than rapidly destructive purulent ophthalmia.

C. Neisseria gonorrhoeae, which can cause hyperpurulent ophthalmia neonatorum and requires systemic treatment.

D. Chlamydia trachomatis, which commonly presents with conjunctivitis but is less likely to cause fulminant corneal ulceration within hours.

141. A newborn has snuffles, hepatosplenomegaly, desquamating rash involving palms and soles, and abnormal long-bone radiographs. Which diagnosis is most likely?

A. Congenital CMV infection, which may cause hepatosplenomegaly and rash but more typically produces petechiae, microcephaly, and periventricular calcifications than rhinitis with palm-and-sole lesions.

B. Congenital rubella syndrome, which may produce rash but is more strongly associated with cataracts, sensorineural hearing loss, and congenital heart disease than this mucocutaneous-bone pattern.

C. Neonatal HSV infection, which may cause vesicular lesions, encephalitis, or disseminated disease but does not characteristically produce snuffles, palm-and-sole rash, and long-bone abnormalities.

D. Congenital syphilis from transplacental Treponema pallidum infection, causing rhinitis, palm-and-sole rash, hepatosplenomegaly, and bone disease.

142. A newborn with respiratory distress has a chest radiograph showing a large hyperlucent left upper lobe compressing adjacent lung. Which diagnosis is most likely?

A. Pleural effusion, which creates homogeneous opacity and compresses the lung rather than a hyperlucent expanded lobe.

B. Congenital lobar overinflation causing progressive hyperexpansion of an affected lobe.

C. Pulmonary hypoplasia, which produces a small underdeveloped lung rather than focal progressive overinflation.

D. Diffuse neonatal RDS, which causes symmetric low lung volumes rather than focal lobar hyperinflation.

143. A newborn metabolic screening test has 95% sensitivity. If 100 infants truly have the screened disorder, approximately how many would be expected to test positive?

A. Among all positive tests, 95% are true positives regardless of disease prevalence, which defines positive predictive value.

B. Among infants who do not have the condition, about 95% will have a negative test, which defines specificity rather than sensitivity.

C. Among infants who truly have the target condition, about 95% will have a positive test.

D. The test reduces disease incidence by 95% compared with no screening, which is a treatment-effect measure rather than a diagnostic property.

144. A newborn with severe renal failure is receiving medications cleared primarily by the kidneys. What dosing principle is most appropriate?

A. Switch all renally eliminated drugs to intramuscular administration because route alone bypasses impaired kidney clearance.

B. Keep the same dose and interval because neonatal renal failure changes fluid balance but not drug elimination.

C. Increase most renally cleared dose because reduced glomerular filtration prevents drugs from reaching their target tissues.

D. Extend dosing intervals or reduce doses according to renal function and therapeutic monitoring rather than using standard neonatal dosing unchanged.

145. A newborn with trisomy 21 has leukocytosis, circulating blasts, thrombocytopenia, and hepatosplenomegaly, but the blast population later regresses spontaneously. What diagnosis is most likely?

A. Congenital leukemia, which can produce blasts and organ infiltration but is less likely than a trisomy-21-associated neonatal clonal proliferation that can regress spontaneously.

B. Transient abnormal myelopoiesis, the trisomy-21-associated clonal myeloid proliferation of the neonatal period that may regress spontaneously.

C. Leukemoid reaction, which can accompany severe infection or stress but does not explain a trisomy-21-associated clonal blast population with the characteristic neonatal course.

D. Acute lymphoblastic leukemia, which can present in infancy but is not the characteristic transient neonatal myeloid proliferation associated with trisomy 21.

146. A ventilated extremely preterm infant has volutrauma concerns. Which ventilation principle best reduces ventilator-induced lung injury?

A. Target the lowest effective tidal volume and pressure while allowing acceptable gas exchange rather than pursuing perfectly normal blood gases at high settings.

B. Maintain very low end-expiratory pressure because any PEEP worsens atelectasis by preventing complete exhalation in preterm lungs.

C. Use the largest achievable tidal volume so each breath recruits all alveoli and eliminates carbon dioxide substantially.

D. Normalize arterial carbon dioxide to the low 20s because hypocapnia protects the immature brain and reduces chronic lung disease.

147. A term newborn develops recurrent focal electrographic seizures after MRI demonstrates a unilateral arterial ischemic infarct. Glucose, calcium, and magnesium are normal. Which medication is commonly used as initial antiseizure therapy in the neonatal period?

A. Valproate is first-line in newborns because hepatic toxicity is lower in neonates than in older children.

B. Carbamazepine is routinely preferred for all acute neonatal seizures because it has the most extensive safety data in hypoxic-ischemic encephalopathy.

C. Chronic benzodiazepine infusion is typically preferred before any other agent because it improves long-term neurodevelopment independent of seizure control.

D. Phenobarbital remains a commonly used first-line medication for acute neonatal seizures.

148. At 5 months corrected age, a former 26-week infant has absent fidgety general movements and marked asymmetry on a standardized neurologic examination. What is the best next step?

A. Refer promptly for standardized developmental and neurologic assessment and early intervention rather than waiting for a definitive cerebral palsy diagnosis.

B. Repeat the neurologic examination after several additional months before referral because abnormal movement quality at this corrected age may evolve as prematurity-related tone abnormalities mature.

C. Obtain repeat brain MRI before starting therapy and base intervention on whether a new structural lesion is demonstrated rather than on the abnormal movement assessment alone.

D. Continue routine high-risk follow-up without immediate therapy because a definitive cerebral palsy diagnosis is generally required before targeted motor intervention is likely to change function.

149. Why should high-risk neonatal follow-up include formal hearing and vision surveillance rather than relying only on caregiver concern?

A. Sensory impairments may be subtle but strongly affect language, learning, and development, and former preterm or critically ill infants have increased risk.

B. Restrict repeat sensory testing to infants who failed the newborn screen because an initial pass substantially lowers the likelihood of clinically meaningful hearing or visual impairment.

C. Use caregiver concern and routine milestone surveillance as the principal screen because functional hearing and vision problems should become apparent through delayed communication or visual behavior.

D. Prioritize motor and cognitive testing over formal sensory surveillance because hearing and retinal disorders contribute less to early developmental performance once the infant is medically stable.

150. A quality-improvement team tests a new thermoregulation bundle in one delivery room for one week, reviews the temperature data, and modifies the process before another test. Which method does this resemble?

A. A blinded randomized controlled trial, because most quality-improvement change must conceal allocation from the clinical team.

B. A meta-analysis, because several sequential cycles within one hospital are statistically equivalent to pooling multiple independent trials.

C. A case-control study, because the team begins by selecting infants according to whether they were hypothermic and then assigns the intervention prospectively.

D. A Plan-Do-Study-Act cycle, an iterative quality-improvement method that plans a change, tests it on a small scale, studies results, and adapts the next cycle.

151. A preterm infant develops hypotension soon after birth. Echocardiography shows a small, underfilled left ventricle with good contractility. Which initial strategy best matches the physiology?

A. Evaluate for low preload and consider cautious volume replacement when clinical evidence supports intravascular volume depletion.

B. Give a large diuretic dose because a small ventricular cavity indicates occult pulmonary edema and excessive preload.

C. Avoid reassessing volume status because echocardiographic ventricular filling does not contribute to neonatal hemodynamic evaluation.

D. Start afterload reduction immediately because good contractility with a small cavity proves systemic vascular resistance is pathologically high.

152. A newborn of a mother with diabetes develops jitteriness. Glucose is normal, but ionized calcium is low and magnesium is also reduced. Which statement is most accurate?

A. Treat the symptomatic hypocalcemia with calcium first and recheck magnesium later, because mild neonatal hypomagnesemia commonly corrects without affecting parathyroid hormone responsiveness.

B. Interpret the low magnesium as a secondary consequence of hypocalcemia rather than a contributor, so calcium normalization should restore magnesium handling without separate replacement.

C. Hypomagnesemia can impair parathyroid hormone secretion or action, so magnesium status should be corrected when treating associated hypocalcemia.

D. Attribute the low calcium primarily to the infant-of-diabetic-mother state and manage it independently of magnesium, since the two electrolyte abnormalities arise through separate pathways.

153. A 25-week infant is receiving mother's expressed milk. Which nutritional strategy is most appropriate once enteral feeds are established and increasing?

A. Replace human milk with unfortified term formula because preterm infants absorb intact cow-milk protein more efficiently than human milk nutrients.

B. Avoid additional protein and minerals until term-corrected age because early fortification increases bone mineralization beyond safe neonatal levels.

C. Dilute human milk with sterile water because lower nutrient density reduces feeding intolerance and improves postnatal growth.

D. Fortify human milk to increase protein, energy, calcium, phosphorus, and micronutrient delivery for very preterm growth needs.

154. Following severe sepsis and shock, a preterm infant develops diffuse bleeding from lines and mucosal sites. Platelets and fibrinogen are low, PT and aPTT are prolonged, and fibrin breakdown markers are high. Which diagnosis is most likely?

A. Vitamin K deficiency alone, which prolongs vitamin K-dependent clotting tests but does not typically cause low fibrinogen with markedly elevated fibrin degradation products.

B. Disseminated intravascular coagulation with widespread coagulation activation and consumption of platelets and clotting factors.

C. Hemophilia A, which causes an isolated prolonged aPTT rather than thrombocytopenia, low fibrinogen, and prolonged PT during sepsis.

D. Fetal-neonatal alloimmune thrombocytopenia, which produces severe platelet loss but leaves fibrinogen and coagulation times generally unaffected.

155. A female newborn had a large cystic hygroma prenatally and now has puffy hands and feet, a broad shield-like chest, and a bicuspid aortic valve. Which diagnosis is most likely?

A. Prader-Willi syndrome, which primarily presents with neonatal hypotonia and feeding difficulty rather than webbed neck and left-sided heart disease.

B. Turner syndrome from monosomy X or another X-chromosome abnormality, fitting neonatal lymphedema, a broad chest, and left-sided cardiac disease.

C. Noonan syndrome, which can mimic some Turner features but occurs in either sex and is more strongly associated with pulmonary valve stenosis.

D. Trisomy 18, which usually causes severe growth restriction and clenched overlapping fingers rather than congenital peripheral lymphedema with coarctation.

156. A preterm infant has serum potassium of 7.1 mEq/L with peaked T waves. A repeat nonhemolyzed sample confirms the value. What is the immediate priority?

A. Administer sodium polystyrene sulfonate as the sole immediate therapy because it acts within minutes to reverse cardiac membrane instability.

B. Continue close monitoring while supporting renal perfusion because some preterm infants have transient nonoliguric hyperkalemia as renal and cellular handling matures.

C. Stabilize the myocardium with intravenous calcium while simultaneously initiating measures to shift and remove potassium.

D. Give a potassium-containing fluid bolus to increase distal sodium delivery and stimulate renal potassium excretion.

157. A newborn has fever, myocarditis, hepatitis, and coagulopathy in the first week of life during a community enterovirus outbreak. Which infection should be considered?

A. Neonatal tetanus, which presents with myocarditis and hepatitis rather than rigidity and spasms after an initially normal feeding period.

B. Severe neonatal enterovirus infection, which can cause sepsis-like illness with myocarditis, hepatitis, meningoencephalitis, or coagulopathy.

C. Congenital rubella, which typically causes acute fulminant myocarditis and coagulopathy during the first postnatal week in seasonal outbreaks.

D. Group B streptococcal colonization without invasive infection, which explains hepatitis and myocarditis even when blood cultures remain sterile.

158. A term infant has seizures on day 2. MRI shows an acute infarct in the left middle cerebral artery territory. Which diagnosis is most likely?

A. Perinatal arterial ischemic stroke causing focal neonatal seizures and a unilateral arterial-territory infarct on MRI.

B. Hypoxic-ischemic encephalopathy, which more often produces diffuse or characteristic watershed/deep-gray injury patterns rather than a unilateral arterial-territory infarct with focal seizures.

C. Germinal-matrix hemorrhage, which is typical of very preterm infants and originates near the caudothalamic groove rather than producing a focal arterial-territory cortical infarct.

D. Cerebral sinovenous thrombosis, which can cause seizures and hemorrhagic venous infarction but would be supported by venous sinus thrombosis rather than a unilateral arterial distribution.

159. A very preterm infant is approaching discharge on breast milk and fortified feeds. Which growth target is most useful?

A. Aim for the highest possible daily weight gain because rapid weight gain is beneficial even if it consists largely of fluid or fat mass.

B. Use birth-weight percentile alone because postnatal length and head-circumference measurements are too variable to influence nutritional decisions.

C. Follow serial weight, length, and head circumference using an appropriate preterm growth reference and evaluate trends rather than a single percentile.

D. Stop plotting growth after the infant reaches full enteral feeding because later growth trajectory does not predict nutritional adequacy.

160. A treatment reduces severe BPD from 28% in controls to 18% in treated infants. What is the number needed to treat?

A. The absolute risk reduction is 10 percentage points, so the number needed to treat is 1 divided by 0.10, or 10.

B. The relative risk reduction is 36%, so the number needed to treat is 36.

C. The absolute risk reduction is 46 percentage points, so the number needed to treat is approximately 2.

D. The relative risk is 0.64, so the number needed to treat is 0.64 infants.

161. Why are healthy term newborns partially protected from many systemic infections during the first months of life despite immature antibody production?

A. Breast-milk IgA enters the bloodstream intact in large quantities and replaces placental IgG as the main systemic antibody.

B. Placental transfer of maternal IgG provides passive systemic humoral protection that gradually wanes after birth.

C. Fetal B cells produce adult concentrations of high-affinity IgG before birth, making maternal antibody transfer clinically unimportant.

D. Maternal IgM crosses the placenta efficiently and remains the dominant serum immunoglobulin throughout the first year.

162. A pregnant patient has primary varicella infection 3 days before delivery. What neonatal issue is most important?

A. The newborn is at high risk for severe neonatal varicella and should receive exposure-specific prophylaxis and close monitoring according to current guidance.

B. The newborn is fully protected because maternal antibody transfer is maximal during the final 3 days before delivery after primary infection.

C. No precautions are needed because neonatal varicella occurs primarily after postnatal household exposure and not after maternal peripartum infection.

D. Routine live varicella vaccination at birth is the preferred prophylaxis because neonatal T-cell responses are fully mature.

163. Why do many renally eliminated medications require longer dosing intervals in very preterm infants than in older children?

A. Preterm kidneys clear drugs faster because renal blood flow is proportionally higher than in older children and adults.

B. Longer intervals are required because oral absorption is slower, even when the medication is given intravenously and eliminated unchanged in urine.

C. Glomerular filtration and tubular handling are immature, so drug clearance is reduced and half-life is prolonged.

D. Renal maturation affects primarily electrolytes, not medication elimination, so dosing intervals should be identical across pediatric ages.

164. In a randomized trial, several infants cross over from their assigned treatment to the other group. Which primary analysis best preserves the advantages of randomization?

A. Analyze participants according to their original randomized assignments using intention-to-treat analysis.

B. Exclude most infants with protocol deviations before analysis because this prevents bias more effectively than retaining randomized groups.

C. Analyze participants according to treatment received because crossover may better reflect the biologic effect of the intervention than original assignment.

D. Analyze primarily infants who completed the assigned treatment because excluding crossover preserves the original balance between groups.

165. A preterm infant with a central venous catheter develops late-onset sepsis and repeated blood cultures grow coagulase-negative staphylococci. What is an important management consideration?

A. Ignore repeated cultures because coagulase-negative staphylococci rarely cause true bloodstream infection in very-low-birth-weight infants.

B. Assess whether the catheter is the infection source and remove or replace it when persistent bacteremia or clinical circumstances make line salvage unsafe.

C. Treat primarily with topical antibiotics at the catheter site because systemic antibiotics do not penetrate neonatal central-line biofilms.

D. Keep the catheter indefinitely because removing central access during bacteremia increases the bacterial inoculum into the bloodstream.

166. A newborn has metabolic acidosis, ketosis, and a sweet odor to the urine after feeds begin. Which broad diagnostic approach is most appropriate?

A. Obtain the newborn-screen specimen and provide supportive care pending the result because confirmatory biochemical testing can then guide disorder-specific treatment.

B. Stop intravenous glucose because dextrose worsens catabolism and increases production of toxic metabolites in most inborn errors.

C. Assume simple physiologic transitional acidosis because ketosis after feeding excludes an inherited metabolic disorder in newborns.

D. Treat the infant as a possible inborn error of metabolism while stabilizing glucose and acid-base status and obtaining targeted metabolic studies before prolonged fasting.

167. A newborn has recurrent catalase-positive bacterial and fungal infections later in infancy, and testing shows defective neutrophil oxidative burst. Which disorder is most likely?

A. Hereditary angioedema, which involves complement regulation and does not produce defective neutrophil respiratory burst testing.

B. Leukocyte adhesion deficiency, in which oxidative burst is preserved but neutrophil migration is impaired.

C. Chronic granulomatous disease caused by impaired phagocyte NADPH oxidase activity.

D. Severe combined immunodeficiency, which causes profound lymphocyte dysfunction rather than an isolated defective neutrophil oxidative burst.

168. A newborn has severe cyanosis, no effective antegrade pulmonary blood flow, and pulmonary atresia with an intact ventricular septum. What initial therapy is often required?

A. Close the ductus with ibuprofen because pulmonary blood flow should be routed entirely through the atretic pulmonary valve.

B. Give loop diuretics as definitive therapy because pulmonary atresia is primarily a disorder of pulmonary venous congestion.

C. Restrict supplemental oxygen because lowering pulmonary vascular resistance typically decreases ductal pulmonary blood flow in this lesion.

D. Maintain ductal patency with prostaglandin E1 to support pulmonary blood flow while anatomy and intervention are defined.

169. A term newborn develops sudden bilious vomiting and abdominal pain. Upper gastrointestinal imaging shows a corkscrew configuration of the proximal small bowel. What is the diagnosis?

A. Gastroesophageal reflux, which may cause effortless regurgitation but does not produce bilious emesis with a corkscrew bowel pattern.

B. Hypertrophic pyloric stenosis, which causes nonbilious projectile vomiting and usually presents after the immediate newborn period.

C. Midgut volvulus due to intestinal malrotation, requiring urgent surgical evaluation to prevent bowel ischemia.

D. Duodenal web without malrotation, which can cause obstruction but does not create the classic twisting configuration of a volvulus.

170. A cohort study finds that infants exposed to prolonged mechanical ventilation have more neurodevelopmental impairment, but the exposed infants were also much more premature and critically ill. What is the major epidemiologic concern?

A. Specificity bias is the main concern because the study did not report a diagnostic test with enough true-negative results.

B. Randomization bias is the main concern because cohort studies typically randomly assign infants to exposure groups without concealment.

C. Confounding by illness severity and gestational age may create or exaggerate an association between ventilation exposure and outcome.

D. Recall bias is very unlikely in observational studies, so the association can be interpreted as causal without adjustment.

171. A term infant with moderate hypoxic-ischemic encephalopathy begins whole-body cooling at 4 hours of age. What temperature-management principle is essential?

A. Allow temperature to fall as low as possible because deeper hypothermia produces greater neuroprotection without systemic adverse effects.

B. Maintain the target hypothermia range with continuous core-temperature monitoring and avoid unintended overcooling or rapid rewarming.

C. Rewarm rapidly once seizures stop because the neuroprotective effect ends as soon as electrographic seizure activity resolves.

D. Use surface temperature alone because core temperature can be ignored during therapeutic hypothermia in newborns.

172. A fetus with bilateral renal agenesis has prolonged anhydramnios and a persistently small thoracic circumference. Which neonatal respiratory problem should be anticipated at delivery?

A. Surfactant overproduction commonly causes transient hyperinflation because reduced amniotic fluid accelerates type II pneumocyte maturation.

B. Isolated upper-airway edema is expected because oligohydramnios affects laryngeal development but not distal lung growth.

C. Pulmonary hypoplasia can cause severe respiratory failure because prolonged oligohydramnios impairs normal lung growth.

D. Persistent fetal circulation is prevented because low amniotic fluid chronically lowers fetal pulmonary vascular resistance before birth.

173. A newborn screen shows markedly elevated TSH and low thyroxine is confirmed on serum testing. What is the treatment priority?

A. Begin methimazole because an elevated TSH indicates excessive thyroid stimulation and neonatal thyrotoxicosis.

B. Delay treatment until clinical signs develop because neonatal thyroid hormone does not influence brain development during the first months.

C. Use iodine alone as definitive therapy because congenital hypothyroidism is almost typically caused by maternal iodine deficiency in high-income settings.

D. Start levothyroxine promptly because delayed replacement increases the risk of preventable neurodevelopmental impairment.

174. A term infant is born with severe respiratory distress, a scaphoid abdomen, bowel sounds over the left chest, and mediastinal shift. Which initial respiratory approach is preferred?

A. Provide vigorous bag-mask ventilation to expand the hypoplastic lung before intubation and delay gastric decompression until radiography is obtained.

B. Perform immediate surgical repair before cardiorespiratory stabilization because reducing the bowel is the fastest way to reverse pulmonary hypoplasia.

C. Start nasal CPAP and oral feeds because spontaneous breathing enlarges the ipsilateral lung more effectively than controlled ventilation.

D. Intubate promptly, avoid routine bag-mask ventilation, decompress the stomach, and use gentle ventilation while stabilizing pulmonary hypertension.

175. A preterm infant has persistent oxygen need and echocardiographic evidence of pulmonary hypertension associated with BPD. What is an important first management principle?

A. Optimize oxygenation, ventilation, lung disease, nutrition, and contributing cardiac lesions before or alongside targeted pulmonary vasodilator therapy.

B. Stop nutritional fortification because accelerated somatic growth increases pulmonary vascular resistance in chronic lung disease.

C. Allow chronic hypoxemia because low alveolar oxygen tension reduces pulmonary artery pressure in infants with established BPD.

D. Close most small atrial communication immediately because any interatrial shunt is the sole cause of BPD-associated pulmonary hypertension.

176. After endotracheal intubation, a newborn receives 30 seconds of ventilation that produces consistent bilateral chest movement. The heart rate remains 55/min. Which intervention should now be added to the resuscitation?

A. Begin coordinated chest compressions with ventilation through an alternative airway, use 100% oxygen during compressions, and obtain vascular access for possible epinephrine.

B. Continue ventilation alone for another five minutes because compressions are not used in neonatal resuscitation until the heart rate is absent.

C. Give intramuscular epinephrine and stop ventilation while the medication is absorbed.

D. Perform synchronized cardioversion because a heart rate below 60/min usually represents a primary neonatal tachyarrhythmia.

177. A newborn has supravalvar aortic stenosis, characteristic facial features, and later is found to have hypercalcemia. Which microdeletion syndrome is most likely?

A. Noonan syndrome, which can feature pulmonary stenosis or hypertrophic cardiomyopathy but is not classically linked to supravalvar aortic stenosis with infantile hypercalcemia.

B. Williams syndrome from a 7q11.23 deletion involving ELN, classically associated with supravalvar aortic stenosis and possible infantile hypercalcemia.

C. 22q11.2 deletion syndrome, which can cause conotruncal heart disease and hypocalcemia but does not fit supravalvar aortic stenosis with hypercalcemia.

D. Turner syndrome, which can cause coarctation and left-sided heart disease but is not typically associated with supravalvar aortic stenosis and infantile hypercalcemia.

178. A ventilated preterm infant has a large endotracheal tube leak and highly variable delivered tidal volumes. Why is volume-targeted ventilation useful when technically feasible?

A. It guarantees normal carbon dioxide regardless of spontaneous breathing, tube position, or changing lung mechanics.

B. It adjusts inspiratory pressure to deliver a more consistent target tidal volume as lung compliance changes, reducing inadvertent volutrauma.

C. It prevents most endotracheal tube leaks by increasing cuff pressure, which is the main mechanism by which preterm ventilation becomes stable.

D. It fixes inspiratory pressure at a constant high value so tidal volume rises automatically as lung disease improves.

179. A preterm infant has a large cerebellar hemorrhage detected on MRI after nonspecific instability. Why is this lesion clinically important?

A. Cerebellar injury in preterm infants is associated with later motor, cognitive, language, and behavioral difficulties and may be missed by limited ultrasound views.

B. The principal long-term concern is appendicular ataxia, while language and cognitive outcomes are largely determined by supratentorial injury rather than the cerebellar lesion itself.

C. Prognosis is mainly related to whether the hemorrhage causes posterior-fossa mass effect or hydrocephalus; an isolated lesion without ventricular obstruction generally has little developmental significance.

D. The lesion matters chiefly as a marker of overall illness severity, with limited independent association with later motor, language, or behavioral outcomes after adjustment for prematurity.

180. A newborn is born to a mother with HIV who received antiretroviral therapy during pregnancy. Which statement is most accurate about neonatal management?

A. A positive HIV antibody test in the newborn proves infection because maternal IgG does not cross the placenta.

B. The infant needs antiretroviral prophylaxis or presumptive therapy based on transmission risk and virologic testing rather than antibody testing alone.

C. No neonatal medication is indicated if the mother received any prenatal therapy, regardless of viral load near delivery.

D. HIV PCR should be delayed until 18 months because nucleic acid tests cannot detect infection while maternal antibodies remain present.

181. A newborn has vesicular skin lesions, seizures, and elevated transaminases at 10 days of life. Which infection requires immediate empiric therapy while testing is underway?

A. Toxoplasmosis, treated initially with intravenous acyclovir because seizures indicate active viral replication in the brain.

B. Congenital rubella, treated with oral ribavirin because vesicles and hepatitis are typical manifestations in the second week.

C. Neonatal herpes simplex virus infection, treated promptly with intravenous acyclovir.

D. Group B streptococcal sepsis, treated with topical antiviral therapy because vesicular lesions indicate localized disease primarily.

182. Prenatal ultrasound shows bilateral hydronephrosis and a distended thick-walled bladder in a male fetus. After birth the infant has a weak urinary stream. Which lesion is most likely?

A. Ureteropelvic junction obstruction, which may cause unilateral hydronephrosis but does not usually produce a distended bladder with bilateral upper-tract dilation and a weak urinary stream.

B. Prune-belly syndrome, which can include urinary tract dilation but is accompanied by deficient abdominal musculature and cryptorchidism rather than an isolated obstructing urethral membrane.

C. Neurogenic bladder, which can cause retention and upper-tract dilation but would usually have a neurologic substrate rather than a congenital male urethral obstruction.

D. Posterior urethral valves, a congenital male bladder-outlet obstruction causing a distended bladder, bilateral hydronephrosis, and weak urinary stream.

183. A pregnancy has preterm prelabor rupture of membranes at 30 weeks without labor, chorioamnionitis, or fetal compromise. Which management strategy is most appropriate if expectant management is otherwise planned?

A. Give repeated weekly corticosteroid courses until delivery because continuing exposure is required to maintain fetal lung maturity.

B. Perform immediate cesarean delivery because membrane rupture before 34 weeks is itself an indication for operative delivery.

C. Avoid antibiotics unless maternal fever develops because antepartum antibiotics increase neonatal early-onset sepsis risk in this setting.

D. Use latency antibiotics and antenatal corticosteroids while monitoring closely for infection, labor, and fetal compromise.

184. A high-risk infant's Bayley developmental score is below average at 18 months. How should the result be interpreted?

A. It provides an exact immutable prediction of adult intelligence and should be used alone to determine long-term educational placement.

B. A low score proves the infant has cerebral palsy even when motor examination, tone, and movement quality are normal.

C. It is one standardized snapshot that should be integrated with neurologic examination, functional skills, sensory status, environment, and longitudinal trajectory.

D. It is invalid in former preterm infants because standardized developmental tests cannot be adjusted for age or clinical context.

185. A term infant with persistent pulmonary hypertension has severe hypoxemia. Which echocardiographic pattern is most consistent with the diagnosis?

A. Elevated right-sided pressures with right-to-left or bidirectional shunting at the ductus arteriosus or foramen ovale in the absence of a structural lesion explaining the hypoxemia.

B. Isolated left atrial enlargement with normal right-ventricular pressure and normal direction of flow across the ductus arteriosus.

C. Low right-ventricular pressure with fixed left-to-right ductal shunting and no septal flattening during severe hypoxemia.

D. Severe left-ventricular outflow obstruction with no interatrial or ductal shunting and normal pulmonary artery pressure.

186. A newborn with family ancestry associated with G6PD deficiency develops sudden severe jaundice after exposure to an oxidant medication. What mechanism is responsible?

A. The medication blocks bilirubin conjugation directly but does not injure red cells, so anemia and reticulocytosis should not occur.

B. G6PD deficiency causes immune anti-red-cell antibodies that make the direct antiglobulin test strongly positive during most episode.

C. Oxidative stress causes episodic hemolysis in red cells with inadequate glucose-6-phosphate dehydrogenase activity.

D. The disorder prevents intestinal bilirubin excretion by producing congenital absence of bile ducts rather than red-cell vulnerability.

187. A newborn with prenatally diagnosed hypoplastic left heart syndrome develops worsening acidosis and weak systemic pulses as ductal flow decreases after birth. Which medication is most urgent during stabilization?

A. Start digoxin as sole therapy because augmenting left-ventricular contractility restores systemic output in hypoplastic left heart syndrome.

B. Administer inhaled nitric oxide to close the ductus and redirect blood from the pulmonary to the systemic circulation.

C. Give indomethacin to close the ductus and reduce pulmonary overcirculation before any other intervention.

D. Begin prostaglandin E1 to maintain ductal patency and systemic blood flow.

188. A pregnant patient receives chronic opioid therapy and the fetus is expected to be exposed through delivery. What is the most appropriate neonatal preparation?

A. Plan postnatal observation for opioid withdrawal using a consistent assessment approach and emphasize nonpharmacologic supportive care first.

B. Begin prophylactic morphine before any withdrawal signs appear because all opioid-exposed newborns require pharmacologic treatment after delivery.

C. Administer naloxone routinely at birth to prevent withdrawal even when the newborn is breathing adequately and has chronic in-utero opioid exposure.

D. Schedule elective preterm delivery because shortening fetal opioid exposure reliably reduces withdrawal severity without added neonatal risk.

189. A term newborn is apneic after the initial steps of resuscitation. Heart rate is 80/min. What is the most important next intervention?

A. Begin effective positive-pressure ventilation and assess for chest movement and heart-rate response.

B. Start chest compressions immediately because any heart rate below 100/min is an indication for compressions.

C. Give intravenous epinephrine before ventilation because apnea with bradycardia indicates primary cardiac arrest.

D. Provide free-flow oxygen alone for several minutes because ventilation should be avoided until the heart rate falls below 60/min.

190. A newborn in shock has cool extremities, weak pulses, prolonged capillary refill, low urine output, and a rising lactate. Which statement about blood pressure is most accurate?

A. Use the mean arterial pressure relative to gestational age as the primary marker of systemic perfusion, with capillary refill, urine output, and lactate serving mainly as secondary corroborating data.

B. Interpret a normal mean arterial pressure as evidence that systemic blood flow is probably adequate unless echocardiography demonstrates ventricular dysfunction or a major ductal steal.

C. A numerically normal blood pressure does not exclude poor systemic perfusion; perfusion must be assessed using the entire clinical and laboratory picture.

D. Give greater weight to serial blood pressure than to lactate because neonatal lactate can rise from stress metabolism and may remain elevated after systemic flow has normalized.

191. Prenatal ultrasonography showed echogenic bowel. After birth, the infant develops bilious emesis and distal small-bowel obstruction; contrast enema demonstrates an unused microcolon and thick meconium pellets in the terminal ileum. Which underlying disorder should be evaluated?

A. Hirschsprung disease, which can cause distal intestinal obstruction but is more associated with delayed meconium passage and a transition zone than inspissated meconium ileus with microcolon.

B. Meconium plug syndrome, which can cause transient distal colonic obstruction but is less strongly associated with microcolon and fixed distal ileal meconium obstruction.

C. Small-left-colon syndrome, which can cause neonatal distal colonic obstruction, especially in infants of diabetic mothers, but does not classically produce distal ileal meconium impaction.

D. Cystic fibrosis, because neonatal meconium ileus with distal ileal obstruction and a microcolon is a classic presenting feature.

192. A 26-week infant is kept NPO after intestinal perforation and is expected to depend on intravenous nutrition for the coming week. Which parenteral nutrition principle is most appropriate during this period?

A. Provide amino acids and sufficient energy early while monitoring glucose, triglycerides, electrolytes, liver function, and growth.

B. Use dextrose alone for several weeks because protein and fat do not contribute to brain growth until after term-equivalent age.

C. Withhold amino acids for the first week because neonatal kidneys cannot excrete nitrogen until full enteral feeding is established.

D. Avoid intravenous lipid until one month of age because any lipid exposure causes cholestasis in extremely preterm infants.

193. A mother with Graves disease was treated with antithyroid medication during pregnancy. Her newborn is initially well. Which neonatal plan is most appropriate?

A. Begin levothyroxine routinely in most exposed newborns because antithyroid medication typically causes permanent congenital hypothyroidism.

B. Assess the infant for thyroid dysfunction because maternal thyroid-stimulating antibodies and antithyroid drugs can produce neonatal hyperthyroidism or hypothyroidism.

C. Begin methimazole routinely in most exposed newborns because maternal Graves disease typically produces neonatal thyrotoxicosis after birth.

D. No thyroid assessment is needed if the infant is asymptomatic at birth because maternal antibodies cannot cross the placenta.

194. A newborn whose mother has Graves disease becomes irritable, tachycardic, and poorly gaining weight at 1 week of age. Which laboratory pattern would support neonatal thyrotoxicosis?

A. Low free thyroxine with markedly elevated TSH, which indicates primary congenital hypothyroidism rather than thyrotoxicosis.

B. Low triiodothyronine with normal TSH because neonatal thyrotoxicosis is a euthyroid clinical syndrome without biochemical hyperthyroidism.

C. Normal free thyroxine with elevated TSH caused by isolated iodine deficiency and no maternal antibody effect.

D. Elevated free thyroxine or triiodothyronine with suppressed TSH in the setting of transplacental thyroid-stimulating antibodies.

195. Prenatal ultrasonography shows fetal hydrops with skin edema, ascites, and a large pericardial effusion. Which statement best describes hydrops fetalis?

A. It is diagnosed primarily after birth when generalized neonatal edema persists despite normal serum albumin and renal function.

B. It reflects pathologic fluid accumulation in at least two fetal compartments and requires investigation for immune and nonimmune causes.

C. It specifically means immune anti-D hemolysis and should not be used when the cause is cardiac, infectious, or genetic.

D. It is defined by isolated polyhydramnios plus fetal tachycardia and most often indicates maternal diabetes without fetal disease.

196. A mother with fever, uterine tenderness, fetal tachycardia, and purulent amniotic fluid is diagnosed with intra-amniotic infection during labor. What neonatal implication is most important at delivery?

A. The newborn requires immediate lumbar puncture in most cases before stabilization because maternal fever predicts neonatal meningitis with high specificity.

B. The newborn requires prompt clinical assessment for early-onset sepsis risk, with evaluation and antibiotics guided by gestation and clinical condition.

C. The newborn should receive routine care primarily because maternal intrapartum antibiotics eliminate early-onset infection risk by the time of birth.

D. The newborn should automatically receive fourteen days of antibiotics even if cultures remain negative and the infant stays substantially well.

197. A very preterm infant has recurrent desaturation during feeds but is otherwise stable. Which mechanism should be considered before simply increasing oxygen flow?

A. Immature coordination of sucking, swallowing, and breathing can cause intermittent hypoxemia and may require feeding assessment and pacing.

B. Increasing oxygen flow is sufficient because feeding coordination does not influence airway protection or respiratory timing in preterm infants.

C. Feeding-related desaturation proves fixed pulmonary venous obstruction and requires urgent cardiac surgery in nearly most preterm infant.

D. The episodes are expected to result from complete surfactant deficiency recurring primarily during swallowing and require repeat surfactant dosing.

198. A preterm infant is growing poorly despite apparently adequate calories. Protein intake is at the low end of the target range. Which statement is most accurate?

A. Increasing carbohydrate alone is equivalent to increasing protein because neonatal lean-mass accretion depends primarily on total calories.

B. Poor growth in a preterm infant is almost rarely nutritional once full enteral volume has been reached, regardless of nutrient density.

C. Protein should be restricted whenever weight gain is slow because amino acids increase energy expenditure and worsen growth failure.

D. Adequate protein is essential for lean tissue and brain growth, so calorie provision alone may not produce appropriate growth quality.

199. A term infant with PPHN is mechanically ventilated. Why should both severe hypoxemia and excessive hyperoxia be avoided?

A. Hypoxemia is useful because it dilates the pulmonary circulation through hypoxic pulmonary vasodilation unique to newborns.

B. Hyperoxia is preferred because oxygen toxicity does not occur in term newborn lungs during the first week after birth.

C. Both hypoxemia and hyperoxia close the ductus immediately, so oxygen tension has little effect on pulmonary vascular tone itself.

D. Hypoxemia promotes pulmonary vasoconstriction, whereas unnecessary hyperoxia increases oxidative stress without providing proportional benefit once adequate oxygenation is achieved.

200. A stable 28-week infant develops progressive anemia over several weeks with low reticulocyte production and frequent prior phlebotomy. Which diagnosis is most likely?

A. Vitamin K deficiency, which causes bleeding from impaired coagulation factors but does not primarily suppress red-cell production over weeks.

B. Polycythemia of prematurity, which is caused by excessive erythropoietin production and produces rising rather than falling hematocrit.

C. Anemia of prematurity, reflecting low erythropoietin response, shortened red-cell lifespan, rapid growth, and iatrogenic blood loss.

D. Autoimmune hemolytic anemia, which would usually cause high reticulocyte production and evidence of increased red-cell destruction.

Answers

1. A. On HFOV, oxygenation is strongly influenced by lung volume and mean airway pressure, whereas carbon dioxide clearance depends heavily on oscillatory tidal volume, which is affected by amplitude and frequency. Adjustments must be made carefully to avoid over- or underventilation.

2. A. Congenital pulmonary airway malformation is a developmental lung lesion often recognized prenatally and characterized by abnormal cystic or solid lung tissue. Symptomatic newborns may require respiratory stabilization and surgical evaluation.

3. D. Periventricular leukomalacia reflects injury to vulnerable preterm white matter. Cystic PVL is less common than diffuse noncystic injury but is readily seen on ultrasound and carries a substantial risk of cerebral palsy and developmental impairment.

4. D. Therapeutic hypothermia is considered for eligible near-term or term infants with evidence of a significant hypoxic-ischemic insult and moderate-to-severe encephalopathy, started within the established early treatment window. Neither an isolated low score nor unrelated respiratory disease is sufficient.

5. C. Edwards syndrome, or trisomy 18, is associated with prenatal growth restriction, prominent occiput, micrognathia, low-set ears, clenched overlapping fingers, rocker-bottom feet, and major cardiac or renal anomalies.

6. B. Central diabetes insipidus results from deficient ADH secretion and causes inability to concentrate urine, leading to polyuria and hypernatremia when free-water losses are not replaced. Neurosurgical or hypothalamic-pituitary injury can precipitate it.

7. A. Growth assessment requires more than body weight. Edema can obscure poor tissue accretion, and serial weight, length, head circumference, intake, clinical status, and sometimes laboratory markers should be interpreted together.

8. D. Leukocyte adhesion deficiency prevents effective neutrophil extravasation, producing severe bacterial infections with little pus, persistent leukocytosis, and delayed umbilical cord separation. Flow cytometry for adhesion molecules can confirm the diagnosis.

9. B. Renal vein thrombosis can present with the classic triad of flank mass, hematuria, and thrombocytopenia, although not all features are always present. Doppler imaging defines the extent and helps guide individualized supportive and anticoagulation decisions.

10. C. Severely growth-restricted or undernourished infants can develop hypophosphatemia and related electrolyte shifts when anabolic nutrition is introduced. Electrolytes should be monitored and supplementation adjusted during early nutritional advancement.

11. A. Prostaglandin E1 maintains ductal patency but can cause apnea, hypotension, flushing, and fever. Infants receiving the infusion need cardiorespiratory monitoring and readiness for airway support.

12. A. Preterm infants are susceptible to nephrocalcinosis because of altered mineral handling and exposures such as loop diuretics. Most cases are detected by ultrasound and require review of calcium, phosphorus, medications, and renal function over time.

13. C. Adequate end-expiratory pressure helps maintain functional residual capacity and prevent repetitive alveolar collapse. Recruitment must be balanced against overdistention and impaired venous return, so changes are guided by oxygenation, imaging, mechanics, and hemodynamics.

14. D. Newborns have low vitamin K stores, and deficiency impairs factors II, VII, IX, and X. Intramuscular vitamin K prophylaxis prevents most cases; bleeding in an unprotected infant with compatible coagulation studies should prompt urgent replacement and evaluation.

15. D. Very preterm infants have a large total-body-water and extracellular-water compartment relative to body weight. Water-soluble drugs therefore often have a larger apparent volume of distribution, influencing loading-dose calculations.

16. A. Increasing oxygen and pressure requirements despite CPAP in a very preterm infant with RDS support surfactant treatment. Current strategies often aim to deliver surfactant while limiting the duration of invasive mechanical ventilation when clinically appropriate.

17. A. SIADH causes impaired free-water excretion, hyponatremia, low serum osmolality, and urine that is more concentrated than appropriate. Central nervous system disease, pulmonary disease, pain, and medications can trigger it.

18. B. When epinephrine is indicated in neonatal resuscitation, the preferred route is intravascular, typically through umbilical venous access. Endotracheal dosing can be considered while vascular access is being established, but absorption is less reliable.

19. B. Neonatal palliative care is an additional layer of support that can begin at diagnosis and coexist with intensive treatment. It addresses symptoms, uncertainty, family values, communication, memory-making, bereavement, and decisions about burdens and benefits of interventions.

20. C. Osteogenesis imperfecta comprises inherited disorders of bone matrix, often involving type I collagen, and can present with fractures, deformity, and blue sclerae. Severe neonatal forms require careful respiratory, orthopedic, pain, and genetic management.

21. B. Noninferiority trials ask whether a new intervention is no worse than a comparator by more than a clinically acceptable prespecified margin. Interpretation depends critically on trial quality, adherence, confidence intervals, and the justification of that margin.

22. B. Cyclooxygenase inhibitors can reduce renal blood flow and urine output, and they also have gastrointestinal and platelet effects. Renal function, urine output, and the overall risk-benefit profile should be considered when treating a PDA.

23. C. The 22q11.2 deletion spectrum can produce conotruncal cardiac defects, hypoparathyroidism with hypocalcemia, and thymic hypoplasia leading to variable T-cell deficiency. Recognition guides calcium, immune, cardiac, and genetic evaluation.

24. B. Sepsis and hypotension can produce renal hypoperfusion and acute tubular injury. Management includes restoring perfusion, monitoring urine output and electrolytes, adjusting drug dosing, avoiding nephrotoxins, and evaluating for alternative causes when indicated.

25. C. Heterogeneity describes between-study variation in effect estimates. It may arise from differences in patients, interventions, outcomes, methods, or chance and should influence how confidently a single pooled estimate is generalized.

26. B. Newborns preferentially breathe through the nose, so bilateral choanal atresia can cause cyclic cyanosis that improves with crying when the mouth opens. Initial management secures an oral airway and stabilization before definitive ENT evaluation and repair.

27. A. Placental insufficiency and chronic fetal hypoxia can increase erythropoiesis and cause neonatal polycythemia. Hyperviscosity may contribute to neurologic symptoms, hypoglycemia, respiratory distress, or poor perfusion; management is individualized according to symptoms and venous hematocrit.

28. A. Extremely preterm skin permits high transepidermal water loss, and radiant warmers or low humidity can increase insensible losses. Early weight change, sodium trend, urine output, and intake guide careful fluid adjustment.

29. D. Post-resuscitation care aims to stabilize ventilation, oxygenation, perfusion, temperature, and glucose while limiting secondary brain and organ injury. Excess oxygen, abnormal carbon dioxide, temperature elevation, and metabolic instability can all be harmful.

30. C. Obstructed TAPVR prevents pulmonary venous blood from reaching the left atrium normally and produces severe pulmonary congestion, hypoxemia, and instability. Urgent surgical management is required; prostaglandin does not correct the obstructed venous pathway.

31. D. Direct hyperbilirubinemia is always pathologic. Pale or acholic stools and dark urine raise strong concern for biliary atresia, in which prompt diagnosis and Kasai portoenterostomy at a younger age are associated with better bile drainage outcomes.

32. C. Meconium aspiration can cause airway obstruction, chemical pneumonitis, surfactant dysfunction, air trapping, and heterogeneous lung disease. Air leaks and PPHN are clinically important complications in severely affected infants.

33. A. A large left-to-right PDA increases pulmonary blood flow and returns excess volume to the left atrium and ventricle. Systemic steal can produce absent or reversed diastolic flow in the descending aorta and other systemic vessels.

34. A. Complete transposition creates parallel systemic and pulmonary circuits, so survival depends on mixing at the atrial, ventricular, or ductal level. Prostaglandin can preserve ductal mixing, and a restrictive atrial communication may require balloon atrial septostomy.

35. B. During true hypoglycemia, insulin should be suppressed so lipolysis and ketogenesis can provide alternative fuels. Detectable insulin with suppressed ketones and free fatty acids strongly supports inappropriate insulin action such as congenital hyperinsulinism.

36. B. Twin anemia-polycythemia sequence is a chronic slow transfusion imbalance in monochorionic twins that can produce severe intertwin hemoglobin discordance without the classic oligo-polyhydramnios sequence of TTTS.

37. C. Secretory IgA coats mucosal surfaces and helps limit pathogen adherence and invasion while supporting a healthy intestinal environment. Its major role is local mucosal protection rather than becoming a large component of the infant's circulating antibody pool.

38. A. Transient neonatal pustular melanosis is benign and may be present at birth. Fragile superficial pustules rupture and leave pigmented macules with a collarette of scale, usually without systemic symptoms.

39. A. The oxygenation index relates the intensity of ventilatory support and inspired oxygen to the achieved arterial oxygen tension. It is used to follow the severity of hypoxemic respiratory failure and can contribute to decisions about advanced support.

40. D. Before escalating resuscitation, ineffective ventilation must be corrected. Repositioning the airway, adjusting the mask, suctioning when needed, opening the mouth, increasing pressure, and considering an alternate airway are directed at achieving lung inflation.

41. B. Routine tracheal suctioning solely because a nonvigorous infant was born through meconium-stained fluid is not the priority. Establishing ventilation promptly when the infant is apneic, gasping, or bradycardic is more important.

42. D. Combined active and passive immunoprophylaxis soon after birth markedly reduces perinatal hepatitis B transmission. Subsequent vaccine doses and post-vaccination serologic testing are scheduled according to birth weight and standard recommendations.

43. C. VACTERL association is a clinical diagnosis based on the characteristic combination of vertebral, anal, cardiac, tracheoesophageal, renal, and limb anomalies after excluding alternative syndromic explanations. The infant needs evaluation for each component even when not obvious clinically.

44. C. Aminoglycosides are renally eliminated and have exposure-related nephrotoxicity and ototoxicity. Developmental changes in extracellular water and renal clearance make individualized

dosing and serum concentration monitoring useful, particularly during prolonged therapy or changing renal function.

45. A. Preductal saturation is measured in the right hand, while postductal saturation reflects blood after the ductal insertion. Right-to-left ductal shunting can therefore produce lower postductal saturation, as occurs in severe pulmonary hypertension and certain ductal-dependent lesions.

46. A. Pulmonary interstitial emphysema is an air-leak syndrome related to fragile immature lungs and ventilator pressure or volume exposure. Management focuses on minimizing further barotrauma and volutrauma while maintaining gas exchange.

47. D. Beckwith-Wiedemann syndrome is an imprinting disorder characterized by overgrowth, macroglossia, abdominal-wall defects, organomegaly, and risk of neonatal hypoglycemia. Long-term tumor surveillance is also part of care.

48. A. Laryngomalacia results from dynamic inspiratory collapse of supraglottic tissue and often worsens with feeding, agitation, or supine positioning. Most cases are mild, but poor growth, apnea, or severe obstruction warrants specialist evaluation.

49. C. SCID causes severe impairment of adaptive immunity and may be detected before infections occur by newborn screening. Live vaccines can cause disseminated disease, so they are avoided while urgent immunologic confirmation and curative treatment planning, often hematopoietic stem-cell transplantation, proceed.

50. C. Erythema toxicum is common in healthy newborns and appears as transient erythematous macules, papules, and pustules. The infant remains well, and treatment is reassurance rather than antimicrobial therapy.

51. A. Caffeine has a wide therapeutic range, but dosing errors or unusual clearance can cause tachycardia, feeding intolerance, jitteriness, and other toxicity. Drug levels are not needed routinely but can be useful when toxicity or inadequate response is suspected.

52. C. Esophageal atresia should be suspected when a tube cannot pass into the stomach and the newborn has copious secretions or choking with feeds. Associated tracheoesophageal fistula can cause abdominal distention and respiratory compromise and requires surgical management.

53. C. Pneumatosis intestinalis in a preterm infant with feeding intolerance, bloody stool, and systemic instability is highly characteristic of NEC. Initial management includes stopping enteral feeds, decompression, antibiotics, supportive care, and serial evaluation for progression or perforation.

54. A. Spontaneous intestinal perforation is a focal bowel perforation seen mainly in extremely preterm infants and can occur without the diffuse inflammatory and radiographic features of NEC. It is associated with factors such as extreme prematurity and certain medication exposures.

55. C. Magnesium sulfate administered before anticipated early preterm birth is used for fetal neuroprotection and lowers the risk of cerebral palsy in survivors. It is not given to sedate the fetus or directly prevent a specific hemorrhage.

56. C. Maternal hyperglycemia drives fetal pancreatic insulin secretion. Fetal hyperinsulinemia promotes myocardial growth and can cause transient hypertrophic cardiomyopathy, especially septal hypertrophy, which often regresses as the metabolic stimulus resolves.

57. B. Diuretics may transiently improve pulmonary mechanics in some infants with BPD, but chronic use carries important renal, electrolyte, and nutritional consequences. Their continued use should therefore be individualized and monitored rather than assumed beneficial indefinitely.

58. D. Hemolytic disease from Rh alloimmunization is caused by maternal IgG antibodies directed against fetal red-cell antigens. The antibodies cross the placenta and produce fetal or neonatal hemolysis, anemia, hyperbilirubinemia, and in severe cases hydrops.

59. D. Maternal glucose crosses the placenta, but maternal insulin does not. Chronic maternal hyperglycemia drives fetal pancreatic hyperinsulinemia; after delivery the maternal glucose supply stops while neonatal insulin remains high, predisposing to hypoglycemia.

60. A. Pierre Robin sequence consists of micrognathia leading to glossoptosis and upper-airway obstruction, often with a U-shaped cleft palate. Management ranges from positioning and feeding support to airway adjuncts or surgery depending on severity and associated syndromes.

61. B. Very preterm infants lose heat rapidly because of thin skin, high surface area, and limited fat stores. Hypothermia increases metabolic demand and is associated with worse outcomes, so delivery-room thermal protection and controlled rewarming are essential.

62. B. CHARGE refers to a pattern including coloboma, heart disease, choanal atresia, growth or developmental abnormalities, genital anomalies, and ear abnormalities. Airway, hearing, feeding, cardiac, endocrine, and genetic evaluation are often required.

63. C. Transient tachypnea reflects delayed fetal lung-fluid clearance and is associated with cesarean delivery without labor. It typically causes early tachypnea with mild-to-moderate oxygen need and characteristic perihilar streaking or fissural fluid.

64. C. Spinal muscular atrophy is an anterior horn cell disease producing symmetric weakness, absent reflexes, tongue fasciculations, and respiratory compromise with relatively preserved sensation and cognition. Newborn screening or rapid molecular testing enables early disease-modifying treatment.

65. A. Caffeine is the standard pharmacologic therapy for apnea of prematurity because it stimulates central respiratory drive and improves diaphragmatic function. New or worsening apnea still warrants evaluation for infection, anemia, airway problems, or other causes.

66. C. Aggressive ventilation that produces marked hypocapnia can decrease cerebral blood flow and has been associated with adverse neurologic outcomes. Lung-protective ventilation therefore avoids unnecessary overventilation while maintaining safe gas exchange.

67. C. Neonatal seizures can be clinically subtle, but persistent stereotyped focal clonic activity with electrographic seizure correlation is diagnostic. Jitteriness and benign sleep myoclonus are important mimics and do not show ictal EEG activity.

68. A. Preterm infants are born before much of fetal iron accretion occurs and may also experience phlebotomy losses. Iron needs should be planned according to feeding type, transfusion history, growth, and local recommendations.

69. C. Small early enteral feeds can promote gastrointestinal maturation and motility while the infant transitions toward full feeding. They are not nutritionally complete and do not eliminate NEC risk.

70. D. Stable neonatal re-entrant SVT is commonly approached with vagal maneuvers followed by rapid IV adenosine. Synchronized cardioversion is reserved for hemodynamic instability or failure of appropriate medical therapy.

71. A. Meaningful informed consent requires communication the parent can understand. Qualified interpreters improve accuracy, confidentiality, and equity, while teach-back or other confirmation of understanding helps ensure that consent is informed rather than merely documented.

72. C. Inhaled nitric oxide reaches ventilated alveoli and relaxes adjacent pulmonary vascular smooth muscle, improving ventilation-perfusion matching and reducing pulmonary artery pressure. Rapid inactivation by hemoglobin limits systemic vasodilator effects.

73. A. Anemia, reticulocytosis, rapid early bilirubin rise, and a positive direct antiglobulin test support isoimmune hemolysis. Hemolysis increases bilirubin production and also lowers treatment thresholds because it increases neurotoxicity risk.

74. A. Preventing central-line infection depends on reliable systems, including aseptic insertion, maintenance bundles, daily review of line necessity, and measurement with feedback. Quality improvement targets processes and system design rather than individual blame alone.

75. C. Unlike common unconjugated neonatal jaundice, conjugated hyperbilirubinemia is abnormal. Evaluation should begin promptly because causes include biliary obstruction, infection, endocrine disease, metabolic disorders, genetic conditions, and parenteral-nutrition-associated liver disease.

76. D. To diagnose congenital CMV, the virus must be detected early enough to distinguish congenital from postnatal acquisition, generally within the first 3 weeks. PCR of saliva or urine is highly useful; positive saliva results are commonly confirmed with urine because breast milk can contaminate saliva.

77. A. Pathogenic variants in PTPN11 are a common cause of Noonan syndrome. Pulmonary valve stenosis, characteristic facies, edema or lymphatic abnormalities, and hypertrophic cardiomyopathy are important neonatal manifestations.

78. C. Corrected age accounts for the weeks the infant was born before term and is commonly used when assessing early development and growth in former preterm infants. Chronologic age still governs many immunization and routine-care schedules.

79. B. Growth failure can reflect inadequate intake, increased energy expenditure, feeding dysfunction, chronic disease, or social factors and can interact with development. High-risk follow-up works best when nutrition, feeding, medical status, and developmental services are coordinated.

80. A. An unstable ventilated infant with abrupt deterioration and unilateral hyperexpansion plus absent breath sounds should be treated for tension pneumothorax immediately. Definitive drainage and imaging can follow once life-threatening pressure has been relieved.

81. B. Clinical observation alone misses many neonatal seizures and can misclassify nonepileptic movements. EEG, often continuous video EEG in high-risk infants, is the reference method for detecting electrographic seizures and assessing response to therapy.

82. C. Fetal anemia lowers blood viscosity and increases cardiac output, producing an elevated middle cerebral artery peak systolic velocity. This Doppler method helps identify fetuses who may need further evaluation or intrauterine transfusion.

83. B. Neonatal hypotonia can be central or peripheral. Alertness with profound weakness, reduced antigravity movement, facial or respiratory weakness, and depressed reflexes points toward the peripheral motor unit, including anterior horn cell, nerve, neuromuscular junction, or muscle disorders.

84. D. MRI patterns of HIE reflect the timing and severity of oxygen deprivation. Acute profound events often affect metabolically active deep gray nuclei, while more prolonged partial hypoxia may preferentially produce watershed cortical and subcortical injury.

85. D. Contemporary BPD arises from the interaction of extreme lung immaturity with oxygen exposure, ventilation, inflammation, infection, and altered growth. The pathology often includes arrested alveolar and pulmonary vascular development rather than the classic fibrosis-dominant pattern alone.

86. A. Human milk feeding is one of the strongest modifiable nutritional factors associated with lower NEC risk. Standardized feeding protocols and careful clinical assessment also reduce unnecessary variation while avoiding prolonged nutritional deprivation.

87. B. Invasive candidiasis in extremely preterm infants can seed multiple organs. Treatment requires systemic antifungal therapy, clearance cultures, source control, and evaluation for dissemination tailored to the infant's stability and local protocols.

88. A. An upper brachial plexus injury causes weakness of shoulder abduction and external rotation plus elbow flexion, producing the classic waiter-tip posture. Serial examination is important because many lesions improve, while persistent deficits require specialized therapy and possible surgical assessment.

89. D. A failed newborn hearing screen requires prompt follow-up, not a definitive diagnosis based on screening alone. Timely rescreening or diagnostic auditory testing supports early identification and intervention during critical language-development periods.

90. B. ROP is a disease of incompletely vascularized retina that evolves after preterm birth. Screening schedules are designed to detect treatable disease before retinal detachment, well before the infant can demonstrate reliable visual symptoms.

91. D. The combination of characteristic facial features, hypotonia, palmar findings, and an atrioventricular septal defect is classic for trisomy 21. Confirmatory cytogenetic testing defines the chromosomal mechanism.

92. A. Aplasia cutis congenita is a congenital absence of skin, most often involving the scalp. Evaluation depends on lesion size, depth, location, and associated anomalies because larger or midline defects may involve underlying bone or vascular structures.

93. A. Rapid head growth, a bulging fontanelle, abnormal eye positioning, and ventriculomegaly suggest hydrocephalus with rising intracranial pressure. Etiology may include hemorrhage, congenital obstruction, infection, or malformation and determines definitive treatment.

94. B. Fetal-neonatal alloimmune thrombocytopenia can cause profound thrombocytopenia in an otherwise well newborn even when the mother has a normal platelet count. Intracranial hemorrhage may occur antenatally, and recurrence in subsequent pregnancies can be severe.

95. A. Symptomatic severe neonatal hypoglycemia requires rapid correction, typically with intravenous dextrose, while the cause is investigated. Delayed treatment risks neurologic injury.

96. D. Myelomeningocele is strongly associated with Chiari II malformation and hydrocephalus. Initial neonatal management protects the exposed neural tissue, avoids infection and trauma, assesses neurologic function, and coordinates neurosurgical repair.

97. A. When mother's own milk is unavailable, donor human milk lowers NEC risk compared with formula in very preterm populations. Because pasteurization and donor characteristics reduce nutrient density, fortification is commonly required for growth.

98. C. Twin-to-twin transfusion syndrome is caused by unbalanced flow through placental vascular anastomoses in monochorionic gestations. The donor becomes relatively hypovolemic while the recipient becomes volume loaded.

99. D. Very preterm infants miss much of third-trimester mineral accretion and are at risk for metabolic bone disease. Elevated alkaline phosphatase with low phosphorus is a common biochemical clue and should prompt review of mineral and vitamin D provision.

100. B. Brief delayed cord clamping is generally favored in vigorous preterm infants because placental transfusion can improve circulatory transition and hematologic status. Immediate clamping may still be necessary when maternal or neonatal circumstances demand it.

101. C. Acute bilirubin encephalopathy can begin with lethargy, hypotonia, and poor feeding and progress to hypertonia, abnormal cry, arching, and seizures. It is a medical emergency requiring rapid bilirubin-lowering therapy according to age, gestation, level, and risk factors.

102. D. The immature hypothalamic-pituitary-adrenal axis may be unable to mount an adequate cortisol response during severe illness in some preterm infants. Hydrocortisone can be considered in selected vasopressor-resistant cases after the overall shock physiology is assessed.

103. A. Respiratory distress syndrome in a very preterm infant is driven by surfactant deficiency and structural lung immaturity. The resulting atelectasis and poor compliance produce the characteristic early respiratory distress and radiographic appearance.

104. C. Noninvasive positive pressure can increase swallowed air and cause benign abdominal distention. Gastric venting or decompression can improve comfort and diaphragmatic mechanics while the infant continues to receive needed respiratory support.

105. D. Epidermolysis bullosa comprises inherited defects in proteins that maintain epidermal or dermal adhesion. Blistering with minimal trauma in a newborn should prompt gentle skin care, infection prevention, pain control, nutritional support, and genetic or dermatologic evaluation.

106. A. Fetomaternal hemorrhage can cause acute or chronic fetal blood loss, ranging from compensated anemia to severe hypovolemic shock. Management depends on hemodynamic stability and severity and may require cautious transfusion or volume resuscitation.

107. A. Antenatal corticosteroids given when preterm birth is imminent accelerate fetal lung maturation and reduce important complications of prematurity, including RDS and IVH. The obstetric indication for delivery still governs timing; therapy should not create an unsafe delay.

108. D. Preterm infants have limited lipid clearance, especially during illness. Marked hypertriglyceridemia should prompt review of dose, sepsis, medications, and metabolic status, with lipid reduction when appropriate while avoiding prolonged essential fatty-acid deficiency.

109. A. Feeding tolerance in preterm infants is judged using abdominal findings, stooling, emesis, cardiorespiratory status, and overall trajectory. Gastric residuals alone are nonspecific and should not automatically trigger prolonged fasting in an otherwise stable infant.

110. B. Critical left-sided obstruction can make systemic circulation ductal dependent. Prostaglandin E1 preserves a pathway for right-ventricular output to reach the systemic circulation until the fixed obstruction can be relieved.

111. B. Prolonged parenteral nutrition, lack of enteral stimulation, prematurity, infection, and overfeeding all contribute to cholestasis. Enteral feeding advancement and thoughtful parenteral composition are important while other causes of direct hyperbilirubinemia are investigated.

112. A. Specificity is the proportion of disease-free individuals with a negative test. High specificity means relatively few false-positive results, but the probability that a positive test represents true disease also depends on prevalence.

113. A. Hirschsprung disease results from congenital aganglionosis of the distal intestine, causing functional obstruction. Delayed meconium passage, distention, and explosive stool after rectal examination are classic findings, and rectal suction biopsy confirms the diagnosis.

114. B. Prader-Willi syndrome results from absence of paternally expressed genes in the 15q11-q13 region. Neonates often have marked central hypotonia and poor feeding before later hyperphagia and endocrine features emerge.

115. A. Human milk provides many nutritional and immunologic benefits but usually does not supply enough vitamin D by itself. Supplementation is recommended, with dosing adjusted to the infant's overall nutrition plan and clinical circumstances.

116. A. Classic 21-hydroxylase deficiency impairs cortisol and often aldosterone synthesis while increasing androgen production. A salt-wasting crisis with hyponatremia, hyperkalemia, dehydration, and possible virilization is a neonatal emergency requiring glucocorticoid, mineralocorticoid, and fluid-electrolyte management.

117. D. Maternal anti-Ro/SSA and anti-La/SSB antibodies can injure the fetal conduction system and cause congenital complete heart block. Persistent marked bradycardia with atrioventricular dissociation is characteristic.

118. D. Shared decision-making is especially important when more than one medically reasonable option exists. Clinicians provide understandable information and recommendations while learning the family's goals, values, and tolerance for uncertainty and burdens.

119. A. Thymic hypoplasia in 22q11.2 deletion can range from mild to profound T-cell deficiency. Immune phenotype therefore matters for infection precautions, blood-product selection, and the timing or avoidance of live vaccines.

120. C. Early CPAP supports functional residual capacity and can reduce invasive ventilation in spontaneously breathing preterm infants. Surfactant is added when clinical severity indicates insufficient endogenous surfactant despite noninvasive support.

121. D. Umbilical arterial gases provide useful evidence about fetal acid-base status, but HIE is a clinical syndrome requiring integration of the perinatal event, resuscitation, laboratory data, and neurologic examination. No single cord value determines outcome by itself.

122. D. A symptomatic newborn with risk factors for early-onset sepsis requires urgent evaluation and empiric parenteral antibiotics after cultures are obtained when this can be done without delaying treatment. Clinical illness matters more than maternal prophylaxis status alone.

123. B. Patau syndrome, or trisomy 13, commonly causes midline defects, cleft lip or palate, microphthalmia, polydactyly, brain anomalies, and congenital heart disease. The phenotype should prompt chromosomal confirmation and multidisciplinary counseling.

124. C. Intravenous lipids are essential for calories and essential fatty acids, but formulation and dose can influence cholestasis. Management balances adequate nutrition with minimizing excess lipid exposure and may include alternative lipid emulsions depending on local practice and availability.

125. C. Noonan syndrome is a RAS-MAPK pathway disorder characterized by distinctive facies, webbed neck, chest deformity, short stature, and congenital heart disease, particularly pulmonary valve stenosis or hypertrophic cardiomyopathy.

126. D. A hypercyanotic spell reflects increased right-to-left shunting across the ventricular septal defect, often with dynamic right-ventricular outflow obstruction. Increasing systemic vascular resistance with the knee-chest position and calming the infant can reduce the shunt while additional treatment is organized.

127. D. Outcomes after very preterm birth extend beyond motor disability. Cognitive, language, attention, executive-function, behavioral, and school-performance difficulties may emerge over time, supporting longitudinal multidisciplinary follow-up.

128. C. Sepsis can cause distributive physiology with low systemic vascular resistance and maldistributed flow, sometimes with a hyperdynamic circulation before myocardial dysfunction develops. Hemodynamic therapy should be guided by the infant's evolving physiology rather than blood pressure alone.

129. A. For a relative risk, 1.0 is the null value. An interval spanning 1.0 is compatible with both benefit and no effect at the conventional significance level, while the width of the interval also communicates the precision of the estimate.

130. D. Successful extubation is most likely when the underlying disease is improving, ventilator support is modest, spontaneous respiratory drive is adequate, and oxygenation and ventilation are stable. Caffeine and noninvasive support may help selected preterm infants after extubation.

131. B. Neonatal neutropenia is seen in some infants born after maternal hypertension or placental insufficiency and is often transient. Severity, duration, and clinical infection determine how extensively the infant needs evaluation or treatment.

132. A. An odds ratio compares outcome odds between groups. It can approximate the risk ratio when outcomes are uncommon, but the two measures diverge when events are common, so an OR of 2.0 does not necessarily mean risk is exactly doubled.

133. C. Severe IVH can impair cerebrospinal fluid circulation and resorption, producing progressive posthemorrhagic ventricular dilatation. Serial ultrasound, head growth, neurologic examination, and specialist input guide timing of intervention.

134. C. Gastroschisis classically presents as uncovered bowel through a paraumbilical, usually right-sided defect. Initial care includes bowel protection, gastric decompression, fluid and thermal support, and surgical consultation.

135. D. Achondroplasia is caused by activating FGFR3 variants and produces disproportionate short stature with rhizomelic limb shortening, macrocephaly, and frontal bossing. Neonatal care should assess for foramen magnum compression and respiratory complications.

136. A. The classic congenital toxoplasmosis triad is chorioretinitis, hydrocephalus, and intracranial calcifications. Many infants are less classic, so maternal history, imaging, ophthalmologic examination, and serologic or molecular testing are integrated.

137. C. This presentation is typical of hypernatremic dehydration from insufficient intake. Hemodynamic compromise is treated first, then the sodium is corrected in a controlled fashion to reduce the risk of cerebral edema while feeding and lactation problems are corrected.

138. B. Critical coarctation can be clinically silent while the ductus is open and then present with shock, acidosis, and weak lower-body pulses as ductal flow falls. Prostaglandin E1 is used to restore ductal-dependent systemic perfusion while definitive evaluation and repair are arranged.

139. B. Placental insufficiency and fetal growth restriction reduce nutrient and oxygen delivery, leaving the newborn vulnerable to hypoglycemia, hypothermia, polycythemia, and other transition problems. These infants need careful metabolic and thermal surveillance.

140. C. Gonococcal ophthalmia can progress rapidly to corneal ulceration and perforation and is a medical emergency. Diagnostic samples are obtained promptly, but systemic antimicrobial treatment should not be delayed when the clinical picture is strongly suggestive.

141. D. Early congenital syphilis can cause persistent rhinitis, rash including palms and soles, hepatosplenomegaly, anemia, thrombocytopenia, and bone abnormalities. Diagnosis depends on maternal and infant serology plus examination and targeted evaluation, followed by penicillin therapy.

142. B. Congenital lobar overinflation presents with hyperexpansion of a lobe that can compress adjacent lung and shift the mediastinum. Management depends on severity, ranging from observation in mild cases to surgical lobectomy for significant respiratory compromise.

143. C. Sensitivity is the proportion of truly affected individuals who test positive. A highly sensitive test has relatively few false negatives, although predictive values still depend on disease prevalence.

144. D. Reduced renal clearance increases drug exposure and toxicity risk. Dosing should reflect gestational and postnatal age, measured renal function, urine output, and therapeutic drug monitoring when available.

145. B. Transient abnormal myelopoiesis is a clonal myeloid proliferation seen almost exclusively in neonates with trisomy 21 and often resolves spontaneously. Some infants develop significant organ complications, and survivors have an increased later risk of myeloid leukemia associated with Down syndrome.

146. A. Lung-protective ventilation limits excessive tidal volume and pressure while maintaining adequate recruitment and gas exchange. Aggressive normalization of blood gases can increase lung injury, and marked hypocapnia also carries neurologic risk.

147. D. Phenobarbital remains widely used as first-line treatment for acute neonatal seizures, although electrographic seizure control may be incomplete and additional agents are sometimes required. Treatment also targets the underlying cause and uses EEG monitoring whenever possible.

148. A. Early asymmetric movement and abnormal tone in a high-risk infant warrant prompt assessment. Tools such as the General Movements Assessment, Hammersmith Infant Neurological Examination, and neuroimaging can identify high-risk infants early, allowing therapy during a period of high neuroplasticity.

149. A. High-risk infants can develop hearing or visual impairment even after an initially reassuring screen. Because sensory function is central to communication and learning, follow-up integrates scheduled surveillance with developmental assessment and specialty referral when indicated.

150. D. PDSA cycles are a common quality-improvement method: plan a change, test it, study the data and workflow, then act on what was learned before the next iteration. The goal is reliable local process improvement rather than necessarily estimating a causal treatment effect.

151. A. A small underfilled ventricle with preserved contraction may suggest inadequate preload, but neonatal hypotension is multifactorial and requires clinical correlation. When true hypovolemia is likely, cautious volume administration can be appropriate rather than reflexively escalating vasoactive support.

152. C. Infants of diabetic mothers are at increased risk for early hypocalcemia and may also have hypomagnesemia. Significant magnesium deficiency can make hypocalcemia difficult to correct because normal parathyroid hormone secretion and action depend on adequate magnesium.

153. D. Human milk is preferred for very preterm infants but alone often does not provide enough protein, minerals, and energy for optimal growth. Fortification helps meet these higher nutritional requirements while preserving the benefits of human milk.

154. B. DIC is a secondary process in severe illness such as sepsis, asphyxia, or shock. Consumption of platelets and coagulation factors produces bleeding and abnormal coagulation studies while microvascular thrombosis can contribute to organ injury.

155. B. Turner syndrome classically presents in a phenotypic female with lymphedema, webbed neck, and left-sided cardiovascular lesions such as coarctation. Karyotype or chromosomal microarray can establish the diagnosis.

156. C. Electrocardiographic changes make severe hyperkalemia an emergency. Intravenous calcium stabilizes cardiac membranes but does not lower potassium, so temporizing intracellular shifts and definitive potassium removal must follow.

157. B. Enteroviruses can cause severe disseminated neonatal disease, especially when acquired around delivery, with hepatitis, coagulopathy, myocarditis, and central nervous system involvement. Supportive intensive care and molecular testing are important; disease-specific therapies are limited and specialist guidance is appropriate.

158. A. Perinatal arterial ischemic stroke often presents in a term newborn with focal seizures and an arterial-territory infarct on MRI. Evaluation considers placental, cardiac, inflammatory, and thrombotic factors, although many cases remain multifactorial.

159. C. Growth in preterm infants is longitudinal. Serial weight, length, and head circumference provide complementary information and should be interpreted with gestational age, illness severity, nutrient intake, fluid status, and family growth potential.

160. A. Number needed to treat is the reciprocal of the absolute risk reduction expressed as a proportion. Here, 0.28 minus 0.18 equals 0.10, and 1/0.10 equals 10.

161. B. Maternal IgG is actively transported across the placenta, particularly late in gestation, providing temporary systemic passive immunity. Preterm infants receive less of this third-trimester transfer and therefore begin life with lower maternal IgG levels.

162. A. Maternal varicella shortly before or after delivery can expose the newborn before adequate protective maternal antibody has transferred, creating a high risk of severe disease. These infants require prompt expert-guided prophylaxis and monitoring.

163. C. Renal drug clearance matures with gestational and postnatal age. Reduced glomerular filtration and tubular function in preterm infants can prolong half-life, so dose and interval must be tailored to developmental pharmacokinetics and renal function.

164. A. Intention-to-treat analysis preserves the original randomized comparison and reduces bias introduced by nonadherence or crossover. Per-protocol analyses may be informative secondarily but can lose the balance created by randomization.

165. B. Coagulase-negative staphylococci are common contaminants but also important causes of true central-line-associated late-onset sepsis in preterm infants. Persistent bacteremia, clinical instability, organism, and line necessity all inform catheter management.

166. D. A sick newborn with unexplained acidosis, ketosis, hyperammonemia, hypoglycemia, or unusual odor requires urgent stabilization and metabolic evaluation. Preventing catabolism with adequate glucose is often important while disease-specific testing and treatment are pursued.

167. C. Chronic granulomatous disease impairs generation of reactive oxygen species needed for intracellular killing by phagocytes. Dihydrorhodamine flow cytometry demonstrates the abnormal oxidative burst and helps establish the diagnosis.

168. D. When antegrade pulmonary blood flow is absent or critically limited, the ductus may be the principal source of pulmonary blood flow. Prostaglandin E1 preserves that pathway while the infant is stabilized and definitive catheter or surgical management is planned.

169. C. Bilious vomiting in a newborn is a surgical emergency until proven otherwise. Malrotation with midgut volvulus can rapidly compromise mesenteric blood flow, and the corkscrew appearance on upper gastrointestinal imaging is a classic clue.

170. C. In observational research, factors related to both the exposure and outcome can confound the observed association. Extremely premature, severely ill infants are more likely to receive prolonged ventilation and also more likely to have adverse outcomes for many independent reasons.

171. B. Therapeutic hypothermia is a controlled treatment with a defined temperature range and duration, followed by gradual rewarming. Excessive cooling can worsen bradycardia, coagulopathy, and other complications, so continuous core-temperature monitoring is required.

172. C. Adequate amniotic fluid and thoracic expansion are important for lung development. Severe prolonged oligohydramnios, especially early in gestation, can result in pulmonary hypoplasia and difficult postnatal respiratory transition.

173. D. Congenital hypothyroidism is often clinically silent at birth, which is why newborn screening is critical. Prompt levothyroxine replacement after confirmation protects brain development while etiology is evaluated.

174. D. Bag-mask ventilation can insufflate intrathoracic bowel and worsen lung compression in congenital diaphragmatic hernia. Initial management emphasizes intubation, gastric decompression, gentle ventilation, and stabilization of pulmonary vascular and hemodynamic physiology before repair.

175. A. BPD-associated pulmonary hypertension is strongly affected by hypoxemia, lung mechanics, growth, and associated cardiovascular lesions. Foundational care therefore includes optimizing the underlying lung disease and oxygenation while specialist-directed vasodilator therapy is considered when appropriate.

176. A. When the heart rate remains below 60/min despite at least 30 seconds of effective ventilation that moves the chest, coordinated chest compressions are indicated. Current neonatal resuscitation guidance favors ventilation through an alternative airway during compressions, a 3:1 compression-to-ventilation ratio, use of 100% oxygen during compressions, and prompt vascular access because epinephrine is indicated if the heart rate remains below 60/min after 60 seconds of compressions with adequate ventilation.

177. B. Williams syndrome is caused by a 7q11.23 microdeletion that includes the elastin gene and is strongly associated with supravalvar aortic stenosis. Hypercalcemia can occur in infancy, and affected children have a characteristic developmental and behavioral profile.

178. B. Volume-targeted modes aim to stabilize delivered tidal volume despite changing compliance by adjusting pressure within set limits. This can reduce episodes of excessive tidal volume and hypocapnia compared with fixed pressure strategies.

179. A. The developing cerebellum contributes to motor coordination and broader cognitive and language networks. Cerebellar hemorrhage can be difficult to detect with routine anterior-fontanelle ultrasound and carries important neurodevelopmental implications.

180. B. Maternal HIV antibodies cross the placenta, so infant diagnosis relies on virologic testing rather than routine antibody testing in early infancy. The antiretroviral regimen and duration are risk-stratified according to maternal treatment, viral suppression, and other exposure factors.

181. C. Neonatal HSV can present with skin-eye-mouth disease, encephalitis, or disseminated infection, and delay in acyclovir worsens outcomes. Vesicles, seizures, hepatitis, or sepsis-like illness should prompt immediate IV acyclovir while surface, blood, and CSF testing is pursued as appropriate.

182. D. Posterior urethral valves are a major cause of congenital bladder outlet obstruction in male infants. Severe disease can cause bilateral hydronephrosis, renal dysplasia, oligohydramnios, and pulmonary hypoplasia and requires prompt bladder drainage and urologic evaluation.

183. D. For appropriately selected PPROM remote from term, expectant management includes antenatal corticosteroids and latency antibiotics with surveillance. Development of infection, labor, or fetal/maternal compromise changes the balance toward delivery.

184. C. Standardized developmental testing is valuable but not deterministic. Scores are influenced by age, health, language, motor or sensory limitations, and environment, and prediction becomes more reliable when serial assessments and functional observations are considered together.

185. A. PPHN is characterized by failure of pulmonary vascular resistance to fall normally after birth, leading to elevated right-sided pressure and extrapulmonary right-to-left shunting. Echocardiography is essential to confirm the physiology and exclude structural congenital heart disease.

186. C. G6PD protects red cells from oxidative injury through the pentose phosphate pathway. Deficiency can cause brisk hemolysis after oxidant stress, infection, or certain drugs and may produce dangerous neonatal hyperbilirubinemia.

187. D. In hypoplastic left heart syndrome, systemic output depends on right-to-left flow through the ductus arteriosus. Prostaglandin E1 maintains ductal patency until staged palliation or another definitive plan is undertaken.

188. A. Prenatal opioid exposure can lead to neonatal opioid withdrawal, but severity is variable. Observation and supportive measures such as rooming-in, low-stimulation care, feeding support, and caregiver involvement are central; medication is reserved for infants whose symptoms require it.

189. A. In neonatal resuscitation, apnea or gasping with a heart rate below 100/min calls for positive-pressure ventilation. Ventilation is the key intervention because neonatal bradycardia is usually driven by inadequate gas exchange.

190. C. Blood pressure is only one component of hemodynamic assessment. Neonates can have impaired systemic blood flow and tissue oxygen delivery despite a pressure value that appears acceptable, so examination, urine output, lactate, echocardiography, and trend data may be important.

191. D. Meconium ileus is highly associated with cystic fibrosis and results from abnormally thick meconium obstructing the distal ileum. Affected infants need evaluation for complications such as volvulus or perforation and confirmatory cystic fibrosis testing.

192. A. Extremely preterm infants have minimal nutrient reserves and high protein and energy needs. Early parenteral amino acids and lipid are commonly used when enteral nutrition is insufficient, with careful metabolic and hepatic monitoring.

193. B. Both stimulating maternal antibodies and transplacental antithyroid medication can affect neonatal thyroid function. The infant therefore needs risk-based thyroid assessment rather than automatic treatment in one direction.

194. D. Maternal thyroid-stimulating receptor antibodies can cross the placenta and cause neonatal hyperthyroidism. The biochemical pattern is elevated thyroid hormone with suppressed TSH, and symptoms may be delayed if maternal antithyroid drugs were present at birth.

195. B. Hydrops fetalis is a syndrome of abnormal fluid accumulation in multiple fetal compartments. Although alloimmune hemolysis is an important cause, cardiac, infectious, chromosomal, hematologic, and other nonimmune causes are common.

196. B. Intra-amniotic infection increases the risk of early-onset neonatal infection. Management is individualized by gestational age and the infant's condition; maternal antibiotics reduce but do not abolish risk, and neither universal lumbar puncture nor a fixed prolonged course is appropriate for every well infant.

197. A. Preterm infants may have immature suck-swallow-breathe coordination, causing apnea, aspiration risk, or desaturation with feeds. Evaluation should address feeding technique, respiratory reserve, and possible aspiration rather than automatically escalating oxygen alone.

198. D. Growth depends on both energy and protein. Inadequate protein can limit lean-mass accretion even when calories appear adequate, so assessment should include nutrient composition, illness, losses, feeding tolerance, and actual intake.

199. D. Low alveolar oxygen tension is a potent stimulus for pulmonary vasoconstriction, which can worsen PPHN. At the same time, excessive oxygen exposure generates reactive oxygen species and should be avoided once sufficient oxygenation is achieved.

200. C. Anemia of prematurity is multifactorial and commonly appears in very preterm infants as endogenous erythropoietin falls after birth while red-cell lifespan is short and phlebotomy losses are substantial. Transfusion decisions are based on symptoms, respiratory support, age, and hemoglobin rather than a single universal threshold.