How do I know what to study??

General Pediatrics
Content Outline

1. Acute Illnesses
   a. Infections
   b. Cerebrovascular Disease
   c. Gastroenteritis
   d. Acute Respiratory Illness
   e. Acute Renal Failure
2. Developmental Issues
   a. Developmental Pediatrics
   b. Neonatology
3. Critical Care
   a. Pediatrics
   b. Neonatology
   c. Cardiology
4. Cardiology
   a. Cardiology
5. Pediatric Surgery
   a. Pediatric Surgery
6. Endocrinology
   a. Endocrinology
7. Neurology
   a. Neurology
8. Infectious Disease
   a. Infectious Disease
9. Gastroenterology
   a. Gastroenterology
10. Pulmonary Medicine
    a. Pulmonary Medicine
11. Allergy and Immunology
    a. Allergy and Immunology
12. Neuropsychiatry
    a. Neuropsychiatry
13. Hematology and Oncology
    a. Hematology and Oncology
14. Nephrology
    a. Nephrology
15. Neonatology
    a. Neonatology
16. Pediatric Infectious Disease
    a. Pediatric Infectious Disease
17. Pediatric Gastroenterology
    a. Pediatric Gastroenterology
18. Pediatric Cardiology
    a. Pediatric Cardiology
19. Pediatric Pulmonology
    a. Pediatric Pulmonology
20. Pediatric Hematology
    a. Pediatric Hematology
21. Pediatric Nephrology
    a. Pediatric Nephrology
22. Pediatric Immunology
    a. Pediatric Immunology
23. Pediatric Endocrinology
    a. Pediatric Endocrinology
24. Pediatric Allergy
    a. Pediatric Allergy
25. Pediatric Infectious Disease
    a. Pediatric Infectious Disease
26. Research Methods, Patient Safety, and Quality Improvement
2016

<table>
<thead>
<tr>
<th>Examination</th>
<th>First-Time Takers</th>
<th>Pass Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Pediatrics</td>
<td>3,200</td>
<td>86.5</td>
</tr>
<tr>
<td>Adolescent Medicine*</td>
<td>52</td>
<td>84.6</td>
</tr>
<tr>
<td>Cardiology</td>
<td>270</td>
<td>87.8</td>
</tr>
<tr>
<td>Critical Care</td>
<td>364</td>
<td>86.3</td>
</tr>
<tr>
<td>Neonatal-Perinatal Medicine</td>
<td>467</td>
<td>86.1</td>
</tr>
<tr>
<td>Nephrology</td>
<td>72</td>
<td>77.8</td>
</tr>
<tr>
<td>Pulmonology</td>
<td>108</td>
<td>80.6</td>
</tr>
</tbody>
</table>
Many new options ie: Highlighting/Strike out choices etc.

Domain 7: Emergency and Critical Care (4%)
A. Emergency medicine
   1. Respiratory distress
   2. Acute abdomen
   3. Anaphylaxis
   4. Trauma/burns
   5. Status epilepticus
   6. Altered mental status
   7. Poisoning/toxic exposure
   8. Foreign body aspiration, ingestion
   9. Diabetic ketoacidosis (DKA)
   10. Concussion/Head injury
   11. Hypertensive crisis
B. Drowning
C. Critical care
   1. Shock
   2. Organ failure
   3. Impending respiratory failure

Maximum time allowed for each section

<table>
<thead>
<tr>
<th>Activity</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction &amp; Tutorial</td>
<td>15 minutes</td>
</tr>
<tr>
<td>Examination Section 1</td>
<td>2 hours and 15 minutes</td>
</tr>
<tr>
<td>Break</td>
<td>30 minutes</td>
</tr>
<tr>
<td>Examination Section 2</td>
<td>2 hours and 15 minutes</td>
</tr>
<tr>
<td>Survey</td>
<td>15 minutes</td>
</tr>
<tr>
<td>Total</td>
<td>5 hours and 30 minutes</td>
</tr>
</tbody>
</table>
HOW DO YOU PREPARE FOR THE ABP EXAM??????

1) A two month old infant is brought to the emergency room for poor feeding and "breathing funny". Mother had a normal birth and was sent home on day 2. Which of the following is the earliest finding suggestive of impending respiratory failure?

A. Nasal flaring
B. Grunting
C. Use of accessory muscles
D. Presence of a pectus excavatum
E. Respiratory rate of 70

RESPIRATORY FAILURE

• FAILURE TO VENTILATE (PaCO2)
  - Increasing PaCO2 with a decreasing PH

• FAILURE TO OXYGENATE (PaO2)
  - PaO2 < 60 TORR while breathing FIO2 > .60
PEDIATRIC VERSUS ADULT AIRWAYS

- Narrower Airways (Higher resistance)
- Decreased cartilaginous support
- Decreased number and size of alveoli
- Decreased elastic recoil
- Orientation of ribs
- Insertion of diaphragm
- Increased oxygen consumption
- Higher minute ventilation

2) A 2 month old male with Trisomy 21 is brought to you for noisy breathing. He has had no choking or difficulty feeding. The noise appears to occur on inspiration and is loudest when the infant is supine. Which of the following is the MOST likely explanation for the infant's symptoms?

A. laryngomalacia
B. subglottic tracheal web
C. tracheomalacia
D. vascular ring
E. vocal cord paralysis
LARYNGOMALACIA

3) A 13 month old infant is brought to your office for a five day history of low-grade fever, rhinorrhea and a harsh non-productive barking cough and inspiratory stridor. Today the child is irritable, has a fever of 102°F and is not feeding well. You obtain a radiograph shown below. Which of the following is the MOST likely diagnosis at this time?

1. spasmodic croup
2. retropharyngeal abscess
3. epiglottis
4. bacterial tracheitis
5. laryngomalacia

Rapid Drill 1

• Diagnosis
• Pathophysiology
• Bugs
• Drugs
• Management
• Complications
4) You have admitted a 13 month old infant with poor feeding and respiratory distress. The infant has rhinorrhea and fever to 101°F for 2 days. Which of the following best explains the scenario and x-ray?

1. PCP
2. Mycoplasma
3. Streptococcus
4. RSV
5. Chlamydia

VIRAL INFECTION/ LOWER RESPIRATORY TRACT

- Edema
- Sloughed Epithelium
- Bronchospasm
- Secretions

Small Airway Obstruction
- Atelectasis & Hyperinflation
- Decreased Compliance
- V/Q Mismatch
- Hypoxemia

Increased WOB
- Resp Muscle Fatigue
- Hypercarbia

Shock and Respiratory Arrest

5) A 14 year old female with SLE presents to the ED complaining of 2 day hx of shortness of breath and chest pain. She was febrile to 102°F, HR 128, BP 88/50 following 2 boluses of 0.9% NaCl. Her chest radiograph is shown. Which of the following would be the BEST option to make the diagnosis?
5) Which of the following is the best option to make the diagnosis in this scenario?

A. Chest CT  
B. V/Q Scan  
C. D-dimer  
D. Echocardiogram  
E. Pulmonary arteriogram

DIFFERENTIAL DIAGNOSIS of Altered Mental Status

- Alcohol
- Encephalitis/Endocrinopathy
- Electrolytes
- Ingestion/Insulin
- Opiates
- Uremia
DIFFERENTIAL DIAGNOSIS of Altered Mental Status

- Trauma
- Hypo/Hypertension
- Hyper/Hypothermia
- Hypoglycemia/Hyperglycemia
- Infection/Intussception
- Psychogenic
- Structural/Syncope/Seizures

CNS INJURY

1) What is the mechanism of injury?
2) What vessel is injured?
3) What bony area is involved?

EPIDURAL HEMORRHAGE

1) What is the mechanism of injury?
2) What vessel is injured?
3) What bony area is involved?
6) A 2 month old is brought to the office because of fussiness, increased sleeping and poor feeding. He was well until 3 days ago when he was taking less formula and had to be awakened for his feedings. On physical exam she is difficult to console, temperature is 36.8 °C, HR 160 bpm and RR 30 bpm. Anterior fontanelle is full and pupils are 4mm and reactive. Of the following which is the MOST likely cause of the CT findings?

1. Arteriovenous Malformation
2. Galactosemia
3. Encephalitis
4. Non-accidental head injury
5. VonWillebrand Deficiency

7) A 3 day old infant that is to be discharged is mottled, with cool extremities. He was born by elective C-section and had no prenatal issues. Vitals include temp 36.6 °C, heart rate 180, BP 50/35, RR 74 bpm and oxygen saturation 90% on room air. Cap refill is 5 seconds and there is a single S₂ and no murmur and poor peripheral pulses. Of the following the MOST likely cause of the infant's condition is?

A. Cardiac tamponade
B. Cardiomyopathy
C. Hypoplastic left heart syndrome
D. Myocardial infarction
E. Supraventricular tachycardia
8) A 4 year old child is brought to the Emergency Department with a 12 hour history of fever and rash. Physical exam reveals: temperature of 104°F, heart rate 164 bpm, respiratory rate 42 bpm and a blood pressure of 75/45 mmHg. You decide to administer an immediate dose of antibiotics. Which of the following is the MOST appropriate therapy?

1. ceftriaxone
2. penicillin
3. vancomycin
4. vancomycin and ceftriaxone
5. vancomycin and gentamicin

9) It is post-operative day 1 for a 6 year old s/p appendectomy. After the start of his antibiotic infusion, he has a flushed appearance, hypotension and tachycardia. Which of the following is the most likely finding on physical examination?

A. Widened pulse pressure
B. Distended neck veins
C. Cool extremities
D. Diminished femoral pulses
E. Prolonged capillary refill

CLASSIFICATION OF SHOCK

- **HYPOVOLEMIC**
  - Enteritis/Hemorrhage

- **SEPTIC**
  - Bacterial/Viral/Fungal

- **CARDIGENIC**
  - CHD/Cardiomyopathy

- **DISTRIBUTIVE**
  - Anaphylaxis, toxins

- **OBSTRUCTIVE**
  - Tension PTX & Cardiac Tamponade
10) The mother of one of your patients calls frantically because she found her 2 year old daughter with an open bottle of prenatal vitamins and several tablets in her mouth. The label states there is 30mg elemental iron per tablet and 5 tablets are missing as she just bought the bottle this morning. The child weighs 15kg. Which of the following is the MOST appropriate advice to give the mother?

1. Bring the child to the office in the morning for a serum iron concentration
2. Give the child activated charcoal
3. Give the child syrup of ipecac
4. Observe the child at home for symptoms
5. Take the child to the nearest emergency department

Iron Toxicity
Clinical Stages

1 – Vomiting, diarrhea, pain
2 – Latency
3 – Hypovolemia, shock, acidosis
4 – Hepatic failure
5 – Gastric outlet obstruction
11) A 2 yr old child is brought to ED after he was found in bathroom with open bottles. He is poorly responsive and moans to painful stimuli. HR 140 bpm, RR 36, BP 90/60 and temp 38.1°C. Pupils are midsized and sluggishly responsive. He begins to have a TC seizure. Which of the following OTC product is responsible?

A. Antidiarrheal med containing bismuth subsalicylate  
B. Dextramethorphan  
C. Acetaminophen  
D. Mouthwash  
E. Nasal spray with oxymetazoline

PATHOPHYSIOLOGY OF SALICYLATE POISONING

• Stimulation of respiratory medullary center produces tachypnea, hyperpnea  
• Metabolic acidosis and respiratory alkalosis  
• Uncoupling of oxidative phosphorylation, inhibition of Krebs cycle enzymes, and inhibition of amino acid synthesis produces  
  – Lactic and metabolic acidosis (wide anion gap)  
  – Hypoglycemia  
  – Rhabdomyolysis  
• Hematologic effects: inhibition of vitamin K dependant clotting factors, platelet dysfunction, hypothyrombinemia and leukocytosis

ONE PILL CAN KILL

<table>
<thead>
<tr>
<th>Agents</th>
<th>Minimum Therapeutic Dose</th>
<th>Maximum Dose</th>
<th>Critical Dose</th>
<th>Potentially Fatal Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antihistamines</td>
<td>Hydroxyzine</td>
<td>25-100 mg</td>
<td>7500 mg</td>
<td>25000 mg</td>
</tr>
<tr>
<td></td>
<td>Chlorpheniramine</td>
<td>10-25 mg</td>
<td>350 mg</td>
<td>1250 mg</td>
</tr>
<tr>
<td>Anxiolytics</td>
<td>Lorazepam</td>
<td>0.5-2 mg</td>
<td>10 mg</td>
<td>100 mg</td>
</tr>
<tr>
<td></td>
<td>Oxazepam</td>
<td>2-3 mg</td>
<td>40 mg</td>
<td>320 mg</td>
</tr>
<tr>
<td></td>
<td>Diazepam</td>
<td>5-10 mg</td>
<td>50 mg</td>
<td>200 mg</td>
</tr>
<tr>
<td>Soporificants</td>
<td>Flurazepam</td>
<td>20-200 mg</td>
<td>1000 mg</td>
<td>10000 mg</td>
</tr>
<tr>
<td></td>
<td>Zolpidem</td>
<td>5-30 mg</td>
<td>50 mg</td>
<td>250 mg</td>
</tr>
<tr>
<td></td>
<td>zaleplon</td>
<td>10-30 mg</td>
<td>100 mg</td>
<td>300 mg</td>
</tr>
<tr>
<td>Pain Medications</td>
<td>Axonol</td>
<td>50-200 mg</td>
<td>1000 mg</td>
<td>2000 mg</td>
</tr>
<tr>
<td></td>
<td>Ketorolac</td>
<td>1.5-5 mg</td>
<td>20 mg</td>
<td>100 mg</td>
</tr>
<tr>
<td></td>
<td>Ibuprofen</td>
<td>60-120 mg</td>
<td>1200 mg</td>
<td>4000 mg</td>
</tr>
<tr>
<td></td>
<td>Acetaminophen</td>
<td>1500 mg</td>
<td>4000 mg</td>
<td>10000 mg</td>
</tr>
<tr>
<td></td>
<td>Aspirin</td>
<td>100-300 mg</td>
<td>500 mg</td>
<td>1500 mg</td>
</tr>
<tr>
<td></td>
<td>Naloxone</td>
<td>0.4-2 mg</td>
<td>4 mg</td>
<td>16 mg</td>
</tr>
</tbody>
</table>

Peds Annals: 34(12); December 2005
An 18 month old boy was pulled from a swimming pool (temp 15°C) after ~5 min submersion. CPR was started immediately and ROSC occurred at 20 mins in ED. Boy was comatose, mild pupillary reactivity and flexion to painful stimuli in ED. 12 hours later in PICU he has brisk reactive pupils, spontaneous eye opening and purposeful withdrawal from pain. Which of the following is best associated with a favorable outcome for this boy?

A. Perfusing rhythm in ED
B. Improved Neuro exam in 24 hrs
C. Submersion time < 20 mins
D. Total CPR time < 30 min
E. Water temp less than 18°C
NEAR DROWNING
POOR OUTCOME INDICATORS
1) Survival rare after 25 min submersion
2) Exception is icy cold water (0 to 5°C)
3) Need for ongoing CPR in ED
4) CPR > 25 mins
5) GCS 3-5 on admission ED
6) Hyperglycemia

13) A 16 year old patient has a history of recurrent generalized tonic-clonic seizures. He is taking fosphenytoin currently. He presents to the ED and has a 7 minute tonic-clonic seizure. Which drug should be administered first?

A. Fosphenytoin
B. Keppra
C. Lorazepam
D. Pentobarbital
E. Phenobarbital

STATUS EPILEPTICUS
- Generalized tonic-clonic seizures rarely last >5 minutes.
- Spontaneous termination is unlikely in seizures lasting >5 minutes.
- The longer the seizure continues, the more difficult it will be to terminate pharmacologically.
- Degree of neuronal damage is increased
14) A 4 year old boy presents with new onset type 1 DM and diabetic ketoacidosis but physical exam reveals mild dehydration.

Initial labs: Serum glucose 884 mg/dl, sodium 131 mEq/L, potassium 4.5 mEq/L, pH 6.92. Which of the following is the MOST important step in managing this patient?

A. Insulin drip at 0.1 units/kg/hr  
B. Insulin bolus of 0.1 units/kg  
C. Ringers lactate solution, 20 mL/kg over 15 mins  
D. Normal Saline, 10 to 20 mL/kg over 1 hour  
E. Sodium bicarbonate 1mmol/kg over 1 hour
15) Approximately 2 hours into his rehydration and following the administration of an insulin infusion at 0.1 units/kg/hr he develops a headache and urinates in the bed. He is more lethargic. Which of the following is the MOST appropriate next step?

A. Obtain a head CT
B. Discontinue the insulin drip
C. Bolus with 20mL/kg 0.9% NaCl
D. Administer 1 g/kg mannitol
E. Administer slow infusion NaHCO₃

**CLINICAL SIGNS AND SYMPTOMS OF DKA**

- Polyuria
- Polydipsia
- Weight Loss
- Polyphagia
- Nausea
- Vomiting
- Abdominal Pain

**DIAGNOSTIC CRITERIA FOR DKA**

- **HYPERGLYCEMIA**
  Serum Glucose ≥ ~300 mg/dL

- **VENOUS pH ≤ 7.30**

- **Serum bicarbonate < 15mmol/L**

  Associated glycosuria, ketonuria and ketonemia
Signs and Symptoms of Cerebral Edema

- Headache
- Recurrence of vomiting
- Inappropriate slowing of the heart rate
- Rising blood pressure
- Decreased oxygen saturation
- Change in neurological status
  - Restlessness, irritability, increased drowsiness, incontinence
  - Specific Neurologic signs: cranial nerve palsies, abnormal pupillary responses, posturing

How do you manage Cerebral Edema???

- Airway/Breathing/Circulation
- Reassess fluid choice and rate
- Mannitol 1 gram intavenously (increases serum osmolality to draw water from the brain)
- Hypertonic Saline 3% (513mosm)
16) A 4 month old infant (normal delivery and no complications) has a 4 hr history of being inconsolable with bile-colored emesis. HR 160 bpm, RR 45, BP 78/50 and RA 0 sat 95%. Lungs are clear and decreased perfusion distally and a markedly distended abdomen, no bowel sounds and diffuse pain. An abdominal radiograph is obtained. Which of the following is the MOST likely cause of the child’s symptoms?

A. Appendicitis  
B. Gastroenteritis  
C. Mallory-Weiss tear  
D. Necrotizing enterocolitis  
E. Volvulus

17) Which of the following statements regarding pediatric trauma is NOT correct??

1. The most common type of shock is hypovolemic  
2. Head injury accounts for the majority of deaths  
3. Pulmonary contusions occur more frequently  
4. Pancreatic and small bowel contusions are the most common abdominal lesions  
5. On arrival to the ED many children are hypothermic
Pediatric Burns
Indications for Admission

- Burns greater than 15% BSA
- High tension electrical burns
- Inhalation injury
- Inadequate home situation
- Suspected abuse
- Burns to the genitals, hands, feet

Exam Tips

- Visit the ABP On-line Site
- Study and Review
- Don’t Panic
- Calculate Time allowed per question
- Skip the tough ones
- Read the Question Carefully
  - Should be able to answer the question before reading the choices

THE END
GOOD LUCK
### Helpful Slides for your review!

#### SYMPATHOMIMETIC

<table>
<thead>
<tr>
<th>Mental Status</th>
<th>Sedative/Hypnotic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cocaine, amphetamines</td>
<td>Benzo diazepines, barbiturates,</td>
</tr>
<tr>
<td>Pupils</td>
<td>Mydriasis</td>
</tr>
<tr>
<td>Vitalsigns</td>
<td>Tachycardia, hypertension, hyperthermia</td>
</tr>
<tr>
<td>Physical Exam</td>
<td>Tremor, warm skin, diaphoresis</td>
</tr>
<tr>
<td>Treatment</td>
<td>Benzodiazepines, Mixed alpha/beta blockade, Treat MI, CVA</td>
</tr>
</tbody>
</table>

#### CHOLINERGIC

<table>
<thead>
<tr>
<th>Mental Status</th>
<th>Anticholinergic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organophosphates, muscarinic mushrooms, nerve gases</td>
<td>Atropine, TCA, antihistamine</td>
</tr>
<tr>
<td>Pupils</td>
<td>Miosis</td>
</tr>
<tr>
<td>Vitalsigns</td>
<td>Bradycardia, hypothermia, tachypnea</td>
</tr>
<tr>
<td>Physical Exam</td>
<td>Salivation, lacrimation, urination, defecation (SLUDGE)</td>
</tr>
<tr>
<td>Treatment</td>
<td>Decontaminates, atropine, pralidoxime</td>
</tr>
</tbody>
</table>
OPIATES

<table>
<thead>
<tr>
<th>Mental Status</th>
<th>Sedation, confusion, euphoria, coma</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pupils</td>
<td>Miosis</td>
</tr>
<tr>
<td>Vital Signs</td>
<td>Shallow respirations, hypotension, bradycardia, hypothermia</td>
</tr>
<tr>
<td>Physical Exam</td>
<td>Decreased bowel sounds, hyporeflexia</td>
</tr>
<tr>
<td>Treatment</td>
<td>Decontaminate, narcan</td>
</tr>
</tbody>
</table>

Neurologic Findings

Pupillary Exam

- Amphetamine/cocaine
- Anticholinergics
- Antihistamines
- Sympathomimetics
- Cholinergics
- Narcotics
- Organophosphates
RETROPHARYNGEAL ABSCESS

WHAT’S YOUR DIAGNOSIS??

Mottling

ACROCYANOSIS

CO POISONING

- Binds to Hb with high affinity
- Non specific early symptoms (Flu-like)
- Administration of 100% FiO₂
- Hyperbaric therapy
- Pregnancy & Fetal effects
Etiology of Status Epilepticus in Children

<table>
<thead>
<tr>
<th>Condition</th>
<th>Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antiepileptic noncompliance</td>
<td>Central nervous system infections</td>
</tr>
<tr>
<td>Cerebrovasculocirrhosis accidents</td>
<td>(meningitis, encephalitis, abscess)</td>
</tr>
<tr>
<td>Head trauma (accidental and nonaccidental)</td>
<td>Hypoxic-ischemic injury</td>
</tr>
<tr>
<td>Electrolyte disorders: Glucose, sodium, calcium</td>
<td>Drug toxicity: therapeutic/accidental ingestion</td>
</tr>
<tr>
<td>Fever</td>
<td>Drug withdrawal</td>
</tr>
<tr>
<td>Malignant hypercalcemia</td>
<td>Underlying central nervous system disorders</td>
</tr>
<tr>
<td>Neurocutaneous syndromes: Sturge-Weber, tuberous sclerosis, neurofibromatosis type I</td>
<td></td>
</tr>
</tbody>
</table>
Mechanisms of Pediatric Head Trauma (age specific)

- Accidental trauma (# 1 < 19 yrs)
- Non-Accidental trauma
- MVA pedestrian
- MVA passenger
- Sports related*

* 6 times more likely to occur in organized sports than in leisure physical activity

<table>
<thead>
<tr>
<th>Spectrum of Traumatic Brain Injury</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GCS AND MODIFIED GCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>14/15/2019</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Infant</th>
<th>Toddler</th>
<th>Adult</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye Opening</td>
<td>Spontaneous</td>
<td>No response</td>
<td>Spontaneous</td>
<td>To speech</td>
</tr>
<tr>
<td></td>
<td></td>
<td>To pain</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>No response</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbal Response</td>
<td>Coos and babbles</td>
<td>Irritable, cries</td>
<td>Cries to pain</td>
<td>Oriented &amp; appropriate</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Confused</td>
</tr>
<tr>
<td>Motor Response</td>
<td>Moves spontaneously</td>
<td>Withdraws to pain</td>
<td>Withdraws to pain</td>
<td>Extensor response</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Flexion to pain</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Extension to pain</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No response</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GCS AND MODIFIED GCS</th>
<th>14/15/2019</th>
<th>25</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Infant</th>
<th>Toddler</th>
<th>Adult</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye Opening</td>
<td>Spontaneous</td>
<td>No response</td>
<td>Spontaneous</td>
<td>To speech</td>
</tr>
<tr>
<td></td>
<td></td>
<td>To pain</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>No response</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbal Response</td>
<td>Coos and babbles</td>
<td>Irritable, cries</td>
<td>Cries to pain</td>
<td>Oriented &amp; appropriate</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Confused</td>
</tr>
<tr>
<td>Motor Response</td>
<td>Moves spontaneously</td>
<td>Withdraws to pain</td>
<td>Withdraws to pain</td>
<td>Extensor response</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Flexion to pain</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Extension to pain</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No response</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GCS AND MODIFIED GCS</th>
<th>14/15/2019</th>
<th>25</th>
</tr>
</thead>
</table>
GCS CLASSIFICATION

<table>
<thead>
<tr>
<th>SEVERITY</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>MILD</td>
<td>13-15</td>
</tr>
<tr>
<td>MODERATE</td>
<td>9-12</td>
</tr>
<tr>
<td>SEVERE</td>
<td>&lt;8</td>
</tr>
</tbody>
</table>

CONCUSSION

- Transient neurologic dysfunction resulting from a biomechanical force
- May or may not involve LOC
- Functional not a structural injury
- No focal deficits
- Resolution of clinical symptoms typically follows a sequential course
- Typically associated with normal neuroimaging studies

<table>
<thead>
<tr>
<th>Signs/Observed</th>
<th>Symptoms Reported by Athlete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apprehended or omitted (such as glossy eyes)</td>
<td>Headache or &quot;pressure&quot; in head</td>
</tr>
<tr>
<td>Confused about assignment or position</td>
<td>Nausea or vomiting</td>
</tr>
<tr>
<td>Forgets an instruction or play</td>
<td>Dizziness or blurry vision</td>
</tr>
<tr>
<td>Is unable to focus on object</td>
<td>Sensitivity to light or noise</td>
</tr>
<tr>
<td>Moves clumsily or has poor balance</td>
<td>Feeling sluggish, lazy, foggy, or groggy</td>
</tr>
<tr>
<td>Answers questions slowly</td>
<td>Concentration or memory problems</td>
</tr>
<tr>
<td>Losses consciousness (even briefly)</td>
<td>Confusion</td>
</tr>
<tr>
<td>Slurred speech, behavior, or personality changes</td>
<td>Tending toward emotional, sensory, or unusual</td>
</tr>
<tr>
<td>Can’t recall events prior to one’s fall</td>
<td>Does one “feel right” or is “feeling dizzy”</td>
</tr>
</tbody>
</table>

SOURCE: Based on CDC, 2013.
<table>
<thead>
<tr>
<th>Column 1</th>
<th>Column 2</th>
<th>Column 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content 1</td>
<td>Content 2</td>
<td>Content 3</td>
</tr>
<tr>
<td>Content 4</td>
<td>Content 5</td>
<td>Content 6</td>
</tr>
</tbody>
</table>

Table continued...