## Lectures covering concentrated Topics in Emergency Medicine (TEMs)

| Section | Week | Title | Topics |
|---|---|---|---|
| **Laboratory Testing** | **055** | Introduction to Laboratory Testing | Overview of TEM<br>Purpose of laboratory testing in the ED<br>Normal and abnormal test results<br>Pretest probabilities<br>Diagnostic and treatment thresholds<br>Likelihood ratios<br>Sensitivity and specificity<br>Positive and negative predictive values<br>Accuracy and precision<br>Relative operating characteristic curves |
| | **056** | Testing for WBC Counts and Differential Morphologies | WBC physiology<br>Granulocytes<br>Neutrophils<br>Eosinophils<br>Basophils<br>Agranulocytes<br>Lymphocytes<br>Monocytes<br>Methods of measurement<br>Interpretation of results<br>Total WBC count<br>Absolute and relative type counts<br>Examples of clinical applications |
| | **057** | Testing for H&H and RBC Counts, Indices, and Morphologies | RBC physiology<br>Methods of measurement<br>Interpretation of results<br>Hemoglobin and hematocrit<br>Total RBC and reticulocyte counts<br>MCV, MCH, and MCHC<br>Abnormal cell morphologies<br>Examples of clinical applications |
| | **058** | Testing for Platelet Counts and Functions | Platelet physiology<br>Methods of measurement<br>Interpretation of results<br>Total platelet count<br>Bleeding time<br>Examples of clinical applications |
| | **059** | Testing for PT, aPTT, D-Dimer, and Fibrinogen | Coagulation physiology<br>Methods of measurement<br>Calculation of …<br>Interpretation of results<br>Examples of clinical applications |
| | **060** | Testing for Electrolytes and the Anion Gap | Electrolyte physiology<br>Methods of measurement<br>Sodium<br>Potassium<br>Chloride<br>Bicarbonate<br>Lactate<br>Calculation of the anion gap<br>Interpretation of results<br>Examples of clinical applications |
| | **061** | Testing for Electrolytes Not on the Basic Metabolic Panel | Methods of measurement<br>Calcium<br>Magnesium<br>Phosphorus<br>Lithium<br>Interpretation of results |

| | | | |
|---|---|---|---|
| | | | Examples of clinical applications |
| | **062** | Testing for ESR, ZSR, CRP, and Other Acute Phase Reactants | Pathophysiology<br>Methods of measurement<br>Interpretation of results<br>Examples of clinical applications |
| | **063** | Testing for Arterial & Venous Blood Gases | Acid-base physiology<br>Methods of measurement<br>Calculations<br>Interpretation of results<br>Examples of clinical applications |
| | **064** | Testing for BUN, Serum & Urine Creatinine, and GFR Estimation | Renal physiology<br>Methods of measurement<br>Calculations<br>BUN-to-creatinine ratio<br>Estimation of glomerular filtration rate<br>Interpretation of results<br>Examples of clinical applications |
| | **065** | Testing for Blood Glucose, Ketones, Osmolality, and Alcohols | Methods of measurement<br>Calculation of the osmolar gap<br>Interpretation of results<br>Examples of clinical applications |
| | **066** | Testing for Total CK, Cardiac Biomarkers, and B-Type Natriuretic Peptide | Relevant cardiac physiology<br>Methods of measurement<br>Calculation of biomarker ratios<br>Interpretation of results<br>Examples of clinical applications |
| | **067** | Testing Cortisol, hCG, Progesterone, and Other Hormones | Sources and methods of measurement<br>Interpretation of results<br>Examples of clinical applications |
| | **068** | Testing for Urine Dipstick, Microscopy, Electrolytes, and Other Substances | Urine components<br>Methods of measurement<br>Specific gravity<br>Dipstick<br>Microscopy<br>Electrolytes<br>Calculations of urine-to-serum electrolytes<br>Interpretation of results<br>Examples of clinical applications |
| | **069** | Testing for Hepatic Function, Amylase, Lipase, and Other Non-Cardiac Enzymes | Organ physiology<br>Liver<br>Pancreas<br>Methods of measurement<br>Calculation of albumin-to-protein ration<br>Interpretation of results<br>Examples of clinical applications |
| | **070** | Testing for EBV, hepatitis, HIV, and other viruses | Physiology of antibody responses<br>Methods of measurement<br>Antibodies<br>Antigens<br>Interpretation of results<br>Examples of clinical applications |
| | **071** | Testing Cerebrospinal Fluid | CSF production and the blood-brain-barrier<br>Methods of measurement<br>Cell counts<br>Glucose and protein<br>Gram stain<br>Antigenic markers<br>Interpretation of results<br>Examples of clinical applications |