

2009

Step 3

**Content Description and
General Information**

US·MLE

United States

Medical

Licensing

Examination

™

A Joint Program of the Federation of State
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and the National Board of Medical Examiners®

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Introduction

This booklet is intended to help you prepare for Step 3 of the United States Medical Licensing Examination™ (USMLE™) if you are an applicant with an eligibility period that has an ending date in 2009. *Eligibility periods* are explained in the 2009 *USMLE Bulletin of Information*, with which you must become familiar to apply for the examination. In addition to reading the *Bulletin*, you should run the sample Step 3 test materials and tutorials provided at the USMLE website or by your registration entity on CD.

The information in this booklet, USMLE sample test materials and software tutorials, and other informational materials are available at the USMLE website (<http://www.usmle.org>). Information regarding any changes in the USMLE program will also be posted at the USMLE website. You must obtain the most recent information to ensure an accurate understanding of current USMLE rules.

Preparing for the Test, Applying for the Test, Scheduling Test Dates, and Testing

In addition to the information in this booklet, you should review the sections that appear in the *Bulletin*: Preparing for the Test, Applying for the Test and Scheduling Your Test Date, and Testing.

Although the sample test materials in this booklet are provided in computer format at the USMLE website and on CD, you must run the tutorial and sample materials to become familiar with the test software prior to your test date. Migration of Step 3 to new test delivery software will occur in 2009. Please monitor the USMLE website (<http://www.usmle.org>) announcements section to check for changes in test delivery software, and to access updated orientation and practice materials. The CD includes an additional block of items with associated audio or video findings and a sequential item set in the FRED V2 interface. You should become familiar with test items that have audio or video components. **It is essential that you practice with the Primum® Computer-based Case Simulation (CCS) format on the computer prior to taking the examination.** Experience shows that those who do not practice with the format and mechanics of managing the patients in *Primum* CCS

are likely to be at a disadvantage when taking the cases under standardized testing conditions. At the time of your test appointment, an optional CCS tutorial will be offered, but no practice cases will be available.

The Step 3 examination consists of questions ("test items") presented in standard multiple-choice formats, as described on pages 21–22 of this booklet, and *Primum* CCS, a test format that allows you to provide care for a simulated patient, as described on pages 23–32. The test items are divided into "blocks" (see Test Lengths and Formats in the *Bulletin*), and test item formats may vary within each block. You may want to study the descriptions of test item formats that follow before you run the sample test items.

Examination Format

Step 3 consists of multiple-choice items and computer-based case simulations, distributed according to the content blueprint. The examination material is prepared by examination committees broadly representing the medical profession. The committees comprise recognized experts in their fields, including both academic and non-academic practitioners, as well as members of state medical licensing boards.

Step 3 is a two-day examination. You must complete each day of testing within 8 hours. The first day of testing includes 336 multiple-choice items divided into 7 blocks of 48 items; 60 minutes are allotted for completion of each block of test items. There is a maximum of 7 hours of testing on the first day. There is also a minimum of 45 minutes of break time and a 15-minute optional tutorial. Note that the amount of time available for breaks may be increased by finishing a block of test items or the optional tutorial before the allotted time expires.

The second day of testing includes 144 multiple-choice items, divided into 4 blocks of 36 items; 45 minutes are allotted for completion of each block of test items. Approximately 3 hours are allotted for these multiple-choice item blocks. The second day also includes a 15-minute CCS tutorial. This is followed by 9 case simulations, for which approximately 4 hours are allotted. A minimum of 45 minutes is available for break time. There is an

optional survey at the end of the second day, which can be completed if time allows.

Multiple-choice Items. One-best-answer formats are used. Items may stand alone or may be sequenced together as a case or set of 2 to 3 items. It will be useful to study the descriptions on pages 21–22 and to complete the sample test items provided on the CD and in this book starting on page 37. Test items present detailed clinical situations, usually from the patient's perspective. The presentation may be supplemented by one or more pictorials or audio or video. Assessing the patient's situation in the context of his or her environment or family is an important element of many Step 3 questions.

As is done for the actual examination, the sample test items are arranged in blocks that are organized by one of the two clinical settings described on page 5. The CD has an additional block of items with associated audio or video findings and a sequential item set in FRED V2. During the time allotted to complete the test items in a block, examinees may answer the items in any order, review responses, and change answers. After exiting a block, no further review of items or changing of answers within that block is possible. Policies regarding review of test items may be changed without notice. The most current policies regarding review are provided on the Internet (<http://www.usmle.org>). Practice with the multiple-choice items on the CD will provide examinees with a realistic understanding of the computer interface and timing of the examination.

A Normal Laboratory Values Table, including Standard International conversions, is reproduced on pages 34–35 of this booklet. This table will be available as an online reference when you take the examination. Please note that values shown in the actual examination may differ slightly from those printed in this booklet.

Primum[®] Computer-based Case Simulations. You will manage one case at a time. Free-text entry of patient orders is the primary means for interacting with the format. Selection of buttons and check boxes is used for advancing the clock, changing the patient's location, reviewing previously displayed information, and obtaining updates on the patient.

At the beginning of each case, you will see the clinical setting, simulated case time, and introductory patient information. Photographs and

sounds will not be provided. Normal or reference laboratory values will be provided with each report; some tests will be accompanied by a clinical interpretation. To manage patients using the *Primum* CCS software, it is essential that you complete the tutorial and sample cases provided on the CD.

Purpose of the Examination

The purpose of Step 3 is to determine if a physician possesses and can apply the medical knowledge and understanding of clinical science considered essential for the unsupervised practice of medicine, with emphasis on patient management in ambulatory care settings. The inclusion of Step 3 in the USMLE sequence of licensing examinations ensures that attention is devoted to the importance of assessing the knowledge and skills of physicians who are assuming independent responsibility for providing general medical care to patients.

- Step 3 emphasizes selected physician tasks, namely, evaluating severity of patient problems and managing therapy. Assessment of clinical judgment will be prominent.
- Clinical problems involve mainstream, high-impact diseases. Provision is made for less common but important clinical problems as well.
- Test items and cases are patient centered, starting with a description of a clinical encounter (vignette). Both the multiple-choice items and case simulations pose action-related challenges that require clinical decisions or judgment.
- Emphasis is on ambulatory patient encounters; however, inpatient encounters of significant complexity and reflecting contemporary trends also are represented.
- Provision is made for incorporating applied basic and clinical science concepts, especially as they relate to justification for prognosis or management. It is assumed that basic science and clinical fundamentals have been assessed adequately in the prerequisite Step 1 and Step 2 examinations.

Examination Design

A principal organizing dimension for Step 3 design is *normal conditions and disease categories*. The normal conditions section deals with normal growth and development, basic concepts, and general principles. The remaining sections deal with individual diseases/disorders. The Content Outline on pages 9–16 is derived from a model of practice for USMLE. The categories and content coverage in these materials describing Step 3 are subject to change.

A second organizing dimension is the *clinical encounter frame*. The concept of frames encompasses several elements that are critical to the definition of a patient-physician encounter. These elements include whether the problem or concern is new or ongoing, the urgency of the need for intervention relative to the underlying problem, the chronology of events, and the degree of familiarity with the patient or the patient's history. In addition, each encounter between patient and physician occurs in a specifically defined location. The clinical encounter frames are listed; a more detailed description of these frames is contained in Figure 1 on page 6.

- Initial workup. Patient encounters characterized by new problems among patients seen for the first time. Tasks emphasized include extensive data gathering and initial therapeutic intervention.
- Continuing care. Patient encounters characterized by management of previously diagnosed clinical problems among patients. Evaluating the severity of the patient's problem(s) and prognosis, monitoring therapy, and long-term management are emphasized.
- Urgent intervention. Patient encounters characterized by life- and/or organ-threatening emergencies usually occurring in emergency department or inpatient settings. Tasks emphasized include rapid assessment of complex presentations and prompt therapeutic decision making.

A third organizing dimension for Step 3 design is the *physician task*: (1) applying scientific concepts (mechanisms); (2) formulating a diagnosis (including history and physical examination,

laboratory and diagnostic studies, diagnosis, prognosis); (3) managing the patient (including health maintenance, clinical interventions, clinical therapeutics, communication). See Figure 2 on page 7 for a more detailed description.

Much of the test material relates to continuing care encounters. Hence, the bulk of Step 3 is intended to challenge you to consider the severity of illness and to manage ambulatory patients who have previously diagnosed, frequently occurring chronic illnesses and behavioral/emotional problems. The Step 3 blueprint is shown in Figure 3 on page 8.

Clinical Context of Step 3

Step 3 is the final examination in the USMLE sequence leading to a license to practice medicine without supervision. The test items and cases reflect the clinical situations that a general, as-yet undifferentiated physician might encounter within the context of a specific setting.

The expected outcome of the USMLE process is a general unrestricted license to practice medicine without supervision. Although you may already have begun specialist training, for this examination you are expected to assume the role of a general, as-yet undifferentiated physician. You are a member of an independent group practice affiliated with a number of managed care organizations. Your office has regularly scheduled hours. You can admit patients to a 400-bed regional hospital, which provides care for both the urban and the outlying rural communities. The hospital provides standard diagnostic, radiologic, and therapeutic options, including ICUs and cardiothoracic surgery. There is a labor and delivery suite. A fully equipped emergency department adjoins the hospital, and medical evacuation helicopter service is available for emergency transfer to a regional trauma center. You do not have specialty-oriented hospital privileges, but you may request any specialty consultation. The laboratory values on pages 34–35 are the normal ranges for this hospital.

Step 3 patients are intended to reflect the diversity of health care populations with respect to age, gender, cultural group, and occupation. The patient population mix is intended to be representative of data collected from various national databases that study health care in the United States.

Clinical Settings

In addition, the items in each test are usually arranged by the setting in which the encounter first occurs. There are two settings. To help orient you, each setting is described at the beginning of the corresponding test block. Remember, the practice test materials available at the USMLE website (<http://www.usmle.org>) and on the CD have an additional block of items with associated audio or video findings, and a sequential item set in FRED V2.

Setting I: Office/Health Center. You see patients in two locations: your office suite, which is adjacent to a hospital, and at a community-based health center. Your office practice is in a primary care generalist group. Patients are seen for routine and urgent care at the office and health center. Most of the patients you see are from your own practice, although occasionally you will see a patient cared for by one of your associates and reference may be made to the patient's medical records. Known patients may be managed by telephone, and you may have to respond to questions about information

appearing in the public media, which will require interpretation of the medical literature. The laboratory and radiology departments have a full range of services available.

Setting II: Emergency Department and Inpatient Facilities. You encounter patients in the emergency department and inpatient facilities, including the hospital, the adjacent nursing home/extended-care facility, and detoxification unit. Most patients in the emergency department are new to you and are seeking urgent care, but occasionally you arrange to meet there with a known patient who has telephoned you. You have general admitting privileges to the hospital, including to the children's and women's services. On occasion you see patients in the critical care unit. Postoperative patients are usually seen in their rooms unless the recovery room is specified. You may also be called to see patients in the psychiatric unit. There is a short-stay unit where you may see patients undergoing same-day operations or being held for observation. Also available to you is a full range of social services, including rape crisis intervention, family support, and security assistance backed up by local police.

Content Description

The content description that follows is not intended as a study guide, but rather is a model of the range of challenges that will be met in the actual practice of medicine. Successful completion of at least one year of postgraduate training in a program accredited by the Accreditation Council for Graduate Medical Education or the American Osteopathic Association should be helpful preparation for Step 3.

Figure 1: Step 3 Clinical Encounter Frames

INITIAL WORKUP	CONTINUING CARE	URGENT INTERVENTION
<p>Patient encounters characterized by initial assessment and management of clinical problems among patients seen principally in ambulatory settings for the first time. These encounters may also include new problems arising in patients for whom a history is available.</p> <p>Clinical problems include ill-defined signs and symptoms; behavioral-emotional; acute limited; initial manifestation and presentation of chronic illness.</p> <p>Physician tasks emphasized include data gathering and initial clinical intervention. Assessment of patients may lead to urgent intervention.</p>	<p>Patient encounters characterized by continuing management of previously diagnosed clinical problems among patients known to the physician and seen principally in ambulatory settings. Encounters focused on health maintenance are located in this frame.</p> <p>Also included are patient encounters characterized by acute exacerbations or complications, principally of chronic, progressive conditions among patients known to the physician. These encounters may occur in inpatient settings.</p> <p>Clinical problems include frequently-occurring chronic diseases and behavioral-emotional problems. Periodic health evaluations of established patients are included here.</p> <p>Physician tasks emphasized include recognition of new problems in an existing condition, assessment of severity, establishing prognosis, monitoring therapy, and long-term management.</p>	<p>Patient encounters characterized by prompt assessment and management of life-threatening and organ-threatening emergencies, usually occurring in emergency department settings.</p> <p>Occasionally, these encounters may occur in the context of a hospitalized patient.</p> <p>Clinical problems include severe life-threatening and organ-threatening conditions and exacerbations of chronic illness.</p> <p>Physician tasks emphasized include rapid assessment of complex presentations, assessment of patients' deteriorating condition, and prompt decision making.</p>

Figure 2: Step 3 Physician Tasks

Applying Scientific Concepts

Objectives focus on identifying the underlying processes or pathways responsible for a given condition, recognizing associated disease conditions and complications, and recognizing and evaluating clinical findings or diagnostic studies to identify the underlying factors (eg, anatomic structure).

Formulating a Diagnosis

History and Physical Examination objectives focus on interpreting the patient's history, knowing pertinent factors in the patient's history, interpreting the history in terms of risk factors for the patient, recognizing and interpreting pertinent physical findings, and knowing required techniques in the physical examination.

Laboratory and Diagnostic Studies objectives focus on selecting the appropriate routine, initial, invasive, special, or follow-up studies; interpreting the results of laboratory or diagnostic tests; knowing the value of and indications for screening tests; and predicting the most likely test result.

Diagnosis objectives focus on selecting the most likely diagnosis in light of history, physical, or diagnostic test findings. Includes interpreting pictorial material and establishing a diagnosis.

Prognosis objectives focus on interpreting the vignette, evaluating the severity of the patient's condition, and making judgment on the current status or prognosis of the patient as to the need for further action.

Managing the Patient

Health Maintenance objectives focus on identifying risk factors, knowing incidence within patient groups at risk, knowing preliminary steps to ensure effectiveness of intended therapy, and selecting appropriate preventive therapeutic agents or techniques.

Clinical Intervention objectives focus on knowing priorities in emergency management, knowing present and long-term management of selected conditions, and knowing appropriate surgical treatment, including pre- and post-surgical events. They also include knowing pre- and post-procedural management and the appropriate follow-up schedule or monitoring approach.

Clinical Therapeutics objectives focus on selecting the appropriate pharmacotherapy, recognizing actions of drugs as applied to patient management, and knowing the importance of educating patients about effects of drugs and drug-drug interactions.

Legal/Ethical and Health Care Systems objectives focus on issues such as patient autonomy, physician/patient relationships, use of unorthodox or experimental therapies, end-of-life considerations, treatment of minors, and physician error versus negligence.

Figure 3 shows how frames and tasks intersect to create the Step 3 blueprint that specifies the broad content allocations for constructing Step 3. Estimates of approximate percentages are provided for the marginal totals.

Figure 3: Step 3 Blueprint

PHYSICIAN TASKS	STEP 3 CLINICAL ENCOUNTER FRAMES			TOTAL
	Initial Workup	Continuing Care	Urgent Intervention	
History & Physical Examination				8–12%
Laboratory & Diagnostic Studies				8–12%
Diagnosis				8–12%
Prognosis				8–12%
Managing Patients Health Maintenance				5–9%
Clinical Intervention				18–22%
Clinical Therapeutics				12–16%
Legal & Ethical Issues				4–8%
Applying Basic Concepts				8–12%
TOTAL	20–30%	50–60%	15–25%	100%

Step 3 Content Outline

The design of the Step 3 Content Outline has been influenced by the review of empirical data drawn from several sources, including, for example, the National Ambulatory Medical Care Survey and the National Hospital Discharge Survey. The diseases noted in the outline do *not* represent an all-inclusive registry of disorders about which questions may be asked. Questions are generally, *but not exclusively*, focused on the listed disorders. In addition, not all listed topics are included on each examination.

General Principles

Normal Development

Infancy/Childhood (eg, normal growth and development)

Adolescence (eg, sexuality, physical changes of puberty)

Adult (eg, normal physical findings and lifestyle issues)

Senescence (eg, normal physical and mental changes of aging)

Medical Ethics and Jurisprudence

Consent and Informed Consent to Treatment (eg, full disclosure, advance directives/health care proxy, permission to treat/refusal of treatment, competency)

Physician/Patient Relationship (eg, truth-telling, confidentiality, privacy, autonomy, public reporting)

Death and Dying (eg, diagnosing death, organ donation, euthanasia/physician-assisted suicide, palliative care)

Applied Biostatistics and Clinical Epidemiology

Understanding Statistical Concepts (eg, understanding statistical concepts, calculations of one thing/multiple things, mixed calculations/interpretations)

Interpretation of the Medical Literature (eg, interpretation of a study statement, reading a table or graph, evaluation of the validity of the author's conclusion, identification of the study flaw, design of a study)

Systems-Based Care and Patient Safety

Systems-Based Practice and Quality Improvement (eg, microsystems and teams including hand-offs, standardization of processes, reducing deviance)

Patient Safety, Medical Errors and Near Misses (eg, sentinel events, problem identification, root cause analysis)

Disorders of the Nervous System and Special Senses

Degenerative/Developmental Disorders (eg, Alzheimer disease, Parkinson disease, multiple sclerosis, cerebral palsy)

Neuromuscular/Degenerative Disorders of the Cervical Region (eg, paraplegia, neuropathy, myasthenia gravis, spinal stenosis, neuritis)

Cerebrovascular Diseases (eg, intracranial hemorrhage, transient cerebral ischemias, stroke, vascular dementia [multi-infarct dementia])

Peripheral Nerve Diseases (eg, carpal tunnel syndrome, nerve compression)

Headache and Movement Disorders (eg, seizure disorder, trigeminal neuralgia, Bell palsy, torticollis)

Sleep Disorders (eg, night terrors and sleepwalking, cataplexy and narcolepsy)

Neoplasms (eg, meningioma, metastatic lesions)

Infectious Diseases (eg, tetanus, Creutzfeldt-Jakob disease, meningitis, encephalitis)

Trauma and Toxic Effects (eg, intracranial injury, brain death, coma, concussion)

Disorders of the Eye (eg, glaucoma, retinal detachment, cataract, corneal abrasion)

Disorders of the Ear (eg, perforation of tympanic membrane, acoustic neuroma, hearing loss, vertigo)

Disorders of the Respiratory System

Obstructive Airways Disease (eg, cystic fibrosis, chronic bronchitis, emphysema, asthma)

Pneumoconiosis/Fibrosis or Restrictive Pulmonary Disorders (eg, sarcoidosis, asbestosis, pneumoconiosis, pulmonary fibrosis)

Respiratory Failure & Pulmonary Vascular Disease (eg, pulmonary hypertension, respiratory distress syndrome, atelectasis, pulmonary embolism)

Upper Respiratory Conditions (eg, sinusitis, peritonsillar abscess, otitis, streptococcal throat infection)

Neoplasms (eg, mesothelioma, paraneoplastic syndrome)

Lung Infections (eg, pulmonary tuberculosis, pneumonia, influenza, respiratory syncytial virus)

Trauma and Toxic Effects (eg, pleurisy, pleural effusion, pneumothorax, drowning and nonfatal submersion)

Cardiovascular Disorders

Hypertensive Disease (eg, hypertension, elevated blood pressure)

Hypotension (eg, orthostatic hypotension, hypotensive emergency)

Ischemic Heart Disease and Atherosclerosis (eg, myocardial infarction, ischemic heart disease, angina pectoris, hyperlipidemia)

Congestive Heart Failure (eg, congestive heart failure, left heart failure)

Dysrhythmias (eg, atrioventricular block, paroxysmal supraventricular tachycardia, fibrillation and flutter, cardiac arrest)

Disorders of the Great Vessels (eg, atherosclerosis of aorta, dissecting aneurysm, aortic aneurysm)

Valvular Heart Disease (eg, rheumatic heart disease, bacterial endocarditis, valve disorders, functional murmurs)

Peripheral Arterial Vascular Diseases (eg, Raynaud syndrome, intermittent claudication, arterial embolism/thrombosis, venous insufficiency)

Diseases of Veins (eg, phlebitis/thrombophlebitis, deep venous thrombosis, varicose veins)

Congenital Disease (eg, ventricular/atrial septal defect, patent ductus arteriosus, coarctation of aorta, tetralogy of Fallot)

Diseases of Myocardium (eg, hypertensive cardiomegaly, arteriosclerosis, hypertrophic cardiomyopathy, myocarditis)

Diseases of Pericardium (eg, pericarditis, pericardial tamponade)

Trauma and Toxic Effects (eg, cardiovascular injury, fat embolism)

Nutritional and Digestive System Disorders

Mouth, Salivary Glands, and Esophagus (eg, malignant neoplasm of mouth/salivary glands/esophagus, esophageal varices, esophagitis/esophageal reflux, diaphragmatic hernia)

Stomach (eg, neoplasm of stomach, gastric ulcer problems, peptic ulcer problems, gastritis and duodenitis)

Small Intestine/Colon and Rectum (eg, inflammatory bowel disease, diverticula, anal fissure or fistula, celiac disease)

Gallbladder and Bile Duct (eg, calculus of gallbladder, cholangitis, obstruction of common bile duct and biliary atresia)

Liver (eg, acute hepatic failure, cirrhosis, ascites, fatty liver disease)

Pancreas (eg, neoplasm of pancreas or Islets of Langerhans, pancreatitis, cyst and pseudocyst of pancreas)

Nutritional Disorders (eg, obesity, malnutrition and malabsorption)

Infections (eg, gastroenteritis, coxsackievirus, candidiasis of mouth [thrush], hepatitis A/B/C, *Helicobacter pylori*)

Trauma and Toxic Effects (eg, food poisoning, hernia of abdominal cavity, ventral hernia)

Behavioral/Emotional Disorders

Psychotic Disorders (eg, schizophrenia, paranoid state, psychotic disorder)

Anxiety Disorders (eg, panic disorder [panic attacks], phobic disorders, obsessive-compulsive disorders, post-traumatic stress disorder)

Mood Disorders (eg, dysthymic disorder, depressive disorders, bipolar disorders, postpartum depression)

Somatoform Disorders (eg, somatization disorder, malingering, conversion disorder, hypochondriasis [including body dysmorphic disorder])

Eating Disorders and Other Impulse Control Disorders (eg, pica, bulimia, disorders of impulse control [gambling, shoplifting], binge eating disorder)

Disorders Originating in Infancy/Childhood/Adolescence (eg, oppositional defiant disorder, attention-deficit/hyperactivity disorder, developmental speech or language disorder, autistic disorder)

Personality Disorders (eg, antisocial personality disorder, dependent personality disorder, paranoid personality disorder, schizoid personality disorder)

Psychosocial Problems (eg, adult maltreatment [including elder abuse], child maltreatment [child abuse], psychosexual dysfunction, bereavement)

Substance Use Disorders (eg, alcohol abuse and dependence, alcohol withdrawal syndrome, cocaine/opiates/sedatives/hypnotics abuse and dependence)

Toxic Effects (eg, poisoning by psychotropic agents, including antidepressants)

Disorders of the Musculoskeletal System

Degenerative/Metabolic Disorders (eg, gout, osteoarthritis, avascular necrosis of bone, disc displacement)

Inflammatory/Immunologic Disorders (eg, ankylosis/spondylopathy, rheumatoid arthritis, synovitis/tenosynovitis, myalgia and myositis)

Hereditary Developmental Disorders (eg, genu valgum or varum, congenital dislocation of hip, scoliosis, varus/valgus deformities of feet)

Neoplasms (eg, secondary malignant neoplasm of bone and bone marrow, osteosarcoma)

Infections (eg, infective arthritis, infective myositis, Lyme disease, osteomyelitis)

Traumatic Injuries (eg, tears, fractures, dislocations, contusions)

Disorders of the Skin/Subcutaneous Tissue

Skin Eruptions (eg, contact dermatitis, erythema multiforme, psoriasis, decubitus ulcer)

Disorders of Nails/Hair/Sweat Glands (eg, ingrowing nail, seborrhea capitis/folliculitis/sycosis, hirsutism, hyperhidrosis)

Lumps/Tumors of the Skin (eg, malignant melanoma of skin/lip, keratoderma, sebaceous cyst, neurofibromatosis)

Infections (eg, tinea infections, cellulitis and abscess, erythema infectiosum, molluscum contagiosum)

Trauma and Toxic Effects (eg, wounds or burns affecting the skin or subcutaneous tissue, keloid scar, Stevens-Johnson syndrome, frostbite)

Disorders of the Endocrine System

Thyroid Disorders (eg, malignant neoplasm of thyroid gland, thyrotoxicosis, hypothyroidism, thyroiditis)

Diabetes Mellitus (eg, ketoacidosis, renal manifestations, neurologic manifestations, hypoglycemic shock)

Adrenal Disorders (eg, neuroblastoma, hyperaldosteronism, congenital adrenal hyperplasia, corticoadrenal insufficiency [Addison disease])

Parathyroid/Pituitary Disorders (eg, hyperparathyroidism, hypoparathyroidism, prolactinoma, pheochromocytoma)

Trauma and Toxic Effects (eg, heat syncope, heat stroke and sun stroke, heat exhaustion)

Renal and Urinary Disorders

Lower Urinary Tract (eg, neurogenic bladder, enuresis/incontinence of urine, urinary obstruction, cystitis)

Upper Urinary Tract (eg, glomerulonephritis, renal failure/insufficiency, polycystic kidney disease, calculus of kidney/ureter/urinary tract)

Fluid, Electrolyte, and Acid-Base Disorders (eg, dehydration, hypovolemia, electrolyte imbalances, metabolic disorders)

Infections (eg, pyelonephritis, urethritis, urinary tract infection)

Trauma and Toxic Effects (eg, extravasation of urine)

Diseases/Disorders of the Female Reproductive System

Breast (eg, fibrocystic/solitary cyst of breast, hypertrophy of breast, disorders of lactation, mastitis)

Uterus (eg, leiomyoma of uterus, postcoital bleeding, endometriosis of uterus, uterine prolapse)

Ovary, Fallopian Tube, & Broad Ligament (eg, ovarian or fallopian tube torsion, ovarian cyst, ovarian failure, benign neoplasm of ovary)

Cervix (eg, cervix uteri, cervicitis and endocervicitis, dysplasia of cervix [uteri], abnormal Pap smear of cervix)

Vagina/Vulva (eg, vaginitis and vulvovaginitis, prolapse of vaginal walls, imperforate hymen, vaginismus)

Menstrual Disorders (eg, dysmenorrhea, premenstrual tension syndrome, irregular menstrual cycle, ovulation bleeding)

Menopause (eg, postmenopausal hormone replacement therapy, premenopausal menorrhagia, postmenopausal bleeding, postmenopausal atrophic vaginitis)

Pelvic Relaxation and Urinary Disorders (eg, stress incontinence, uterine prolapse, prolapse of vaginal walls, cystocele/rectocele)

Female Fertility/Infertility (eg, contraception, pre-pregnancy counseling, dyspareunia, female infertility)

Neoplasms (eg, malignant neoplasm of breast, uterus, ovary, vagina/vulva; cervical cancer)

Infections (eg, human papillomavirus, sexually transmitted diseases, pelvic inflammatory disease, salpingitis and oophoritis)

Trauma and Toxic Effects (eg, injuries, wounds, toxic effects, or burns affecting the female reproductive system)

Pregnancy/Labor and Delivery/Fetus and Newborn

Pregnancy: Complicated (eg, gestational diabetes, ectopic/tubal pregnancy, preeclampsia or eclampsia, cervical incompetence)

Pregnancy: Uncomplicated (eg, supervision of normal pregnancy, examination of liveborn before admission to hospital)

Labor, Delivery, & Postpartum (including placenta abnormalities) (eg, premature rupture of membranes, infections complicating childbirth, cesarean delivery, immediate postpartum hemorrhage)

Fetus & Newborn (eg, congenital anomalies, Down syndrome, neonatal hypoglycemia, feeding problems in newborn [breast-feeding])

Perinatal Infections (eg, congenital cytomegalovirus infection, neonatal conjunctivitis and dacryocystitis, neonatal sepsis, herpes simplex virus)

Disorders of Blood

Splenic Disorders (eg, traumatic and nontraumatic diseases of spleen)

Anemias and Cytopenias (eg, iron deficiency anemia, hereditary spherocytosis, hemoglobinopathies, thrombocytopenic purpura and ITP)

Bleeding Disorders (eg, coagulation defects, congenital factor VIII disorder/hemophilia, von Willebrand disease, disseminated intravascular coagulation)

Reactions to Blood Components (eg, transfusion reaction, ABO incompatibility reaction, Rh incompatibility reaction)

Malignant Neoplasias (eg, Hodgkin disease, lymphomas, multiple myeloma, leukemia)

Infections (eg, infectious mononucleosis, cat-scratch disease, septicemia, lymphadenitis)

Toxic Effects (eg, heparin-induced thrombocytopenia)

Disorders of the Male Reproductive System

Male Reproductive System (eg, neoplasm of male breast/prostate/testes, prostatitis, torsion of testes, orchitis/epididymitis)

Infections (eg, human papillomavirus, sexually transmitted diseases)

Trauma and Toxic Effects (eg, injuries, wounds, toxic effects, or burns affecting the male reproductive system)

Disorders of the Immune System

Immune Deficiency Disorders (eg, hypogammaglobulinemia, IgA deficiency)

HIV (eg, AIDS, AIDS-related complex, pneumocystosis, Kaposi sarcoma)

Vascular/Arterial Disorders (eg, Wegener granulomatosis, arteritis)

MSK/Connective Tissue Disorders (eg, dermatomyositis, polymyositis, polymyalgia rheumatica, systemic lupus erythematosus)

Vaccinations/Chemotherapy (eg, routine and nonroutine, including travel vaccinations, prophylactic and maintenance chemotherapy)

Anaphylaxis/Immunologic reactions (eg, anaphylaxis, reactions to venomous bites, desensitization to allergens)

Infections (eg, scarlet fever, toxic shock syndrome, Rocky Mountain spotted fever, retrovirus)

Step 3 Evaluative Objectives

The Step 3 Evaluative Objectives are categorized according to the physician tasks and they serve to guide writing and classification of test items. They can be read as more detailed descriptions of the kinds of issues that will be posed to physicians taking Step 3.

Applying Scientific Concepts

- Identifies the cause/causal agent or predisposing factor(s); or, given an effect, what is the cause.
- Recognizes associated disease conditions, including complications, or indicators for potential disease complications, of a given disease.
- Identifies the underlying processes/pathways that account for, or contribute to, the expression or resolution of a given condition.
- Recognizes characteristics of disease relating to natural history or course of disease, including progression, severity, duration, and transmission of disease.
- Recognizes or evaluates given clinical or physical findings to identify the underlying anatomic structure or physical location.
- Recognizes appropriate methods and techniques related to procedures, artifacts of instrumentation, technical errors/problems contributing to misinformation. Knows the technique, procedure, or site of study.
- Interprets results of experimental data or biometric studies.
- Knows design features of clinical studies.
- Knows issues regarding validity of research protocols.
- Recognizes potential bias in clinical studies including the extent to which bias accounts for study results.
- Interprets results of clinical studies.
- Distinguishes clinical importance from statistical significance.
- Knows sensitivity and specificity of selected test.

Obtaining History and Performing Physical Examination

- Knows signs/symptoms of selected disorders.
- Knows individual's risk factors for development of condition leading to encounter. Given current symptoms in presented history, identifies pertinent factor(s) in history.
- Predicts the most likely additional physical finding; selects either the finding itself, or the appropriate examination technique that would result in the finding.

Using Laboratory and Diagnostic Studies

- Selects appropriate routine or initial laboratory or diagnostic studies, or study needed to ensure effectiveness of intended therapy, or study most likely to establish/confirm the diagnosis.
- Interprets the clinical impact of laboratory or diagnostic test findings.
- Predicts the most likely laboratory or diagnostic test result.

Formulating the Most Likely Diagnosis

- Selects the most likely diagnosis or knows the most likely presumptive or preliminary diagnosis.

Evaluating the Severity of Patient's Problems (Prognosis)

- Evaluates severity of patient condition and identifies indications for consultation or diagnostic assessment.
- Assesses severity of patient condition and makes judgment as to current status, prognosis, or need for further action.
- Recognizes factors in the history, or physical or laboratory study findings (given symptoms), that affect patient prognosis or outcome, or determine therapy.
- Knows clinically relevant implications of specifically referenced treatment.
- Interprets laboratory or diagnostic study results and identifies current status of patient.

Management of Health Maintenance and Disease Prevention

- Knows risk factors for conditions amenable to prevention or detection in an asymptomatic patient, or knows the potential condition itself.
- Knows pertinent incidence statistics and identifies patient groups at risk; knows incidence of symptomless/dangerous disorders among various groups.
- Knows common screening tests for conditions amenable to prevention or detection in an asymptomatic patient or population.
- Selects appropriate preventive, therapeutic agent/technique. Knows timing of vaccinations.

Clinical Interventions

- Evaluates severity of patient condition in terms of need for referral for surgical treatments/procedures versus other nonsurgical options.
- Knows immediate management or priority in management, specifically in emergency or acute cases.
- Knows most appropriate management of selected conditions.
- Knows appropriate long-term treatment or management goals.
- Knows appropriate surgical management among surgical options.
- Knows pre/post surgical or procedural management.
- Knows indications for admission to the hospital or to another appropriate setting.
- Knows most appropriate follow-up monitoring approach regarding the management plan.
- Knows most appropriate discharge planning.
- Knows components of rehabilitation program.
- Knows appropriate counseling of patient or family regarding current and future problems, including risk factors related to present encounter.
- Educates patient or family regarding self-care.
- Knows relevant roles of allied health personnel.
- Knows appropriate use and procedures regarding hospice care.
- Knows management of terminally ill patients related to treating chronic pain, and recognizing patient's expression of fear of pain, injury, or death; knows how to comfort the patient or family during crisis such as trauma or death.

Clinical Therapeutics

- Selects most appropriate pharmacotherapy.
- Assesses patient adherence with treatment regimen, recognizes techniques to increase adherence or understanding of the disease state, and knows how adherence may be affected by providing instructions with therapy.
- Recognizes factors that alter drug requirements for a patient.
- Knows adverse effects of various drugs, or recognizes signs and symptoms of drug (and drug-drug) interactions resulting from polypharmacy in the therapeutic regimen and knows steps to prevent polypharmacy.
- Knows contraindications of various medications.
- Modifies therapeutic regimen within the context of continuing care.

Communication

- Recognizes physician's best choice of words in eliciting history or further description of the patient's problem; knows statements that facilitate communication with the patient.

Step 3 Test Question Formats

The following are strategies for answering one-best-answer questions (eg, Single Items, Multiple Item Sets, and Cases):

- Read the patient description and question carefully. It is important to understand what is being asked.
- Try to generate an answer and then look for it in the option list.
- Alternatively, read each option carefully, eliminating those that are clearly incorrect.
- Of the remaining options, select the one that is most correct.
- If unsure about an answer, it is better to guess since unanswered questions are automatically counted as wrong answers.

Single Items

This is the traditional, most frequently used multiple-choice format. These items usually include a patient vignette followed by four or five response options. The response options for all questions are lettered (ie, A, B, C, D, E). You are required to select the best answer to the question. Other options may be partially correct, but there is only ONE BEST answer.

Example Question 1

1. A 45-year-old African-American man comes to the office for the first time because he says, "I had blood in my urine when I went to the bathroom this morning." He reports no other symptoms. On physical examination his kidneys are palpable bilaterally and he has mild hypertension. Specific additional history should be obtained regarding which of the following?
 - A. Chronic use of analgesics
 - B. Cigarette smoking
 - C. Family history of renal disease
 - D. Occupational exposure to carbon tetrachloride
 - E. Recent sore throats

(Answer C)

Multiple Item Sets

A single patient-centered vignette may be associated with two or three consecutive questions about the information presented. You are required to select the one best answer to each question. Other options may be partially correct, but there is only ONE BEST answer. Some multiple item sets are items that must be answered in sequential order. You must click "Proceed to Next Item" to view the next item in the set; once you click on this button, you will not be able to add or change an answer to the displayed (previous) item.

Example Questions 2 to 4

A 38-year-old white woman, who is a part-time teacher and the mother of three children, comes to the office for evaluation of hypertension. You have been her physician since the birth of her first child 8 years ago. One week ago, an elevated blood pressure was detected during a regularly scheduled examination for entrance into graduate school. Vital signs on examination today are temperature 37.0EC (98.6EF), pulse 100/min, respirations 22/min, and blood pressure 164/100 mm Hg (right arm, supine).

2. The physical examination is most likely to show which of the following?

- A. An abdominal bruit
- B. Cardiac enlargement
- C. Decreased femoral pulses
- D. Thyroid enlargement
- E. Normal retinas

(Answer E)

3. The most appropriate next step is to order which of the following?

- A. Complete blood count
- B. Determination of serum electrolyte and creatinine concentrations
- C. Determination of serum glucose concentration
- D. Determination of serum thyroxine concentration
- E. Urine culture

(Answer B)

4. To assess this patient's risk factors for atherogenesis, the most appropriate test is determination of which of the following?

- A. Plasma renin activity
- B. Serum cholesterol concentration
- C. Serum triglycerides concentration
- D. Urinary aldosterone excretion
- E. Urinary metanephrine excretion

(Answer B)

End of Set

Cases

A single-patient or family-centered vignette may ask either two or three questions, each related to the initial opening vignette. Information is added as the case unfolds. **It is extremely important to answer the questions in the order presented.** Time often passes within a case and your orientation to a question early in a case may be altered by the additional information presented later in the case. If you do skip questions, be sure to answer earlier questions with only the information presented to that point in the case.

Each question is intended to be answered independently. You are required to select the ONE BEST answer to each question.

Example Questions 5 to 7

A 24-year-old man comes to the office because of intermittent chest pain that began a few weeks ago. You have been his physician for the past 2 years and he has been in otherwise good health. He says he is not having pain currently. A review of his medical record shows that his serum cholesterol concentration was normal at a pre-employment physical examination 1 year ago. You have not seen him since that visit and he says he has had no other complaints or problems in the interim. He reminds you that he smokes 1 pack of cigarettes per day. When you question him further, he says that he does not use any alcohol or illicit drugs. Although the details are vague, he describes the chest pain as a substernal tightness that is definitely not related to exertion.

5. Which of the following findings on physical examination would be most consistent with costochondritis as the cause of his chest pain?

- A. Crepitation over the second and third ribs anteriorly
- B. Deep tenderness to hand pressure on the sternum
- C. Localized point tenderness in the parasternal area
- D. Pain on deep inspiration
- E. Normal physical examination

(Answer C)

6. In light of the patient's original denial of drug use, which of the following is the most appropriate next step to confirm a diagnosis of cocaine use?

- A. Ask the laboratory if serum is available for toxicologic screening on a previous blood sample
- B. Call his family to obtain corroborative history
- C. Obtain a plasma catecholamine concentration
- D. Obtain a urine sample for routine analysis but also request toxicologic screening
- E. Present your findings to the patient and confront him with the suspected diagnosis

(Answer E)

Cocaine use is confirmed. The patient admits a possible temporal relationship between his cocaine use and his chest pain and expresses concern about long-term health risks.

7. The patient should be counseled regarding which of the following?

- A. Cocaine-induced myocardial ischemia can be treated with blocking agents
- B. Death can occur from cocaine-induced myocardial infarction or arrhythmia
- C. The presence of neuropsychiatric sequelae from drug use indicates those at risk for sudden death associated with cocaine use
- D. Q wave myocardial infarction occurs only with smoked "crack" or intravenous cocaine use
- E. Underlying coronary artery disease is the principal risk for sudden death associated with cocaine use

(Answer B)

End of Case

Primum® Computer-based Case Simulations (CCS) Overview

Introduction

This overview, in combination with frequently asked questions (FAQs), software instructions, and practice cases is intended to prepare you for an examination that uses *Primum* Computer-based Case Simulations (CCS) software. You will use the *Primum* program to manage one patient at a time. Each case will be presented in a consistent format and appearance; the patient management options will be the same in all cases.

You will have a more meaningful experience if you practice with the *Primum* software prior to taking the examination. Experience and practice with *Primum* cases can have an impact on performance. It is essential that you become familiar with both the software interface and the background information provided. You will be allotted a maximum of real time for each case (eg, 25 minutes), but you may not need to use the entire time.

Description of *Primum* Computer-based Case Simulations (CCS)

Each *Primum* case is a dynamic, interactive simulation of a patient-care situation designed to evaluate your approach to clinical management, including diagnosis, treatment, and monitoring. The cases provide a means for observing your application of medical knowledge in a variety of patient care situations and settings over varying periods of simulated time. As simulated time passes, a patient's condition may change based on the course of the underlying medical condition(s), or your management, or both. Patients may present with acute problems to be managed within a few minutes of simulated time or with chronic problems to be managed over several months of simulated time.

The cases used in the CCS portion of the Step 3 examination are based upon a CCS examination blueprint. The blueprint defines the requirements for CCS examination forms. The CCS blueprint is used to construct CCS examination forms focusing primarily on presenting symptoms and presenting locations. Presenting symptoms are related to the Step 3 Problem/Disease List, and include, but are not limited to, problems of the circulatory, digestive, renal/urinary, endocrine/metabolic, behavioral/emotional, respiratory, and reproductive systems. Presenting locations include the outpatient office,

emergency department, inpatient unit, intensive care unit, and the patient's home.

Case Interface and Format

You will manage patients using the *Primum* software. Information about a patient's condition will be displayed on the computer screen. At the start of each case, you will receive a brief description of the reason for the encounter and the patient's appearance and status, along with the vital signs and history. You must initiate appropriate management and continue care as the patient's condition changes over simulated time. Patient information will be provided to you in response to your requests for interval history and physical examination findings, tests, therapies, and procedures. Requests for interval history and physical examination automatically advance the clock in simulated time. To see results of tests and procedures, and to observe effects of treatment, **you** must advance the clock.

Physical examination should be requested if and when you would do the same with a real patient. You can select a complete physical examination or parts of a physical examination. You can write orders before examining a patient; if physical examination reveals findings that you believe render the orders inappropriate, and the orders have not yet been processed, you can cancel those orders. At subsequent intervals of your choosing, you can also request interval histories, which are analogous to asking the patient, "How are you?"

You will initiate patient care and management actions by typing on the order sheet section of the patient chart. The order sheet enables you to request tests, therapies, procedures, consultations, and nursing orders representing a range of diagnostic and therapeutic management options. It is also your means of giving advice or counseling a patient (eg, "smoking cessation," "low-fat diet," "safe-sex techniques"). The order sheet has a free-text entry format; you can type whatever you want. It is not necessary, however, to type commands (eg, "administer," "draw"). The "clerk" recognizes thousands of different entries typed in different ways. As long as the clerk recognizes the first three characters of the name or acronym (eg, "xra," "ECG"), you will be prompted for clarification (ie, you will be shown a list of orders beginning with

"xra" or the acronym "ECG" respectively, including different types of x-rays and electrocardiograms). You can only place orders in the order sheet section of the patient chart. You cannot place orders on any other section of the chart (ie, Progress Notes, Vital Signs, Lab Reports, Imaging, Other Tests, Treatment Record).

In some locations (eg, the office, the inpatient unit), there may be cases where a patient is on a medication at the beginning of the case. In these situations, the patient's current medication will be displayed on the order sheet (eg, "oral contraceptives"). These orders appear with an order time of Day 1 @00:00. You must decide whether to continue or cancel the medication, as you deem appropriate for the patient's condition; these orders remain active throughout the case unless canceled.

You must advance the clock to see results of tests and procedures, and to observe effects of treatment. (Note that in real life, laboratory values fluctuate a small amount each time they are measured on the same patient; successive *Primum* CCS laboratory test results may reflect this normal variation. The amount of variation is usually very small and should not affect your interpretation of serial values.) In CCS numeric lab tests, normal ranges are included with the results. Note that these normal ranges may differ slightly from those in the MCQ portion of the test.

Advancing the clock is what "makes things happen." You select the appropriate clock option after you have confirmed all the orders you need at a given time. When there is nothing else you wish to do for a patient, advance the clock to the next time you wish to evaluate the patient, check results of previously ordered studies, and observe the effect of therapies. As simulated time passes, you might receive notification of change in a patient's condition through messages from the patient or the patient's family or from other health care providers if the patient is in a setting such as the hospital. You decide whether these messages affect your management plan.

Note that if a clock advance to a requested appointment time is stopped after reviewing results from processed orders, the requested appointment is canceled. Also note that if no results are pending,

the case will advance to the next patient update or the end of the case.

Cases end under different circumstances and after varying amounts of simulated and real time. A case will end when you reach the maximum allotted real time. Alternatively, a case may end when you have demonstrated your skills sufficiently. Encountering the "End of Case" screen before you think you are finished managing a patient does not necessarily mean you did something right or wrong. Once you are prompted with the "End of Case" screen, real time permitting, you will have a few minutes to finalize your orders and review the chart. You can cancel orders and add new ones. After finalizing patient care, you **must** select Exit Case to enter the final diagnosis and exit the case. If you use the entire 5 minutes allotted at case end, you **will not** be able to enter a final diagnosis.

If a case has not ended and you feel you are finished management of the case, you can end it by advancing simulated time. Use the clock as you normally would to receive results of pending tests and procedures. Once there are no longer any pending patient updates, tests, or procedures, continue to use the clock to advance simulated time until the case ends.

The Patient

Simulated patients may be from any age group, ethnic, or socioeconomic background and may present with well-defined or poorly defined problems. Patients may present with acute or chronic problems or may be seeking routine health care or health maintenance, with or without underlying conditions. Assume that each patient you are managing has already given his or her consent for any available procedure or therapy, unless you receive a message to the contrary. In the case of a child or an infant, assume the legal guardians have given consent as well.

The Health Care Network and Facility

In the *Primum* CCS health care network, you have an outpatient office shared with colleagues across specialty areas. Your office hours are Monday through Friday, from 09:00 to 17:00. The hospital facility, a 400-bed regional referral center with an emergency department, is available 24 hours a day. Standard diagnostic and therapeutic options are available; no experimental options are available. The

emergency department is a 24-hour facility, and the intensive care unit is available for medical (including coronary), surgical, obstetric, pediatric, and neonatal patients. At the start of each case, you will be informed of the current setting. You should change a patient's location as you deem appropriate.

Surgical and labor/delivery facilities are available, as well as both inpatient and outpatient laboratory and imaging services; however, you cannot transfer patients to these locations directly. *Primum* CCS staff will arrange for transfer of patients to these locations for you.

Evaluative Objectives and Assessment of Your Performance

Primum CCS measures those skills a physician employs in managing a patient over time, with the notable exception of skills that require human interaction (eg, history taking, physical examination, education and counseling, providing emotional support, etc.). Specific measurement objectives, designed as part of each case simulation, assess competency in managing a patient with a particular problem or health care need in the context of a specific health care setting.

The timing and sequencing of indicated actions, as well as the commission of actions that are not indicated or are potentially harmful, are aggregated in your evaluation. Individual appropriate patient management actions are weighted based on degree of appropriateness and may increase your score by different amounts. Actions that are not indicated and pose greater potential risk to a patient decrease your score by greater amounts than do actions of lower risk. Seemingly correct management decisions made in a suboptimal or incorrect sequence or after a delay in simulated time may receive little or no credit. Note that "routine" orders (eg, diet, ambulation) tend to carry little or no weight in scoring unless they are particularly relevant to the case (eg, specific diet orders for a patient with diabetes).

Management of patients consistent with widely accepted standards of care will achieve a high score, although multiple correct approaches may exist. For example, a very efficient approach such as an expert might take would earn a high score; however, a more thorough approach would not necessarily deduct from your score. Also, taking an innovative but well-documented and accepted approach may

achieve the same high score. Note that in some cases, there may be very little for you to do to manage a patient. In those instances, you will be scored on your ability to recognize situations in which the most appropriate action is to refrain from, or defer, testing and treatment. You will be scored lower if you take an aggressive approach when restraint and observation are the standard of care. The best overall strategy is to balance efficiency with thoroughness based upon your clinical judgment.

Cost is accounted for indirectly based on the relative inappropriateness of patient management actions. If you order something that is unnecessary and excessive, your score will decrease. In considering various options including the location in which you manage the patient, you need to decide whether the additional cost is warranted for better patient care.

Diagnoses and reasons for consultations that you provide in *Primum* CCS will not be used in evaluating your performance at this time, unless needed to investigate unusual test-taking behaviors or response patterns.

The scoring process uses algorithms that represent codified expert physician policies. These policies allow for wide variations in care protocols among health care settings and systems. The policies are obtained from expert physicians who are experienced in training physicians and in caring for patients. For each patient case, the input of expert generalists and specialists is obtained to ensure that performance criteria are reasonable for any physician practicing medicine in an unsupervised setting.

Responsibilities of the Physician

In the simulation, you should function as a primary care physician who is responsible for managing each simulated patient. Management involves addressing a patient's problem(s) and/or concern(s) by obtaining diagnostic information, providing treatment, monitoring patient status and response to interventions, scheduling appointments and, when appropriate, attending to health maintenance screenings and patient education. You will manage one patient at a time and should continue to manage each patient until the "End of Case" message is displayed.

Assume that you are the primary care physician for each patient you manage. In this role, you must manage your patient in both inpatient and outpatient settings. Sometimes this may involve management in several locations—initially caring for a patient in the emergency department, admitting the patient to the hospital, and discharging and following the patient in the outpatient setting.

You should not assume that other members of the health care team (eg, nurses, consultants) will write or initiate orders for you. Some routine orders (eg, "vital signs" at the beginning of a case and upon change of location) may be done for you, but you should not make assumptions regarding other orders. For example, orders usually requested to monitor a patient's condition, such as a cardiac monitor and pulse oximetry, are not automatically ordered. You are responsible for determining needs and for making all patient management decisions, whether or not you would be expected to do so in a real-life

situation (eg, ordering IV fluids, surgical procedures, or consultations). If you order a procedure for which you are not trained, the medical staff in *Primum* cases will either assist you or take primary responsibility for implementing your request.

As in real life, consultants should be called upon as you deem appropriate. Typically, consultants are not helpful since the exam is designed to assess your patient management skills. Nevertheless, you will be evaluated on whether or not you request the appropriate consultation when consultation is indicated. For example, if a surgical procedure is indicated, it may be appropriate for a primary care physician to request consultation. However, in some cases it may be necessary to implement a course of action without the advice of a consultant or before a consultant is able to see your patient.

Frequently Asked Questions (FAQs)

1. What is Primum® Computer-based Case Simulations (CCS) software?

Primum Computer-based Case Simulations (CCS) software presents an interactive, dynamic simulation of a patient-care situation designed to evaluate your approach to clinical management, including diagnosis, treatment, and monitoring. After viewing a description of the patient, initial vital signs, and an initial history, you obtain diagnostic information and manage the patient until the computer displays a message that the case has ended.

The key features of *Primum* CCS include:

- simulation of time (eg, minutes, hours, days, or months)
- health system locations (eg, you have an office with admitting privileges to a 400-bed tertiary care center)
- free-text entry of orders
- dynamic patient response based on your actions through simulated time

In this uncued testing environment, you have complete responsibility for your patient's care.

2. What are my responsibilities?

No matter what your training or specialty, you should function as a primary care physician and maintain responsibility for the patient throughout each case. This may involve management in several locations (eg, initially caring for a patient in the emergency department, admitting the patient to the hospital, and managing the patient in the outpatient setting).

You should not assume that other members of the health care team (eg, nurses, medical consultants) will write or initiate orders for you when a patient is admitted to a facility or transferred for a surgical procedure. You are not required to write preoperative anesthesia or related orders when someone else is conducting a procedure for you. However, you should attend to other preparatory patient care that, if neglected, might jeopardize the patient. For example, in the preoperative setting, this may mean requesting IV fluids, a blood type and crossmatch, and antibiotics.

In various cases, your duties may include addressing health maintenance issues, handling life-threatening emergencies, monitoring the effects of treatment, and modifying treatment regimens. The nature of each case dictates whether or not health maintenance issues are relevant within the simulated time frame.

Your responsibilities to each patient are fulfilled when you see a message indicating that the case has ended.

3. How do I manage a patient?

You manage one patient at a time by:

- reviewing the history
- selecting a complete or directed physical examination
- writing orders on the chart
- deciding when, in simulated time, to obtain follow-up history and physical examination or review diagnostic information by selecting the clock option
- changing the patient's location as you deem appropriate. Note: You will not be able to change the patient's location after the case-end warning screen is presented.

Based upon information you gather and changes in the patient's condition, you continue to manage the patient through these options.

Since *Primum* CCS is not designed to assess your ability to complete a history, much of this information is given to you. You may periodically ask how a patient feels by ordering an interval/follow-up history or monitoring the patient by physical examination. If you believe information is missing from the history or physical examination,

assume it is normal or noncontributory for your patient. Physical examination should be requested if and when you would do the same with a real patient. Requests for interval history and physical examination automatically advance the clock in simulated time. To see results of tests and procedures, and to observe effects of treatment, you must advance the clock. You can write orders before examining a patient; if physical examination reveals findings that you believe render the orders inappropriate, and the orders have not yet been processed, you can cancel those orders.

The order sheet is the primary means for implementing your patient management plan. You type requests for tests, procedures, and therapies directly on the order sheet. Each time you confirm orders and want to "make things happen," use the clock to advance time. When you do so, your orders are implemented, test results are returned, and therapies are initiated. As you advance the clock, the patient's condition may change based upon the underlying condition(s), or your management, or both.

Note that if a clock advance to a requested appointment time is stopped to review results from processed orders, the requested appointment is canceled.

Change the patient's location by selecting the Change Location button. You can move the patient to and from home, office, emergency department, inpatient unit, and intensive care unit.

There are some orders in the cases that are not available in every location. If you request a location change with pending orders that are not available in the new location, you will receive a notification message indicating the order(s) that will be canceled.

Note that *Primum* CCS only allows you to manage one patient at a time. Although in real life you order certain tests or therapies for the relatives or sexual partner of your patient, this option is not available in *Primum* CCS. It is possible, however, to order education or counseling for the patient's family or sexual partner. The timing and sequence of indicated actions, including education and counseling, are evaluated and may affect your score.

4. How do I write/cancel orders?

You write orders by typing your requests on the order sheet section of the patient chart, one per line. The *Primum* "clerk" understands more than 12,000 different terms representing about 2,500 unique orders. As long as the clerk recognizes the first three characters of the name or acronym (eg, "xra," "ECG") you will be prompted for clarification (ie, you will be shown a list of orders beginning with "xra" or the acronym "ECG," respectively, including different types of x-rays and electrocardiograms). You can only place orders in the order sheet section of the patient chart. You cannot place orders on any other section of the chart (ie, Progress Notes, Vital Signs, Lab Reports, Imaging, Other Tests, Treatment Record).

If the clerk does not recognize your order, you may have to type it differently. It is not necessary to type commands (eg, "administer," "give," "do," "get"); simply type the name of a test, therapy, or procedure (eg, "chest x-ray," "ecg," "pen g," "furosemide," "laparoscopy").

You must request specific drugs by name; the clerk recognizes both generic and trade names. However, the clerk does not accept class names such as "antacids" or "beta-blockers." You must also specify route and type of administration (eg, one-time/bolus or continuous). Assume that "continuous" also encompasses periodic administration (eg, every 4 hours) if that is appropriate for the treatment. Note that intravenous fluids are not available as a "One Time/Bolus" order in *Primum* CCS. Available routes of administration include epidural (EP), intra-articular (IA), intramuscular (IM), inhalation (IN), intravenous (IV), ophthalmic (OP), otic (OT), oral (PO), rectal (RE), sublingual (SL), subcutaneous (SQ), topical (TP), and vaginal (VA). It is not necessary to specify dosages or administration rates; these will not appear on the order sheet, but you can assume these have been optimized for your patient's condition.

To taper a medication, simply discontinue it. If tapering is optimal, it will be done for you. If you decide that you need to reorder the medication while it is being tapered, assume that the patient has already been tapered from the medication without adverse consequences.

Medications cannot be administered prn. When a medication is indicated for the patient, order it. When it is no longer indicated, discontinue it.

To discontinue a therapy or cancel a test or procedure, select it on the order sheet and respond "yes" to the prompt.

In some locations (eg, the office, the inpatient unit), there may be cases where a patient is on a medication at the beginning of the case. In these situations, the patient's current medication will be displayed on the order sheet (eg, "oral contraceptives"). These orders appear with an order time of Day 1 @00:00. You must decide whether to continue or cancel the medication, as you deem appropriate for the patient's condition; these orders remain active throughout the case unless canceled. The same cancellation steps provided in the previous paragraph also apply to these orders.

5. What am I supposed to do after I write orders?

After you write orders, you advance the clock to obtain results of diagnostic studies and/or to monitor the patient's progress. You are not necessarily finished once you make the diagnosis. In many cases, you must initiate treatment, monitor progress, call consultants, arrange appropriate follow-up, and provide education or other social support.

Once you have managed the patient to your satisfaction, decide when you would like to follow up and advance the clock to that time. If you can think of no other immediate or future care that is relevant to the patient's current condition, schedule an appointment for a time when you would like to reevaluate (eg, a week, a month, or a year from now).

6. Can I change my mind?

You can change your mind at any point in the case by canceling orders and/or writing new orders. However, once you advance the clock and move forward in simulated time, you cannot go back. As in real life, there is no opportunity to undo what has already been done. If previously requested actions or delays in appropriate care cause untoward consequences, your score may be affected adversely.

Discontinue a therapy or cancel a test or procedure by selecting it on the order sheet and responding "yes" to the prompt.

7. Why are consultants usually not helpful?

Typically, consultants are not helpful since the exam is designed to assess your patient management skills. However, requesting consultation at appropriate times may contribute to your score. Consultants often indicate that you should initiate treatment in their absence or directly order the surgical procedure you want. In some cases, it may be necessary to implement a course of action without the advice of a consultant or before a consultant is able to see your patient. In other cases, a consultant may be helpful after you have obtained enough information to justify referring the patient to his or her care.

8. What kind of feedback do I get while caring for the patient?

While you care for a patient, you receive results of diagnostic studies you requested and reports of changes in the patient's condition. (Note that in real life, laboratory values fluctuate a small amount each time they are measured on the same patient; successive *Primum* CCS laboratory test results reflect this normal variation. The amount of variation is usually very small and should not affect your interpretation of serial values.) In CCS numeric lab tests, normal ranges are included with the results. Note that these normal ranges may differ slightly from those in the MCQ portion of the test.

You may obtain intermittent reports about the patient's condition through messages from the patient, the patient's family, or other health care providers. You may also directly request information about the patient's current condition by ordering interval/follow-up histories.

It is possible that a patient's condition might worsen despite optimal care on your part. It is also conceivable that a patient's condition might improve with suboptimal care or no care. Scores will be based upon the diagnostic and therapeutic decisions you make, as well as the timing and sequencing of your actions, and not necessarily on a patient's final disposition.

Note that interventions ordered at the same time as diagnostic studies will not be reflected in the results. Interventions don't take effect until an amount of time has passed appropriate for the intervention.

To be certain that a diagnostic test result reflects the intervention, identify the completion time for the intervention on the order sheet and order the respective diagnostic test at that time. If the completion time is not defined or if the intervention's effect is gradual (eg, antibiotics), you must order the diagnostic test at that time when you would expect a clinical effect.

9. How long do cases last?

Cases can last from a few minutes to several months of **simulated** time. You are not told how much simulated time will elapse in each case. It is your responsibility to manage simulated time based upon your understanding of the urgency of the case.

The **real** time allotted to manage each patient may vary with the type of case and your actions. You will be allotted a maximum of 25 minutes per case, but you may not need to use the entire time. For example, if you accomplish a case's measurement objectives quickly, it may end in a few minutes. Before you begin each case in the examination, you will be informed of the maximum time allotted.

If, during the examination, you do not use all the allotted real time for a case, the "remaining" real time is **not** added to the allotted real time for any other case.

10. How do I know when I have finished a case?

Near the end of each case, you will be warned that the case is ending shortly. At that time, you will be given a few minutes to cancel existing orders and/or write new orders for the immediate or future care of problems related to the patient's current condition. You will not be able to change the patient's location after the case-end warning is presented. After finalizing patient care, you **must** select **Exit Case** to enter the final diagnosis and exit the case. If you use the entire 5 minutes allotted at case end, you **will not** be able to enter a final diagnosis. You will then see an "END OF CASE" message.

If a case has not ended and you feel you are finished managing the case, you can end it by advancing simulated time. Use the clock as you normally would to receive results of pending tests and procedures. Once there are no longer any pending patient updates, tests, or procedures, continue to use the clock to advance simulated time until the case ends.

11. Does computer experience matter?

Assuming that you take the time to familiarize yourself with the basic operations of the computer (eg, use of the keyboard, mouse, etc), computer experience should not affect your performance. Experience and practice with *Primum* cases can have an impact on performance. It is essential that you become familiar with both the software interface and the background information provided.

12. How is my performance scored?

The timing and sequencing of indicated actions, as well as the commission of actions that are not indicated or are potentially harmful, are aggregated in your evaluation. Individual appropriate patient management actions are weighted based on degree of appropriateness and may increase your score by different amounts. Actions that are not indicated and pose greater potential risk to a patient decrease your score by greater amounts than actions of lower risk. Seemingly correct management decisions made in a suboptimal or incorrect sequence or after a delay in simulated time may receive little or no credit.

Note that the importance of the timeliness of your actions varies in nonurgent cases; your score may be affected by the timeliness of your response based on the case. "Routine" orders (eg, diet, ambulation) tend to carry little or no weight in scoring unless they are particularly relevant to the case (eg, specific diet orders for a patient with diabetes).

Management of patients consistent with widely accepted standards of care will achieve a high score, although multiple correct approaches may exist. For example, a very efficient approach such as an expert might take would earn a high score; however, a more thorough approach would not necessarily deduct from your score. Also, taking an innovative but well-documented and accepted approach may achieve the same high score. Note that in some cases, there may be very little for you to do to manage a patient. In those instances, you will be scored on your ability to recognize situations in which the most appropriate action is to refrain from, or defer, testing and treatment. You will be scored lower if you take an aggressive approach when restraint and observation are the standard of care. The best overall strategy is to balance efficiency with thoroughness based upon your clinical judgment.

Cost is accounted for indirectly, based on the relative inappropriateness of patient management actions. If you order something that is unnecessary and excessive, your score will decrease. In considering various options including the location in which you manage the patient, you need to decide whether the additional cost is warranted for better patient care. Diagnoses and reasons for consultations that you provide in *Primum* CCS will not be used in evaluating your performance at this time, unless needed to investigate unusual test-taking behaviors or response patterns.

The scoring process uses algorithms that represent codified expert physician policies. These policies allow for wide variations in care protocols among health care settings and systems. The policies are obtained from expert physicians who are experienced in training physicians and in caring for patients. For each patient case, the input of expert generalists and specialists is obtained to ensure that performance criteria are reasonable for any physician practicing medicine in an unsupervised setting.

13. Are there differences in practice and live case functionality?

There are no differences between case functionality with the practice *Primum* Computer-based Case Simulations (CCS) software and the cases on the examination. However, there are several differences related to how cases are presented in practice and how they are presented in the examination. These differences are summarized below.

- In the practice session, there is the option to choose whether to run blocks of untimed cases or a block of timed cases. During the examination, the cases are presented one at a time with a specified and limited amount of real time indicated for each case.

- In the event of a computer problem during a live examination, a case simulation may be restarted by testing center staff. **Only one restart per case is permitted.** If a case is restarted more than once, the restart restriction will prevent the interrupted case simulation from being completed and the next case will appear.
- During the examination, it may take longer to process history and physical exam requests; order tests, therapies, or procedures; advance the clock; and change location. This is due to increased network computer resource requirements on the examination.
- Prior to the start of **each** case in the examination, a screen is displayed indicating the amount of real time allotted for that case.
- After completion of each case during the examination, a screen is displayed that asks if the examinee would like to take a break.

Sample Step 3 Questions

Sample Questions

The following pages include 96 sample test questions. These questions are the same as those you install on your computer from the USMLE website or CD. For information on obtaining the test software and additional information on preparing to take the test and testing, you must review the *2009 USMLE Bulletin of Information*: see Preparing for the Test and Testing. Please note that reviewing the sample questions as they appear on pages 37–72 is not a substitute for acquainting yourself with the test software. You should run the Step 3 tutorial and sample test questions that are provided on the USMLE website or CD well before your test date. The sample materials on the USMLE website and CD include an additional block of items with associated audio or video findings and sequential item sets in the FRED V2 interface. You should become familiar with the integration of audio or video and sequential item sets in the FRED V2 interface into the test items as these formats will be used in the actual examination. The block of items with associated audio or video and sequential item sets in the FRED V2 interface does not appear in this booklet.

These sample questions are illustrative of the types of questions used in the Step 3 examination. Although the questions exemplify content on the examination, they may not reflect the content coverage on individual examinations. Questions are grouped together by the setting in the same manner as in the actual computer-administered test blocks. In the actual examination, the questions will be presented one at a time in a format designed for easy on-screen reading, including use of exhibit buttons (separate windows) for the Normal Laboratory Values Table (included here on pages 34–35) and some pictorials. Photographs, charts, and x-rays referred to in this booklet are not of the same quality as the pictorials used in the actual examination. In addition, you will have the capability to adjust the brightness and contrast of pictorials on the computer screen.

To take the following sample test questions as they would be timed in the actual examination, you should allow a maximum of 1 hour for each 48-item block, and a maximum of 30 minutes for each 24-item block, for a total of 2 hours. Please be aware that most examinees perceive the time pressure to be greater during an actual examination. An answer sheet for recording answers is provided on page 36. In the actual examination, answers will be selected on the screen; **no answer sheet will be provided**. An answer key is provided on page 73.

USMLE STEP 3 LABORATORY VALUES

* Included in the Biochemical Profile

<u>BLOOD, PLASMA, SERUM</u>	<u>REFERENCE RANGE</u>	<u>SI REFERENCE INTERVALS</u>
* Alanine aminotransferase (ALT), serum	10-40 U/L.....	10-40 U/L
* Alkaline phosphatase, serum	Male: 30-100 U/L	Male: 30-100 U/L
	Female: 45-115 U/L	Female: 45-115 U/L
Amylase, serum	25-125 U/L	25-125 U/L
* Aspartate aminotransferase (AST), serum.....	15-40 U/L.....	15-40 U/L
* Bilirubin, serum (adult), total // direct	0.1-1.0 mg/dL // 0.0-0.3 mg/dL	2-17 μmol/L // 0-5 μmol/L
Calcium, serum (total)	8.4-10.2 mg/dL	2.1-2.8 mmol/L
* Cholesterol, serum		
Total.....	150-240 mg/dL	3.9-6.2 mmol/L
HDL.....	30-70 mg/dL.....	0.8-1.8 mmol/L
LDL.....	<160 mg/dL.....	<4.2 mmol/L
Cortisol, serum	8:00 AM: 5-23 μg/dL // 4:00 PM: 3-15 μg/dL ...	138-635 nmol/L // 82-413 nmol/L
	8:00 PM: # 50% of 8:00 AM	Fraction of 8:00 AM: # 0.50
Creatine kinase, serum	Male: 25-90 U/L	25-90 U/L
	Female: 10-70 U/L	10-70 U/L
* Creatinine, serum	0.6-1.2 mg/dL	53-106 μmol/L
Electrolytes, serum		
* Sodium (Na ⁺).....	135-146 mEq/L	135-146 mmol/L
* Potassium (K ⁺).....	3.5-5.0 mEq/L	3.5-5.0 mmol/L
* Chloride (Cl ⁻).....	95-105 mEq/L	95-105 mmol/L
* Bicarbonate (HCO ₃ ⁻).....	22-28 mEq/L	22-28 mmol/L
Magnesium (Mg ²⁺).....	1.5-2.0 mEq/L	1.5-2.0 mmol/L
Ferritin, serum	Male: 15-200 ng/mL	15-200 μg/L
	Female: 12-150 ng/mL	12-150 μg/L
Follicle-stimulating hormone, serum/plasma	Male: 4-25 mIU/mL	4-25 U/L
	Female: premenopause 4-30 mIU/mL	4-30 U/L
	midcycle peak 10-90 mIU/mL	10-90 U/L
	postmenopause 40-250 mIU/mL	40-250 U/L
Gases, arterial blood (room air)		
PO ₂	75-100 mm Hg	10.0-14.0 kPa
PCO ₂	35-45 mm Hg	4.4-5.9 kPa
pH	7.35-7.45	[H ⁺] 36-44 nmol/L
* Glucose, serum	Fasting: 70-110 mg/dL	3.8-6.1 mmol/L
	2-h postprandial: < 120 mg/dL	< 6.6 mmol/L
Immunoglobulins, serum		
IgA	76-390 mg/dL	0.76-3.90 g/L
IgE	0-380 IU/mL	0-380 kIU/L
IgG	650-1500 mg/dL	6.5-15 g/L
IgM	40-345 mg/dL	0.4-3.45 g/L
Iron	50-170 μg/dL	9-30 μmol/L
Lactate dehydrogenase, serum	45-90 U/L	45-90 U/L
Luteinizing hormone, serum/plasma	Male: 6-23 mIU/mL	6-23 U/L
	Female: follicular phase 5-30 mIU/mL	5-30 U/L
	midcycle 75-150 mIU/mL	75-150 U/L
	postmenopause 30-200 mIU/mL	30-200 U/L
Osmolality, serum	275-295 mOsmol/kg H ₂ O	275-295 mOsmol/kg H ₂ O
Phosphorus (inorganic), serum	3.0-4.5 mg/dL	1.0-1.5 mmol/L
Proteins, serum		
Total (recumbent)	6.0-7.8 g/dL	60-78 g/L
Albumin	3.5-5.5 g/dL	35-55 g/L
Globulin	2.3-3.5 g/dL	23-35 g/L
Thyroid-stimulating hormone (TSH), serum	0.5-5.0 μU/mL	0.5-5.0 mU/L
Thyroxine (T ₄), serum	5-12 μg/dL	64-155 nmol/L
Triglycerides.....	35-160 mg/dL	0.4-1.81 mmol/L
Triiodothyronine (T ₃) resin uptake	25%-35%	0.25-0.35
* Urea nitrogen, serum	7-18 mg/dL	1.2-3.0 mmol/L
Uric acid, serum	3.0-8.2 mg/dL	0.18-0.48 mmol/L

LABORATORY VALUES (continued)

CEREBROSPINAL FLUID

	<u>REFERENCE RANGE</u>	<u>SI REFERENCE INTERVALS</u>
Cell count	0-5/mm ³	0-5 x 10 ⁶ /L
Chloride	118-132 mEq/L	118-132 mmol/L
Gamma globulin	3%-12% total proteins	0.03-0.12
Glucose	40-70 mg/dL	2.2-3.9 mmol/L
Pressure	70-180 mm H ₂ O	70-180 mm H ₂ O
Proteins, total	< 40 mg/dL	< 0.40 g/L

HEMATOLOGIC

Bleeding time (template)	2-7 minutes	2-7 minutes
CD4 cell count.....	> 500/mm ³	
Erythrocyte count	Male: 4.3-5.9 million/mm ³	4.3-5.9 x 10 ¹² /L
	Female: 3.5-5.5 million/mm ³	3.5-5.5 x 10 ¹² /L
Erythrocyte sedimentation rate (Westergren)	Male: 0-15 mm/h	0-15 mm/h
	Female: 0-20 mm/h	0-20 mm/h
Hematocrit	Male: 41%-53%	0.41-0.53
	Female: 36%-46%	0.36-0.46
Hemoglobin, blood	Male: 13.5-17.5 g/dL	2.09-2.71 mmol/L
	Female: 12.0-16.0 g/dL	1.86-2.48 mmol/L
Hemoglobin A _{1c}	# 6%	# 0.06%
Leukocyte count and differential		
Leukocyte count	4500-11,000/mm ³	4.5-11.0 x 10 ⁹ /L
Neutrophils, segmented	54%-62%	0.54-0.62
Neutrophils, band	3%-5%	0.03-0.05
Eosinophils	1%-3%	0.01-0.03
Basophils	0%-0.75%	0-0.0075
Lymphocytes	25%-33%	0.25-0.33
Monocytes	3%-7%	0.03-0.07
Mean corpuscular hemoglobin (MCH).....	25-35 pg/cell	0.39-0.54 fmol/cell
Mean corpuscular hemoglobin concentration (MCHC)	31%-36% Hb/cell	4.81-5.58 mmol Hb/L
Mean corpuscular volume (MCV)	80-100 μm ³	80-100 fL
Partial thromboplastin time (activated)	< 28 seconds	< 28 seconds
Platelet count	150,000-400,000/mm ³	150-400 x 10 ⁹ /L
Prothrombin time	< 12 seconds	< 12 seconds
Reticulocyte count	0.5%-1.5%	0.005-0.015
Volume		
Plasma	Male: 25-43 mL/kg	0.025-0.043 L/kg
	Female: 28-45 mL/kg	0.028-0.045 L/kg
Red cell	Male: 20-36 mL/kg	0.020-0.036 L/kg
	Female: 19-31 mL/kg	0.019-0.031 L/kg

URINE

Calcium	100-300 mg/24 h	2.5-7.5 mmol/24 h
Creatinine clearance.....	Male: 97-137 mL/min Female: 88-128 mL/min	
Osmolality.....	50-1400 mOsmol/kg H ₂ O	
Oxalate	8-40 μg/mL	90-445 μmol/L
Proteins, total	< 150 mg/24 h	< 0.15 g/24 h

BODY MASS INDEX

Rec=19-25 kg/m²

Answer Form for Step 3 Sample Questions

Block 1: Office/Health Center

- | | | | | | |
|----------|-----------|-----------|-----------|-----------|-----------|
| 1. _____ | 9. _____ | 17. _____ | 25. _____ | 33. _____ | 41. _____ |
| 2. _____ | 10. _____ | 18. _____ | 26. _____ | 34. _____ | 42. _____ |
| 3. _____ | 11. _____ | 19. _____ | 27. _____ | 35. _____ | 43. _____ |
| 4. _____ | 12. _____ | 20. _____ | 28. _____ | 36. _____ | 44. _____ |
| 5. _____ | 13. _____ | 21. _____ | 29. _____ | 37. _____ | 45. _____ |
| 6. _____ | 14. _____ | 22. _____ | 30. _____ | 38. _____ | 46. _____ |
| 7. _____ | 15. _____ | 23. _____ | 31. _____ | 39. _____ | 47. _____ |
| 8. _____ | 16. _____ | 24. _____ | 32. _____ | 40. _____ | 48. _____ |
-

Block 2: Emergency Department and Inpatient Facilities

- | | | | | | |
|-----------|-----------|-----------|-----------|-----------|-----------|
| 49. _____ | 53. _____ | 57. _____ | 61. _____ | 65. _____ | 69. _____ |
| 50. _____ | 54. _____ | 58. _____ | 62. _____ | 66. _____ | 70. _____ |
| 51. _____ | 55. _____ | 59. _____ | 63. _____ | 67. _____ | 71. _____ |
| 52. _____ | 56. _____ | 60. _____ | 64. _____ | 68. _____ | 72. _____ |
-

Block 3: Emergency Department and Inpatient Facilities

- | | | | | | |
|-----------|-----------|-----------|-----------|-----------|-----------|
| 73. _____ | 77. _____ | 81. _____ | 85. _____ | 89. _____ | 93. _____ |
| 74. _____ | 78. _____ | 82. _____ | 86. _____ | 90. _____ | 94. _____ |
| 75. _____ | 79. _____ | 83. _____ | 87. _____ | 91. _____ | 95. _____ |
| 76. _____ | 80. _____ | 84. _____ | 88. _____ | 92. _____ | 96. _____ |

Sample Step 3 Questions

GENERAL INSTRUCTIONS: Read each question carefully and in the order in which it is presented. Then select the one best response option of the choices offered. There may be either 4 or 5 response options. More than one option may be partially correct. You must select the **ONE BEST** answer and fill in the corresponding blank line on the answer sheet.

Some items are grouped together around a clinical vignette as a set or case; be particularly careful to read and answer these cases or sets of items in the order they are presented.

The items in this exam are divided among the clinical settings:

Block 1 Office/Health Center	Items 1–48
Block 2 Emergency Department and Inpatient Facilities	Items 49–72
Block 3 Emergency Department and Inpatient Facilities	Items 73–96

Block 1: Office/Health Center

Items 1–48; Time - 60 minutes

You see patients in two locations: your office suite, which is adjacent to a hospital, and at a community-based health center. Your office practice is in a primary care generalist group. Patients are seen for routine and urgent care at the office and health center. Most of the patients you see are from your own practice, although occasionally you will see a patient cared for by one of your associates and reference may be made to the patient's medical records. Known patients may be managed by telephone, and you may have to respond to questions about information appearing in the public media, which will require interpretation of the medical literature. The laboratory and radiology departments have a full range of services available.

ALL ITEMS REQUIRE SELECTION OF ONE BEST CHOICE.
--

1. A 14-year-old boy is brought to the walk-in clinic by his father late on Saturday afternoon because his left ear is swollen and painful. The boy's ear has been black and blue since he injured it in a wrestling match 3 days ago. Symptoms have increased significantly following a repeat injury 3 hours ago. On physical examination, his left ear is markedly swollen and tender to palpation. Which of the following is the most appropriate next step?
- (A) Reassure him and start aspirin therapy
 - (B) Reassure him and start codeine therapy
 - (C) Recommend that he apply cold packs to the ear for the next 12 hours
 - (D) Recommend that he apply hot packs to the ear for the next 12 hours
 - (E) Refer him to a surgeon for immediate drainage of the lesion

Items 2–3

A 6-week-old infant is brought to the health center by his mother because of projectile vomiting. You have not seen this infant before and the mother says he has not been seen by a physician since birth. Weight at birth was 3550 g (7 lb 13 oz) and physical examination was normal. Examination today is normal except for weight, now 4000 g (8 lb 13 oz), and slight dehydration.

2. Which of the following is the most appropriate management for this infant?
- (A) Elevate the head of his crib to relieve gastroesophageal reflux
 - (B) Order supine and decubitus x-ray films of the abdomen
 - (C) Order ultrasonography of the pylorus
 - (D) Order an upper gastrointestinal barium study
 - (E) Place him on a clear pediatric electrolyte solution
3. The appropriate diagnostic test is done and is equivocal. Which of the following imaging modalities necessary to help diagnose this infant's illness is most operator-dependent?
- (A) CT scan
 - (B) Radionuclide gastric emptying time studies
 - (C) Routine x-ray films
 - (D) Ultrasonography
 - (E) Upper and lower gastrointestinal barium studies

END OF SET

-
4. A 75-year-old woman comes to the clinic because she has band-like burning pain in the right upper quadrant extending from the epigastrium around to the midline of the back. On physical examination, there is no abdominal tenderness. Findings on ultrasonography of the gallbladder are normal; serum amylase concentration is normal. Which of the following is the most likely diagnosis?
- (A) Acalculous cholecystitis
 - (B) Chronic relapsing pancreatitis
 - (C) Diverticulitis of the cecum
 - (D) Herpes zoster
 - (E) Penetrating duodenal ulcer

5. A 2-year-old boy who has recently become one of your patients is brought to the clinic by his mother for a follow-up visit of a chromosome analysis done 1 month ago. This child has minor dysmorphic features, and growth and developmental delay. Chromosome analysis showed a small unbalanced chromosome translocation, with extra chromosomal material at the tip of chromosome 3. The cytogenetics laboratory requested blood samples from both parents for follow-up studies. The parents are divorced, and the mother has custody of the child. The relationship between the parents is hostile. The mother has been tested and has normal chromosomes without evidence of translocation. At today's visit, she reacts angrily when the issue of contacting the child's father for testing is raised. She states that he abandoned them, and that he has no interest in his child. She refuses to cooperate in contacting the father, who could be a translocation carrier. You do not know the father, but an office worker told you that he lives in a nearby town. The mother says that he is living with a new girlfriend. Which of the following is the most appropriate next step?
- (A) Attempt to identify the father's physician and work with that physician to obtain chromosome studies on the father
 - (B) Contact the father by telephone and arrange for him to give a blood sample at a local hospital
 - (C) Document your attempts to work with the mother but proceed no further, since you have no physician-patient relationship with the father
 - (D) Help the mother deal with her anger and educate her regarding the potential benefit to her son and others if the father's chromosome studies are done
 - (E) Send the father a letter (expressing few details about the patient) and suggest that he contact your office for an appointment and further discussion of his child
6. An 18-month-old white infant is brought to the clinic because of pallor and irritability. Her mother says the infant's diet consists almost exclusively of whole milk, approximately 40 oz per day. On physical examination, the infant has a pulse of 160/min, respirations of 50/min, and normal heart sounds with a grade 2/6 systolic ejection murmur. Liver is palpable 3 cm below the right costal margin. Laboratory studies show:

Blood	
Hematocrit	13%
Hemoglobin	3 g/dL
Mean corpuscular volume	48 μm^3
Platelet count	400,000/ mm^3
Reticulocyte count	0.8% (N=0.5–1.5% of red cells)
WBC	12,000/ mm^3

Following appropriate evaluation, which of the following is the most appropriate treatment?

- (A) Administration of oral folate therapy
- (B) Administration of parenteral iron therapy
- (C) Administration of parenteral vitamin B12 (cyanocobalamin) therapy
- (D) Transfusion with packed erythrocytes
- (E) Transfusion with whole blood

Items 7–8

A 75-year-old white woman returns to the office after 6 months of missed appointments. She says she is feeling depressed. You have been treating her for years for a variety of disorders, including bipolar disorder, hypothyroidism, atrial fibrillation, peptic ulcer disease and hypertension. She takes daily lithium, levothyroxine, haloperidol, sertraline, benztropine, digoxin, propranolol, ranitidine and warfarin. At this time she says, "I'm doing fine except for shakiness in my hands." Vital signs are pulse 78/min with an irregularly irregular rhythm, and blood pressure 160/95 mm Hg. Physical examination shows she has fine tremor of the hands when they are extended. She says her mood is "a little depressed," and she has no hallucinations or delusions. On memory testing, she recalls one of three objects after 2 minutes.

7. Which of the following is the most likely cause of the patient's depression?
- (A) Benztropine
 - (B) Digoxin
 - (C) Haloperidol
 - (D) Propranolol
 - (E) Ranitidine
8. You decide to prescribe hydrochlorothiazide. Of her current medications, the hydrochlorothiazide would most likely cause a serious drug interaction with which of the following?
- (A) Haloperidol
 - (B) Lithium
 - (C) Ranitidine
 - (D) Sertraline
 - (E) Warfarin

END OF SET

-
9. A 42-year-old woman with a history of multiple sclerosis comes to the office because she had a sudden loss of vision in the right eye. She has no history of diplopia. On examination, external ocular movements are normal but funduscopic examination shows pallor of the optic disk. This patient's condition is most likely due to demyelination of which of the following?
- (A) Medial longitudinal fasciculus
 - (B) Oculomotor nerve
 - (C) Optic nerve
 - (D) Trigeminal nerve
 - (E) Visual cortex

10. A 44-year-old Irish-American woman has had arthritis for 10 years, for which she has seen many physicians. She has used many medications and devices, including copper bracelets from Mexico given to her by friends. She seeks your help because for the past several months she has had increasing pain and stiffness in her hands. Her hands now show moderate ulnar deviation of the fingers and she says her wrists and knees also hurt. She has had increasing fatigue for about 1 month, along with a weight loss of 1.8 to 2.2 kg (4 to 5 lb). Review of her medical records, which she has brought with her, convinces you that the initial diagnosis of rheumatoid arthritis is correct. She says, "I had several drop attacks during the past 3 months." She characterizes these attacks as episodes of weakness and loss of feeling in her legs for several minutes. During one of these episodes, she became incontinent. She currently takes aspirin about four times a day and an occasional dose of ibuprofen. On physical examination she has facial plethora and swollen and painful metacarpophalangeal and knee joints, bilaterally. The rest of the examination is normal. Which of the following is the most likely cause of her "drop attacks?"
- (A) Adrenal insufficiency
 - (B) Anxiety
 - (C) Atlanto-axial instability
 - (D) Cardiac arrhythmia
 - (E) Cerebral ischemia
11. A 3-year-old boy is brought to the office by his father because of a 3-month history of decreased activity, poor appetite, sporadic vomiting, clumsiness and speech regression. Since his birth his family has lived in an old area of the city where there is demolition of old buildings. Examination of a peripheral blood smear is likely to show which of the following?
- (A) Basophilic stippling of erythrocytes
 - (B) Degranulation of eosinophils
 - (C) Diminished numbers of platelets
 - (D) Howell-Jolly bodies
 - (E) Macrocytic erythrocytes
12. A 68-year-old woman comes to the office for flexible sigmoidoscopy as part of a yearly screening. A 3-cm polyp is found in the sigmoid colon and is removed. She returns now to the office, 6 hours later, complaining of left lower quadrant pain, fever, nausea and vomiting. Vital signs are: temperature 38.1°C (100.6°F), pulse 110/min, respirations 26/min and blood pressure 120/60 mm Hg. Abdominal examination discloses bowel sounds, tenderness and guarding in the left lower quadrant. Rectal examination shows no stool and only tenderness superiorly. Which of the following is the most appropriate next step?
- (A) Obtain an angiogram to rule out intestinal ischemia
 - (B) Obtain immediate consultation with a surgeon
 - (C) Pass a soft rubber rectal tube under fluoroscopy
 - (D) Repeat the flexible sigmoidoscopy in order to evaluate the operative site
 - (E) Start hydrocortisone, intravenously, to decrease any inflammatory response
13. A 32-year-old man and his 29-year-old wife are being evaluated for infertility. The woman's gynecologist reports that the woman had a normal anatomic and physiologic evaluation and suggests the need for assessment of potential male factors. On examination, the man is 188 cm (6 ft 3 in) tall with fair skin and little facial hair. His testicles are small and firm, and he has mild gynecomastia. No sperm are seen on analysis of his semen. Which of the following tests is most likely to establish the underlying cause of the infertility?
- (A) Karyotype from peripheral leukocytes
 - (B) Serum estrogen and testosterone concentrations
 - (C) Serum gonadotropin concentrations (follicle-stimulating hormone and luteinizing hormone)
 - (D) Serum prolactin concentration
 - (E) Testicular ultrasonography

Items 14–15

A 4-day-old Greek-American neonate is brought to the office because of the development of yellow skin and a rash 1 day after hospital discharge. She weighed 3400 g (7 lb 8 oz) at birth and is the product of a normal pregnancy. The mother is now gravida 2, para 2 and she is blood type A, Rh positive. The neonate is blood type O, Rh positive with a negative direct Coombs test. She had an Apgar score of 8 and 9 at 1 and 5 minutes respectively. The neonate was breast-feeding and was doing well at the time of discharge. Yesterday, the mother says, the neonate developed about 20 small red spots over her face, trunk and extremities. Today on physical examination there are many papules that have small vesicles with clear to slightly turbid fluid. Her skin color has become yellow. The mother says that she continues to feed well. On physical examination the neonate weighs 3250 g (7 lb 2 oz). There is scleral and skin icterus. No organomegaly or adenopathy is noted. Studies on the neonate show a serum total bilirubin concentration of 8.7 mg/dL, and concentration of serum conjugated (direct) bilirubin is 0.7 mg/dL.

14. In addition to scheduling a follow-up visit in 1 week, which of the following is the most appropriate advice to give the mother regarding the icterus?
- (A) Ask her to avoid eating foods containing large quantities of carotene
 - (B) Begin administering small doses of phenobarbital to the neonate
 - (C) Discontinue breast-feeding until the jaundice has disappeared
 - (D) Recommend home phototherapy for the neonate
 - (E) Recommend no change in child care or feeding of the neonate
15. The appropriate steps are taken. You explain to the mother that the neonate's rash is probably erythema toxicum. Which of the following is the most appropriate management?
- (A) 0.5% hydrocortisone cream applied twice a day
 - (B) Daily wet-to-dry povidone-iodine (Betadine®) soaks with 1×1 gauze pads on each vesicle
 - (C) Polymyxin ointment applied twice a day
 - (D) Routine skin care with soap and water
 - (E) Scrubbing with entsufon cleanser each day firmly enough to unroof the vesicles

END OF SET

Items 16–17

A 10-year-old girl, who has been undergoing treatment for chronic juvenile rheumatoid arthritis for the past 3 years, is brought to the office because of painful swelling of the right knee. She has had three episodes of painless swelling of her left knee and ankle, which have subsided spontaneously with rest and aspirin therapy. She has used no medications between episodes. On physical examination today there is pronounced redness and warmth around the right knee, and a large effusion is present. Attempts at active and passive motion cause severe pain.

16. Which of the following is the most appropriate step at this time?
- (A) Joint aspiration
 - (B) Serum antinuclear antibody titer
 - (C) Serum rheumatoid factor assay
 - (D) Technetium 99m scan
 - (E) X-ray films of the joint
17. Which of the following new symptoms or findings, if present, would best indicate the need for further diagnostic studies?
- (A) Decreased viscosity of joint fluid
 - (B) Diffuse increase in technetium 99m uptake around the knee on bone scan
 - (C) Positive Gram stain of joint fluid
 - (D) Positive serum rheumatoid factor test
 - (E) Soft-tissue swelling seen on x-ray films

END OF SET

Items 18–19

A 38-year-old homemaker and mother of four children (ages 5 to 12 years) has been coming to you for management of tension headaches that have not improved with trials of several appropriate medications. She has been married to a police officer for the past 6 years. You ask if she has been under extra stress, and she begins to cry. You notice bruises on her arms. On further questioning, you learn that her husband hits her whenever he is drunk, which is at least 2 nights per week. She says, "He is nice...a good husband when he's sober. But when he drinks, oh he's awful! He accuses me of cheating on him. Last night he said he would kill me if I try to leave." Her husband is also a patient of yours.

18. Which of the following is the most appropriate intervention?
- (A) Advise her to leave her home with her children and move in with her relatives
 - (B) Contact her husband's supervisor to discuss recent stress levels on the job
 - (C) Gather more information while remaining neutral, since both the husband and wife are your patients
 - (D) Refer her to a domestic violence program
 - (E) Seek a restraining order against her husband on her behalf
19. Which of the following is the most important question to ask at this time?
- (A) "Do you think this might be causing your headaches?"
 - (B) "Has your husband also lost his temper with any of the children?"
 - (C) "Have you been drinking at the time of the fights?"
 - (D) "Have you or your husband been receiving any kind of counseling?"
 - (E) "Why have you stayed in this marriage?"

END OF SET

20. A 24-year-old woman comes to the office for a gynecologic examination. This is her first visit and she has no complaints. She tells you that she has not had a Pap smear for several years. Menarche was at age 12 years and she has had normal menstrual cycles since then. She has had several sexual partners in the past but has been with her current partner in a monogamous relationship for 1 year. She reports that she had a chlamydial infection that was treated several years ago, but she denies a history of other sexually transmitted diseases. She has never been pregnant. On physical examination her cervix appears friable with a slight area of ulceration. There are several perineal and vaginal lesions that appear as small "cauliflower-like" projections. The results of the Pap smear, which return in 1 week, show mild dysplasia (LGSIL). Which of the following factors in this patient's history most closely correlates with the abnormal finding on Pap smear?
- (A) Condylomata acuminata
 - (B) Condylomata lata
 - (C) Early age at menarche
 - (D) History of chlamydia
 - (E) Nulliparity
21. A 50-year-old woman comes to the office for the first time because of recurrent abdominal pain. Review of her extensive medical chart, which she has brought with her, discloses that she has a long history of varying physical complaints. Definitive causes for these complaints have not been found despite extensive diagnostic studies, consultations with many physicians and several surgical explorations. She gives dramatic and exaggerated descriptions of her present and past symptoms, and she makes conflicting statements about her history. She has been hospitalized at least 23 times since age 18 years. Which of the following is the most likely diagnosis?
- (A) Borderline personality disorder
 - (B) Conversion disorder
 - (C) Histrionic personality disorder
 - (D) Occult medical disorder
 - (E) Somatization disorder
22. At a routine physical examination, the Pap smear of a 27-year-old woman shows evidence of marked inflammation suggestive of moderate dysplasia (HGSIL). Her last Pap smear 2 years ago was normal. Pelvic examination today is normal. She has never been pregnant and her menstrual periods are regular. She has been in a stable relationship with the same man for 3 years and she uses a diaphragm with spermicidal jelly for contraception. Which of the following is the most appropriate next step?
- (A) Advise the patient that her partner should use condoms for contraception and repeat the Pap smear in 3 months
 - (B) Do colposcopic examination of the cervix after application of 5% acetic acid solution
 - (C) Do conization of the cervix
 - (D) Reassure the patient and repeat the Pap smear in 3 months
 - (E) Treat the patient with metronidazole for 2 weeks and repeat the Pap smear in 3 months

23. A 66-year-old African-American man who has been a patient for several years calls the office to report an episode of apparently bloody urine. He is instructed to come to the office, where urinalysis confirms gross hematuria without proteinuria or casts. The patient denies any pain and is anxious for an explanation. Physical examination is normal. Which of the following is the most appropriate next step?
- (A) Do a transrectal prostatic biopsy
 - (B) Prescribe a 1-month course of trimethoprim-sulfamethoxazole
 - (C) Schedule bilateral renal angiography
 - (D) Schedule cystoscopy
 - (E) Schedule infusion of the renal pelvis with silver nitrate
24. A 19-year-old white woman returns to the office 2 months after having a medroxyprogesterone injection for contraception. She is complaining of nonstop bleeding since her menses 3 weeks ago. She is using eight pads a day. She denies any sexual activity since she received the injection. She realizes that spotting is a side effect; however, she is anxious about the length of time and the amount of the bleeding. She tells you, "I can't stand this, Doctor. I want the bleeding to stop now!" Repeat pregnancy test is negative. Which of the following is the most appropriate treatment option for her bleeding?
- (A) Conjugated estrogen therapy for 2 weeks
 - (B) Dilatation and curettage
 - (C) Reassurance and counseling
 - (D) A second injection of medroxyprogesterone
 - (E) Triphasic oral contraceptive therapy for one cycle
25. A 4-year-old boy is brought to the office because he has become unmanageable at his day-care center. At previous visits he exhibited some behavior problems to which his mother did not set limits. He constantly interrupted situations, seeking his mother's attention. She now reports that during the past few months his fighting, refusal to obey the day-care workers and violations of "time out" have become much worse. He began to attend day-care at 6 weeks of age so that his mother could return to work. His father works as a house painter and he is alcohol-dependent. The boy has a 6-month-old sister who also attends the same day-care center. Records show his height and weight are at the 5th percentile, and his growth velocity is normal. There were no complications during the pregnancy with this child and he has not had any significant medical problems. His physical examination today is normal. Which of the following is the most likely cause for this child's worsening behavior?
- (A) Aggressiveness to compensate for a poor self-image caused by short stature
 - (B) Attention-deficit/hyperactivity disorder
 - (C) A reaction to his father's drinking
 - (D) Reduction in his mother's attention because of his new sibling
 - (E) A toxic reaction to organic fumes from his father's clothes and work materials

26. A 28-year-old woman of Scandinavian descent comes to the office because of fatigue, weakness and palpitations. She is divorced and lives with her 4-year-old daughter. Complete evaluation shows that this patient has hyperthyroidism and mild ophthalmopathy caused by Graves disease. Before initiating therapy, the patient wants to know what she can expect in the future. In advising her about the prognosis, which of the following is the most accurate statement?
- (A) Graves ophthalmopathy will resolve as thyroid hormone secretion is lowered
 - (B) Malignant degeneration of the thyroid is a common complication
 - (C) She will not be able to become pregnant
 - (D) The thyroid will continue to increase in size with any nonsurgical treatment
 - (E) Untreated patients are at increased risk for cardiac arrhythmias

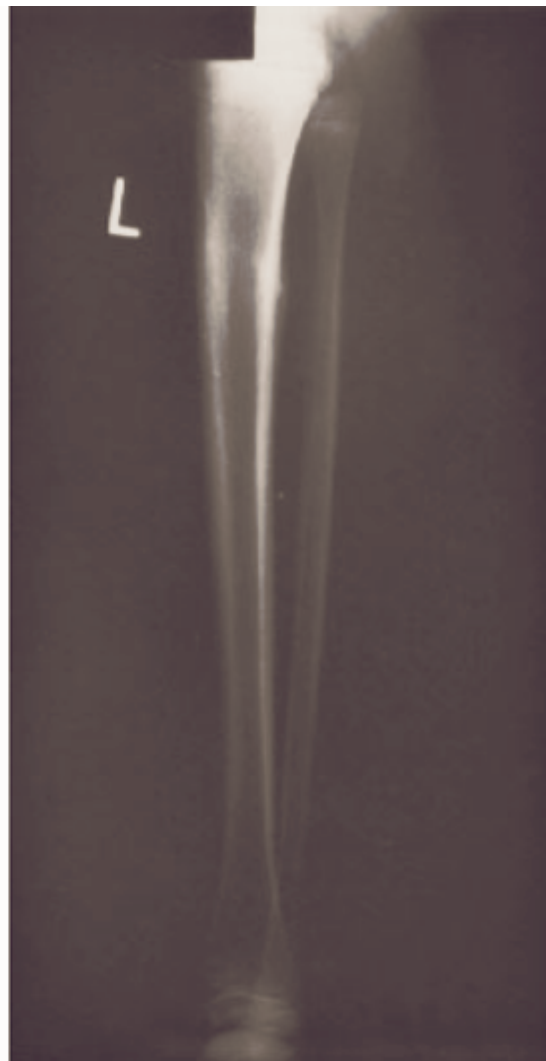
27.



A 58-year-old man comes to the office because of a lesion on the lip, which is shown. The patient says he has had the lesion for about 9 months. He has not seen a physician for 5 years and he is in the office today only because, he says, "My wife made me come." On physical examination the lower lip is fixed to the anterior aspect of the mandible. Which of the following is the most likely diagnosis?

- (A) Basal cell carcinoma
- (B) Keratoacanthoma
- (C) Leukoplakia
- (D) Melanoma
- (E) Squamous cell carcinoma

28.



An 11-year-old girl is brought to the office because of pain in her left calf that she first noted 4 weeks ago and that has gradually increased. Before the onset of symptoms she was running 10 to 12 miles per week; now she is unable to run because of the leg pain. There is no history of acute injury despite her intensive training schedule. She is a sprinter who has won a local qualifying event for a national competition. There is tenderness to palpation over the proximal portion of the posterior calf musculature. X-ray films are shown. Which of the following is the most likely diagnosis?

- (A) Benign neoplasm of bone
- (B) Malignant neoplasm of bone
- (C) Metabolic bone disease
- (D) Osteomyelitis
- (E) Stress fracture

29. A 68-year-old man with documented alcohol abuse returns to the office because of abdominal pain and bloating. When you meet with him, he appears dejected and his eye contact is poor. Physical examination is normal. Since his last visit, he has moved from the neighborhood where he had lived for 40 years. In addition, he mentions that approximately 6 months ago breast cancer was diagnosed in his wife; she is currently receiving radiation therapy for bony metastases. The most important next step in management of his symptoms is evaluation for which of the following?
- (A) Delirium tremens
 - (B) Gastrointestinal bleeding
 - (C) Pancreatic carcinoma
 - (D) Situational anxiety disorder
 - (E) Suicidal ideation
30. A 25-year-old woman who is pregnant with her third child comes to the office for a regular prenatal visit. Medical history shows that she developed deep vein thrombosis of the left calf in the 22nd week of her last pregnancy 2 years ago. She is now 26 weeks pregnant, and she complains of left calf tenderness during the examination. Deep vein thrombosis is confirmed by Doppler ultrasonography. Which of the following is the most appropriate management?
- (A) Administer intravenous heparin initially, followed by warfarin until delivery
 - (B) Do venous ligation proximal to the point of obstruction
 - (C) Prescribe heparin until delivery
 - (D) Prescribe warfarin until delivery
 - (E) Prescribe heparin and indomethacin therapy until delivery
31. A 69-year-old Chinese-American man with diabetes mellitus had a myocardial infarction 2 years ago. He has had exertional angina since then and has been taking propranolol. During the past few days he has had one episode of chest pain at rest, two episodes postprandially and one at night. Electrocardiogram reveals an old myocardial infarction. Which of the following is the most appropriate management?
- (A) Admit him immediately for cardiac monitoring and adjustment of therapy
 - (B) Admit him immediately for coronary artery bypass surgery
 - (C) Decrease the dosage of propranolol and add nitrates and salicylates
 - (D) Increase the dosage of propranolol and have him return in 1 week
 - (E) Advise resting from work and sedation at night and digitalization

Items 32–34

You care for a family that consists of a 43-year-old husband, a 42-year-old wife, a 15-year-old daughter and a 12-year-old son. Each family member is healthy. The 77-year-old maternal grandmother lived with the family until 4 weeks ago when she died suddenly after a prolonged respiratory illness. Autopsy revealed that she had active pulmonary tuberculosis at the time of her death. The organism tested sensitive to all commonly used anti-tuberculosis drugs.

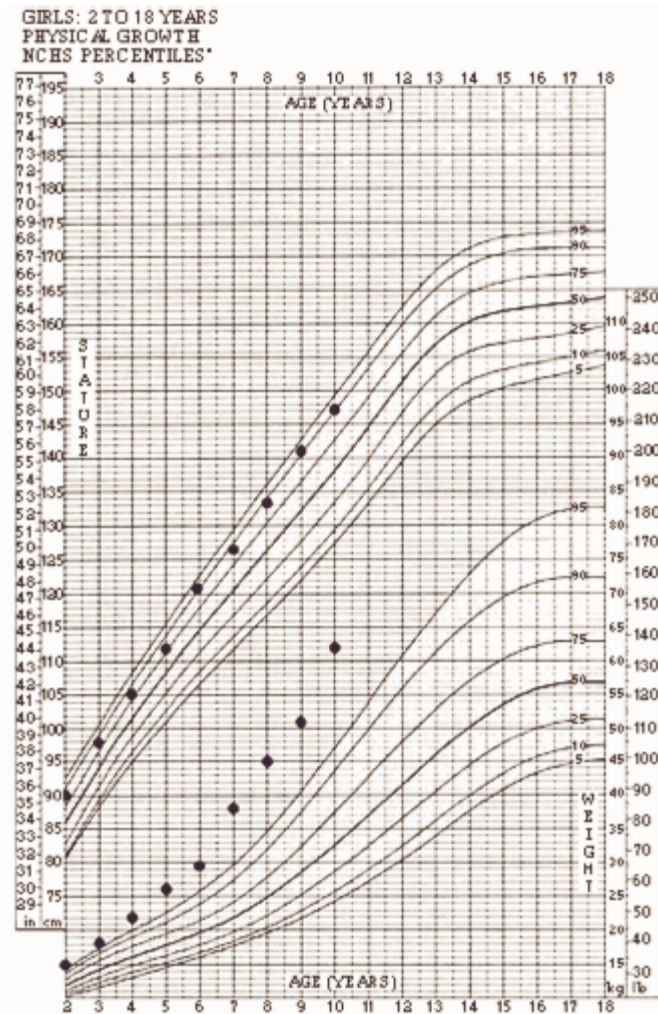
32. In following up on the grandmother's illness, which of the following is the most appropriate first step in managing this family?
- (A) Obtain leukocyte count and erythrocyte sedimentation rate on all family members
 - (B) Obtain sputum or gastric washings of all family members for culture for acid-fast bacilli
 - (C) Place PPD skin tests on all family members
 - (D) Place TB tine tests on the two children and PPD skin tests on the adults
 - (E) Schedule bronchoscopy and alveolar lavage on the adults
33. Complete work-up of each family member reveals no evidence of tuberculosis. The most appropriate next step in management is to prescribe which of the following?
- (A) Isoniazid and rifampin for all family members
 - (B) Isoniazid and rifampin for the adults only
 - (C) Isoniazid for the children
 - (D) Rifampin for the adults
 - (E) No medications for any family member

The father mentions that his mother-in-law spent many hours with a nephew in the weeks prior to her death. The nephew is 26 years old, has lymphoma and recently completed a course of chemotherapy. You agree to see the nephew, and as part of a thorough examination, you place a PPD skin test.

34. The nephew's PPD skin test is positive. Complete evaluation of the nephew reveals no evidence of active tuberculosis. Which of the following is the most appropriate pharmacotherapy at this time?
- (A) Isoniazid
 - (B) Isoniazid and rifampin
 - (C) Isoniazid, rifampin and ethambutol
 - (D) Isoniazid, rifampin and streptomycin
 - (E) Rifampin, ethambutol and pyrazinamide

END OF SET

Items 35–36



A 10-year-old white girl is brought to the office for her yearly physical examination. According to her mother the girl has been teased regularly by other children because she is overweight. Both parents are obese. The girl's growth chart is shown.

35. In reviewing the girl's history you recognize that her weight places her at increased risk for which of the following?
- (A) Cushing syndrome
 - (B) Delayed menarche
 - (C) Hypothyroidism
 - (D) Nocturnal enuresis
 - (E) Slipped capital femoral epiphysis
36. In reviewing the management options for this patient, which of the following is the most appropriate next step?
- (A) Give her a written diet to follow
 - (B) Recommend a behavior-oriented treatment program
 - (C) Refer her to a commercial weight-loss center for diet management
 - (D) Refer her to an endocrinologist for hormonal assessment
 - (E) Tell her not to worry because she will "grow into her weight"

END OF SET

Items 37–38

A 27-year-old man comes to the office because of a 1-week history of right knee pain. He says he jogs 3 miles a day and that the pain in his knee worsens during his run. On physical examination his gait appears to be normal. Examination of the right knee reveals tenderness and fullness over the medial collateral ligament.

37. Which of the following is the most likely additional finding on physical examination?
- (A) Increased anterior laxity with anterior pressure on the tibia
 - (B) Increased posterior laxity with posterior pressure on the tibia
 - (C) Pain on compression of the patella against the femur
 - (D) Pain during internal and external rotation of the tibia while compressing it against the femur
 - (E) A painful clicking sensation with inward rotation of the foot and extension of the knee
38. The most accurate statement concerning this patient's condition is that he will need which of the following?
- (A) A different type of activity for his exercise program
 - (B) Initial treatment with rest, ice packs and isometric exercises
 - (C) Referral for an orthotic device
 - (D) Referral for arthroscopy
 - (E) Treatment with knee immobilization and crutches

END OF SET

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39. A 38-year-old white letter carrier returns to the office for follow-up of an abnormal liver chemistry profile ordered 3 weeks ago during a routine examination. At that time, his physical examination was normal, but he had a serum AST concentration of 72 U/L. His serum bilirubin and alkaline phosphatase concentrations were normal. History includes an episode of hepatitis A at age 22 years. He has no history of transfusions or intravenous drug use. He drinks two to three beers daily. Today's follow-up test results show:

Serum	
Anti-HAV	Positive
Anti-HBs	Negative
HBsAg	Positive
HBeAg	Positive

Which of the following is the most appropriate next step?

- (A) Begin interferon-alfa therapy
 - (B) Begin corticosteroid therapy
 - (C) Have him cease all alcohol consumption and retest him in 2 months
 - (D) Order hepatitis B virus DNA polymerase study
 - (E) Schedule liver biopsy
40. A 6-month-old Latino infant is brought to the office by his parents because of intermittent swelling in his right scrotum. They say the swelling is more pronounced when he cries. The swelling has never been red or "stuck." A right inguinal hernia is confirmed on physical examination. In discussing repair of the hernia with the parents, you should inform them which of the following?
- (A) Herniorrhaphy can be postponed until age 2 years because many hernias close spontaneously
 - (B) Herniorrhaphy can be postponed until age 12 years because oligospermia does not develop before age 12
 - (C) Herniorrhaphy should be scheduled at the earliest convenient time
 - (D) Herniorrhaphy should be scheduled as an emergency
 - (E) There is no need to repair a hernia in childhood unless incarceration occurs

Items 41–42

A 35-year-old man who is a new city employee was driving a city-owned car when he was struck from behind by another car. He experienced immediate neck and shoulder pain and was seen and examined by you in the emergency department. Physical examination showed slight cervical muscle spasm. Cervical spine and shoulder x-ray films at that time were normal. You reassured him that no structural damage was evident on the studies. He was treated with nonsteroidal anti-inflammatory drugs (NSAIDs) and was scheduled for a return visit in the office in 2 weeks. At the return visit, he was slightly improved but said he had been unable to return to work. Physical examination was normal. You prescribed physical therapy and scheduled a return visit in 4 weeks. Today, at the 4-week return visit, he insists he is not improved and demands everything be done to "find out why I still hurt." Physical examination including neurologic examination, is normal. Repeat x-ray films of the cervical spine are normal.

41. At this time which of the following is the most appropriate management?
- (A) Inform the patient that no additional studies are needed
 - (B) Order a CT scan of the cervical spine
 - (C) Order an MRI of the cervical spine
 - (D) Order studies the patient requests
 - (E) Refer him to a neurologist
42. The patient returns 1 month later with the complaint of persistent neck pain and of some "funny feeling" and pain in his right hand. You learn his prior employment required repetitive use of both hands. He insists that he had no problem with his hands and wrists prior to his accident. Neurologic examination at this time discloses only hypesthesia of the medial aspect of his right little and ring fingers. Which of the following is the most appropriate next step?
- (A) Apologize for not recognizing a structural problem from the outset
 - (B) Discuss the possibility that he is malingering
 - (C) Explain that this may be a problem unrelated to the accident
 - (D) Order cervical myelography with CT scan of the cervical spine
 - (E) Refer him to a neurosurgeon

END OF SET

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43. An 80-year-old African-American woman is brought to the office for the first time by her son because she has signs of mildly decreasing mental function. She is having increasing trouble reading, writing and watching television. She has mild, stable angina pectoris and she had an uncomplicated myocardial infarction 8 years ago. Physical examination now is normal except for corrected visual acuity of 20/200 O.U., which appears to be caused by cataracts. Mini-mental state test score is 29 out of 30. Which of the following is the most correct statement about this patient's condition?
- (A) Her daily activities would probably improve if she had cataract extraction with lens implantation
 - (B) Her diminished mental status is a contraindication for a cataract operation
 - (C) Her history of cardiac disease and advanced age are contraindications for a cataract operation
 - (D) Her mental status should be reevaluated in 1 year
 - (E) You need more information to decide whether she would be helped by a cataract operation
44. An 8-month-old infant with trisomy 21 (Down syndrome) has a grade 2-3/6 systolic ejection murmur heard best at the left sternal border, but it can be heard all over the precordium. S2 is split normally and is loud. She has had two episodes of pneumonia in the past 2 months. Which of the following is the most appropriate next step?
- (A) Do a PPD skin test
 - (B) Initiate an immunologic evaluation
 - (C) Order sweat chloride test
 - (D) Presume the murmur is functional and schedule follow-up visits
 - (E) Seek consultation with a cardiologist

Items 45–46

A 17-year-old boy is brought to the office by his mother who says that he has been increasingly withdrawn and preoccupied for several weeks. He has been sleeping poorly and has refused to leave the house for the past week because he believes he is being followed. When his father insisted he attend school this morning, the patient threatened him with a knife. On examination, the patient is sweating, has dilated pupils and is obviously fearful.

45. Rapport with this patient can best be established by asking which of the following?
- (A) "Are you hearing voices?"
 - (B) "Do you have a special mission to accomplish?"
 - (C) "Do you think you are being persecuted?"
 - (D) "How do you feel others are treating you?"
 - (E) "Who do you think is following you?"
46. You arrange to admit him to the hospital. Following admission, which of the following is the most appropriate immediate intervention?
- (A) Administer haloperidol
 - (B) Administer lorazepam, intramuscularly
 - (C) Arrange a conference with the family
 - (D) Order CT scan of the head
 - (E) Order toxicologic screening of the urine

END OF SET

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47. A 5-year-old boy is brought to the office by his mother because of recurrence of bed-wetting at night. He has a 3-month-old sister who is healthy. Physical examination is normal. Urinalysis shows:

Specific gravity	1.010
Glucose	Negative
Protein	Negative
Microscopic	0-1 WBC/hpf, 0 RBC/hpf

Which of the following is the most important information to share with his parents?

- (A) This condition will cease if they reprimand him for deliberately wetting the bed
- (B) The condition is self-limiting, and they should take care to lessen the emotional impact on their child
- (C) This is a potentially serious problem and could represent chronic inflammation of the kidneys
- (D) This may be a precursor of diabetes mellitus
- (E) This signifies a serious underlying emotional disorder

48. A 38-year-old woman who is a single mother of two small children comes to the office saying that she feels "halfway tired all the time." Her physical examination is normal. Toward the end of the visit she says anxiously, "My children just don't listen. They make me so angry that I feel out of control sometimes." She pauses. "Yesterday my 7-year-old daughter talked back to me and I slapped her in the face." Her eyes fill with tears. Which of the following is the most accurate statement concerning this patient?
- (A) She should be reported to child abuse authorities
 - (B) She was clearly a victim of child abuse herself
 - (C) She would benefit from antidepressant medication
 - (D) She would benefit from family counseling
 - (E) She would exhibit better self-control if she were married

**NOTE: THIS IS THE END OF THE OFFICE/HEALTH CENTER BLOCK.
ANY REMAINING TIME MAY BE USED TO CHECK ITEMS IN THIS BLOCK.**

Block 2: Emergency Department and Inpatient Facilities

Items 49–72; Time - 30 minutes

You encounter patients in the emergency department and inpatient facilities, including the hospital, the adjacent nursing home/extended-care facility, and detoxification unit. Most patients in the emergency department are new to you and are seeking urgent care, but occasionally you arrange to meet there with a known patient who has telephoned you. You have general admitting privileges to the hospital, including to the children's and women's services. On occasion you see patients in the critical care unit. Postoperative patients are usually seen in their rooms unless the recovery room is specified. You may also be called to see patients in the psychiatric unit. There is a short-stay unit where you may see patients undergoing same-day operations or being held for observation. Also available to you is a full range of social services, including rape crisis intervention, family support, and security assistance backed up by local police.

ALL ITEMS REQUIRE SELECTION OF ONE BEST CHOICE.

49. A 67-year-old man is admitted to the hospital because of fever, malaise and weight loss for the past 6 weeks. Night sweats began 4 weeks ago. His medical records show that he has had a tonsillectomy, adenoidectomy, mitral valve commissurotomy and sigmoid colon resection for diverticulitis. His temperature has been as high as 38.3°C (101.0°F) daily. Today, vital signs are: temperature is 38.8°C (101.8°F), pulse 100/min and respirations 14/min. The patient appears chronically ill but is in no acute distress. Other physical findings include a cotton-wool exudate in the right eye, crackling rales at the lung bases and a moderate blowing grade 2/6 pansystolic murmur. There is moderate left lower quadrant abdominal tenderness. Leukocyte count is 11,500/mm³ with normal differential and hematocrit is 35%. Urinalysis shows 4 WBC/hpf and 10 RBC/hpf. Chest and abdominal x-ray films are normal except for slight left ventricular enlargement. At this which of the following is the most likely diagnosis?

- (A) Bacterial endocarditis
- (B) Diverticulitis
- (C) Hodgkin disease
- (D) Pyelonephritis
- (E) Vivax malaria

50. A 60-year-old man is admitted to the hospital because of acute pancreatitis. Laboratory studies show:

Serum		Blood	
Amylase	1,000 U/L	Hematocrit	42%
Calcium	8.4 mg/dL	WBC	14,000/mm ³
Urea nitrogen	5 mg/dL		

Results of serum liver chemistry profile are normal. After 48 hours of fluid therapy and observation, a poor prognosis would be indicated by which of the following laboratory studies?

- (A) Serum alanine aminotransferase (ALT) of 106 U/L
- (B) Serum amylase of 2,000 U/L
- (C) Serum bilirubin of 4.2 mg/dL
- (D) Serum calcium of 6.6 mg/dL
- (E) Serum glucose of 200 mg/dL

Items 51–52

A 25-year-old man has been on life support systems for the past 48 hours following blunt head trauma.

51. Which of the following is the most important criterion to declare the patient brain dead and to permit removal of life support systems?
- (A) Bedside EEG showing no electrical activity
 - (B) Decorticate and decerebrate posturing
 - (C) Failure to respond to electroconvulsive stimuli
 - (D) Glasgow coma score of 3 or less
 - (E) Unenhanced MRI of the brain showing dilated ventricles
52. Brain death cannot be established in this patient if there is the presence of which of the following?
- (A) Carotid blood flow
 - (B) Cremasteric reflexes
 - (C) Elevated serum aminoglycoside concentrations
 - (D) Hypothermia
 - (E) Marked cerebral edema

END OF SET

Items 53–54

A 57-year-old man who manages his own accounting firm has a 5-year history of malignant melanoma that has been treated with local excision and immunotherapy. He now is admitted to the hospital for evaluation of constant pain in his back and left hip and an 11 kg (24 lb) weight loss. He and his wife of 35 years are worried that "the cancer may be back." Pelvic and abdominal CT scans show multiple bony metastases. He tells you, "I just want to die. I can't bear this."

53. Which of the following is the most appropriate initial intervention?
- (A) Adjust his analgesic regimen
 - (B) Arrange for him to be transferred to a psychiatric service
 - (C) Begin antidepressant medication
 - (D) Initiate hyperalimentation
 - (E) Refer him to a cancer patient support group
54. Which of the following symptoms would be most suggestive of a major depressive syndrome in this patient?
- (A) Anorexia
 - (B) Expressions of discouragement
 - (C) Insomnia
 - (D) Low energy
 - (E) Withdrawal from family

END OF SET

Patient Chart

Sex: Female			
Current age: 22 years			
Sociodemographic information: Married, African-American, graduate student			
Medical history: First pregnancy; uncomplicated delivery of 4267-g (9-lb 7-oz) male infant. Fourth degree laceration of perineum			
Family history: Noncontributory			
Current medications/drug information: Prenatal vitamins			
Today's visit			
Height:	168 cm (5 ft 6 in)		
Weight:	67 kg (148 lb)		
Vital signs:			
Temperature	37.2EC (99.0EF)	Respirations	18/min
Pulse	68/min	Blood pressure	128/86 mm Hg
Physical examination: Uterus palpable to level of umbilicus; vaginal laceration appears without inflammation, swelling or drainage, with sutures intact. Nurses report normal lochia			
Laboratory studies: Hemoglobin on first day post partum, 10.8 g/dL			

The patient whose chart is shown is being seen in the maternity ward 24 hours after vaginal delivery and repair of a fourth degree perineal laceration. She is able to walk to the bathroom and to void without difficulty, but she has not had a bowel movement since delivery. The patient tells you that she is concerned about her insurance company requirement that she stay in the hospital no longer than 48 hours post partum. She is worried that she will not be ready to leave tomorrow since she is breast-feeding and wants more help from the nurses. She also says she is worried about bowel function after the perineal repair and wants to stay until she is sure it will be normal. She asks if you can extend her stay to 72 hours post partum if she is not ready to leave tomorrow.

55. Which of the following is the most appropriate response to her request?
- (A) "I'm sure the insurance company will understand if you need another day, so you take whatever time you need before you go home."
 - (B) "Let me decide whether or not it is too soon for you to leave the hospital."
 - (C) "Let's see how you feel tomorrow and we can discuss the most appropriate time to leave then."
 - (D) "You concentrate on getting better and leave the insurance company to me."
 - (E) "Unfortunately I have no control over the insurance company, so you had better plan on leaving tomorrow."
56. Which of the following would be the most important indication for extending her hospital stay beyond 48 hours post partum?
- (A) Abdominal distention and lack of appetite at 48 hours post partum
 - (B) Lack of bowel movement post partum
 - (C) Need for nursing assistance with breast-feeding
 - (D) Palpation of the uterus above the pubic symphysis for more than 48 hours post partum
 - (E) Persistence of lochia for more than 24 hours post partum

END OF SET

57. A 56-year-old Japanese-American woman is scheduled for an abdominal operation. She has hypothyroidism that is controlled with thyroid replacement medication and will be unable to eat or drink for 4 days following the procedure. She is concerned about receiving her thyroid medication. She should be advised of which of the following?

- (A) Although she will have symptoms of hypothyroidism, she will not be given the medication
- (B) Although she will not receive the medication, she will have no adverse effects
- (C) The medication will be administered daily while the nasogastric tube is clamped
- (D) The medication will be discontinued temporarily before the operation
- (E) She will receive the medication intravenously

Items 58–60

A 76-year-old woman is admitted to the hospital following a fall at her home. On physical examination, she is dazed, has no memory of her fall and is unable to respond to any questions about her health. Her skin turgor is poor, and there is bruising around her left hip. Vital signs are: temperature 36.1°C (97.0°F), pulse 72/min and regular and blood pressure 140/85 mm Hg. X-ray films of the pelvis taken upon arrival at the hospital show a fracture of the left femoral neck. She is accompanied by her daughter-in-law, who knows only a portion of her mother-in-law's past medical history. The patient drinks socially, does not smoke cigarettes and has been active in senior citizen groups. She is known to have taken butabarbital daily for many years and her daughter-in-law states that since the patient had a seizure several years ago during attempts to lower the butabarbital dosage, she assumed that the medication was for epilepsy. A bag of medications found at the patient's home contains multivitamins, an acetaminophen/codeine combination and naproxen. Uneventful surgical repair of the femur fracture is done the morning after admission. Postoperative medication orders are for morphine, cephalothin, phenytoin and warfarin.

58. On the evening after the operation, the patient becomes combative, begins to hallucinate and has a brief, generalized tonic-clonic seizure. Which of the following is the most likely cause for the change in her behavior?

- (A) Barbiturate withdrawal
- (B) Cerebral concussion
- (C) Inadequate treatment of an underlying epileptic disorder
- (D) Potentiation of morphine by phenytoin
- (E) Warfarin side effect

The acute episode is appropriately managed and her therapeutic regimen is modified. At the time of transfer to an extended care facility 6 days later, she is alert and cooperative. Her prothrombin time is stable at 1.3 times control values (INR=2.0). Two days later, she experiences a transient episode of asymptomatic hematuria.

59. Which of the following is the most appropriate treatment?

- (A) Administer fresh frozen plasma
- (B) Administer intramuscular vitamin K
- (C) Administer parenteral protamine
- (D) Decrease the warfarin dosage
- (E) Prescribe trimethoprim-sulfamethoxazole, orally

60. Which of the following is the most appropriate medication to relieve her arthritis pain while she continues warfarin therapy?

- (A) Acetaminophen
- (B) Aspirin
- (C) Codeine
- (D) Naproxen
- (E) Phenylbutazone

END OF SET

61. A 50-year-old woman is in the recovery room following an uneventful cholecystectomy. Two hours after the procedure she begins to have ventricular extra-systoles and her systolic blood pressure falls from 110 mm Hg to 90 mm Hg. Arterial blood gas values while breathing room air are:

PO ₂	58 mm Hg
PCO ₂	52 mm Hg
pH	7.30

These signs are most likely the result of which of the following?

- (A) Alveolar hypoventilation
 - (B) Occult hemorrhage
 - (C) Primary cardiac irritability and failure
 - (D) Primary hypoxemia resulting from anesthetic gases
 - (E) Pulmonary embolus
62. A 20-year-old woman who is 35 weeks pregnant with her first child is admitted to the hospital because of persistent hypertension and 1+ protein on urinalysis obtained 36 hours ago. She is confined to bed awaiting further diagnostic studies for preeclampsia. Her blood pressure is now 160/100 mm Hg. She is complaining of headaches, blurred vision and epigastric pain. At this time it is most appropriate to conclude that this patient has which of the following?
- (A) Chronic hypertension and requires antihypertensive therapy
 - (B) Chronic hypertension, but no antihypertensive therapy is necessary
 - (C) Mild preeclampsia and should continue bed rest pending further diagnostic studies
 - (D) Severe preeclampsia and requires immediate medical management and delivery
 - (E) Severe preeclampsia and should continue bed rest pending further diagnostic studies
63. A 52-year-old woman who has had low back pain for several years is admitted to the hospital because the pain has suddenly worsened. Her current medications include oxycodone, amitriptyline, perphenazine, fluoxetine and trazodone. On physical examination, the patient is 10% below her ideal body weight, pupils are constricted and skin turgor is poor. She seems sluggish and her speech is slow. Results of neurologic examination and x-ray films of the lumbosacral spine are normal. If a medication is responsible for her mental condition, the medication is most likely to be which of the following?
- (A) Amitriptyline
 - (B) Fluoxetine
 - (C) Oxycodone
 - (D) Perphenazine
 - (E) Trazodone

Items 64–65

An obese 10-year-old boy with diabetes mellitus is admitted to the hospital because of severe ketoacidosis and cardiovascular collapse. Initial management consists of cardiac monitoring and intravenous administration of fluids, electrolytes and insulin. Because of the difficulty in obtaining satisfactory peripheral venous access, the left femoral vein is catheterized percutaneously. Six hours later, his mental status is improved, blood pressure is 120/70 mm Hg and serum glucose concentration is 250 mg/dL. Physical examination at that time shows a cold left foot with diminished pulses compared with those of the right foot.

64. Which of the following is the most likely explanation for this patient's diminished pulses?

- (A) Paradoxical embolus from the femoral vein
- (B) Diabetic arteriopathy
- (C) Inadvertent injury of the femoral artery
- (D) Intense arteriolar constriction induced by hyperosmolality
- (E) Thrombosis of the catheterized femoral vein

65. A deficit of which of the following electrolytes in this patient is most likely to cause death?

- (A) Bicarbonate
- (B) Calcium
- (C) Chloride
- (D) Potassium
- (E) Sodium

END OF SET

66. A 22-year-old woman who has a 5-year history of ulcerative colitis is admitted to the hospital because of increasing abdominal pain, diarrhea and hematochezia. Her disease is limited to the descending colon. Current therapy includes sulfasalazine and corticosteroid enemas. While she is receiving parenteral corticosteroid therapy, she is discovered to be 8 weeks pregnant. Which of the following statements should be emphasized in discussing this pregnancy with her?

- (A) Abortion should be considered since ulcerative colitis increases the incidence of premature births and congenital anomalies
- (B) Abortion should be considered because of the adverse effect of pregnancy on ulcerative colitis
- (C) Abortion should be considered because of the teratogenic effects of her colitis therapy
- (D) Occurrence of spontaneous abortions does not correlate with disease activity
- (E) Sulfasalazine and corticosteroids are not known to be teratogenic

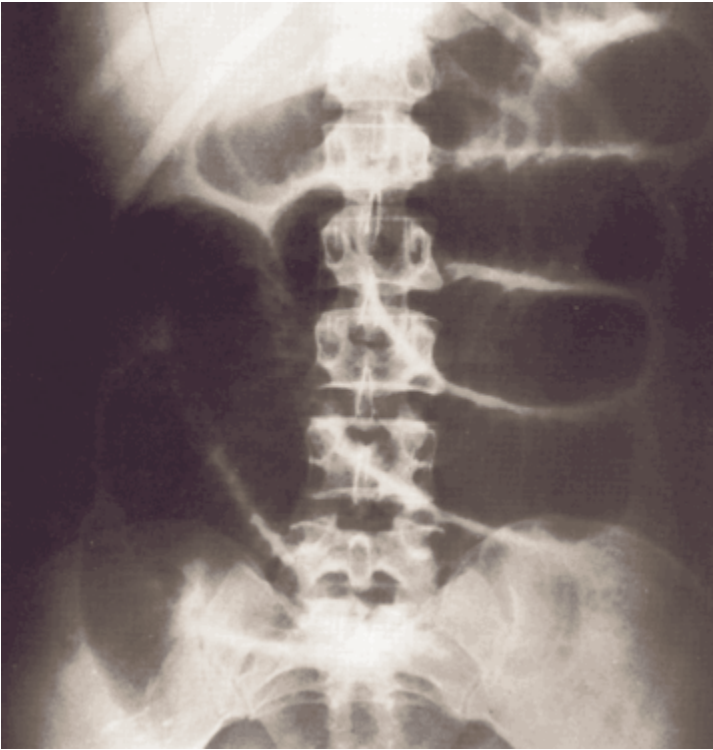
Items 67–68

You plan to discharge an 81-year-old woman in a few days following a 3-week stay in the hospital for repair of a fractured hip that she sustained while gardening. She now ambulates with difficulty using a walker, but she is determined to become independent again and to return to her own home. Her daughter, who is in the room with the patient, says, "I want to take Mother home with me because I'm concerned that she could fall and break her hip again. Mom says she doesn't really want to leave her own home, but she will do what is best." The daughter turns to her mother and says firmly, "Isn't that right, Mom?" The mother says, "Yes, I guess so," averting eye contact with both her daughter and you by looking down toward the floor.

67. Which of the following is the most appropriate response to the mother?
- (A) "Are you sure you want to go home with your daughter?"
 - (B) "How would you feel if you fell again and had another fracture?"
 - (C) "Is this really your decision or is it your daughter's?"
 - (D) "I would like to talk with you in private now."
 - (E) "You are lucky to have a daughter who wants to take care of you."
68. Which of the following is most likely to prevent another fall and a possible fracture in this patient?
- (A) Advise her to walk only when accompanied by an adult
 - (B) Ensure that she does not have orthostatic hypotension
 - (C) Provide her with assistance for activities of daily living
 - (D) Provide her with an electric wheelchair
 - (E) Request a visiting nurse to assess the safety of her living environment

END OF SET

69.



A 57-year-old woman is admitted to the hospital for evaluation of nausea, vomiting, crampy abdominal pain and abdominal distention. Her medical history includes cholecystectomy and appendectomy 5 years ago. X-ray film of the abdomen is shown. Which of the following is the most likely cause of her symptoms?

- (A) Adhesive band
- (B) Femoral hernia
- (C) Gallstone ileus
- (D) Perforated diverticulum
- (E) Sigmoid colon carcinoma

70. A 56-year-old man is admitted to the hospital from the emergency department because of an acute myocardial infarction. He has no identified risk factors and no history of heart disease. He had no major complications and is discharged after 8 days. At discharge, which of the following diagnostic tests should be scheduled for the 2-week follow-up visit in order to predict most accurately his risk for another infarction?

- (A) 24-Hour ambulatory electrocardiographic monitoring
- (B) Electrocardiogram
- (C) Exercise stress test
- (D) Radionuclide ventriculography
- (E) Ultrasonography of the heart

71. A 57-year-old woman with metastatic breast cancer is admitted to the hospital for an investigational chemotherapy protocol. Her cancer has thus far been unresponsive to treatment. At her request, the attending physician writes a "Do Not Resuscitate" order. Two days later, at 1:30 AM, the patient has suddenly slumped over and the nurse is unable to obtain a pulse or blood pressure reading. The patient has agonal respirations and then stops breathing. The first physician to arrive at the patient's bedside should do which of the following?
- (A) Call the attending physician
 - (B) Call the patient's husband
 - (C) Pronounce the patient dead
 - (D) Initiate cardiopulmonary resuscitation
 - (E) Initiate intravenous chemical resuscitation
72. A 25-year-old woman has just given birth to a 3200-g (7-lb 1-oz) boy with an Apgar score of 9 at both 1 and 5 minutes. The physical examination of the neonate is normal. The mother is HIV-positive and received no prenatal care. She acquired HIV infection from her husband who is also HIV-positive. At the time of delivery her rapid plasma reagin test was 1:164 with a positive fluorescent treponemal antibody test. When you visit the mother to discuss the medical care of her baby and to obtain more history, you find her in tears. She asks you what the chances are of her baby being infected with HIV. It is most appropriate to tell her which of the following?
- (A) Since she has no symptoms of AIDS, there is a strong likelihood that her baby will not be infected
 - (B) Having untreated syphilis at delivery increases her baby's risk for being infected by 50%
 - (C) Her baby has at least a 50% chance of not being infected and will need to be followed closely since it is difficult to make the diagnosis at birth
 - (D) If the results of ELISA and Western blot testing of the baby are positive, the baby is definitely infected
 - (E) Because she acquired her infection through a heterosexual transmission, there is only a 20% risk that her baby is infected

**NOTE: THIS IS THE END OF THE EMERGENCY DEPARTMENT AND INPATIENT FACILITIES BLOCK.
ANY REMAINING TIME MAY BE USED TO CHECK ITEMS IN THIS BLOCK.**

Block 3: Emergency Department and Inpatient Facilities

Items 73–96; Time - 30 minutes

You encounter patients in the emergency department and inpatient facilities, including the hospital, the adjacent nursing home/extended-care facility, and detoxification unit. Most patients in the emergency department are new to you and are seeking urgent care, but occasionally you arrange to meet there with a known patient who has telephoned you. You have general admitting privileges to the hospital, including to the children's and women's services. On occasion you see patients in the critical care unit. Postoperative patients are usually seen in their rooms unless the recovery room is specified. You may also be called to see patients in the psychiatric unit. There is a short-stay unit where you may see patients undergoing same-day operations or being held for observation. Also available to you is a full range of social services, including rape crisis intervention, family support, and security assistance backed up by local police.

ALL ITEMS REQUIRE SELECTION OF ONE BEST CHOICE.

73. A 44-year-old woman comes to the emergency department because of chest pain, shortness of breath and fever. On physical examination she is in mild respiratory distress. Vital signs are: temperature 37.8°C (100.0°F), pulse 100/min, respirations 24/min and blood pressure 100/60 mm Hg. Auscultation of the lungs discloses rhonchi at the right lung base posteriorly. The chest pain is in the right anterior region and is pleuritic. Chest x-ray film discloses patchy infiltration of the right lower lobe. The patient is diagnosed as having community-acquired pneumonia, and she is sent home with a prescription for erythromycin and an analgesic medication. The patient returns 2 days later complaining of new onset of swelling of her right leg and foot. Noninvasive vascular studies show a proximal deep venous thrombosis in the right leg, and ventilation-perfusion lung scan is interpreted as high probability for a pulmonary embolus. The patient is given anticoagulation therapy and recovers. The care this patient received initially is best characterized as which of the following?
- (A) An error in diagnostic accuracy
 - (B) Legal negligence
 - (C) Malpractice
 - (D) A therapeutic misadventure
 - (E) Violation of the principle of nonmaleficence
74. A 46-year-old man with Marfan syndrome, aortic insufficiency and mitral regurgitation comes to the emergency department because of severe substernal chest pain for the past 3 hours. He describes the pain as tearing in quality and radiating to the neck. One week earlier he experienced similar, but less severe, chest pain and treated himself with aspirin. Which of the following is the most likely underlying cause for his worsening symptoms?
- (A) Acute bacterial endocarditis
 - (B) Acute myocardial infarction
 - (C) Dissection of the aorta
 - (D) Esophageal reflux with spasm
 - (E) Perforated peptic ulcer

75. A 15-year-old African-American girl comes to the emergency department because, she says, "something is sticking out of my bottom since I had a bowel movement this morning." She denies previous episodes, although for more than 1 year she has had occasional difficulty passing stools. She is not in pain at present, but she is afraid to move her bowels for fear that the problem will get worse. In response to your questions, she tells you that she moved away from home more than a year ago and her parents contribute nothing to her support. She has a 6-month-old child and lives with a 28-year-old female cousin. She has never been married and does not work or attend school. She has no other symptoms. In order to follow the correct procedure for treating a minor, which of the following is the most appropriate step prior to evaluating this patient's rectal problem?
- (A) Accept the girl's consent as sufficient
 - (B) Obtain a court order permitting evaluation
 - (C) Obtain the written consent of at least two licensed physicians
 - (D) Obtain written consent from at least one of her parents
 - (E) Obtain written consent from her 28-year-old cousin
76. A 29-year-old woman comes to the emergency department because of increasingly severe lower quadrant pain and nausea for the past 2 days. She says that her menstrual period ended 6 days ago. She is sexually active and does not use any contraception. Temperature is 38.3°C (101.0°F), orally. On physical examination, there is bilateral lower quadrant tenderness with rebound and guarding. Pelvic examination shows leukorrhea at the cervical os and the uterus is tender to palpation. The adnexal areas are tender but no masses are palpable. Which of the following is the most appropriate diagnostic study?
- (A) Cervical culture
 - (B) Culdocentesis
 - (C) Laparoscopy
 - (D) Serum β -subunit of human chorionic gonadotropin (β -hCG) concentration
 - (E) Ultrasonography of the pelvis
77. A 26-year-old man is brought to the emergency department by his family because he says that he is being followed by gangsters and that they are going to kill him. Temperature is 37.8°C (100.0°F), pulse is 110/min and blood pressure is 160/95 mm Hg. His pupils are dilated. The remainder of the physical examination is normal. The family states that he has a history of drug abuse. Which of the following drugs most likely caused this reaction?
- (A) Alcohol
 - (B) Cocaine
 - (C) Diazepam
 - (D) Heroin
 - (E) Methaqualone

Items 78–79

A 35-year-old woman is seen in the emergency department because of the sudden onset of severe low back pain 12 hours earlier. The pain began when she bent over to pick up her 2-year-old child. She has been unable to stay in bed because of the need to care for her child. Low doses of ibuprofen have eased the discomfort slightly. Careful physical examination, including a neurologic examination, is normal except for evidence of muscle spasm. She believes she has a herniated disc because 2 years ago her father developed the sudden onset of back pain that required immediate surgery.

78. Which of the following is the most appropriate first step?
- (A) Order CT scan of the lumbar spine
 - (B) Order MRI of the lumbar spine
 - (C) Order x-ray films of the lumbar spine
 - (D) Reassure her and treat with a nonsteroidal anti-inflammatory drug (NSAID)
 - (E) Request consultation with an orthopedic surgeon
79. She returns 3 weeks later because of persistent left lower leg pain and a weak left ankle-jerk reflex. In addition to pain management, which of the following is the most appropriate step at this time?
- (A) AP and lateral x-ray films of the lumbosacral spine
 - (B) CT scan of the lumbosacral spine
 - (C) Diskography
 - (D) MRI of the spine
 - (E) Observation

END OF SET

-
80. A 9-year-old boy is brought to the emergency department by his father because the boy is slightly lethargic and has labored breathing. The father, who is a single parent, reports that the boy is "always thirsty" and "urinates a lot." The boy's pulse is 120/min, respirations are 32/min and blood pressure is 110/65 mm Hg. Laboratory studies show:

Serum	
Na ⁺	132 mEq/L
K ⁺	4.1 mEq/L
Cl ⁻	92 mEq/L
HCO ₃ ⁻	6.6 mEq/L
Creatinine	1.0 mg/dL
Glucose	850 mg/dL

The boy is treated with intravenous insulin and isotonic saline solution. Several hours later, he is improved and his serum glucose concentration is 450 mg/dL. Which of the following is the most appropriate next step?

- (A) Add glucose to this intravenous solution
- (B) Add potassium to this intravenous solution
- (C) Add sodium bicarbonate to this intravenous solution
- (D) Begin treatment with intermediate-acting insulin
- (E) Change the intravenous solution to hypotonic saline solution

81. A 28-year-old woman who is known to be HIV-positive comes to the emergency department because of increasing headaches, right-sided weakness and disorientation for the past week. A major motor (grand mal) seizure occurs shortly after admission. On physical examination following the seizure, vital signs are normal. There is no nuchal rigidity. Funduscopic examination shows papilledema. There is also right hemiparesis and aphasia. Which of the following is the most likely diagnosis?
- (A) Meningioma
 - (B) Meningococcal meningitis
 - (C) Neurosyphilis
 - (D) Toxoplasmosis
 - (E) Tuberculous meningitis
82. A 38-year-old nurse comes to the emergency department after leaving work early because of a "horrible headache." She has had a "cold" with sinus congestion for the past week, and yesterday she began taking an over-the-counter combination of diphenhydramine and pseudoephedrine. She tells you she has a history of "migraines," multiple allergies, premenstrual syndrome and depression, for which she takes phenelzine (a monoamine oxidase inhibitor). Vital signs are: temperature 37.2°C (99.0°F), pulse 90/min, respirations 16/min and blood pressure 210/118 mm Hg. Which of the following is the most appropriate action?
- (A) Administer meperidine, intramuscularly
 - (B) Administer phentolamine, intravenously
 - (C) Order CT scan of the head
 - (D) Order transillumination of the sinuses
 - (E) Prescribe oral oxycodone and nasal corticosteroids

Items 83–84

A 48-year-old Native American construction worker sustained a comminuted fracture of his left tibia and fibula 4 months ago. For the past 3 months he has been in the rehabilitation unit with his leg fully immobilized. Three hours ago he suddenly developed chest pain and shortness of breath, and he has just been brought to the emergency department for further evaluation. On examination he describes an aching discomfort over the right superior anterior chest and the right scapula posteriorly. The family history is strongly positive for heart disease.

83. In questioning the patient further, an important point in the history would be the relationship of the pain to which of the following?
- (A) Change of position
 - (B) Deep breathing
 - (C) Eating
 - (D) Swallowing
 - (E) Walking
84. The presence of a right pleural friction rub in this patient would suggest which of the following?
- (A) Pericarditis
 - (B) Pneumonia
 - (C) Pneumothorax
 - (D) Pulmonary embolus with infarction
 - (E) Pulmonary embolus without infarction

END OF SET

85. A 57-year-old man is brought to the emergency department by the rescue squad after he was found lying unconscious in the street. No other history is available. On physical examination he has a temperature of 40.0°C (104.0°F) and marked nuchal rigidity. While awaiting the results of a lumbar puncture, which of the following is the most appropriate intravenous pharmacotherapy?
- (A) Ceftriaxone
 - (B) Ciprofloxacin
 - (C) Glucocorticoids
 - (D) Penicillin
 - (E) Ticarcillin

Items 86–88

A 5-year-old boy is brought to the emergency department by his parents because of a swollen pinna. The father says that the boy fell off his tricycle in a playground. On physical examination the child's left ear is severely edematous and discolored. There is concern for the child because this is his third emergency department visit in the past 6 months. When discussing these concerns and the need for further evaluation with the parents, they become angry and want to take the child home now.

86. Which of the following is the most appropriate next step?
- (A) Arrange for the child to be admitted for evaluation and protection
 - (B) Discharge the child to another relative or neighbor if available
 - (C) Keep the child and initiate foster care placement
 - (D) Send the child home with his parents, but notify the police of the situation
 - (E) Send the child home and arrange for a social worker to make a family assessment on a home visit
87. For which of the following reasons should this case be reported to the child protective service agency?
- (A) If another licensed physician agrees with the current assessment and documents this in the chart
 - (B) If there is a pattern of repeated suspicious injury
 - (C) If there is proof that the parents inflicted the injury
 - (D) If the injury is judged to be life-threatening
 - (E) On the basis of the current suspicion alone
88. Even after informing the parents of the decision to report the case to the child protective services, they continue to deny having hurt the child and are furious. If the diagnosis of child abuse is incorrect, the reporting physician is liable for which of the following?
- (A) Civil charges
 - (B) Criminal charges
 - (C) Medical license revocation
 - (D) State medical society censure
 - (E) No damages or penalties

END OF SET

89. A 42-year-old Anglo-American man is brought to the emergency department by his same sex partner because of confusion, diplopia and mild right arm weakness. On examination the patient is somewhat agitated and shows confusion for recent events. There is decreased pupillary response on the left with some paresis of lateral gaze on the right. Temperature is 38.3°C (101.0°F). Peripheral leukocyte count is increased. Which of the following is the most appropriate next step in evaluation of his neurologic signs and symptoms?
- (A) Bilateral carotid arteriography
 - (B) CT scan of the head
 - (C) Electroencephalography
 - (D) Lumbar puncture
 - (E) Serum test for HIV antibodies

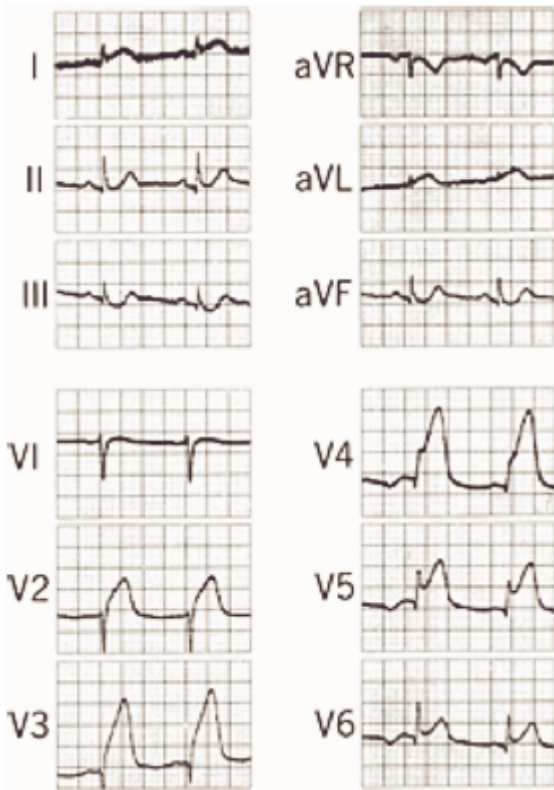
90.



A 60-year-old man comes to the emergency department after sustaining facial injuries in a fight. He is mouth breathing, apparently due to his injuries, but he denies any respiratory problems. He is known to be alcohol- and drug-dependent. He has smoked one to two packs of cigarettes per day for 35 years. There is dullness to percussion and rales over the right upper lobe. Chest x-ray film shown is obtained. Which of the following is the most likely cause of the findings on this x-ray film?

- (A) Aspergillosis
- (B) Carcinoma
- (C) Pneumocystosis
- (D) Sarcoidosis
- (E) Tuberculosis

91.

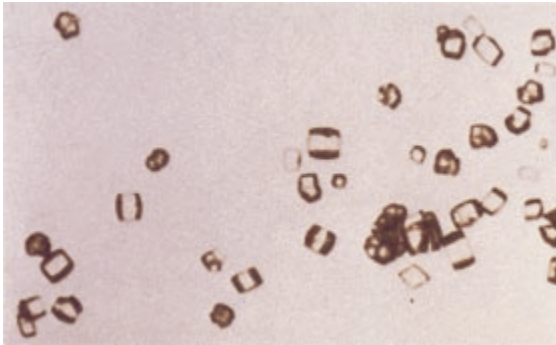


A 38-year-old Hispanic bank executive comes to the emergency department because of the sudden onset of shortness of breath, light-headedness, diaphoresis, and weakness. He is afebrile. On auscultation of the lungs, bilateral basilar rales are heard. Electrocardiogram is shown. Which of the following is the most likely diagnosis?

- (A) Acute pericarditis
 - (B) Hyperventilation syndrome
 - (C) Myocardial infarction
 - (D) Pulmonary embolism
 - (E) Spontaneous pneumothorax
92. A 62-year-old man strikes the steering wheel of his car during a low-speed automobile accident. In the emergency department he is alert and his vital signs are normal. He complains of mild tenderness on sternal compression. Chest x-ray film shows a widened mediastinum. The most appropriate first step is to order which of the following?
- (A) Bronchoscopy
 - (B) CT scan of the chest with contrast
 - (C) A MUGA scan of the heart
 - (D) Thoracentesis
 - (E) Thoracic ultrasonography

93. A 44-year-old African-American construction worker comes to the emergency department because of excruciating left flank pain that radiates to his left testicle. He describes the pain as coming in waves, and he says, "This is the worst pain I've had in my life, and that includes closing my thumb in my truck door." On physical examination he is extremely restless and is in obvious pain. Genitalia are normal. Abdominal examination is normal except for intermittent guarding with spasms of pain. Plain x-ray film of the abdomen is normal. Urinalysis and urinary sediment are shown:

pH	6.5
Specific gravity	1.025
Glucose	negative
Protein	negative



Which of the following is the most appropriate diagnostic study?

- (A) CT scan of the abdomen
 - (B) CT scan of the kidney
 - (C) Culture of the urine
 - (D) Determination of serum uric acid concentration
 - (E) Measurement of 24-hour urinary calcium excretion
94. A 19-year-old woman comes to the emergency department because, she says, "I'm burning up." She is known to staff as an intravenous drug user. On physical examination a systolic heart murmur is detected over the precordium. An expected physical finding will be which of the following?
- (A) Decreased intensity of S1
 - (B) Increased intensity of the murmur with deep inspiration
 - (C) Increased intensity of the murmur with forced expiration
 - (D) Positive Kussmaul sign (rise in jugular venous pulse with inspiration)
 - (E) Right-sided gallop

95. A 23-year-old man comes to the emergency department because of pain, swelling and erythema over the metacarpophalangeal joint of the right long finger. Three days ago he struck an opponent in the mouth during an altercation. On physical examination there is an abrasion over the dorsal surface of the joint, pain on passive motion of the finger, and exquisite tenderness along the volar aspect of the finger and metacarpal. His temperature is 38.5°C (101.3°F). X-ray films are normal. Which of the following is the most appropriate management?
- (A) Splinting for 1 week followed by active range-of-motion exercises
 - (B) Splinting for 3 weeks followed by active range-of-motion exercises
 - (C) Splinting, oral antibiotic therapy and reevaluation in 24 hours
 - (D) Splinting and intravenous antibiotic therapy
 - (E) Surgical debridement and intravenous antibiotic therapy
96. A 25-year-old man is brought to the emergency department by his wife because he has been vomiting for the past 24 hours. He has used prochlorperazine suppositories for relief of nausea and vomiting. He now has severe muscle spasms in his neck. On physical examination there is sustained spasm of the sternocleidomastoid and trapezius muscles with twisting of his head to the right. Which of the following is the most appropriate pharmacotherapy at this time?
- (A) Chlorzoxazone
 - (B) Dantrolene
 - (C) Diazepam
 - (D) Diphenhydramine
 - (E) Methocarbamol

**NOTE: THIS IS THE END OF THE EMERGENCY DEPARTMENT AND INPATIENT FACILITIES BLOCK.
ANY REMAINING TIME MAY BE USED TO CHECK ITEMS IN THIS BLOCK.**

Answer Key for Step 3 Sample Questions

Block 1: Office/Health Center

1. E	9. C	17. C	25. D	33. E	41. A
2. C	10. C	18. D	26. E	34. A	42. C
3. D	11. A	19. B	27. E	35. E	43. A
4. D	12. B	20. A	28. E	36. B	44. E
5. D	13. A	21. E	29. E	37. D	45. D
6. D	14. E	22. B	30. C	38. B	46. E
7. D	15. D	23. D	31. A	39. C	47. B
8. B	16. A	24. A	32. C	40. C	48. D

Block 2: Emergency Department and Inpatient Facilities

49. A	53. A	57. B	61. A	65. D	69. A
50. D	54. E	58. A	62. D	66. E	70. C
51. A	55. C	59. D	63. C	67. D	71. C
52. D	56. A	60. A	64. C	68. E	72. C

Block 3: Emergency Department and Inpatient Facilities

73. A	77. B	81. D	85. A	89. B	93. A
74. C	78. D	82. B	86. A	90. E	94. B
75. A	79. D	83. B	87. E	91. C	95. E
76. A	80. B	84. D	88. E	92. B	96. D