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2012

Step 3

**Content Description and
General Information**



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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 2012. *Eligibility periods* are explained in the 2012 *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.

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.

The sample test materials in this booklet are provided in computer format at the USMLE website. You must run the tutorial and sample materials to become familiar with the test software prior to your test date. The tutorial provided at the beginning of the Step 3 examination has fewer screens and less detailed information than the tutorial available as part of the Step 3 Practice Materials on the USMLE website. In the exam-day tutorial, the screens describing some of the navigation features of the test delivery software have been consolidated into fewer screens. In advance of testing, examinees should review the longer tutorial available in the Step 3 Practice Materials. 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 Practice Materials on the website include an additional block of items with associated audio or video findings and a sequential item set in the FRED V2 interface. The Practice

Materials also include new item formats placed within the blocks. 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 23–33. 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. **Beginning in mid-February 2012, items with an associated pharmaceutical ad or abstract will be**

introduced into some of these multiple-choice blocks. Those blocks that include new item types will contain 46–47 items per block. The timing will remain the same for all blocks.

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 10-minute CCS tutorial. This is followed by 9–12 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 in this book starting on page 38. 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.

Items with an associated pharmaceutical ad or abstract will be introduced into the examination beginning in mid-February 2012. Each pharmaceutical ad or abstract will appear as a 2- or 3-item set; examinees will see no more than 5 of these item sets in their examination. Because item sets with an associated pharmaceutical ad or abstract may require more time to answer than other multiple-choice items, exam blocks that include a pharmaceutical ad or abstract item set will contain fewer items. A screen at the beginning of each block that includes a pharmaceutical ad or abstract item set will alert examinees so that they can monitor their time accordingly.

As is done for the actual examination, the sample test items are arranged in blocks organized by one of the two clinical settings described on page 5. During the time allotted to complete the test items in a block, examinees may answer the items in any order (excluding sequential item sets), 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 USMLE website. Practice with the multiple-choice items on the website will provide examinees with a realistic understanding of the computer interface and timing of the examination.

A table of normal Laboratory Values for frequently ordered laboratory tests, including Standard International conversions, is reproduced on pages 35–36 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 website.

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 35–36 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 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, competency, autonomy)

Physician/Patient Relationship (eg, truth-telling, confidentiality, privacy, adult maltreatment [including elder abuse], child maltreatment [child abuse])

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 (eg, paraplegia, 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, neuropathy)

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/Fibrosing 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, arteriosclerosis)

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, endocarditis, valve disorders, functional murmurs)

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

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

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

Diseases of Myocardium (eg, hypertensive cardiomegaly, 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, 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, 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.
- Identifies the underlying processes/pathways that account for, or contribute to, the expression or resolution of a given condition.
- Recognizes or evaluates given clinical or physical findings to identify the underlying anatomic structure or physical location.
- Interprets results of clinical studies.

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.
- Given a specific problem, knows what to ask in obtaining pertinent additional 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.
- Interprets laboratory or diagnostic study results and identifies current status of patient.
- Recognizes associated disease conditions, including complications, or indicators for potential disease complications, of a given disease.
- Recognizes characteristics of disease relating to natural history or course of disease, including progression, severity, duration, and transmission of disease.
- Knows appropriate counseling of patient or family regarding current and future problems, including risk factors related to present encounter.

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.
- Educates patient or family regarding self-care.
- Knows relevant roles of allied health personnel.
- Knows appropriate use and procedures regarding hospice care.

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 Sequential Item Sets):

- 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 more 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 30-year-old man comes to the emergency department because of an acute episode of renal colic. Medical history is remarkable for episodes of painful urination and passing of what he calls "gravel in my urine." Urinalysis demonstrates microscopic hematuria with some crystalluria and no casts. Supine x-ray of the abdomen shows no abnormalities. A 4-mm renal calculus is detected in the distal right ureter on ultrasonography. There is no evidence of dilation of the collecting system. The patient's pain is responsive to narcotic medication. In addition to administering intravenous fluids, which of the following is the most appropriate next step?

- A. Acidification of urine by drinking cranberry juice
 - B. Cystoscopic removal of the calculus
 - C. Cystoscopic ureteral lavage
 - D. Shock wave lithotripsy
 - E. Straining of the urine
- (Answer E)

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.

Example Questions 2 to 3

A 52-year-old Native American man returns to the office for reevaluation of an ulcer on his right great toe. The patient has a 15-year history of diabetes mellitus and takes glipizide and rosiglitazone. He first noticed the ulcer 2 months ago. One month ago, a 14-day course of oral amoxicillin-clavulanate therapy was prescribed. He has smoked one pack of cigarettes daily for the past 37 years. He is 178 cm (5 ft 10 in) tall and weighs 102 kg (225 lb); BMI is 32 kg/m². Today, vital signs are temperature 38.8°C (101.8°F), pulse 96/min, respirations 12/min, and blood pressure 130/85 mm Hg. Physical examination of the right great toe discloses a 1.5-cm nontender ulcer with a depth of 0.5 cm, a moist base, yellow exudate, and surrounding erythema to the level of the malleoli. Vibration sense and sensation to monofilament examination are absent. Pulses are diminished in both feet. Capillary refill time is 2 seconds in the right great toe. Urinalysis discloses 3+ protein.

2. Which of the following historical factors or physical examination findings is most strongly associated with development of this patient's foot ulcer?

- A. Diminished pedal pulses
- B. Neurologic findings
- C. The patient's weight
- D. Proteinuria
- E. Tobacco use

(Answer B)

3. Which of the following is the most appropriate action at this time?

- A. Begin aggressive debridement in the office
- B. Begin intravenous antibiotic therapy
- C. Refer the patient for transmetatarsal amputation
- D. Schedule the patient for a third-degree skin graft
- E. Switch the amoxicillin-clavulanate to oral ciprofloxacin

(Answer B)

End of Set

Sequential Item Sets

A single patient-centered vignette may be associated with two or three consecutive questions about the information presented. Each question is linked to the initial patient vignette but is testing a different point. Questions are designed to be answered in sequential order. 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. 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 4 to 5

A 2-year-old girl is brought to the office by her mother for evaluation of fever. You have been the girl's physician since birth. While in the office, the girl stiffens and then has bilateral, symmetrical shaking of her upper and lower extremities; she becomes mildly cyanotic. The episode lasts for approximately 45 seconds, after which she becomes relaxed and appears to fall asleep. Vital signs at this time are temperature 40.0°C (104.0°F), pulse 120/min, and respirations 40/min. On physical examination she has a generally pink complexion and flushed cheeks. She is limp and somnolent and responds with a cry to noxious stimulus. Tympanic membranes are inflamed bilaterally, nose has a scant, clear discharge, and throat is mildly erythematous. Lungs are clear to auscultation except for transmitted upper airway sounds. Heart has rapid rate with a grade 1/6 systolic murmur at the left sternal border. Complete blood count, blood culture, lumbar puncture, and catheterized urine specimen are obtained and sent for stat analysis. Acetaminophen is administered by rectal suppository. Thirty minutes later the patient awakens and is smiling. She is afebrile. Additional history discloses that she was born at term, she had an uneventful neonatal course, she has normal growth and development, and vaccinations are up-to-date.

She has never had an episode similar to this. Initial laboratory results are shown:

Blood	
WBC	10,400/mm ³
Neutrophils, segmented	25%
Neutrophils, bands	5%
Lymphocytes	65%
Monocytes	5%
Cerebrospinal fluid	0 RBC/mm ³
Urinalysis	Normal

Other laboratory studies are pending.

4. In addition to ampicillin for otitis media and acetaminophen, this child also should receive which of the following?

- A. Oral ethosuximide
- B. Oral phenobarbital
- C. Oral phenytoin
- D. Rectal diazepam
- E. No additional medications

(Answer E)

5. Two weeks later the patient is brought to the office for a follow-up visit. Her mother says that she is doing well and she has had no recurrence of her symptoms. Examination of the ears shows resolution of the otitis media. Which of the following is the most important diagnostic step at this time?

- A. Audiology testing
- B. Cognitive testing
- C. CT scan of the head
- D. EEG
- E. No additional testing

(Answer E)

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. Cases are allotted varying amounts of maximum real time, 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 the desired components of a physical examination or 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 time allotted after the case-end instructions screen, you **will not** be able to enter a final diagnosis.

If a case has not ended and you feel you have 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, 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 physical examination components
- 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.

Cases will be allotted varying amounts of maximum real time. 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 instruction screen 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 2 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 have 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, 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.

14. What happens after I get the case-end instruction screen?

Once you receive the case-end instruction screen you will have 2 minutes of real time to finalize your orders. Once you click on OK on the case-end instructions screen you will be able to:

- Review all previously presented vital signs, test and imaging results, and patient updates using the chart tabs at the top of the screen
- Write new orders to be done now or in the future
- Cancel any pending tests order or active therapies

A few Primum features will no longer be available once you receive the case-end instruction screen, notably:

- You will not be able to order a physical examination or an interval history
- You will not receive the results for pending tests and diagnostic studies
- You will not be able to change the patient's location
- You will not be able to schedule a follow-up appointment

Important notes:

- You will **not** be prompted to enter a final diagnosis. To enter a final diagnosis, you **must** select the Exit Case button.
- If you use the entire 2 minutes of case-end time, the case will end by timing out, and you will not have an opportunity to enter a final diagnosis.
- **The final diagnosis is not used in evaluating your performance at this time.**

15. How do I advance simulated time in a Primum CCS case?

Advancing the clock in simulated time in a Primum CCS case is what 'makes things happen'. To see the results of tests and procedures, and to evaluate the effect of therapies, you *must* advance the clock in simulated time.

There are various ways to advance simulated time in Primum CCS cases. At the top of the chart, select the 'Obtain Results or See Patient Later' button. Under the Reevaluate screen, you can advance simulated time by using one of the following options:

- Select a future date on the calendar
- Choose 'On' under Reevaluate Case, then select a date on the calendar or enter a future day and time
- Choose 'In' under Reevaluate Case, then enter a specific number of days, hours or minutes
- Choose 'With next available result' under Reevaluate Case
- Choose 'Call/See me as needed' under Reevaluate Case

A clock advance will stop to present any pending test results or messages from the patient, patient's family, or another member of the healthcare team and give you an option to stop simulated time. If there are no pending test results or patient updates, the time advance may take you to the end of simulated case time. At that point, you will receive the 2-minute case-end instruction screen and you will have an opportunity to finalize your orders.

Calendar option:

Select a date on the calendar for future evaluation.

Reevaluate 'On' option:

To enter a date and time select "On," followed by the day, hour, and minute when you will reevaluate the case (eg, Day 1 at 16:27).

Reevaluate 'In' option:

To enter a future time (eg, 10 minutes) select "In," followed by the number of days, hours, and minutes from now in which you will reevaluate the patient (eg, 0 days, 0 hours, and 10 minutes).

Reevaluate 'With Next Available Result' option:

This will advance the case to the time when your next scheduled test result will be available. If no results are pending, the case will advance to the next patient update message or to the end of the case.

Reevaluate 'Call/See me as needed' option:

To end the case once you are satisfied that you have completed all necessary patient management, select the option "Call/see me as needed." The patient will be sent home and instructed to call you as needed for future visits. Do not assume this means that the patient will be monitored without any further action. If no results are pending, the case will advance to the next patient update message or to the end of the case. **Please note, if you are in the Outpatient Office setting and you advance the clock using the "Call/See me as needed" option, the patient will immediately be sent home, even if there are test results pending.** The clock will stop when the results are scheduled to be returned but the patient will be in the Home location.

Sample Step 3 Questions

Sample Questions

The following pages include 96 sample test questions. Most of these questions are the same as those you install on your computer from the USMLE website. For information on obtaining the test software and additional information on preparing to take the test and testing, you must review the *2012 USMLE Bulletin of Information*: see Preparing for the Test and Testing. Please note that reviewing the sample questions as they appear on pages 38–70 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 well before your test date. The sample materials on the USMLE website include additional items that do not appear in the booklet: pharmaceutical ads and abstracts, items with associated audio or video findings, and sequential item sets in the FRED V2 interface. You should become familiar with these formats as they will be used in the actual examination.

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 table of normal Laboratory Values (included here on pages 35–36) 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 37. In the actual examination, answers will be selected on the screen; **no answer sheet will be provided**. An answer key is provided on page 71.

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	75-105 mm Hg	10.0-14.0 kPa
PCO ₂	33-45 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 4 to 6 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 44-year-old Irish American woman with a 10-year history of arthritis comes to the office because she has had increasing pain and stiffness in her hands, wrists, and knees during the past several months. She also has had increasing fatigue for the past month, along with a weight loss of 1.8 to 2.2 kg (4 to 5 lb). She has seen numerous physicians for her arthritis in the past and has tried various medications and devices, including copper bracelets from Mexico given to her by friends. 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 approximately four times daily and ibuprofen occasionally. Physical examination shows facial plethora and swollen and painful metacarpophalangeal and knee joints, bilaterally. There is moderate ulnar deviation of the fingers. The remainder of the examination discloses no abnormalities. 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

2. A 14-year-old boy is brought to the walk-in clinic by his father late on a Saturday afternoon because his left ear is swollen and painful. The 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 during a match 3 hours ago. Vital signs are normal. The left ear is markedly swollen and tender to palpation. Which of the following is the most appropriate next step in management?
- (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 3–4

A 1-month-old white boy whom you saw at birth is brought to the office for a routine well-child visit. His birth history is unremarkable except for mild jaundice that subsided within a few days. His birth weight was 2718 g (6 lb; 10th percentile), and length was 50 cm (19.5 in; 30th percentile). His mother stopped breast-feeding when he was 6 days old. At today's visit, the infant is alert and active, and he cries until fed. He weighs 3.2 kg (7 lb; 5th percentile), and is 54.6 cm (21.5 in; 25th percentile) long. His mother tells you that, even when cuddled, the infant cries continually until fed. He always eats slowly, falling asleep before he finishes his formula. You find that formula flows adequately from the bottle nipple, and you detect no abnormalities on physical examination of the boy to explain his slow feeding. Urination and stooling patterns are normal. Serum urea nitrogen concentration is 10 mg/dL and serum thyroxine (T₄) concentration is 10 µg/dL.

3. Which of the following is the most appropriate next step?
- (A) Advise his mother to resume breast-feeding
 - (B) Hospitalize the infant for parenteral hyperalimentation
 - (C) Prescribe hypercaloric formula (24 calories/oz)
 - (D) Prescribe liquid multivitamins
 - (E) Schedule him for placement of a feeding gastrostomy tube
4. At a follow-up visit 1 week later, which of the following factors would most likely indicate satisfactory progress in the treatment of the infant's problem?
- (A) The infant does not cry before feeding
 - (B) The infant finishes his formula at each feeding
 - (C) The infant no longer falls asleep while feeding
 - (D) The infant's weight increases by at least 0.2 kg (0.4 lb)
 - (E) Serum urea nitrogen concentration decreases to 6 mg/dL

END OF SET

5. A 75-year-old woman comes to the office because she has band-like, burning pain in her right upper abdomen extending from the epigastrium around to the midline of the back. Physical examination discloses no abdominal tenderness to palpation. Findings on ultrasonography of the gallbladder are normal. Serum amylase concentration is within the reference range. 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

6. A 2-year-old boy is brought to the office by his mother for follow-up of a chromosome analysis done 1 month ago. The 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
7. A 25-year-old woman who is 19 weeks pregnant comes to the office for a prenatal examination. Her father had classic hemophilia. A karyotype obtained from an amniotic fluid sample of the patient shows that the fetus is XY. Which of the following should you tell the patient regarding her infant?
- (A) The infant will neither have hemophilia nor be a carrier
 - (B) The infant has a 50% risk for hemophilia
 - (C) The infant has a 50% risk for being a carrier
 - (D) The infant has a 75% risk for hemophilia
 - (E) The infant has a 75% risk for being a carrier
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 carbonate, levothyroxine, haloperidol, sertraline, benztropine, digoxin, propranolol, ranitidine, and warfarin. She says, "I'm doing fine except for shakiness in my hands." She also says her mood is "a little depressed." She has no hallucinations or delusions. Vital signs are pulse 78/min with an irregularly irregular rhythm, and blood pressure 160/95 mm Hg. Physical examination shows a fine tremor of the hands when they are extended. On memory testing, she recalls one of three objects after 2 minutes. Which of the following is the most likely cause of the patient's depression?
- (A) Benztropine
 - (B) Digoxin
 - (C) Haloperidol
 - (D) Propranolol
 - (E) Ranitidine

9. A 36-year-old man comes to the office because of headaches that began 2 weeks ago. The headaches are moderately severe, are present when he awakens in the morning, and are relieved with over-the-counter analgesics. He has no prior history of headaches. He tells you he was promoted to an upper-level managerial position in his accounting firm about 8 months ago, which necessitated relocating. Physical examination now discloses no abnormalities except for blurring of the optic disc margins bilaterally. Which of the following is the most appropriate next step?
- (A) Begin a trial of a β -blocking medication
 - (B) Order CT scan of the head
 - (C) Order electroencephalography
 - (D) Refer him for consultation with a neurologist
 - (E) Refer him for consultation with a neurosurgeon
10. 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. External ocular movements are normal but funduscopic examination shows pallor of the optic disk. This patient's condition is most likely a result of demyelination of which of the following?
- (A) Medial longitudinal fasciculus
 - (B) Oculomotor nerve
 - (C) Optic nerve
 - (D) Trigeminal nerve
 - (E) Visual cortex
11. A 68-year-old white man comes to the office because of progressively worsening right groin pain for the past month. You last saw the patient 3 months ago for preoperative assessment for a total right hip replacement. For the past 5 years he has been treated with inhaled bronchodilators for emphysema resulting from an extensive history of smoking cigarettes. The patient is widowed and has lived alone in a mobile home since his wife died 4 years ago. Vital signs today are temperature 36.8°C (98.2°F), pulse 66/min, respirations 18/min, and blood pressure 110/82 mm Hg. Physical examination shows an unkempt man who appears much older than his stated age. He has evidence of alcohol on his breath; dentition is poor with several broken, loose teeth, and gingival pyorrhea is present. Lung sounds are distant and air entry is poor. Heart and abdomen are normal. There is no hernia present in the groin. With the exception of testicular atrophy, the patient's genitalia are normal. Which of the following is the most likely initial working diagnosis?
- (A) Iliac venous thrombosis
 - (B) Infected hip prosthesis
 - (C) Occult appendicitis
 - (D) Occult hernia
 - (E) Somatoform disorder
12. A 68-year-old woman, who underwent flexible sigmoidoscopy 6 hours ago in the office as part of routine screening, returns to the office because of left lower quadrant abdominal pain, fever, nausea, and vomiting. During the procedure, a 3-cm polyp was found in the sigmoid colon and was removed. Vital signs now 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, and tenderness and guarding in the left lower quadrant. Rectal examination shows no stool and tenderness only superiorly. Which of the following is the most appropriate next step?
- (A) Obtain angiography 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 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 come to the office for evaluation for infertility. The wife's gynecologist has reported that her anatomic and physiologic evaluation disclosed no abnormalities and that assessment of potential male factors is needed. The husband is 188 cm (6 ft 3 in) tall with fair skin and little facial hair. He has mild gynecomastia and small, firm testicles. No sperm are seen on semen analysis. Which of the following tests is most likely to establish the underlying cause of this couple's infertility?
- (A) Karyotype from peripheral leukocytes
 - (B) Serum estrogen and testosterone concentrations
 - (C) Serum follicle-stimulating hormone and luteinizing hormone concentrations
 - (D) Serum prolactin concentration
 - (E) Testicular ultrasonography

Items 14–15

A 4-day-old female, Greek American newborn is brought to the office by her mother because the infant developed yellowing of her skin 1 day after hospital discharge and approximately 20 red spots over her skin yesterday. The infant has continued to feed well. Pregnancy and delivery were uncomplicated. Birth weight was 3400 g (7 lb 8 oz; 50th percentile). Apgar scores were 8 and 9 at 1 and 5 minutes, respectively. The mother, gravida 2, para 2, has blood group A, Rh-positive. The neonate's blood group is O, Rh-positive. Result of a direct antiglobulin (Coombs) test was negative. The neonate was breast-feeding and was doing well at the time of discharge. Weight today is 3250 g (7 lb 2 oz; 25th percentile). Physical examination discloses jaundice and scleral icterus. Many papules containing small vesicles with clear to slightly turbid fluid are present over the newborn's face, trunk, and extremities. No organomegaly or adenopathy is noted. Serum total bilirubin concentration is 8.7 mg/dL, and serum conjugated (direct) bilirubin concentration 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 next step regarding the newborn's jaundice?
- (A) Advise the mother to avoid eating foods containing large quantities of carotene
 - (B) Begin administering small doses of phenobarbital to the newborn
 - (C) Recommend discontinuation of breast-feeding until the jaundice has disappeared
 - (D) Recommend home phototherapy for the newborn
 - (E) Recommend no change in child care or feeding of the newborn
15. Which of the following is the most appropriate management for the newborn's rash?
- (A) 0.5% Hydrocortisone cream applied twice daily
 - (B) Daily wet-to-dry povidone-iodine (Betadine) soaks with gauze pads on each vesicle
 - (C) Polymyxin ointment applied twice daily
 - (D) Routine skin care with soap and water
 - (E) Scrubbing daily with entsufon cleanser firmly enough to unroof the vesicles

END OF SET

16. A 27-year-old woman comes to the office for her annual physical examination and says, "Two weeks ago I noticed some small bumps on the outside of my vagina. They don't hurt, but they do itch a little." She has never been pregnant and she takes an oral contraceptive. Physical examination shows several small, moist warts on the labia minora. VDRL test is negative. Pap smear shows moderate high-grade squamous intraepithelial lesions (HGSIL; CIN2). After removal of the vaginal warts, which of the following is the most appropriate next step?
- (A) Colposcopy
 - (B) Cone biopsy of the cervix
 - (C) Endometrial biopsy
 - (D) Hysterectomy
 - (E) Repeat Pap smear in 6 months

Items 17–18

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 by her parents 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. Physical examination today discloses pronounced redness and warmth around the right knee, and a large effusion. Attempts at active and passive motion cause severe pain.

17. 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-rays of the joint
18. Which of the following new symptoms or findings, if present, would most strongly 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-rays

END OF SET

19. A 27-year-old nulligravid woman returns to the office to discuss results of a Pap smear obtained 2 weeks ago during a health maintenance examination. At that time, physical examination, including pelvic examination, disclosed no abnormalities. The patient's menstrual periods occur at regular 28-day intervals. She has been in a stable relationship with the same man for 3 years and she uses a diaphragm with spermicidal jelly for contraception. A Pap smear obtained 3 years ago showed no abnormalities. Pap smear obtained at her last visit shows evidence of marked inflammation suggestive of a high-grade squamous intraepithelial lesion. 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
20. A 5-year-old girl with a lumbar myelomeningocele is brought to the office by her mother for a periodic health evaluation. The girl has little motor function and no sensation below the waist. She has a neurogenic bladder requiring intermittent catheterization, and she also requires daily suppositories to aid in bowel movements. She does not have hydrocephalus but can walk only with the aid of braces and crutches. "I am pleased with how well she is doing," says the mother, "but I am so worried about what might happen to her later on." Which of the following is the most likely late complication in this patient?
- (A) Carcinoma of the bladder
 - (B) Chronic obstructive pulmonary disease
 - (C) Cor pulmonale
 - (D) End-stage renal disease
 - (E) Osteomyelitis of the femoral head

Items 21–22

A 38-year-old woman returns to the office for follow-up of tension headaches, which have not improved with trials of several appropriate medications. She has been married to a policeman for the past 6 years and has four children (ages 5 to 12 years). When asked if she has been under extra stress, she begins to cry. Bruises are evident on both arms. On further questioning, she says 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 your patient.

21. 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
22. 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

23. 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
24. A 13-year-old girl is brought to the office for a health maintenance visit. She was diagnosed with Turner syndrome in infancy during a work-up for coarctation of the aorta. During today's visit, her mother reports that the girl has been talking about babies. You have been the patient's physician for the past 6 years and know she is prepubescent. You counsel the girl that if she wishes to have a family she will need to do which of the following?
- (A) Adopt
 - (B) Have amniocentesis if she gets pregnant
 - (C) Have an operation
 - (D) Receive genetic counseling
 - (E) Receive hormone treatment

25. A 4-year-old boy is brought to the office by his mother because he has become unmanageable at his day-care center. At previous visits he exhibited 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 day care at 6 weeks of age so that his mother could return to work. His father works as a house painter and has alcoholism. 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. Physical examination today discloses no abnormalities. 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, generalized weakness, and palpitations. She is divorced and lives with her 4-year-old daughter. Medical history is significant for 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 gland 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 3-year-old white girl is brought to the office by her parents for a follow-up visit 48 hours after receiving a 5-TU PPD skin test. The test was done as part of a routine screening for enrollment in a homeless shelter. Physical examination shows 10 mm of induration at the puncture site; the examination is otherwise normal. The parents tell you they are shocked by this finding since both of their skin tests were nonreactive. They say they were born in this country and tell you that their daughter has always been in good health. She has not had much medical care in the past 2 years but she has been healthy. Until moving into this shelter they had been "squatters" in vacant buildings. Which of the following is the most appropriate step at this time?
- (A) Call her previous physician to obtain more history
 - (B) Order a chest x-ray
 - (C) Order a test for HIV antibody
 - (D) Repeat the PPD skin test
 - (E) Schedule gastric aspiration for culture on successive days



28. A 58-year-old man comes to the office because of a lesion on his lower lip that developed 9 months ago. He has not seen a physician during the past 5 years and says, "My wife made me come to see you today." Physical examination of the lips discloses the findings shown in the photograph. 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
29. A 14-year-old girl, who has received three courses of chemotherapy for Hodgkin disease, is brought to the office by her father because of worsening cough, shortness of breath, a low-grade fever and fatigue for the past 2 days. No one at home is ill. She says she is taking no medications. Her vaccinations are up-to-date. She attends a private school. Vital signs are temperature 37.1°C (98.8°F), pulse 100/min, respirations 35/min, and blood pressure 110/72 mm Hg. Oxygen saturation on pulse oximetry is 87% while breathing room air. Physical examination discloses a few coarse breath sounds in the lower lobes and retractions. Chest x-ray shows no masses and a mild interstitial pattern. No infiltrates or effusions are noted and heart size is normal. Which of the following is the most appropriate step at this time?
- (A) Admit the girl to the hospital for high-dose trimethoprim-sulfamethoxazole therapy
 - (B) Begin isoniazid therapy in the girl and test the family for tuberculosis
 - (C) Prescribe ciprofloxacin and schedule a return visit for tomorrow
 - (D) Prescribe oral fluconazole for the girl
 - (E) Schedule a lung biopsy

Items 30–32

A 57-year-old construction worker returns to the office for a follow-up visit after a transient ischemic attack. There was no residual deficit, but Doppler ultrasonography showed an obstruction exceeding 85% of the left carotid artery. The patient asks your opinion as to whether he should undergo endarterectomy. His only medication is one 81-mg aspirin tablet daily. You are aware of a study designed to determine whether carotid endarterectomy prevents deterioration of functional status among patients with transient ischemic attacks or nondisabling strokes. You review the results, which are from a multicentered, randomized, controlled trial comparing the various functional impairments over time in patients receiving either endarterectomy or medical therapy for carotid artery obstruction of 80% or greater.

The study evaluated the deterioration of functional status among patients with transient ischemic attacks or nondisabling strokes during the 2-year follow-up period. The results comparing functional impairment between endarterectomy and medical treatment groups are shown in the following table:

Type and risk of functional impairment by treatment groups

Functional impairment of:	Medical, % (n=331)	Surgical, % (n=328)	Relative risk reduction, %	Absolute difference, %	95% CI, %
Swallowing	5.1	0.8	84	4.3	0.6–8.0
Lower-limb function	11.4	5.4	53	6.0	0.7–11.3
Shopping	12.3	4.9	60	7.4	2.1–12.7
Visits outside residence	20.8	10.3	50	10.5	3.6–17.4
Major impairment in any category	19	9.8	48	9.2	2.3–16.1

CI=Confidence interval

30. These findings suggest that compared with medical treatment, carotid endarterectomy would do which of the following?
- (A) Have minimal effect on his ability to have visits outside his residence
 - (B) Have minimal effect on reduction of risk for functional impairment
 - (C) Have no effect on reducing functional impairment of swallowing
 - (D) Increase the absolute risk for functional impairment by 52%
 - (E) Reduce the overall likelihood for any major functional impairment by 48%
31. The 95% confidence intervals around the absolute difference in risk reduction suggest that endarterectomy will most likely do which of the following?
- (A) Have a small effect on decreasing major impairment
 - (B) Have no effect on decreasing functional impairment of any kind
 - (C) Have a diminishing effect over time
 - (D) Increase major impairment
 - (E) Result in significant risk reduction 95% of the time
32. Based upon these data, the most appropriate next step is for this patient to do which of the following?
- (A) Continue his medical management
 - (B) Increase his aspirin dose to 325 mg daily
 - (C) Reconsider surgical intervention if another transient ischemic attack occurs
 - (D) Repeat Doppler ultrasonography in 6 months
 - (E) Undergo carotid endarterectomy

END OF SET

Items 33–34

A 28-year-old white woman returns to the office for follow-up of hypertension. She says, "My blood pressure keeps getting worse, no matter what I do." Her hypertension had been controlled with a diuretic and a β -blocking medication for 4 years, but her blood pressure has steadily increased in the past 8 months despite taking maximum doses of the medications. She insists she takes her medications as directed. Family history is negative for hypertension. She does not smoke cigarettes. Height is 163 cm (5 ft 4 in) and weight is 75 kg (165 lb); BMI is 28 kg/m². Vital signs today are pulse 96/min and blood pressure 165/110 mm Hg, standing, in both arms. Examination of the retina shows AV nicking. Abdominal examination discloses a new epigastric bruit. The remainder of the examination is normal.

33. Which of the following is the most appropriate diagnostic study to order next?
- (A) 24-Hour urine collection for creatinine clearance and protein excretion
 - (B) 24-Hour urine collection for vanillylmandelic acid, metanephrine and catecholamine excretion
 - (C) Serum and urine electrolyte concentrations
 - (D) Serum thyroid-stimulating hormone (TSH), cortisol, and aldosterone concentrations
 - (E) Urinalysis, and serum creatinine and urea nitrogen concentrations
34. Which of the following is the most appropriate imaging study?
- (A) Abdominal CT scan with contrast
 - (B) Abdominal ultrasonography
 - (C) Adrenal MRI
 - (D) Radionuclide thyroid scan
 - (E) Renal duplex ultrasonography

END OF SET

35. A 26-year-old woman comes to the office because of fever, cough, and increasing shortness of breath for the past 3 days. She has been living in homeless shelters and says she uses intravenous drugs. She recently tested positive for HIV infection. She takes no medications and has no history of asthma, pneumonia, or tuberculosis. Her last medical evaluation was 5 years ago. Vital signs are temperature 39.0°C (102.2°F), pulse 100/min, respirations 28/min, and blood pressure 110/60 mm Hg. Auscultation of the chest discloses crackles and rhonchi posteriorly over the right lower lung field with tubular breath sounds and dullness to percussion. No sputum could be obtained due to splinting of the chest wall. Chest x-ray shows consolidation of the right lower lobe. Complete blood count and arterial blood gas analysis while breathing room air show:

Blood		Arterial blood gas analysis	
Hematocrit	36%	P _O ₂	72 mm Hg
Hemoglobin	12.7 g/dL	P _{CO} ₂	33 mm Hg
WBC	7800/mm ³	pH	7.44
Neutrophils, segmented	70%		
Neutrophils, bands	16%		
Lymphocytes	14%		

Which of the following is the most likely diagnosis?

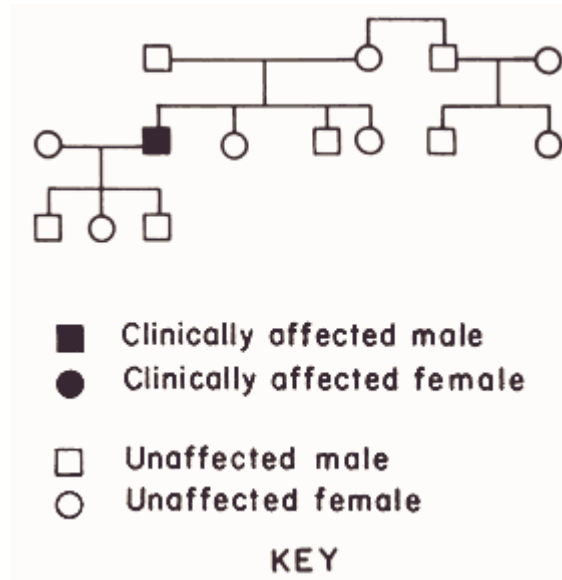
- (A) Legionnaires disease
- (B) Pneumonia caused by *Pneumocystis jiroveci*
- (C) Pneumonia caused by *Streptococcus pneumoniae*
- (D) Pulmonary embolism
- (E) Pulmonary tuberculosis

36. A 14-year-old African American girl comes to the office for the first time for a sports physical examination. She is asymptomatic. Her medical history is unremarkable. Family history shows that her maternal grandmother had a myocardial infarction at age 65 years. Her mother has hypertension that is well controlled with antihypertensive medication. Vital signs are temperature 37.2°C (99.0°F), pulse 86/min, respirations 16/min, and blood pressure 112/74 mm Hg. Height is 165 cm (5 ft 5 in; 75th percentile) and weight is 45 kg (99 lb; 25th percentile). Physical examination shows a grade 2–3/6 systolic heart murmur at the left sternal border. The second heart sound (S₂) is loud with fixed splitting and is heard best in the second left intercostal space. The family is anxious and requests an answer regarding the patient's sports participation. Which of the following is the most appropriate advice to give the patient and her parents?
- (A) Allow her to participate in all sports
 (B) Allow her to participate in noncontact sports only
 (C) Allow her to participate in sports but recommend cardiac catheterization
 (D) Allow her to participate in sports but recommend echocardiography
 (E) Prescribe prophylactic antibiotics for use prior to each game
37. A healthy 2-year-old African American child is brought to the office for a routine well-child visit. The child was weaned at 6 months of age and began to walk at 10 months of age. On physical examination, she has mild bowlegs (10-degree genu varum). The parents should be advised about which of the following?
- (A) Braces should be applied immediately
 (B) No treatment is needed at this time
 (C) Surgical correction is necessary
 (D) The child's intake of vitamin D should be increased
 (E) A special exercise program is needed
38. A 38-year-old white letter carrier returns to the office for follow-up of abnormal results of a liver chemistry profile ordered 3 weeks ago during a routine examination. At that time, physical examination disclosed no abnormalities, but serum AST concentration was 72 U/L. Serum bilirubin and alkaline phosphatase concentrations were within the reference ranges. Medical history is significant for 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 laboratory study results are shown:

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) Instruct him to cease alcohol consumption and retest him in 2 months
 (D) Order hepatitis B virus polymerase chain reaction test
 (E) Schedule liver biopsy



39. A 30-year-old man who has been your patient for several years comes to the office for a periodic health evaluation. He has been healthy, but has a birth defect involving his hands and feet. He is missing the second and third metatarsals, metacarpals, and corresponding fingers and toes. He has three healthy children, and no one else in the family has this condition. He has adapted well to his condition. During your evaluation, he asks, "What do you think? If I have any more kids, will they have hands and feet like mine?" You review the family history and his pedigree, which is shown. His physical examination is otherwise normal. In addition to discussing your opinions with him, which of the following is the most appropriate next step?
- (A) Do a skin biopsy for fibroblast culture
 - (B) Order chromosome analysis of peripheral blood lymphocytes
 - (C) Order radionuclide scan of his hands and feet
 - (D) Order skeletal x-ray surveys of his three children
 - (E) Order no additional tests at this time
40. A 6-month-old male, Hispanic infant is brought to the office by his parents because of intermittent swelling of his right scrotum that is more pronounced when he cries. The swelling has never been red or "stuck." Vital signs are normal. 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 operation
 - (E) There is no need to repair the hernia in childhood unless incarceration occurs

41. A 31-year-old white woman comes to the office for initial prenatal care. She is 12 weeks pregnant by date of her last menstrual period. This is her fourth pregnancy; she has three healthy children. Her last delivery was by cesarean section because of fetal distress during labor. Her history includes heavy use of alcohol and cigarettes, and multiple sexual partners. In addition to routine prenatal laboratory work-up, the patient consents to an HIV antibody test. The tests are ordered. Later, the HIV test is reported as positive. At a follow-up visit the patient should be counseled regarding which of the following?
- (A) Amniocentesis is recommended to rule out congenital HIV infection
 - (B) Breast-feeding will increase the risk for transmitting HIV to the infant
 - (C) Immediate termination of pregnancy will decrease her risk for progression to AIDS
 - (D) Repeat cesarean delivery may increase the risk for vertical transmission of HIV
 - (E) The risk for perinatal HIV transmission is greater than 50%
42. Several patients with hypertension whom you have treated for many years have recently had strokes. You are frustrated by this outcome and review the literature on the efficacy of antihypertensive treatments in preventing stroke. A large, multicenter, randomized trial shows that a particular antihypertensive medication lowers the 5-year risk for stroke from 8 per 1000 patients to 6 per 1000 patients, providing a relative risk reduction of 25%. Based on this study, the number of patients with hypertension who must be treated to prevent one stroke is which of the following?
- (A) 4
 - (B) 75
 - (C) 250
 - (D) 500
 - (E) 2000
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 discloses no abnormalities except for corrected visual acuity of 20/200 O.U., which appears to be caused by cataracts. Mini-Mental State examination score is 29/30. Which of the following is the most correct statement about this patient's condition?
- (A) Her daily activities would likely 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. A 35-year-old man with hypertension comes to the office because of high fever, malaise, and arthralgias during the past 4 to 5 days. He also mentions having painless red bumps on the palms of both hands during the past few days. His current medications are lisinopril and aspirin. He denies any alcohol or tobacco use but admits to the daily use of intravenous heroin during the past month. He has been careful to use clean needles except for one incident 2 weeks ago in which he shared needles with his girlfriend. His most recent heroin shot was yesterday. Vital signs today are temperature 39.8°C (103.6°F), pulse 120/min, respirations 20/min, and blood pressure 110/68 mm Hg. The patient appears weak and pale. Skin is warm and moist. Small, nontender lymph nodes are palpable in both axillae and in the anterior neck and supraclavicular regions. There is a new, grade 2/6 holosystolic murmur heard best below the xiphoid that radiates to the apex and is increased slightly during inspiration. There are several small, nontender, erythematous nodules on the palms of both hands. Physical examination is otherwise normal. Based on the physical findings, the most likely cause of his fever is infection with which of the following?
- (A) Hepatitis B
 - (B) HIV
 - (C) *Serratia marcescens*
 - (D) *Staphylococcus aureus*
 - (E) Treponema organisms

Items 45–46

A 55-year-old man who has a long history of alcohol dependence comes to the office for his yearly follow-up visit. He has consumed 2 pints of vodka daily for many years and has a past history of blackout episodes during intoxication. Following a divorce from his second wife, he voluntarily "detoxified" himself, but this was complicated by "rum fits" with tactile and visual hallucinations. His medical history includes hypercholesterolemia controlled by diet, benign prostatic enlargement, and hypertension, for which he takes an α -blocking medication. During the course of the examination, he tells you his twin brother recently died of colon cancer. It is clear from the conversation that he was very close to his brother and he feels that his only support system has left him. You discuss your concerns about his reliance on alcohol as a coping mechanism and ask if he would consider accepting help during this difficult time. He agrees.

45. Which of the following is the most appropriate next step?
- (A) Arrange for referral to a substance abuse treatment program while the patient is in the office
 - (B) Prescribe diazepam
 - (C) Prescribe disulfiram and discuss with him its use and potential withdrawal symptoms
 - (D) Refer him to Alcoholics Anonymous
 - (E) Suggest he attend an outpatient substance abuse treatment program in his area
46. Which of the following features in this patient's history is most closely associated with the risk for morbidity or mortality from alcohol withdrawal?
- (A) Absence of social support
 - (B) Blackout episodes during intoxication
 - (C) Family history of colon cancer
 - (D) Previous history of withdrawal seizures
 - (E) Use of an α -blocking medication

END OF SET

47. A 76-year-old German American man comes to the office because of early awakening at night. He has no difficulty falling asleep but routinely wakes up between 2:00 and 3:00 AM. The patient is a retired postal worker, and he has always been physically active. He has diabetes mellitus controlled by diet. He is not obese. The patient drinks one cup of coffee in the morning with breakfast and usually walks for exercise in the morning. Before retiring at night he has one alcoholic drink. He has no history of depression, nightmares, or snoring and he takes no over-the-counter medications. His wife of 45 years is also in good health. Vital signs are temperature 37.1°C (98.8°F), pulse 96/min and regular, respirations 18/min, and blood pressure 135/90 mm Hg. Physical examination shows a well-nourished, well-developed man. Examination of the head and neck is normal; there are no bruits or jugular venous distention. Chest is clear, heart is normal with S₁ and S₂. Abdomen is soft and nontender with active bowel sounds and no organomegaly. Rectal examination is normal. Which of the following is the most appropriate management of this patient's insomnia?

- (A) Advise the patient to discontinue his bedtime drink of alcohol
- (B) Advise the patient to read and snack in bed to relax
- (C) Prescribe a vigorous pre-bedtime exercise regimen
- (D) Prescribe sertraline
- (E) Prescribe triazolam

48. 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 discloses no abnormalities. Results of urinalysis are shown:

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) The 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) The condition is a potentially serious problem and could represent chronic inflammation of the kidneys
- (D) The condition may be a precursor of diabetes mellitus
- (E) The condition signifies a serious underlying emotional disorder

**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. While you are on rounds at a local nursing facility, the nurse mentions that your patient, a 79-year-old African American woman, appears to be a "poor eater." She was admitted to the nursing facility 3 months ago from the hospital where she was treated for congestive heart failure. Her daughter had moved away from the area, and nursing home placement was necessary because the patient could no longer function independently. Her present medications include furosemide and digoxin. Physical examination is normal except for a weight loss of 3.5 kg (7 lb) during the past 3 months. In your conversation with the patient, she says, "No, I'm not depressed, I just don't have an appetite anymore. Nothing tastes good to me. I have a little bit of nausea most of the time." Which of the following is the most appropriate initial diagnostic study?

- (A) Chest x-ray
- (B) Complete blood count
- (C) Determination of serum albumin concentration
- (D) Determination of serum digoxin level
- (E) Upper gastrointestinal barium study

50. A 2-year-old African American child with sickle cell disease is brought to the emergency department by her parents because of painful swelling of her feet for the past 3 hours. Her temperature is 37.0°C (98.6°F). Physical examination shows swelling and tenderness of her feet; no other abnormal findings are noted. Results of laboratory studies are shown:

Hemoglobin	7.8 g/dL
WBC	13,000/mm ³
Neutrophils, segmented	60%
Lymphocytes	40%

Which of the following is the most likely diagnosis?

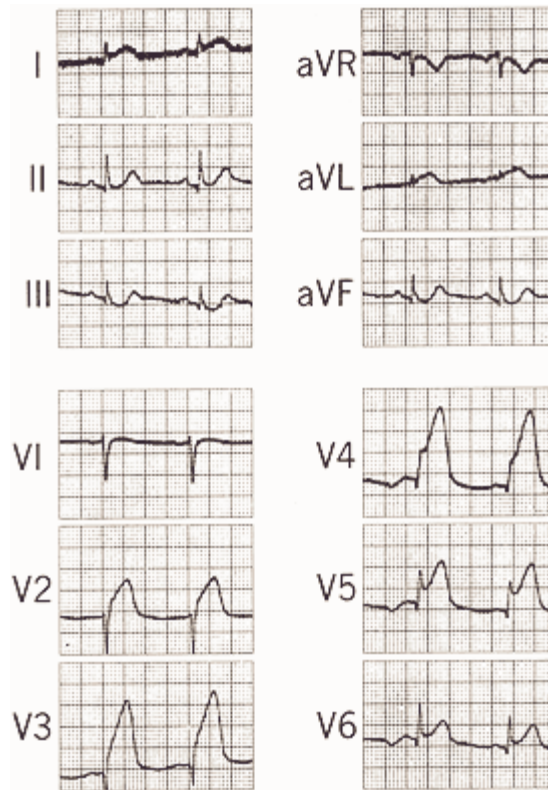
- (A) Bone infarction
- (B) *Escherichia coli* sepsis
- (C) Pneumococcal sepsis
- (D) Osteomyelitis
- (E) Staphylococcal sepsis

51. A 62-year-old woman is brought to the emergency department because of obtundation. On physical examination, she has hypotension and tachycardia. Respirations are 24/min. She has cherry-red maculae on fundoscopic examination. Results of initial laboratory studies are shown:

Serum		Urine	
Urea nitrogen	37 mg/dL	Color	Clear
Na ⁺	139 mEq/L	Specific gravity	1.010
K ⁺	6.1 mEq/L	Glucose	Negative
Cl ⁻	100 mEq/L	Proteins, total	2+
HCO ₃ ⁻	10 mEq/L	Ketones	Trace
Glucose	121 mg/dL	WBC	5–10/hpf
Osmolality	357 mOsmol/kg H ₂ O	RBC	3–5/hpf
Arterial blood gas analysis on room air		Crystals	None
Po ₂	75 mm Hg	Casts	Rare epithelial cell casts
Pco ₂	26 mm Hg		
pH	7.09		
HCO ₃ ⁻	9 mEq/L		

Which of the following is the most likely explanation for these data?

- (A) Alcoholic ketoacidosis
 (B) Diabetic ketoacidosis
 (C) Isopropyl alcohol intoxication
 (D) Methanol intoxication
 (E) Salicylate intoxication
52. A 25-year-old woman has just had a second spontaneous abortion after 8 weeks of pregnancy. She has also had an elective abortion in the past. She has been told that her uterus is in a retroflexed position and this finding is confirmed on pelvic examination. The rest of the examination is normal. Which of the following is the most appropriate counseling?
- (A) Cervical incompetence is frequently associated with uterine malposition and is a likely contributor to spontaneous abortion
 (B) Progesterone therapy is likely to decrease the risk for recurrent abortion and should be started as soon as pregnancy is diagnosed
 (C) Renal abnormalities are frequently associated with uterine malposition, making it less likely that successful pregnancy can be expected
 (D) Uterine malposition should be corrected by surgical suspension prior to further attempts at pregnancy
 (E) The uterine position does not increase her risk for spontaneous abortion, and therefore no specific therapy is indicated
53. A 46-year-old man with Marfan syndrome, aortic insufficiency, and mitral regurgitation comes to the emergency department because he has had 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



54. 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. ECG 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

55. A 27-year-old Mexican woman, gravida 4, para 2, aborta 1, who is at 25 weeks' gestation, comes to the emergency department because of painless vaginal bleeding that she noticed 2 hours ago after sexual intercourse with her husband. The patient has not received routine prenatal care during her pregnancy, though she was treated for chlamydia with azithromycin at 15 weeks' gestation. She gave birth to both of her daughters at home in Mexico via normal vaginal delivery. She had one spontaneous abortion at 5 weeks' gestation. Vital signs are temperature 37.0°C (98.6°F), pulse 100/min, respirations 24/min, and blood pressure 110/64 mm Hg. Sterile speculum examination shows 4 mL of blood in the vaginal vault. The cervix appears closed. Ultrasonography of the pelvis is most likely to show which of the following causes of bleeding in this patient?

- (A) Cervicitis
- (B) Placenta accreta
- (C) Placenta previa
- (D) Placental abruption
- (E) Preterm labor

56. A 15-year-old African American girl comes to the emergency department because, she says, "something has been sticking out of my bottom since I had a bowel movement this morning." She has not had previous episodes, although for more than 1 year she has had occasional difficulty passing stools. She is not in pain but is afraid to move her bowels for fear that the problem will worsen. She tells you that she moved away from home more than a year ago and that 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
57. A 60-year-old man had a total thyroidectomy and excision of enlarged left jugular lymph nodes for follicular carcinoma. The operation was uncomplicated. He is receiving intravenous 5% dextrose and 0.45% saline with potassium. Twelve hours after the operation he develops circumoral numbness and paresthesias in his fingertips, and he becomes very anxious. Vital signs are temperature 37.6°C (99.7°F), pulse 90/min, respirations 16/min, and blood pressure 140/90 mm Hg. Physical examination discloses a dry neck dressing and no stridor. Extremities are warm, with brisk capillary refill time. Additional physical examination is most likely to show which of the following?
- (A) Babinski sign present bilaterally
 - (B) Chvostek sign
 - (C) Deviation of the tongue to the left side
 - (D) A drooping left shoulder
 - (E) Hyporeflexia
58. A 29-year-old woman comes to the emergency department because she has had increasingly severe lower abdominal pain and nausea for the past 2 days. She is sexually active and does not use any contraception. Her last menstrual period ended 6 days ago. Temperature is 38.3°C (101.0°F). Physical examination discloses abdominal tenderness in the lower quadrants bilaterally with rebound and guarding. Pelvic examination discloses leukorrhea at the cervical os and tenderness of the uterus 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 -hCG concentration
 - (E) Ultrasonography of the pelvis
59. A 10-year-old boy is brought to the emergency department by his father because of left flank pain and tenderness. About 4 hours ago the boy was hit hard on the abdomen during a karate match. Abdominal CT scan shows a large splenic tear. In the pediatric intensive care unit his blood pressure is stabilized and his hematocrit is 45%. Which of the following is the most appropriate immediate step?
- (A) Continue pulse and blood pressure monitoring
 - (B) Do celiotomy and splenectomy
 - (C) Order diagnostic abdominal paracentesis
 - (D) Order intravenous urography
 - (E) Order radionuclide scan of the spleen

60. A 38-year-old man with Down syndrome and severe mental retardation is brought to the emergency department by ambulance because of increasing lethargy for the past several hours. The patient is noncommunicative and you are unable to obtain an initial history of his present illness or a past medical history. You do not know if he takes any medications. Vital signs are temperature 38.3°C (100.9°F), pulse 90/min, respirations 19/min, and blood pressure 120/60 mm Hg. On physical examination the patient is awake but lethargic. Auscultation of the chest discloses clear lungs; cardiac examination discloses a systolic click. Neurologic examination shows decreased muscle tone. Serum electrolyte concentrations are normal. Complete blood count shows a leukocyte count of 18,000/mm³ with 23% band neutrophils. The patient's caregiver, who is also the patient's guardian, cannot be located and staff at the group home where the patient resides cannot be reached by telephone. The patient refuses lumbar puncture for examination of cerebrospinal fluid. Toxicologic screening of the urine is negative. Which of the following is the most appropriate next step?
- (A) Administer intravenous antibiotics
 - (B) Await contact with the caregiver before proceeding with management
 - (C) Obtain CT scan of the head
 - (D) Obtain echocardiography
 - (E) Obtain electroencephalography
61. A 26-year-old man is brought to the emergency department by his family because he has been telling them that he is being followed by gangsters and that they are going to kill him. The family states that he has a history of drug abuse. 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 discloses no abnormalities. Which of the following drugs most likely caused this reaction?
- (A) Alcohol
 - (B) Cocaine
 - (C) Diazepam
 - (D) Heroin
 - (E) Methaqualone
62. 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. The patient's body weight is 10% below ideal weight. Pupils are constricted and skin turgor is poor. She seems sluggish and her speech is slow. Neurologic examination and x-rays of the lumbosacral spine disclose no abnormalities. If a medication is responsible for this patient's mental condition, the medication is most likely to be which of the following?
- (A) Amitriptyline
 - (B) Fluoxetine
 - (C) Oxycodone
 - (D) Perphenazine
 - (E) Trazodone



63. A 35-year-old man is brought to the emergency department because of altered mental status. He is disoriented and complains about his vision. You have been his physician for the past 3 years. He has type 1 diabetes mellitus and a known history of intravenous drug abuse. You last saw him 2 weeks ago; at that visit his serum glucose concentration was 150 mg/dL 3 hours after eating. Today, vital signs are temperature 38.1°C (100.5°F), pulse 110/min, and blood pressure 190/70 mm Hg. On physical examination pupils are constricted; funduscopic examination of the left eye following dilation is shown. Which of the following is the most appropriate test at this time?
- (A) Blood cultures
 - (B) Chest x-ray
 - (C) Hemoglobin A_{1c} level
 - (D) HIV antibody titer
 - (E) Plasma renin activity

64. A 60-year-old man is admitted to the hospital for management of acute pancreatitis. Results of laboratory studies are shown:

Serum		Blood	
Amylase	1000 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 within the reference ranges. 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) concentration of 106 U/L
- (B) Serum amylase concentration of 2000 U/L
- (C) Serum bilirubin concentration of 4.2 mg/dL
- (D) Serum calcium concentration of 6.6 mg/dL
- (E) Serum glucose concentration of 200 mg/dL

Items 65–66

A 95-year-old woman is admitted to the hospital because she fractured her right femur when she fell at home. An operation is planned and you are consulted by the orthopaedic surgeon for medical clearance. She is a widow with no children who lives alone at home. She has diabetes mellitus that is treated with glyburide. She also takes aspirin, daily, and flurazepam for insomnia. On the night of admission she was noted to be confused and disoriented. She became somewhat agitated and tried to get out of bed. She repeatedly yelled, "You can't keep me in prison against my will."

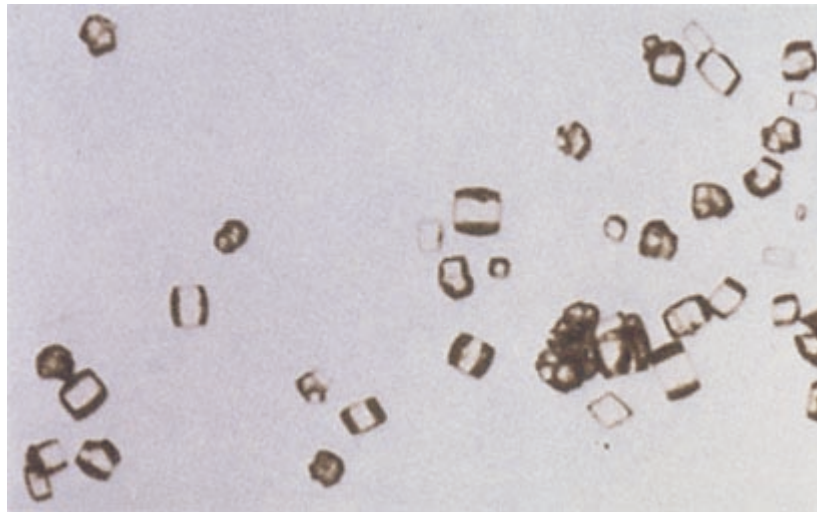
Today, at the time of the consultation, she is alert and oriented to time, place, and person. She does not remember the events of last evening. Vital signs now are temperature 36.7°C (98.0°F), pulse 78/min and regular, respirations 14/min, and blood pressure 138/84 mm Hg. On physical examination, heart, lungs, and abdomen are normal. The left leg is shortened and externally rotated. There are strong peripheral pulses bilaterally. Test of the stool for occult blood is positive. Results of laboratory studies are shown:

Serum		Blood	
Glucose	183 mg/dL	Hemoglobin	11.4 g/dL
Electrolytes	Normal	Hemoglobin A _{1c}	8.6%
		WBC	7000/mm ³

65. Which of the following is the most appropriate action based on this patient's physical examination and laboratory studies?
- (A) Postpone the operation for 24 to 36 hours to reduce the aspirin effect on platelets
 - (B) Postpone the operation pending results of colonoscopy and upper gastrointestinal x-rays
 - (C) Postpone the operation until her hyperglycemia is under better control
 - (D) Recommend a nonoperative approach because of her age and mental status
 - (E) Schedule the operation for today
66. The patient says she has a moderate amount of pain in the hip despite receiving acetaminophen. Which of the following is the most appropriate pharmacotherapy?
- (A) Amitriptyline, orally
 - (B) Fentanyl patch
 - (C) Hydrocodone, orally
 - (D) Meperidine, orally
 - (E) Sustained-release morphine, orally

END OF SET

67. 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. Physical examination discloses a systolic heart murmur 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



68. 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 occurring in waves and says, "This is the worst pain I've had in my life, and that includes closing my thumb in my truck door." He is extremely restless and is in obvious pain. Genitalia are normal. Abdominal examination discloses intermittent guarding with spasms of pain. Plain x-ray of the abdomen shows no abnormalities. Results of urinalysis are shown:

pH	6.5
Specific gravity	1.025
Glucose	Negative
Protein	Negative

Urinary sediment is shown. 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
69. A 52-year-old Hispanic man is admitted to the hospital because of severe dyspnea and cough productive of tenacious, brownish-yellow sputum for the past 3 weeks. He has a 15-year career history of sandblasting old buildings. He has smoked two packs of cigarettes daily for the past 30 years. The patient is 168 cm (5 ft 6 in) tall and weighs 59 kg (130 lb); BMI is 21 kg/m². Vital signs are temperature 36.8°C (98.2°F), pulse 94/min, and blood pressure 150/92 mm Hg. Pulse oximetry shows an oxygen saturation of 70% on room air. On physical examination he is in moderately severe distress with pursed lips and cyanotic nail beds. Chest has an increased anteroposterior diameter. Auscultation of the chest discloses scattered wheezes and rhonchi over all lung fields. Cardiac examination discloses muffled heart sounds and an S₄. Fingers are clubbed. Chest x-ray shows hyperinflated lungs, flattened diaphragm, large, irregular opacities in the upper lobes, and eggshell calcifications of the hilar lymph nodes. In addition to antibiotic therapy, which of the following is the most appropriate intervention?
- (A) Azathioprine therapy
 - (B) Bronchoscopy
 - (C) Continuous humidified oxygen
 - (D) Nocturnal continuous positive airway pressure (CPAP)
 - (E) Referral for lung reduction

70. An 18-month-old child is brought to the emergency department by his parents because of fever and irritability. The child was well until 4 days ago when he developed rhinorrhea, nasal congestion, and diarrhea. One week ago, he was seen in the office by your partner and received routine vaccinations at that time. His mother says he felt warm to touch 2 days ago, but his temperature was not taken. She has been giving him acetaminophen every 6 hours during the past 2 days. Since this morning, the child has been eating poorly. There is a 4-year-old sibling at home who is healthy. Vital signs are temperature 38.2°C (100.8°F), pulse 100/min, respirations 25/min, and blood pressure 100/70 mm Hg. On physical examination, the child is irritable. He is uncooperative during the examination, and his neck is stiff and painful when flexed. He is whining that he wants to go home. Extremities are cool, with normal capillary refill time, and there is no rash. These findings are most consistent with which of the following?
- (A) Acetaminophen toxicity
 - (B) Aseptic (viral) meningitis
 - (C) Gastroenteritis with mild dehydration
 - (D) Reye syndrome
 - (E) Vaccine reaction

Items 71–72

An 81-year-old woman is being prepared for discharge 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.

71. 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."
72. 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

**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 3-year-old child is brought to the emergency department by his teenage sister because he refuses to walk. The sister reports that she has been babysitting for 3 days while her parents are away on a trip and that the boy has been fussy for the past 2 days. Physical examination is normal except for painful swelling of the left lower leg. In addition to radiography of the leg, you should obtain which of the following?
- (A) Abdominal ultrasonography
 - (B) CT scan of the abdomen
 - (C) CT scan of the head
 - (D) Skeletal survey
 - (E) Serum lead concentration
74. A 13-month-old child is brought to the emergency department because of urticaria, swelling of the lips, and difficulty breathing immediately after eating an egg. A potential risk for hypersensitivity reaction is posed by vaccination against which of the following illnesses?
- (A) Hepatitis
 - (B) Influenza
 - (C) Pertussis
 - (D) Poliomyelitis
 - (E) Typhoid fever
75. A 74-year-old white man with dementia is transferred to the emergency department from a nursing facility because of necrosis of the distal phalanx of the second toe on his right foot. He denies localizing pain. He has a history of hypertension, coronary artery disease, congestive heart failure, and mild renal insufficiency. Vital signs are temperature 37.0°C (98.6°F), pulse 92/min, respirations 16/min, and blood pressure 160/80 mm Hg. On physical examination he is thin and is in no distress. Chest has bilateral crackles at both lung bases. Cardiac and abdominal examination discloses no abnormalities. The extremities are thin and the distal phalanx of the second right toe is black. Mild erythema is present on the adjacent proximal skin but no purulence is noted. Bilateral carotid and femoral artery bruits are noted. Radial pulses are full. A pulsatile mass measuring approximately 2 cm is palpable in the right popliteal fossa. Dorsalis pedis and posterior tibial pulses are 3+ bilaterally. Which of the following is the most likely cause of this patient's gangrene?
- (A) Arterial embolus
 - (B) Hypercoagulable (thrombophilic) state
 - (C) Obliterative angiopathy
 - (D) Polyarteritis nodosa
 - (E) Raynaud syndrome

76. An 81-year-old white woman is in the hospital following a hip replacement operation 2 days ago because of an intertrochanteric fracture of the left femur following a fall. Her condition had been stable since the operation, but today the nurses note that the patient is confused and short of breath. Vital signs are temperature 37.0°C (98.6°F), pulse 110/min, respirations 32/min, and blood pressure 150/104 mm Hg. Pulse oximetry on 2 L/min of oxygen by nasal cannula shows an oxygen saturation of 79%. Scattered crackles are heard in both lung fields. ECG shows sinus tachycardia with right bundle branch block. Chest x-ray shows bilateral basilar infiltrates. X-ray of the left hip shows intact repair. Leukocyte count is 15,600/mm³ and hematocrit is 29%. You note that she has an advance directive at the front of her medical chart that requests "Do Not Resuscitate" orders. She has been receiving oral oxycodone with acetaminophen for pain, docusate sodium for constipation, lisinopril for mild hypertension, and aspirin for thrombosis. She has no other medical problems. Which of the following is the most appropriate step at this time?
- (A) Order diagnostic tests and begin therapy
 - (B) Order diagnostic tests but give no therapy
 - (C) Order no diagnostic tests and give no therapy
 - (D) Provide analgesia and comfort measures only
 - (E) Speak with family members before proceeding with any action
77. A 22-year-old woman is brought to the emergency department by her parents because of muscular weakness, muscle twitches, and palpitations. She is extremely thin and somewhat cachectic. Her parents report that she has a history of self-induced vomiting and overuse of laxatives and thiazide diuretics. Routine blood studies are obtained. Which of the following findings is most likely to explain these signs and symptoms?
- (A) Decreased hematocrit and hemoglobin concentration
 - (B) Decreased serum glucose concentration
 - (C) Decreased serum potassium concentration
 - (D) Increased serum calcium concentration
 - (E) Increased serum sodium concentration
78. A 46-year-old married woman comes to the emergency department because of increased vaginal bleeding for 2 days. She says her menses have been irregular during the past 6 months and that she has not had a menstrual period for more than 2 months. She thinks she may be going through menopause. She says she has a history of leiomyomata uteri but has not had an operation or taken medication. Vital signs are normal. Abdominal examination is normal. Pelvic examination is consistent with an 8-week-sized uterus, which is slightly tender. A 5-cm right adnexal mass is palpated. The cervical os is closed, and there are small clots in the vaginal vault. Which of the following next steps is most appropriate?
- (A) Dilatation and curettage
 - (B) Endometrial biopsy
 - (C) Intravenous conjugated estrogen
 - (D) Pelvic ultrasonography
 - (E) Serum pregnancy test

Items 79–80

A 48-year-old Native American construction worker, who sustained a comminuted fracture of his left tibia and fibula 4 months ago, is transferred from the rehabilitation facility to the emergency department because of a 3-hour history of dyspnea and chest pain. During the past 3 months since sustaining the fracture, he has resided in the rehabilitation facility with his left lower extremity fully immobilized. He now describes an aching discomfort over the right superior anterior chest and the right scapula posteriorly. Family history is strongly positive for heart disease.

79. 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
80. 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



81. A 65-year-old man is admitted to the hospital after he has an inferior wall myocardial infarction. Forty-eight hours later his vital signs are stable. ECG is shown. The most appropriate course of action is to do which of the following?
- (A) Administer atropine
 - (B) Administer isoproterenol
 - (C) Begin synchronized cardioversion
 - (D) Insert a pacemaker
 - (E) Observe

Items 82–83

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."

82. 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
83. 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

84. A previously healthy 54-year-old man comes to the emergency department at his wife's insistence 6 days after a stray dog sprang up and bit his right leg while he and his wife were walking near the dog during a trip to South America. The bite punctured the skin. He immediately cleaned the wound thoroughly with soap and peroxide and has done so daily since the incident occurred. The area of the bite is not painful, and the patient has not had fever or chills. He takes no medications. He had a tetanus booster vaccination 3 years ago. Vital signs today are normal. Examination of the right lower extremity shows healing bite puncture wounds. There is minimal erythema and the area is not fluctuant. Lymph nodes in the groin are not palpable. Which of the following is the most appropriate next step?
- (A) Administer rabies vaccination
 - (B) Administer tetanus immune globulin
 - (C) Order cerebrospinal fluid analysis
 - (D) Order an MRI of the brain and spine
 - (E) No intervention is necessary at this time
85. A 28-year-old woman who is known to be HIV-positive comes to the emergency department because of a 1-week history of increasing headaches, right-sided weakness, and disorientation. A generalized, tonic-clonic seizure occurs shortly after admission. 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

86. You are asked to evaluate a 78-year-old German American woman who is admitted to the hospital for replacement of her left knee joint due to degenerative joint disease. She is a retired seamstress. She has type 2 diabetes mellitus, a long history of hypertension, and chronic renal failure presumed secondary to diabetes mellitus and hypertension. Reversible causes of renal failure have been excluded. She underwent a tonsillectomy at age 9 years and a laparoscopic cholecystectomy at age 68 years. Serum creatinine concentration on admission was 6.0 mg/dL. Her current therapy includes a low-sodium, low-protein American Diabetes Association (ADA) diet, enalapril, and acetaminophen. She and her husband live on a farm 90 miles from the nearest dialysis facility. In considering long-term treatment options for this patient, which of the following is the most appropriate factor to consider?
- (A) Her eligibility to receive Medicare
 - (B) Her history of an abdominal operation
 - (C) Her history of arthritis
 - (D) Her suitability for home dialysis
 - (E) Her willingness to move to the city
87. A 42-year-old white man is brought to the emergency department by his same sex partner because of confusion, diplopia, and mild weakness of his right arm. The patient is somewhat agitated and shows confusion for recent events. Temperature is 38.3°C (101.0°F). There is decreased pupillary response on the left with paresis of lateral gaze on the right. Peripheral leukocyte count is increased. Which of the following is the most appropriate next step in evaluation of this patient's neurologic signs and symptoms?
- (A) Bilateral carotid arteriography
 - (B) CT scan of the head
 - (C) EEG
 - (D) Lumbar puncture for examination of cerebrospinal fluid
 - (E) Serum HIV antibody test
88. A 9-year-old boy is brought to the emergency department by his father because of lethargy. On physical examination, the boy is slightly lethargic and has deep respirations, which are 32/min. The father, who is a single parent, says, "He is always thirsty and he pees a lot." Results of laboratory studies are shown:

Serum	
Glucose	850 mg/dL
Na ⁺	132 mEq/L
K ⁺	4.1 mEq/L
Cl ⁻	92 mEq/L
HCO ₃ ⁻	6 mEq/L

After admitting the boy to the hospital, which of the following is the most appropriate therapy?

- (A) Administer normal saline and add potassium once urinary output is adequate
- (B) Correct the acidosis with oral bicarbonate solution
- (C) Correct the dehydration with hypotonic saline solution
- (D) Give phenobarbital to prevent hyponatremic seizures
- (E) Institute intermediate-acting insulin to correct hyperglycemia

Items 89–90

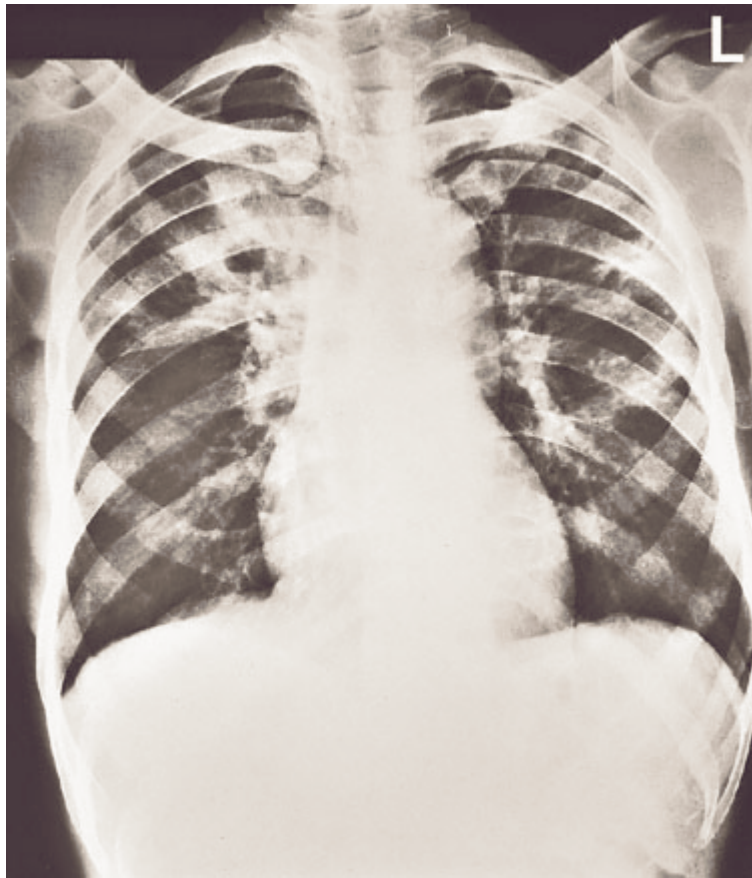
A 22-year-old African American woman, gravida 1, para 1, is evaluated in the maternity ward of the hospital 24 hours after giving birth to a 4267-g (9-lb 7-oz) male infant via uncomplicated vaginal delivery. Following delivery, she underwent repair of a fourth-degree perineal laceration. She is currently able to walk to the bathroom and void without difficulty, but she has not had a bowel movement since delivery. Medical history is otherwise unremarkable and her only medications are prenatal vitamins. Vital signs are temperature 37.2°C (99.0°F), pulse 68/min, respirations 18/min, and blood pressure 128/86 mm Hg. The uterus is palpable to the level of the umbilicus. The vaginal laceration is not inflamed or swollen. Sutures are intact and there is no drainage from the site. Lochia is normal. Hemoglobin concentration is 10.8 g/dL. The patient states 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, as she is breast-feeding and needs more help from the nurses. She also is concerned about her bowel function and wants to stay until she is sure it will be normal. She asks if you would extend her stay to 72 hours post partum if she is not ready to leave tomorrow.

89. 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."
90. Which of the following would be the most important indication for extending this patient's 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

91. A 68-year-old man is in the hospital because he requires mechanical ventilation for an exacerbation of chronic obstructive pulmonary disease. On the second day after admission he developed a pneumothorax on the right side that required tube thoracostomy. An air leak is noted for the next 24 hours, which now has stopped. However, the patient has become restless and combative. Breath sounds are diminished in the right side of the chest and the patient now has tachycardia. Blood pressure is 130/80 mm Hg. After ordering a STAT portable x-ray of the chest, which of the following is the most appropriate step?
- (A) Add 4 cm of positive end-expiratory pressure
 - (B) Administer β -blocking medications
 - (C) Administer alprazolam
 - (D) Remove the patient from the ventilator and ventilate him with a bag-valve mask
 - (E) Reposition the chest tube

92. A 35-year-old white man with spina bifida is admitted to the hospital for a urologic procedure. He has been functionally independent in activities of daily living and is employed doing inventory control in a local sporting goods store. He has maintained continence through periodic self-catheterization. The patient is paraplegic, has recurrent calcium oxalate kidney stones, and recent onset of incontinence secondary to detrusor and bladder neck dysfunction. Vital signs are normal. Physical examination shows a well-developed, well-nourished man in no acute distress. Aside from paraplegia, lower extremity muscle atrophy, and lower abdominal surgical scars, the physical examination discloses no abnormalities. He had an episode of anaphylaxis secondary to latex allergy during a previous operation for functional expansion of his bladder through a bowel anastomosis. Which of the following is most important to consider in the care of this patient?
- (A) Administration of injectable medications with disposable syringes
 - (B) Preparation of food by outside contractors
 - (C) Type of cleaning agents used to sterilize bed linens
 - (D) Use of rubber urethral catheters
 - (E) Use of topical moisturizing agents for skin care
93. A 16-year-old high school student, whose prenatal course you have managed, gave birth to a 3256-g (7-lb 3-oz) baby girl during the night with the assistance of your associate. On morning rounds you note that the delivery records report that she had mildly elevated blood pressure during labor and sustained an estimated third-stage blood loss of 500 mL. Today blood pressure is 132/84 mm Hg, she is afebrile, and deep tendon reflexes are normal. The uterine fundus is firm and at the level of the umbilicus, and her perineum is slightly edematous. Hematocrit is 33%. She is cuddling her infant and normal bonding seems to be occurring. Which of the following is the most important next step in management?
- (A) Begin oral ferrous sulfate
 - (B) Begin oral methyldopa
 - (C) Institute fundal massage
 - (D) Order daily sitz baths
 - (E) Provide education for well-baby care
94. Three weeks ago a 45-year-old man was admitted to the hospital because of frostbite of both feet. He was treated by rapid rewarming and protective care of the feet. All the toes on the right foot have turned black. He has become slightly febrile and progressively more confused over the past few days. Examination discloses cellulitis in the midfoot. Which of the following is the most appropriate treatment?
- (A) Amputation
 - (B) Application of topical collagenase
 - (C) Debridement of necrotic skin over the toes
 - (D) Hyperbaric oxygen
 - (E) Whirlpool therapy
95. A 50-year-old man comes to the emergency department because of a 2-hour history of vomiting "coffee-ground" material. He has lost 4.5 kg (10 lb) in the past 6 months. Dark blood is obtained on passing a nasogastric tube. Which of the following is the most important factor in determining this patient's long-term prognosis?
- (A) Amount and rate of blood loss
 - (B) Cause of the bleeding
 - (C) History of previous gastrointestinal bleeding
 - (D) Initial hematocrit measurement
 - (E) Initial response to a bolus of saline



96. A 70-year-old Vietnamese fisherman is brought to the emergency department by his son, who says that his father has had sweats occurring twice a night soaking his bedclothes, and a cough productive of yellow, foul-tasting fluid and blood-tinged sputum for the past 3 weeks. His appetite has been poor for 2 months and he has lost 12 kg (26 lb) during that time. Physical examination shows an emaciated man in acute distress; he is coughing frequently and deeply. Vital signs are temperature 37.8°C (100.0°F), pulse 98/min, and blood pressure 105/60 mm Hg. His respirations are shallow but not labored; loud rhonchi are heard on the right side of the chest. His liver and spleen are palpable and nontender. His inguinal nodes are matted but nontender. Chest x-ray is shown. Sputum smear discloses multiple neutrophils but normal flora. Appropriate diagnostic tests are completed to confirm the diagnosis. Which of the following is the most appropriate management at this time?
- (A) Antibiotic therapy
 - (B) Antifungal therapy
 - (C) Antimycobacterial therapy
 - (D) Referral for bronchoscopy
 - (E) Referral to a thoracic surgeon for right upper lobectomy

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

Block 2: Emergency Department and Inpatient Facilities

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

Block 3: Emergency Department and Inpatient Facilities

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