Content Specifications for the

Radiology Practitioner Assistant Examination

The Certification Board for the Radiology Practitioner Assistants (CBRPA) administers the national certifying examination for Radiology Practitioner Assistants (RPA). Certification requirements were initially established by radiologists serving with the U. S. military and have been modified by input from radiologists serving as preceptors for RPA students and by practicing RPA graduates. Several studies have been completed to analyze the RPA practice while determining the tasks and responsibilities to establish competency requirements and to up date the program curriculum.

The content specifications contain the cognitive knowledge and skills needed to effectively and efficiently perform the activities, evaluative tasks and clinical procedures expected of a competent RPA.

The table below contains the major content components and the number of questions in each component part. The examination contains 200 multiple choice questions with 20 % of the examination based upon actual cases and are presented with images. Candidates are allowed 3 1/2 hours to complete the examination.

Content Components	**Multiple Choice Questions**	**Case Studies**
Patient Education	6	
Patient Assessment and Management	25	
Professional Communication	10	
Pharmacology and Contrast	20	
Anatomy, Physiology, Pathophysiology and Image Evaluation	75 }	Nine (9) case studies are included
Medical Imaging Procedures	40 }	
Radiation Biology and Health Physics	8	
Fluoroscopic Equipment and Operation	8	
Medical Documentation and Records	4	
Medical-Legal Circumstances	4	

I Patient Education and Support (6)

A. Pre-procedure information and Instructions
B. Obtaining consent
C. Psycho-social support
    1. Support system
    2. Cultural cognizance
    3. Personal values
D. Post-Procedure Instructions

II Patient Assessment and Management (25)

A. Medical data review
    1. contraindications for procedure
    2. prior procedures
    3. medications
    4. physical assessment
    5. vital signs

B. Clinical history
    1. major complaint
    2. duration of complaint
    3. previous surgery or treatments
    4. family history
    5. personal/social history
    6. allergy history
    7. alternative medicines

C. Psychological Assessment
    1. cognitive response
    2. emotional stability
    3. speech and language skills
    4. drug/alcohol impairment

D. Physical Examination
    1. pain
    2. tenderness upon palpation
    3. edema
    4. inflammation
    5. contusions
    6. system review
    7. symptoms
        a. diarrhea
        b. constipation
        c . reflux
        d. dysuria
        e. cough
        f. breath sounds
        g. sputum color/viscosity
        h. heart rate/pulse
        i. temperature
        j. pallor
        k. mobility
        l. weakness
        m. pupil symmetry
        n. sensory evaluation

E. Laboratory Values
    1. RBC
    2. WBC
    3. hemtocrit
    4. electrolytes
    5. enzymes–amylase, lipase
    6. pancreatic enzymes
    7. calcium
    8. PT, PTT
    9. BUN, creatinine
    10. total bilirubin
    11. glucose
    12. albumin/protein
    13. tumor markers
    14. cytology/histopathology

F. Patient Management
    1. Pre-procedure care
    2. Intra-procedure care
    3. Post-procedure care
    4. Hemodynamic monitoring and cardiovascular pressures
    5. Intravenous therapy
    6. Oxygen therapy
    7. Drainage tubes/lines

8. Medical emergencies
    a. adverse reactions
    b. cardiac arrest
    c. seizure
    d. shock
    e. respiratory arrest
9. Procedure Complications
    a. bleeding
    b. infection
    c. pneumothorax
    d. stroke
    e. embolus
    f. aspiration
    g. vasovagel reaction
    h. perforation/rupture
    i. death

10. Conscious sedation discharge scoring system
    a. motor capabilities
    b. respiration rate
    c. blood pressure
    d. consciousness level
    e. pulse rate

III Professional Communication (10)

A. Technical report format
B. Imaging pathology descriptions
C. Appropriate terminology
D. Technical report content
E. Communicating image evaluation
F. Supervisory review

IV Pharmacology and Contrast (20)

A. Regulations
    1. FDA
    2. DEA

B. Identifying Names
    1. generic
    2. trade/brand

C. Dosage calculation
    1. ratio/proportion
    2. pediatric
    3. geriatric

D. Dosage
    1. maintenance
    2. therapeutic
    3. lethal dose

E. Administration routes

F. Local Anesthetics
    1. injection technique
    2. administration route
    3. long acting *vs.* short acting

G. Moderate Sedation
    1. Types of drugs
        a. diazepam (valium)
        b. midazolam (Versed)
        c. droperidol (Inapsine)
        d. hydroxyzine (Vistaril)
        e. diphenhydramine (Benedryl)
        f. morphine sulfate
        g. meperidine hydrochloride (Demerol)
        h. fentanyl citrate (Sublimaze)
        i. butorphanol tartrate (Stadol)
        j. nalbuphine hydrochloride (Nubain)
        k. ketorolac (Toradol)
        l. prednisone
        m. methylprednisolone (Solu-Medrol)

    2. Contraindications
        a. adverse actions
        b. side effects

H. Commonly Used Medications (includes indications and contraindications)
1. analgesics
2. antibiotics
3. anticoagulants
4. antiemetics
5. antiinflammatories
6. antiplatelet agents
7. vasoconstrictors
8. vasodilators
9. endocrine drugs

G. Contrast Media
1. pre-procedure assessment
   a. hydration
   b. renal status
   c. diseases of concern
   d. incompatible medications (glucophage, mucomyst)

2. Contrast media reaction
   a. classical signs
   b. edema
   c. anaphylactoid reaction
   d. vasovagal reaction

3. Resuscitation
   a. ACLS
   b. basic drugs
      -epinephrine
      -atropine
      -bronchodilator
      -IV fluids
      -lidocaine
      -nitroglycerine

V Anatomy, Physiology, Pathophysiology and Image Evaluation (includes gross and sectional anatomy, age-related changes, abnormalities and appearance on medical images) (75)

A. Anatomy
1. abdomen
2. chest
3. osseous
4. CNS
5. GI tract
6. GU systems
7. Face, mouth and jaws
8. endocrine system
9. vascular and lympathic systems

B. Physiology and Pathophysiology
1. cellular and tissue biology
2. genetic diseases
3. immune response
4. biology of cancer
5. neurologic functions
6. hormonal regulation
7. reproductive functions
8. hematologic functions
9. cardiovascular and lymphatic systems
10. renal and urologic
11. pulmonary system
12. digestive system
13. musculoskeletal

C. Image evaluation
1. Plain film radiography
2. Cross-sectional images
3. Radionuclide images
4. Sonographic images

VI Medical Imaging Procedures (40) (includes gross and sectional anatomy, age related changes, abnormalities and appearance on medical images)

A. Fluoroscopic Procedures
1. Upper GI
2. Esophagus
3. Pharyngeal procedure
4. Feeding tube placement

5. Small bowel series
6. Barium enema
7. Loopogram
8. Biliary procedures
9. Urinary tract procedures
10. Fluid drainages
11. Hysterosalpingogram

B. Needle/Catheter Placement Procedures

1. Lumbar puncture and myelograms
2. Joint arthrography and aspiration
3. Paracentesis
4. Thoracentesis
5. PICC line placement
6. Venous catheter placement for dialysis
7. Dialysis maintenance
8. Tunneled and non-tunneled venous central line placement
9. Needle localizations
10. Venography
11. Image guided biopsies
12. Primary assist in vascular and inter-ventional procedures
13. Pain management injections
14. Arterial catheter introduction/placement
15. Incision/suturing

VII Radiation Biology and Safety (8)

A. Radiation Safety Standards

1. Federal agencies
2. State agencies
3. ALARA principle

B. Minimizing exposure

1. intermittent fluoroscopy
2. technique factors
3. field size
4. filtration
5. shielding

C. Radiobiology

1. cellular radiosensitivity
2. RBE and LET
3. genetic effects
4. carcinogensis
5. dose-response relationships
6. embryo/fetal effects
7. tumor biology
8. dose fractionation
9. acute radiation syndrome

VIII Fluoroscopic Equipment and Operation (8)

A. Equipment components
B. Technical factors
C. Image recording
   1. ABC
   2. magnification
   3. contrast control
D. Image storage systems
E. Multifield image intensification
F. Dose monitoring
G. Equipment malfunctions

IX Medical Records (4)

A. Purpose of documentation
B. Common inadequacies in documentation

C. Technical report
1. examination findings
2. exceptions to established protocol
3. patient's concerns

4. information regarding patient care, the procedure and outcome
5. report to referring physician
6. discharge summary

D. Informed consent

X Medical Ethics and Law

A. Ethics (4)
1. patient rights
2. professional standards
3. code of ethics
4. advocacy for patients
5. public expectations

B. Legal Aspects
1. Agency relationship
2. Elements of negligence
3. Types of intentional torts
4. Legal doctrines
   a. borrowed servant
   b. reasonable man
   c. respondeat superior
   d. res ispa loquitur
   e. foreseeability
   f. personal liability