

The Arab League
Council of Arab Health Ministers
The Arab Board of Health Specializations
General Secretariat



جامعة الدول العربية
مجلس وزراء الصحة العرب
المجلس العربي للاختصاصات الصحية
الأمانة العامة

المجلس العلمي لعلم الامراض Scientific Council of Pathology

دليل اختصاص علم الامراض التشريحي Guidebook of Anatomic Pathology

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**ARAB BOARD OF HEALTH SPECIALIZATIONS
SCIENTIFIC COUNCIL OF PATHOLOGY**

INTRODUCTION

Pathologists are an integral component of the health care system specializing in the diagnosis and management of disease by laboratory methods. They function as diagnosticians, consultant physicians, teachers, and investigators in clinical and research studies. Pathologists integrate clinical information, scientific knowledge, and understanding of disease models with a wide spectrum of diagnostic modalities.

The Arab Board of Health Specialization Scientific Council of Pathology recognizes the crucial role of pathologists in patient care and scientific advancement. The Board aims to set unified standards of excellence across the Arab world. The Specialty Boards in Anatomic Pathology and Laboratory Medicine represent one component of this goal. Assuring excellent training of pathology residents in certified laboratories and hospital facilities are equally important components of this process.

ARAB BOARD IN ANATOMIC PATHOLOGY

A. CERTIFICATION

Candidates passing the final board examinations in pathology are awarded the specialty certificate: **Arab Board of Health Specializations in Anatomic Pathology (ABHS-APath)**

B. GENERAL OBJECTIVES

1. Graduate medical education programs in anatomic pathology must provide an organized educational experience for qualified physicians seeking to acquire competence as a practicing pathologist. The program must be structured according to international standards of postgraduate training in pathology.
2. Programs must offer residents the opportunity to acquire a comprehensive understanding of anatomic pathology, especially the consultative role of the pathologist in patient-care.

C. SPECIFIC OBJECTIVES

Upon the completion of training, the resident should have demonstrated competencies in the six areas listed below. Toward this end, each program must define the specific knowledge, skills, and attitudes that are required and provide educational experiences as needed to develop these competencies. The program must create and reinforce the concept of life-long learning.

1. PATIENT CARE

Residents must demonstrate a satisfactory level of diagnostic competence and the ability to provide appropriate and effective consultation in the context of pathology services:

- Develop excellent diagnostic acumen for the commonly seen pathological changes in the surgical pathology lesions and their clinical relevance.
- Accurately diagnose changes and lesions on the cytology examination and have a working knowledge of fine needle aspiration cytology.
- Understand the role of ancillary studies in the work up of a diagnosis.
- Demonstrate competency at performing and interpreting autopsy findings.

2. MEDICAL KNOWLEDGE (Medical Expert/Clinical Decision-Maker)

Residents must demonstrate knowledge about established and evolving medical sciences and the application of this knowledge to pathology.

- Demonstrate basic knowledge of normal anatomy, physiology and biochemistry.
- Understand the basic principles of cell biology, immunology and pathogenesis, and the changes that occur in disease states.

- Demonstrate understanding of the general principles of embryologic development and the common variations of normal.
- Understand the principles of tissue processing and the use of different fixatives in the laboratory.
- Demonstrate a superior and detailed knowledge of the normal gross and light microscopic appearance of tissues.
- Demonstrate an in-depth knowledge of the appropriate dissection and sampling of surgical specimens.
- Demonstrate a detailed in-depth knowledge of the microscopic appearances of diseased tissues.
- Demonstrate understanding of the cytologic appearance of normal cells, whether obtained from serosal or mucosal surfaces or by fine needle aspiration biopsy of solid organs.
- Understand the principles of cytologic diagnosis of exfoliated and aspirated cells, and be able to diagnose the common malignancies and inflammatory conditions.
- Know the main cytology preparatory techniques/procedures relating to processing and staining gynecologic and non-gynecologic specimens.
- Understand the principles of routine and immunocytochemical stains.
- Understand the principles of nucleic acid-based molecular biology techniques and be familiar with their application to diagnosis in anatomical pathology.
- Demonstrate knowledge of the principles and applications of fluorescent microscopy and ultrastructural pathology.
- Demonstrate ability to take satisfactory gross and microscopic photographs of tissues.

3. PRACTICE-BASED LEARNING AND IMPROVEMENT (Collaborator)

Residents must be able to demonstrate the ability to investigate and evaluate their diagnostic and consultative practices, appraise and assimilate scientific evidence and improve their patient care practices.

- Contribute effectively to other interdisciplinary team activities.
- Must have experience in clinical medicine and surgery sufficient to achieve a sound understanding of the effects of disease and the role of pathology in its management.
- Demonstrate the ability to advise on the appropriateness of obtaining histologic and cytologic specimens and following examination of these, to advise on further appropriate investigations.

4. INTERPERSONAL AND COMMUNICATION SKILLS (Communicator)

Residents must be able to demonstrate interpersonal and communication skills that result in effective information exchange and teaming with other health care providers, patients, and patients' families.

- Establish effective relationships with colleagues and staff.
- Listen effectively.
- Assist in the continuing education of physicians and other staff.
- Understand and be able to communicate the pathology information effectively in an oral and written form.

5. PROFESSIONALISM

Residents must demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.

- Exhibit appropriate personal and interpersonal professional behaviors.
- Demonstrate a professional attitude to colleagues, as well as to other laboratory staff.
- Have an appreciation of the crucial role of the anatomical pathologist in providing quality patient care. This will include knowledge of individual professional limitations and the necessity of seeking appropriate second opinions.
- Demonstrate adherence to good clinical practice and medical ethics.

6. SYSTEMS-BASED PRACTICE (Manager)

Residents must demonstrate an awareness and responsiveness to the larger context and system of health care and the ability to call on system resources to provide pathology services that are of optimal value

- Demonstrate knowledge of the principles of laboratory management and administration.
- Demonstrate knowledge of the methods of quality control in the laboratory.
- Demonstrate knowledge of the methods for professional quality assurance as applied to anatomical pathology.
- Demonstrate competence in basic computer skills with emphasis on automated electronic reporting, electronic communication and search strategies.

D. ADMISSION TO THE ARAB BOARD OF PATHOLOGY

1. The Candidate must hold an MD OR equivalent degree from an accredited medical school
2. The candidate shall have successfully completed training in an accredited program in Anatomic Pathology
3. The application form of the candidate should be endorsed by the Program Director and an Arab Board representative in the Pathology Scientific council.
4. The candidate shall have a good command of the Arabic and English languages.
5. The candidate shall pay the required registration fees.
6. The candidate shall comply with the requirements of the Arab Board Of Pathology.

E. ACCREDITATION OF TRAINING PROGRAMS

➤ **Requirements:**

1. The program should be recognized by local authorities for training purposes.
2. All regulations of the Arab Board regarding applying for accreditation should be met.
3. The training program should possess sufficient volume and quality, and cover all varieties of pathology specimens including Neuropathology, Dermatopathology, and Paediatric Pathology material. The material must form an adequate mix of cases to ensure exposure to common/uncommon and malignant/ non malignant conditions.
4. The program applying for accreditation can be in one hospital / location or group of affiliated departments of pathology to fulfill the required case mix and volume.
5. The program should provide regular frozen section services.
6. The program should be utilizing an acceptable range of immunohistochemical markers and special staining techniques.
7. The minimum limit to accredit the training program is the availability of 3000 histological and 1500 cytological specimens every year. This volume of work would allow the admission of one trainee every training year to ensure exposing the trainee to a sufficient number and diversity of cases.
8. If the work volume exceeded the above-mentioned limit, the number of trainees will be calculated as follows:
 - Three residents for every 2500 histological specimens per year.
 - One resident for every 350 cytological specimens.
Provided that the trainee should have participated in producing the results of at least 3000 histological and 1000 cytological specimens by the end of the fourth training year, and provided that this participation is comprehensive and includes the required diversity of histological specimens as explained in the scientific and practice record. The cytological specimens should also include Cervical smears, fine needle aspiration specimens, and specimens of various body fluids.
 - The total absorption capacity should be distributed as equally as possible among the four training years.
9. Programs should have at least 2 full time consultants, who are holders of recognized qualifications in their specialties with minimum experience of 5 years working as independent pathologist.
10. The number of trainees should not compromise the quality of training.
11. The program must ensure adequate resources (e.g., sufficient laboratory space and equipment, classrooms, meeting rooms, computer, internet and statistical consultation services).
12. There must be access to an on-site library or to a collection of appropriate texts and journals.
13. The audiovisual resources available for educational purposes should be adequate to meet the goals and objectives of the program.

➤ **Structure of the Training Program**

1. Duration of the program

- a. The duration of the training program is 4 years.
- b. The candidate should pass all required evaluation processes in all 4 years at his/her registered/accredited program.
- c. Candidates can spend up to 12 months of their training at other accredited programs inside or outside their countries or in other recognized international pathology centres.

2. General outline of basic rotations

FIRST YEAR

Surgical pathology
Cytopathology
Autopsy

SECOND YEAR

Surgical pathology including Haematopathology
Cytopathology
Autopsy

THIRD YEAR

Surgical pathology including Haematopathology
Cytopathology
Autopsy
Research
Electives 3 months

FOURTH YEAR

Surgical pathology including Haematopathology
Cytopathology
Research
Autopsy
Electives 3 months

The elective periods can be spent in other laboratory disciplines (Haematology, Chemistry, Microbiology, Immunology, Blood Banking and Transfusion Medicine, Molecular Pathology and Genetics), clinical specialities, research projects, or further surgical pathology subspecialization.

➤ **Training Methods**

The following training methods should be utilized to achieve the objectives and requirements of the training program:

- 1. Daily case review (microscopic pathology reporting):**
Residents and faculty members study all the microscopic slides on surgical specimens, discuss the findings, correlate these findings with clinical and other laboratory findings and issue reports on them thereafter.
- 2. Daily macroscopic surgical pathology reporting:**
Residents perform the gross macroscopic examination and processing of surgical specimens including measurement, weights, description and sampling for microscopic examination.
- 3. Daily/regular departmental meetings:**
Faculty and trainees participate together in detailed discussions of difficult and unusual cases to reach consensus diagnoses.
- 4. Case presentation seminars (slide seminars):**
Residents and staff members meet to discuss cases of special interest. The seminars may be held in collaboration with other departments - internal medicine, pediatrics, surgery or obstetrics and gynecology or others - to discuss interesting cases or mortality and morbidity conferences.
- 5. Current Topic Seminars:**
Residents are required to present a talk on selected topics suggested by the staff members. Topics are chosen to cover recent advances in pathology which require a comprehensive review of the most recent literature on the topic. Each resident is required to present a minimum of four talks per year.
- 6. Journal club:**
Residents are required to present reviews of one article or more published in indexed journals dealing with research issues in pathology or related medical sciences.
- 7. Didactic lectures and presentations by the consultants:**
Consultants should participate in giving talks regarding different systems and proper approaches to interpret biopsies and resection specimens.
- 8. Post-mortem examination (autopsies):**
Residents are required to review the history, clinical and pathological diagnosis, treatment and complications, eviscerate and dissect the organs, take samples for microscopic examination, and correlate clinical and pathological findings.
- 9. Subspecialty slide review:**
Residents and faculty member review previously reported slides which are chosen to cover all systems of the body.

10. Clinico-pathologic conferences (Multidisciplinary Team meetings):

This activity is to be carried out on regular basis in collaboration with other clinical departments. A senior resident is required to present the pathologic findings which will be discussed with other clinical findings by the house staff.

11. Research project:

Residents are required to cosponsor a research project with other staff member or co-author a scientific paper in compliance with the Arab Board regulations.

12. Courses:

Residents are encouraged to take specialized courses such as Clinical Research Methods, communication skills courses, etc...

F. FORMAT OF EXAM

a. General information:

The Exams consist of two parts, I & II. The official language of the exams is English.

Part I exam:

1. The Council shall determine the Exam dates and venues based on the number of applicants and the location of their training centers.
2. A trainee is eligible to sit for Part I Exam after completing nine (9) months of training in an accredited program.
3. The application to sit for the exam should have the Scientific Council approved *Competency Assessment Form* filled and submitted as well.
4. The exam is conducted through the electronic platform in the centers designated and approved by the member countries at the same date and time announced by the Scientific Council.
5. Failure to sit for the exam within a period of two years from the start of the accredited training leads to cancelation of the application record automatically.
6. Part I Exam is offered twice per year.
7. A trainee is eligible to sit for Part I Exam for four (4) times. The attempts are counted from the date of the first attempt of taking the exam after completion of (9) months of training in an accredited program approved by the Arab Board, or from the date of the first attempt after the approval of part of the training.
8. It is possible to accept, and for one time only, a request to delay sitting for an exam, if the applicant submits a valid reason at least 15 days prior to the exam date. This will not be counted as an attempt.
9. The Part I exam is graded over 100 and the passing grade is 60%

Part II exam:

1. A trainee is eligible to sit for the Part II Exam after completing 4 years of training in an accredited program and after passing successfully Part I Exam or being exempted from it and presenting a document confirming successful completion of the accredited training and specialty requirements, and final evaluations as per the Training and Programs Committee with submission of a scientific and practical portfolio (logbook).
2. Part II exam is composed of two parts: Written and Practical. The applicant will sit for both exam parts without the prerequisite to pass the *Written* part. Grading will be as follows:
 - Final *Written* exam weight is 40%
 - Final *Practical* exam weight is 60%
 - The total passing score for Part II exam is 60%
 - The passing score in each of the *Written* and *Practical* exam parts is 50%.
 - If the applicant scores less than 60% as a total for Part II exam or less than 50% in any of the *Written* or *Practical* exams, he or she will have to take both *Written* and *Practical* exams again.
3. Part II exam is held once per year in October-November with the possibility of an additional exceptional session during the same if requested by the Scientific Council Chairman.
4. The exam is conducted through the electronic platform in the centers designated and approved by the member countries at the same date and time announced by the Scientific Council.
5. Failure to sit for the exam within a period of two years from the completion of the accredited training leads to cancelation of the application record automatically.
6. A trainee is eligible to sit for the Part II Exam for four (4) times counted from the date of the first attempt of taking the exam after completion of the accredited training.
7. A trainee who has been exempted from Part I and approved for the required years of training is eligible to sit for the Part II Exam for four (4) times counted from the date of the first attempt after approval of the exemption.
8. It is possible to accept, and for one time only, a request to delay sitting for an exam, if the applicant submits a valid reason at least 15 days prior to the exam date. This will not be counted as an attempt.
9. If the 4 allowed attempts to sit for the exam have been utilized, the trainee may be granted two additional attempts within two years after repeating the last training year in the accredited program approved by the Arab Board.
10. A trainee is granted the Arab Board certification in Anatomic Pathology after passing the Part II exam.

b. Part I Exam

The exam will be prepared by the examination committee of the Council and it is a multiple choice exam (MCQs).

c. Part II Exam

Is prepared by the examination committee of the Council and it is a multiple choice exam. It consists of two components:

1. Theory competent: it covers all aspects of training, technical, quality management, clinicopathological correlations, and tests for knowledge of general and organ system pathology. Questions may include gross, histopathological, cytological and ultrastructural images and charts.
2. Practical component: it utilizes virtual microscopy technology of selected cases that cover a wide range of organ system pathology including surgical, cytology and frozen section specimens.

d. Areas covered by the exams

PART I examines topics which residents are expected to know early in the anatomic pathology education track; PART II covers material that is typically covered at a more advanced level of training in the residency program.

Part I: Includes but not limited to:

- Common surgical pathology case materials including most inflammatory lesions, dating of endometrium, cervical dysplasia and colonic polyps.
- Begin to master more complicated specimens such as breast carcinomas, prostate carcinomas and lymph node biopsies.
- Common special stains, including Masson trichrome, reticulin, mucin, Grimelius, periodic acid Schiff, and iron stains.

Part II: Includes but not limited to:

- Analyze findings in difficult cases to produce a differential diagnosis for neoplastic and non-neoplastic conditions.
- Skill with more difficult specimens including unusual variants of cystic breast disease and their differentiation from carcinomas, morphological hallmarks of various forms of inflammatory bowel disease, common forms of bone lesions, ovarian tumors, sarcomas, and the ability to begin to categorize lymphomas and lymphoproliferative disorders.
- Discuss diagnostic workup of renal biopsy cases.
- Review immunofluorescence studies and understand their significance for diagnosis in renal, skin and blood vessels biopsies.
- Examine thick sections to select appropriate blocks for thin sectioning for electron microscopy of renal biopsy cases.

Appendix I

OBJECTIVES AND EXPECTATIONS OF TRAINING IN ANATOMIC PATHOLOGY

Basic Learning Objectives

1. Gain knowledge and technical skills to recognize, interpret, and explain pathologic processes in the clinical practice of anatomic pathology
2. Effectively communicate pathologic findings to colleagues and provide consultative information regarding patient management
3. Effectively direct and manage the pathology laboratory in all regards

Basic Programmatic Expectations of Residents

1. Develop an understanding of basic pathologic processes
2. Acquire skills needed to interpret laboratory data and make clinicopathologic correlations
3. Communicate effectively and share expertise with peers and colleagues
4. Develop investigative skills to better understand pathologic processes as they apply to both individual patients and the general patient population
5. Acquire knowledge and experience in laboratory direction and management
6. Assume leadership roles in education of other physicians and allied health professionals

Specific Skills that Apply to All Areas of Anatomic Pathology

1. Ability to obtain pertinent information from the patient's clinical record
2. Demonstrate knowledge of information that is necessary to provide adequate clinical history on submission forms for anatomic pathology specimens.
3. Demonstrate knowledge of the general principles and terminology for processing anatomic pathology specimens, including patient identification, gross examination, and dissection.
4. Ability to dissect tissues in such a way as to preserve important pathologic findings, & fix them so they may be used for clinicopathologic correlation as well as teaching.
5. Ability to select correct pieces of tissue for sectioning and preservation, and maintenance and identification of tissue orientation during processing.
6. Ability to list common stains used for microscopic sections, as well as their indications and the expected results for various tissue types.
7. Ability to enumerate the elements of a satisfactory histologic sections and stains, and identify the possible reasons for unsatisfactory preparations.
8. Ability to select correct fixatives for special histologic preparations
9. Demonstrate knowledge of the specimens that commonly require special handling (flow cytometry, microbiological cultures, recovery of crystals, electron microscopy, immunohistology, etc.).
10. Ability to select an appropriate piece of tissue for frozen section, and to cut and stain the section satisfactorily.
11. Ability to collect and preserve appropriate tissues and fluids for immunofluorescence and flow cytometric studies.
12. Ability to select and submit tissue appropriately for electron microscopy.

13. Ability to take suitable gross and microscopic photographs using both film-based and digital cameras.
14. Proficiency in performing special hematological studies, including touch preparations, cytopins, and blood smears.
15. Proficiency in initiating routine microbiological studies, including appropriate cultures, smears, stains, and involving knowledge of methods of collection and preservation, if needed.
16. Demonstrate familiarity with the detailed organization, equipment, and techniques of the histology laboratory, including tissue processing, tissue embedding, preparation and staining of glass slides, information that histotechnologists must have to process tissue properly, and orientation of specimens.
17. Ability to present cases at conferences with clarity, completeness, and high quality illustrations, and to reach reasonable interpretative conclusions.
18. Demonstrate knowledge of precautions to be taken against infections and other hazards in the handling of fresh tissue during intraoperative consultations.
19. Demonstrate knowledge of the appropriate storage and disposal of tissues and fixatives, and the proper "banking" of human tissues.
20. Demonstrate knowledge of the common pathogens that can be transmitted to laboratory personnel in pathology, as well as basic safety precautions to be taken in the anatomic pathology laboratory, including universal precautions for infectious agents and the role of the pathologist in institutional infection control.
21. Know current regulations emanating from the health insurance, governmental regulations, and hospital policies regarding protection of patient confidentiality; demonstrate knowledge of how such rules impact the pathology laboratory, and means for their implementation in the handling of human tissues for diagnostic work and research.

SKILL EXPECTED PER LEVEL OF TRAINING

PART ONE (YEAR 1)

SKILLS

The trainee should be able to:

1. Process surgical specimens and be involved in staining methods.
2. Perform surgical cut up of simple cases and larger resections according to approved guidelines under supervision.
3. Set up the microscope correctly.
4. Learn basics in cytology.
5. Attend frozen sections.
6. Initiate reports on simple routine cases.
7. Learn the importance of ancillary tests.
8. Aware of different resource materials and how to use them.
9. Start basic preparation for part I exam.

KNOWLEDGE

The trainee must:

1. Recognize Normal anatomy, histology, and cell biology.
2. Understand the Basis of tissue and cell fixation, processing, and staining.
3. Understand Pathological basis of diseases.
4. Identify Common pathological changes.
5. Understand pathological changes at cellular level.
6. Know the Basis of ancillary techniques including immunohistochemistry and molecular diagnostics.
7. Understand the principles of different microscopy types.

ATTITUDE

1. Appreciate the importance of specimen handling and block selection
2. Seek advice and help when it is appropriate.
3. Appreciate the role of pathologists as an integral part of clinical decision making.
4. Realize the importance of turn around time in reporting.
5. Positive attitude toward team working environment.
6. Acquire Familiarity with laboratory quality, health and safety regulations.
7. Adherence to basic principles of patient confidentiality and medical ethics.

PART TWO (YEARS 2,3,4)

SKILLS

The trainee should be able to:

1. Do cut up independently on incisional biopsies and resected (large) specimens with gradual decrease the level of supervision.
2. Write microscopy reports of the grossed sections and sign out with the supervising reporting pathologist.
3. Select and interpret special procedures such as special stains, and immunohistochemistry in the appropriate context.
4. Report on daily cytology (Gyn, non Gyn, FNAC) specimens with the supervising pathologist, including performing the procedure of fine needle aspiration (FNA).
5. Prepare specimens for frozen section and interpret them with the consultant.
6. Consolidate knowledge on molecular pathology, cytogenetics, and flowcytometry.
7. Prepare for and attend Multidisciplinary Team (MDT) meetings and histopathology /cytopathology conferences
8. Involve in research in conjunction with the pathologists and publish work or case reports, etc.
9. Involve in the quality control process in the department.
10. Participate in discussion of matters related to management of the department.
11. Participate in the education of medical students and other trainees.
12. Seek second opinions from colleagues and show around cases.
13. Use basic standard of practice in the techniques used for identifying morphological abnormalities at autopsy examination.
14. Prepare for Part II exam

KNOWLEDGE

The trainee must:

1. Understand principles of dissection of all major cancer resection specimens and tissue sampling to enable completion of standardized synoptic reporting.
2. Possess sufficient general clinical knowledge including major changes in trends of diagnosis and treatment.
3. Have sufficient clinical and pathology knowledge to enable integration of clinical data and pathological features.
4. Understand the principles, application and interpretation of special histochemical, immunohistochemical and common molecular methods.
5. Apply Rationale, methodology and organisation of screening programs.
6. Identify the features that determine the adequacy of cytological samples.
7. Recognize features of infections and microorganisms in cytological and histopathological preparations.
8. Identify microscopic features of different systemic pathology entities and their pitfalls and differential diagnosis.
9. Understand the principles of performing research studies.
10. Understand the basic principles of laboratory management, quality assurance and safety issues.
11. Understand the role of integration of different ancillary techniques in diagnosing hematological malignancies.
12. Acquire wide knowledge of the pathological basis of disease and the macroscopic/microscopic pathology of various types of death.

ATTITUDE

1. Understand the importance of continuing professional development.
2. Understand the importance of integration of clinical and pathological data for accurate diagnosis.
3. Understand importance of ensuring that request form and specimen identification is accurate and the requirement to identify and resolve any error or discordance.
4. Demonstrate an understanding of the importance of surgical pathology to clinicians and patients (e.g. Timeliness and accuracy of reporting)
5. Understand cost-benefit issues when considering the use of additional techniques.
6. Appreciate the available molecular technologies and how it can contribute to patient care and could do in the future.
7. Demonstrate positive attitude toward team working environment.
8. Acquire familiarity with laboratory quality, health and safety regulations.
9. Adhere to basic principles of patient confidentiality and medical ethics.
10. Develop proper ways to communicate with other members of the pathology department, other departments and clinical teams.
11. Show motivation to learn about common disease processes through the autopsy.

Appendix II

COMPETENCIES IN PATHOLOGY; Necessary Evaluation of Resident Applicant to Board exam:

Residents must be evaluated for competencies in the six areas below to the level expected of a new practitioner

The Resident should be graded on a scale of 1 3 5 7 9

1-3 Unsatisfactory; 5 Satisfactory; 7 good; 9 Superior

Only residents with grades of 5 or greater on each of the 6 competencies below (competencies defined above) will be eligible to take the Board exam.

1. PATIENT CARE

Residents must demonstrate a satisfactory level of diagnostic competence and the ability to provide appropriate and effective consultation in the context of pathology services.

2. MEDICAL KNOWLEDGE

Residents must demonstrate knowledge about established and evolving medical sciences and the application of this knowledge to pathology

3. PRACTICE-BASED LEARNING and IMPROVEMENT

Residents must be able to demonstrate the ability to investigate and evaluate their diagnostic and consultative practices, appraise and assimilate scientific evidence and improve their patient care practices.

4. INTERPERSONAL AND COMMUNICATION SKILLS

Residents must be able to demonstrate interpersonal and communication skills that result in effective information exchange and teaming with other health care providers, patients, and patients' families.

5. PROFESSIONALISM

Residents must demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.

6. SYSTEMS-BASED PRACTICE

Residents must demonstrate an awareness and responsiveness to the larger context and system of health care and the ability to call on system resources to provide pathology services that are of optimal value.

ASSESSMENT OF COMPETENCIES IN AP

In addition, each resident should be assessed **for each of the following 9 categories** as:

**Novice,
Advanced beginner,
Competent,
Proficient,
Expert**

Only applicants with an assessment of competent or above would be eligible to take the board exam:

1. BASIC PRINCIPLES:

- Knowledge of accreditation standards/requirements for specimen submission
- Knowledge of accreditation standards regarding occupational hazards/infection control
- Tissue fixation (including commonly used special fixatives)
- Tissue processing
- Embedding, orientation
- Section preparation, levels, etc.
- Use of special stains, immunohistology, electron microscopy (EM), cytogenetics, etc.
- Storage/disposal of specimens and hazardous chemicals
- Basic computer skills in anatomic pathology

2. GROSS EXAMINATION:

- Specimen identification
- Anatomically correct dissection
- Accurate dictated description
- Specimen photography (where appropriate)
- Taking appropriate blocks for microscopic exam
- Proper examination of margins (where appropriate)
- Special handling of common specimens (e.g. culture, EM, cytogenetics, bone marrows)

3. MICROSCOPIC EXAMINATION:

Basic

- Accurate morphologic description
- Reasonable diagnosis/differential diagnosis
- Basic elements of information required in all reports
- Preparation of written report
- Prepared/organized for signout with senior
- Correlation with frozen section findings

More advanced

- Formulate an accurate diagnosis or recognize need for consultation
- Selection of special histochemical stains (where appropriate)
- Interpretation of immunostains (and associated artifacts)
- Knowledge/use of grading systems
- Use of synoptic reports (as appropriate)
- Amended/addendum reports
- Proper handling of consultation cases
- Photomicroscopy

4. INTRAOPERATIVE FROZEN SECTIONS/SMEARS:

Basic

- Role of intraoperative diagnosis; appropriate indications
- Tissue sampling for intraoperative diagnosis
- Cut/stain frozen section (within 20 minutes)
- Precautions for handling fresh tissue or other specimens for intraoperative diagnosis

More advanced

- Preparation/staining of smears
- Interpretation of frozen sections/smears
- Understanding limitations of intraoperative diagnosis
- Communication/dialogue with treating physician

5. AUTOPSY:

- Role of autopsy and indications for autopsy
- Understanding of autopsy permission and assignment of medicolegal status
- Adequately perform an autopsy (within 4 hours)
- Distinguish natural from unnatural death

6. CYTOPATHOLOGY:

(Competency objectives modified with permission from those of the American Society of Cytopathology Taskforce on Residency Training in Cytopathology)

- Demonstrate knowledge of the interpretation of cytopathology specimens from the various commonly sampled body sites, by examining cases prior to signout and being prepared appropriately to communicate diagnostic opinions, differential diagnoses, and/or follow-up recommendations
- Demonstrate capability in the performance of superficial FNA biopsies in a clinical setting, with appropriate patient care and diagnostic outcomes
- Demonstrate ability to assist at the performance of deep FNA biopsies in settings such as radiology and endoscopy, with appropriate determination of specimen adequacy and the need for ancillary techniques, and collection of supplementary diagnostic materials for such techniques
- Demonstrate knowledge of continuous quality assurance and regulatory compliance methodologies as they apply to the cytopathology laboratory, for example, the Clinical Laboratory Improvement Amendments of 1988

7. MOLECULAR DIAGNOSTICS/CYTOGENETICS:

- Role of these techniques in the diagnosis of neoplastic disease, particularly hematolymphoid disorders
- Role of these techniques in diagnosis of infectious disease
- Role of these techniques in diagnosis of more frequent heritable disorders
- Understand the principles and limitations of PCR, RT-PCR, FISH, Southern blot analysis and karyotyping
- Understand critical issues of quality control in using these techniques

8. LABORATORY MANAGEMENT:

- Diagnostic coding/billing procedures
- Basic governmental laws (including compliance) that are applicable to pathology
- Basic understanding of accreditation standards for laboratory certification
- Cost-effective practice of pathology
- Principles of quality assurance/improvement
- Understanding of basic risk management issues

9. GENERAL SKILLS:

- Use of appropriate phraseology in reports
- Appropriate communication with clinicians (or patients/family as appropriate)
- Timeliness/turnaround time/indications to rush cases
- Resolution of diagnostic disagreement
- Seeking internal/external consultation
- Training more junior residents
- Ability to make an independent case presentation