



**Standards and Guidelines
for the Accreditation of Educational Programs in
Cytology**

Essentials/Standards initially adopted in 1962; revised in 1967, 1977, 1983, 1992, 1998, 2004, 2013, 2023; and effective 1/1/2025

**Developed by
Cytology Programs Review Committee (CPRC)**

**Endorsed by
American Society for Clinical Pathology
American Society for Cytology
American Society of Cytopathology**

and

**Approved by the
Commission on Accreditation of Allied Health Education Programs**

The Commission on Accreditation of Allied Health Education Programs (CAAHEP) accredits programs upon the recommendation of the Cytology Programs Review Committee (CPRC).

These accreditation **Standards** are the minimum standards of quality used in accrediting programs that prepare individuals to enter the Cytology profession. Standards are the minimum requirements to which an accredited program is held accountable. Guidelines are descriptions, examples, or recommendations that elaborate on the Standards. Guidelines are not required but can assist with interpretation of the Standards.

Standards are printed in regular typeface in outline form. *Guidelines are printed in italic typeface.*

Preamble

The Commission on Accreditation of Allied Health Education Programs (CAAHEP), Cytology Programs Review Committee (CPRC), and the American Society for Clinical Pathology, the American Society for Cytology, the American Society of Cytopathology, and the College of American Pathologists cooperate to establish, maintain, and promote appropriate standards of quality for educational programs in cytology and to provide recognition for educational programs that meet or exceed the minimum standards outlined in these accreditation **Standards and Guidelines for the Accreditation of Educational Programs**. CAAHEP encourages innovation and quality education programs throughout the CAAHEP accreditation process, consistent with the CAAHEP policy on institutional autonomy. These **Standards and Guidelines** are designed to ensure the integrity of the CAAHEP accreditation process. Directories of accredited programs are published for the information of students, employers, educational institutions and organizations, credentialing bodies, and the public.

These **Standards and Guidelines** are to be used for the development, evaluation, and self-analysis of cytology programs. Site visit teams assist in the evaluation of a program's compliance with the accreditation standards.

Description of the Profession

Cytology (formerly referred to as cytotechnology) is a health care profession within pathology and laboratory medicine providing advanced diagnostic services and physician support, integrating morphologic interpretations with companion technologies to provide safe and effective patient care.

The cytologist (formerly referred to as cytotechnologist) is a highly trained health professional who uses morphologic skills, understanding neoplasia, and ability to synthesize clinical and laboratory data to assist pathologists and clinicians in providing high-quality diagnostic services.

I. Sponsorship

A. Program Sponsor

A program sponsor must be at least one of the following

1. A post-secondary academic institution accredited by an institutional accrediting agency that is recognized by the U.S. Department of Education and must be authorized under applicable law or other acceptable authority to provide a post-secondary program, which awards a minimum of a master's degree at the completion of the program.
2. A branch of the United States Armed Forces, or a federal or state governmental agency, which awards a minimum of a master's degree at the completion of the program.
3. A consortium, which is a group made up of two or more education providers, that operate an educational program through a written agreement that outlines the expectations and responsibilities of each of the partners. At least one of the consortium partners must meet the requirements of a program sponsor set forth in I.A.1.- I.A.2.

Consortium does not refer to clinical affiliation agreements with the program sponsor.

B. Responsibilities of Program Sponsor

The program sponsor must

1. Ensure that the program meets the Standards; and
2. Have a preparedness plan in place that assures continuity of education services in the event of an unanticipated interruption.

Examples of unanticipated interruptions may include unexpected departure of key personnel, natural disaster, public health crisis, fire, flood, power failure, failure of information technology services, or other events that may lead to inaccessibility of educational services.

II. Program Goals

A. Program Goals and Minimum Expectations

The program must have the following minimum expectations statement: "To prepare cytologists who are competent in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains to enter the profession."

Programs that adopt educational goals beyond the minimum expectations statement must provide evidence that all students have achieved those goals prior to entry into the field.

Program goals must be compatible with the mission of the sponsoring institution(s), the expectations of the communities of interest, and accepted standards of roles and functions of a cytologist. Goals are based upon the substantiated needs of health care providers and employers, and the educational needs of the students served by the educational program. Program goals must be written referencing one or more of the learning domains.

The program must assess its goals at least annually and respond to changes in the needs and expectations of its communities of interest.

B. Program Advisory Committee

The program advisory committee must include at least one representative of each community of interest and must meet annually. Communities of interest served by the program include, but are not limited to, students, graduates, faculty members, sponsor administrators, employers, physicians, and the public.

The program advisory committee advises the program regarding revisions to curriculum and program goals based on the changing needs and expectations of the program's communities of interest, and an assessment of program effectiveness, including the outcomes specified in these Standards.

Program advisory committee meetings may be conducted using synchronous electronic means.

III. Resources

A. Type and Amount

Program resources must be sufficient to ensure the achievement of the program's goals and outcomes. Resources must include, but are not limited to

1. Faculty;
2. Administrative and support staff;
3. Curriculum;
4. Finances;
5. Faculty and staff workspace;
6. Space for confidential interactions;
7. Classroom and laboratory (physical or virtual);
8. Ancillary student facilities;
9. Clinical affiliates;
10. Equipment;
11. Supplies;
12. Information technology;
13. Instructional materials; and
14. Support for faculty professional development.

B. Personnel

The sponsor must appoint sufficient faculty and staff with the necessary qualifications to perform the functions identified in documented job descriptions and to achieve the program's stated goals and outcomes.

At a minimum, the following positions are required.

1. Program Director

a. Responsibilities

The program director must be responsible for all aspects of the program, including but not limited to

- 1) Administration, organization, and supervision of the program;
- 2) Continuous quality review and improvement of the program; and
- 3) Academic oversight, including curriculum planning and development.

b. Qualifications

The program director must

- 1) Possess a minimum of a master's degree in a relevant discipline;
- 2) Have certification as a Cytologist (formerly cytotechnologist);
- 3) Demonstrate competency in the current practice of diagnostic cytopathology; and
- 4) Have documented education or experience in instructional methodology.

Persons approved as program director under previous Standards will continue to be approved in that position at that institution.

2. Medical Director/Advisor

a. Responsibilities

The medical director/advisor must

- 1) Provide the input necessary to ensure that the medical components of the curriculum, both didactic and supervised practice, meets current standards of medical practice; and
- 2) Engage in cooperative involvement with the program director.

b. Qualifications

The medical director/advisor must

- 1) Be a physician currently licensed and board certified in anatomic pathology;
- 2) Demonstrate competency in the current practice of diagnostic cytopathology;
- 3) Have the requisite knowledge and skills to advise the program leadership about the clinical/academic aspects of the program; and
- 4) Be knowledgeable in teaching the subjects assigned, when applicable.

Persons approved as medical director under previous Standards will continue to be approved in that position at that institution.

3. Education Coordinator

a. Responsibilities

The education coordinator must

- 1) Coordinate clinical education;
- 2) Ensure documentation of the evaluation and progression of clinical performance;
- 3) Ensure orientation to the program's requirements of the personnel who supervise or instruct students at clinical sites; and
- 4) Coordinate the assignment of students to clinical sites.

b. Qualifications

The education coordinator must

- 1) Have documented experience in cytology;
- 2) Have certification as a Cytologist (formerly Cytotechnologist);
- 3) Possess a minimum of a bachelor's degree;
- 4) Be knowledgeable of the curriculum; and
- 5) Be knowledgeable about the program's evaluation of student learning and performance.

Persons approved as education coordinators under previous Standards will continue to be approved in that position at that institution.

The program director may serve in this position provided the qualifications of each position are met.

4. Faculty/Instructional Staff

a. Responsibilities

For all didactic, laboratory, and clinical instruction to which a student is assigned, there must be a qualified individual(s) clearly designated by the program to provide instruction, supervision, and timely assessments of the student's progress in meeting program requirements.

b. Qualifications

Faculty/instructional staff must be effective in teaching and knowledgeable in subject matter as documented by appropriate professional credential(s)/certification(s), education, and experience in the designated content area.

C. Curriculum

The curriculum content must ensure that the program goals are achieved. Instruction must be based on clearly written course syllabi that include course description, course objectives, methods of evaluation, topic outline, and competencies required for graduation. Instruction must be delivered in an appropriate sequence of classroom, laboratory, and clinical activities.

The program must demonstrate that the curriculum offered meets or exceeds the *Cytology Curriculum Entry Level Competencies* listed in Appendix B of these **Standards**.

CAAHEP supports and encourages innovation in the development and delivery of the curriculum.

D. Resource Assessment

The program must, at least annually, assess the appropriateness and effectiveness of the resources described in these **Standards**. The results of the resource assessment must be the basis for ongoing planning and change. An action plan must be developed when needed improvements are identified in the program resources. Implementation of the action plan must be documented, and results measured by ongoing resource assessment.

IV. Student and Graduate Evaluation/Assessment

A. Student Evaluation

1. Frequency and purpose

Evaluation of students must be conducted on a recurrent basis and with sufficient frequency to provide both the students and program faculty with valid and timely indications of the students' progress toward and achievement of the curriculum competencies in the required learning domains.

Validity means that the evaluation methods chosen are consistent with the learning and performance objectives being tested.

2. Documentation

Student evaluations must be maintained in sufficient detail to document learning progress and achievements.

B. Outcomes

The program must meet the established outcomes thresholds.

1. Assessment

The program must periodically assess its effectiveness in achieving established outcomes. The results of this assessment must be reflected in the review and timely revision of the program.

Outcomes assessments must include, but are not limited to, national credentialing examination(s) performance, programmatic retention, graduate satisfaction, employer satisfaction, and placement in full- or part-time employment in the profession or in a related profession.

A related profession is one in which the individual is using cognitive, psychomotor, and affective competencies acquired in the educational program.

Graduates pursuing academic education related to progressing in health professions or serving in the military are counted as placed.

A national certification examination program should be accredited by the National Commission for Certifying Agencies (NCCA), American National Standards Institute (ANSI), or under International Organization for Standardization (ISO).

Results from an alternative examination may be accepted as an outcome, if designated equivalent by the organization whose credentialing examination is so accredited.

2. Reporting

At least annually, the program must submit to the CPRC the program goal(s), outcomes assessment results, and an analysis of the results.

If established outcomes thresholds are not met, the program must participate in a dialogue with and submit an action plan to the CPRC that responds to the identified deficiency(ies). The action plan must include an analysis of any deficiencies, corrective steps, and timeline for implementation. The program must assess the effectiveness of the corrective steps.

V. Fair Practices

A. Publications and Disclosure

1. Announcements, catalogs, publications, advertising, and websites must accurately reflect the program offered.
2. At least the following must be made known to all applicants and students
 - a. Sponsor's institutional and programmatic accreditation status;
 - b. Name and website address of CAAHEP;
 - c. Admissions policies and practices;
 - d. Technical standards;
 - e. Occupational risks;
 - f. Policies on advanced placement, transfer of credits, and credits for experiential learning;
 - g. Number of credits required for completion of the program;
 - h. Availability of articulation agreements for transfer of credits;
 - i. Tuition/fees and other costs required to complete the program;
 - j. Policies and processes for withdrawal and for refunds of tuition/fees; and
 - k. Policies and processes for assignment of clinical experiences.
3. At least the following must be made known to all students
 - a. Academic calendar;
 - b. Student grievance procedure;
 - c. Appeals process;
 - d. Criteria for successful completion of each segment of the curriculum and for graduation; and
 - e. Policies by which students may perform clinical work while enrolled in the program.
4. The sponsor must maintain and make accessible to the public on its website a current and consistent summary of student/graduate achievement that includes one or more of these program outcomes: national credentialing examination(s), programmatic retention, and placement in full- or part-time employment in the profession or a related profession as established by the CPRC.

B. Lawful and Non-discriminatory Practices

All activities associated with the program, including student and faculty recruitment, student admission, and faculty employment practices, must be non-discriminatory and in accord with federal and state statutes, rules, and regulations. There must be a faculty grievance procedure made known to all paid faculty.

C. Safeguards

The health and safety of patients/clients, students, faculty, and other participants associated with the educational activities of the students must be adequately safeguarded. Cytology students must be readily identifiable as students.

All activities required in the program must be educational and students must not be substituted for staff.

D. Student Records

Grades and credits for courses must be recorded on the student transcript and permanently maintained by the program sponsor in an accessible and secure location. Students and graduates must be given direction on how to access their records. Records must be maintained for student admission, advisement, and counseling while the student is enrolled in the program.

E. Substantive Change

The sponsor must report substantive change(s) as described in Appendix A to CPRC in a timely manner. Additional substantive changes to be reported to CPRC within the time limits prescribed include:

1. Change in institution's legal status or form of control; and
2. Addition of a satellite program.

F. Agreements

There must be a formal affiliation agreement or memorandum of understanding between the program sponsor and all other entities that participate in the education of the students describing the relationship, roles, and responsibilities of the program sponsor and that entity.

APPENDIX A

Application, Maintenance, and Administration of Accreditation

A. Program and Sponsor Responsibilities

1. Applying for Initial Accreditation

- a. The chief executive officer or an officially designated representative of the sponsor completes a “Request for Accreditation Services” form.

The “Request for Accreditation Services” form can be obtained from the [CAAHEP website](#).

Note: There is **no** CAAHEP fee when applying for accreditation services; however, individual committees on accreditation may have an application fee.

- b. The program undergoes a comprehensive review, which includes a written self-study report and an on-site review.

The self-study instructions and report form are available from the Cytology Programs Review Committee (CPRC). The on-site review will be scheduled in cooperation with the program and CPRC once the self-study report has been completed, submitted, and accepted by the CPRC.

2. Applying for Continuing Accreditation

- a. Upon written notice from the CPRC, the chief executive officer or an officially designated representative of the sponsor completes a “Request for Accreditation Services” form.

The “Request for Accreditation Services” form can be obtained from the [CAAHEP website](#).

- b. The program may undergo a comprehensive review in accordance with the policies and procedures of the CPRC.

If it is determined that there were significant concerns with the conduct of the on-site review, the sponsor may request a second site visit with a different team.

After the on-site review team submits a report of its findings, the sponsor is provided the opportunity to comment in writing and to correct factual errors prior to the CPRC forwarding a recommendation to CAAHEP.

3. Administrative Requirements for Maintaining Accreditation

- a. The program must inform the CPRC and CAAHEP within a reasonable period of time (as defined by the committee on accreditation and CAAHEP policies) of changes in chief executive officer, dean of health professions or equivalent position, and required program personnel (Refer to Standard III.B.).
- b. The sponsor must inform CAAHEP and the CPRC of its intent to transfer program sponsorship. To begin the process for a Transfer of Sponsorship, the current sponsor must submit a letter (signed by the CEO or designated individual) to CAAHEP and the CPRC that it is relinquishing its sponsorship of the program. Additionally, the new sponsor must submit a “Request for Transfer of Sponsorship

Services” form. The CPRC has the discretion of requesting a new self-study report with or without an on-site review. Applying for a transfer of sponsorship does not guarantee that the transfer will be granted.

- c. The sponsor must promptly inform CAAHEP and the CPRC of any adverse decision affecting its accreditation by recognized institutional accrediting agencies and/or state agencies (or their equivalent).
- d. Comprehensive reviews are scheduled by the CPRC in accordance with its policies and procedures. The time between comprehensive reviews is determined by the CPRC and based on the program’s on-going compliance with the Standards, however, all programs must undergo a comprehensive review at least once every ten years.
- e. The program and the sponsor must pay CPRC and CAAHEP fees within a reasonable period of time, as determined by the CPRC and CAAHEP respectively.
- f. The sponsor must file all reports in a timely manner (self-study report, progress reports, probation reports, annual reports, etc.) in accordance with CPRC policy.
- g. The sponsor must agree to a reasonable on-site review date that provides sufficient time for CAAHEP to act on an CPRC accreditation recommendation prior to the “next comprehensive review” period, which was designated by CAAHEP at the time of its last accreditation action, or a reasonable date otherwise designated by the CPRC.

Failure to meet any of the aforementioned administrative requirements may lead to administrative probation and ultimately to the withdrawal of accreditation. CAAHEP will immediately rescind administrative probation once all administrative deficiencies have been rectified.

4. Voluntary Withdrawal of a CAAHEP- Accredited Program

Notification of voluntary withdrawal of accreditation from CAAHEP must be made by the Chief Executive Officer or an officially designated representative of the sponsor by writing to CAAHEP indicating: the desired effective date of the voluntary withdrawal, and the location where all records will be kept for students who have completed the program.

5. Requesting Inactive Status of a CAAHEP- Accredited Program

Inactive status for any accredited program may be requested from CAAHEP at any time by the Chief Executive Officer or an officially designated representative of the sponsor writing to CAAHEP indicating the desired date to become inactive. No students can be enrolled or matriculated in the program at any time during the time period in which the program is on inactive status. The maximum period for inactive status is two years. The sponsor must continue to pay all required fees to the CPRC and CAAHEP to maintain its accreditation status.

To reactivate the program the Chief Executive Officer or an officially designated representative of the sponsor must provide notice of its intent to do so in writing to both CAAHEP and the CPRC. The sponsor will be notified by the CPRC of additional requirements, if any, that must be met to restore active status.

If the sponsor has not notified CAAHEP of its intent to re-activate a program by the end of the two-year period, CAAHEP will consider this a “Voluntary Withdrawal of Accreditation.”

B. CAAHEP and Committee on Accreditation Responsibilities – Accreditation Recommendation Process

1. After a program has had the opportunity to comment in writing and to correct factual errors on the on-site review report, the CPRC forwards a status of public recognition recommendation to the CAAHEP Board of Directors. The recommendation may be for any of the following statuses: initial accreditation, continuing accreditation, transfer of sponsorship, probationary accreditation, withhold of accreditation, or withdrawal of accreditation.

The decision of the CAAHEP Board of Directors is provided in writing to the sponsor immediately following the CAAHEP meeting at which the program was reviewed and voted upon.

2. Before the CPRC forwards a recommendation to CAAHEP that a program be placed on probationary accreditation, the sponsor must have the opportunity to request reconsideration of that recommendation or to request voluntary withdrawal of accreditation. The CPRC’s reconsideration of a recommendation for probationary accreditation must be based on conditions existing both when the committee arrived at its recommendation as well as on subsequent documented evidence of corrected deficiencies provided by the sponsor.

The CAAHEP Board of Directors’ decision to confer probationary accreditation is not subject to appeal.

3. Before the CPRC forwards a recommendation to CAAHEP that a program’s accreditation be withdrawn or that accreditation be withheld, the sponsor must have the opportunity to request reconsideration of the recommendation, or to request voluntary withdrawal of accreditation or withdrawal of the accreditation application, whichever is applicable. The CPRC’s reconsideration of a recommendation of withdraw or withhold accreditation must be based on conditions existing both when the CPRC arrived at its recommendation as well as on subsequent documented evidence of corrected deficiencies provided by the sponsor.

The CAAHEP Board of Directors’ decision to withdraw or withhold accreditation may be appealed. A copy of the CAAHEP “Appeal of Adverse Accreditation Actions” is enclosed with the CAAHEP letter notifying the sponsor of either of these actions.

At the completion of due process, when accreditation is withheld or withdrawn, the sponsor’s Chief Executive Officer is provided with a statement of each deficiency. Programs are eligible to re-apply for accreditation once the sponsor believes that the program is in compliance with the accreditation Standards.

Note: Any student who completes a program that was accredited by CAAHEP at any time during his/her matriculation is deemed by CAAHEP to be a graduate of a CAAHEP-accredited program.

APPENDIX B

Curriculum Competencies for Educational Programs in Cytology

This Curriculum in Cytology was developed by the CPRC with input from cytopathology professionals to establish the minimum competencies required to enter the profession. These competencies are divided into six major categories based on the overall knowledge and skill set encompassed within: Evaluation and Interpretation, Laboratory Techniques, Laboratory Operations, Companion Technologies, Evidence-Based Medicine, and Professionalism.

All students in accredited cytology programs are under the supervision of a program director and medical director and do not practice any area of cytology independently.

CPRC Cytology Entry-Level Competencies

Upon completion of the Cytology program, the student must have successfully completed the following cognitive (indicated below as “C”), psychomotor (indicated below as “P”), and affective (indicated below as “A”) competencies to enter the profession:

1. EVALUATION AND INTERPRETATION

a. Screening Tests: Cervicovaginal

The student will demonstrate:

- 1) The ability to review the patient’s medical history and gather relevant clinical information prior to evaluating cervicovaginal cytology specimens **(C)**.
- 2) The ability to microscopically identify, discriminate, and explain the significance of the following entities in the context of a given patient when given conventional and/or liquid-based cervicovaginal cytology specimens **(C)**:
 - a) specimen adequacy;
 - b) cellular components within the negative for intraepithelial lesion or malignancy category;
 - c) non-neoplastic findings including:
 - i. cellular changes associated with infections/organisms;
 - ii. reactive and reparative changes associated with inflammation;
 - iii. effects of therapy;
 - iv. effects of devices/instrumentation; and
 - v. presence of glandular cells in unexpected clinical circumstances;
 - d) epithelial squamous abnormalities, including:
 - i. atypical squamous cells of undetermined significance;
 - ii. atypical squamous cells cannot exclude HSIL;
 - iii. low grade squamous intraepithelial lesion;
 - iv. high grade squamous intraepithelial lesion; and
 - v. squamous cell carcinoma and the differential diagnoses;
 - e) glandular cell abnormalities including:
 - i. atypical glandular cells;
 - ii. endocervical adenocarcinoma in-situ and endocervical adenocarcinoma and their differential diagnoses; and
 - iii. endometrial adenocarcinoma and their differential diagnoses.

- 3) The ability to use Papanicolaou (PAP) test computer-assisted screening system(s) **(C)**.
- 4) The ability to detect, select, and appropriately mark the cells most representative of the nature of any pathological process, if present, when given cervicovaginal cytology specimens **(P)**.
- 5) The ability to perform a morphologic correlation of cytologic findings with relevant (concurrent/prior) histologic material **(C)**.
- 6) The ability to prepare a report using a contemporary, reproducible, uniform reporting system of interpretive terminology **(C)**.
- 7) The ability to independently evaluate cervicovaginal cytology specimens with competence to issue the final report for negative specimens **(C)**.
- 8) The ability to appropriately triage cervicovaginal cytology specimens for companion technologies **(C)**.
- 9) The ability to evaluate cervicovaginal cytology specimens with a high level of accuracy **(C)**.

Although paramount, accuracy should be combined with the realization that timely reporting of results also contributes to patient care.

*At **minimum**, the student should manually evaluate an average of 7 cervicovaginal slides per hour (or average of full slide-equivalents per hour for computer-assisted review).*

- b. Diagnostic Tests:** Specimens to include but not limited to fluids (e.g., urine, body cavity, pericardial, cerebrospinal fluid, and anal specimens), Fine Needle Aspiration (FNA), washes, brushes, cell blocks, small sample diagnostics, and touch preparations.

The student will demonstrate:

- 1) The ability to review the patient's medical history and gather relevant clinical information prior to evaluating any specimen **(C)**.
- 2) The ability to microscopically identify, discriminate, and explain the significance of the following entities in the context of a given patient when given samples from any specimen **(C)**:
 - a) specimen adequacy;
 - b) cellular components within normal limits;
 - c) microbiologic entities and associated cytomorphology;
 - d) cellular features of degeneration;
 - e) benign cellular changes;
 - f) cellular features of benign neoplasms;
 - g) cellular features of malignant neoplasms;
 - h) cellular effects of radiation, chemotherapy, and other modalities, when available; and
 - i) altered cellular morphology due to collection methods.
- 3) The ability to detect, select, and appropriately mark the cells most representative of the nature of any pathological process if present when given any specimen **(P)**.

- 4) For non-gynecologic specimens, the student will demonstrate the ability to screen microscopic slides, identify abnormal cells, record their observations using a contemporary, reproducible, uniform terminology, and present their findings to the pathologist for diagnostic interpretation **(C)**.
- 5) The ability to triage specimens for companion diagnostics as appropriate (pre-analytic) to include but not limited to special stains, immunohistochemistry (IHC), immunocytochemistry (ICC), and molecular diagnostics **(C)**.
- 6) The ability to utilize appropriate transport requirements (e.g., transport media, fixative) when triaging pathology/cytology specimens for companion diagnostic studies to include but not limited to **(C)**:
 - a) cell block preparations;
 - b) flow cytometry;
 - c) cytogenetics;
 - d) microbiology;
 - e) tissue banking; and
 - f) molecular diagnostics.
- 7) The ability to assess specimens for further diagnostic studies following morphologic evaluation to include but not limited to companion technologies such as special stains, immunohistochemistry (IHC), immunocytochemistry (ICC), and molecular diagnostics **(C)**.
- 8) The ability to develop a differential diagnosis based on synthesis of appropriate data after morphologic evaluation from **(C)**:
 - a) corresponding cell block or small diagnostic samples;
 - b) morphologic correlation with relevant (concurrent/prior) histologic material; and
 - c) companion technologies.
- 9) The ability to evaluate cellular preparations with a high level of accuracy as defined by the program **(C)**.
- 10) The ability to explain the principles of fine needle aspiration biopsy performance, including indications and characteristics of superficial palpable lesions and a variety of image-guided modalities (e.g., transcutaneous, endoscopic ultrasound guided, endobronchial ultrasound guided, and CT guided) **(C)**.
- 11) The ability to perform rapid on-site adequacy assessment of fine needle aspiration biopsy specimens (includes touch preparations) and clearly communicate results of this assessment under the supervision of a pathologist. The student will understand the principles of patient safety including informed consent and time out and will demonstrate competence in **(C)**:
 - a) slide preparation and rapid staining;
 - b) appropriate communication with the clinical team;
 - c) slide and specimen labeling and maintaining correct patient identification;
 - d) recording requirements for adequacy assessments; and
 - e) specimen triage including choice of appropriate transport media including fixative.

2. LABORATORY TECHNIQUES

Cytology Essentials/Standards initially adopted in 1962; revised in 1967, 1977, 1983, 1992, 1998, 2004, 2013, and 2023.

The student will demonstrate:

- a. The ability to explain and apply the basic principles for specimen collection, acceptance, and rejection including **(C)**:
 - 1) the importance of accurate specimen labeling and maintaining patient/specimen identification throughout the accessioning and slide preparation process;
 - 2) pre-analytic variables including specimen transport, fixatives used, and fixation times for selected specimens;
 - 3) patient safety as it applies to specimen collection, accessioning, and slide preparation;
 - 4) safety of laboratory personnel when handling specimens including appropriate use of personal protective equipment (PPE);
 - 5) describe different preparation and staining techniques, their advantages and disadvantages, and distinguish their impact on cell morphology and interpretation;
 - 6) select and perform the preparation and staining technique(s) that is most appropriate for a given specimen(s);
 - 7) identify and apply principles of quality assurance and quality control as they relate to specimen preparation including, but not limited to:
 - a) accreditation/regulatory requirements;
 - b) equipment performance and maintenance;
 - c) staining methods; and
 - d) stain and technical quality of preparation;
 - 8) Identify and resolve staining and preparation issues; and
 - 9) identify errors that can occur during specimen handling and processing including, but not limited to, preparation, staining, and instrumentation and apply and implement the most effective resolution.
- b. The ability to utilize the microscope or other technologies to properly visualize the specimen for systematic morphologic review and interpretation with knowledge of proper use and care, to include troubleshooting. The student will understand the basic function of the microscope including Kohler illumination and techniques for polarization **(P)**.
- c. The ability to use basic laboratory skills and techniques, including universal precautions, aseptic technique, reagent preparation, sample preparation, filtration, centrifugation, and pipetting and micropipetting **(P)**.
- d. The ability to describe the process of gross examination of small biopsy specimens according to established laboratory protocols under pathologist supervision and submit tissue for preparation of microscopic slides, including **(C)**:
 - 1) Verification of specimen identification;
 - 2) Accurate measurement;
 - 3) Relevant gross description;
 - 4) Fixative selection; and
 - 5) Basic troubleshooting.

3. LABORATORY OPERATIONS

The student will demonstrate **(C)**:

- a. The ability to explain quality control and quality assurance requirements of applicable accrediting/regulatory agencies including, but not limited to, requirements related to competency assessment and proficiency testing.
- b. Knowledge of the appropriate slide evaluation limits as outlined by regulatory agencies and demonstrate the ability to document daily workload.
- c. The ability to explain the principles and practices defined by HIPAA (Health Insurance Portability and Accountability Act of 1996).
- d. The ability to explain the requirements and documentation necessary for maintenance of certification/licensure to practice cytology.
- e. The ability to describe and recognize the application of Information Systems (e.g., Electronic Health Record, Laboratory Information System) including, but not limited to, viewing patient history, entering results, and signing out cases.
- f. Competence in written communication by recording accurate and complete results that are clear and concise.
- g. Compliance with laboratory safety measures and regulations.
- h. A basic awareness of emergency preparedness as a member of the healthcare workforce.
- i. The ability to explain and use applicable contemporary billing and coding systems including, but not limited to, ICD (International Statistical Classification of Diseases and Related Health Problems) and CPT (Current Procedural Terminology) codes.
- j. The ability to define and explain the theory, principles, and indications for test development, validation, and implementation.

4. COMPANION TECHNOLOGIES

The student will demonstrate:

- a. The ability to explain the theory, principles, and indications for tests in cytology / pathology for **(C)**:
 - 1) Flow cytometry;
 - 2) Molecular Diagnostics (e.g., Polymerase chain reaction (PCR), Next-Gen Sequencing (NGS), microarrays);
 - 3) In situ hybridization (e.g., FISH, CISH, ISH);
 - 4) Immunohistochemistry (e.g., IHC/ICC);
 - 5) Special stains (e.g., AFB, GMS, Fite, mucicarmine, Congo red); and
 - 6) Digital image-analysis (e.g., Quantitative IHC/ICC).
- b. The ability to incorporate the findings and clinical significance of results in cytology / pathology reports under the supervision of the pathologist for **(C)**:
 - 1) Flow cytometry;

- 2) Molecular Diagnostics (e.g., Polymerase chain reaction (PCR), Next-Gen Sequencing (NGS), microarrays);
 - 3) In situ hybridization (e.g., FISH, CISH, ISH);
 - 4) Immunocytochemistry (e.g., IHC/ICC);
 - 5) Special stains (e.g., AFB, GMS, Fite, mucicarmine, Congo red); and
 - 6) Digital image-analysis (e.g., Quantitative IHC/ICC)
- c. The ability to define and explain the theory, principles, and indications for techniques in cytology / pathology for **(C)**:
- 1) Telepathology/telecytology;
 - 2) Digital image acquisition, management (storage, retrieval, and sharing pathology information);
 - 3) Image capture via static photography, dynamic telepathology (viewing real-time images and virtual slides/whole slide imaging);
 - 4) Quantification of specific image features (DNA analysis, morphometric analysis, FISH); and
 - 5) Video conferencing and presentation techniques
- d. The ability to utilize clinical digital cytology/pathology to assist the pathologist as part of a health care team, including, but not limited to, rapid on-site adequacy assessment, intraoperative consultation, and second opinion consultation **(P)**.
- e. The ability to indicate areas with adequate morphologic material suitable for companion testing on cytology slides and/or tissue blocks **(C)**.

5. EVIDENCED-BASED MEDICINE

The student will demonstrate **(C)**:

- a. The ability to critically evaluate medical literature for its pertinence and reliability.

6. PROFESSIONAL DEVELOPMENT/PROFESSIONALISM

The student will demonstrate **(A)**:

- a. The ability to explain the importance of continuing education for maintenance of ongoing competence.
- b. Knowledge of the consequences of specimen evaluation on patient management.
- c. Knowledge of the ethical role and responsibilities of the Cytologist by practicing honesty and integrity in professional duties and the principles of good professional relationships with patients, peers, staff, faculty, and the public.
- d. The ability to explain their role within the multidisciplinary patient care team and demonstrate communication skills that facilitate effective interactions to enhance patient management and safety.
- e. The ability to recognize their impact on the care of the total patient and the consequences of their interpretations.
- f. The ability to respect patient confidentiality and follow HIPAA regulations.

- g. Awareness of opportunities within professional societies and the cytology community at-large (e.g., patient advocacy, volunteerism, education, research).
- h. The ability to recognize the importance of personal well-being on functioning in the workplace and performing patient care and will be able to develop a plan that fosters personal well-being.

7. COMMUNICATION AND TEAMWORK

The student will demonstrate **(A)**:

- a. The ability to recognize and mitigate the public health crisis of racism and health inequity related to race, gender, age, culture, religion, disabilities, national origin, socioeconomic status, and sexual orientation.
- b. The ability to respect this diversity when interacting with patients, co-workers, and the entire healthcare team.
- c. The ability to understand and respect diversity, equity, and inclusion in the workplace and the impact it has on team function.
- d. The ability to work effectively as a member of a healthcare team by communicating effectively with physicians, other health professionals, and health related agencies.