

CURRICULUM IN CYTOTECHNOLOGY
ENTRY-LEVEL COMPETENCIES

Cytotechnology Programs Review Committee

This Curriculum in Cytotechnology was developed by the CPRC with input from cytopathology professionals to establish the minimum competencies that new cytotechnology graduates must be able to demonstrate upon entering the profession. The entry-level competencies are divided into six major categories based on the overall knowledge and/or skill set encompassed within: Screening and Interpretation, Basic Laboratory Techniques, Laboratory Operations, Ancillary Testing / New Technologies, Scientific Method of Inquiry, and Professional Development.

These entry-level competencies require that cytotechnology students optimally should have a sound background in the sciences. After input from the profession, the CPRC has also established that programs must ensure that students have a minimum of 28 credits of sciences including chemistry and the biological sciences upon entering into a cytotechnology program and 3 credits of mathematics and/or statistics.

As mandated in the Standards and Guidelines for the Accreditation of Educational Programs in Cytotechnology (2004), cytotechnology programs must ensure that the curriculum offered in their programs prepares students to meet these entry-level competencies:

The program must demonstrate by comparison that the curriculum offered prepares students to meet, or exceed if such is stated in the program goal(s), the entry-level competencies specified in the latest edition of the Curriculum in Cytotechnology as developed by the Cytotechnology Programs Review Committee.

At minimum, these entry-level competencies will be reviewed every 2 years by the CPRC. Communities of interest will be surveyed every 5 years, or sooner if deemed necessary by the CPRC, to determine what revisions, if any, need to be made.

CYTOTECHNOLOGY CURRICULUM ENTRY-LEVEL COMPETENCIES

I. SCREENING AND INTERPRETATION

1. When given conventional and/or liquid-based cervicovaginal cellular samples, the cytotechnologist will be able to microscopically identify and discriminate among the following entities:
 - a. specimen adequacy
 - b. cellular constituents within the negative for intraepithelial lesion or malignancy category
 - c. non-neoplastic findings including cellular changes associated with infections, reactive and reparative changes associated with inflammation, effects of therapy, effects of mechanical devices and presence of glandular cells in noteworthy circumstances
 - d. epithelial squamous abnormalities, including atypical squamous cells of undetermined significance, atypical squamous cells cannot exclude HSIL, low grade squamous intraepithelial lesion, high grade squamous intraepithelial lesion, and squamous cell carcinoma
 - e. glandular cell abnormalities including atypical glandular cells, endocervical adenocarcinoma in-situ and adenocarcinoma and their differential diagnoses
 - f. non-epithelial malignant neoplasms
 - g. extra-uterine malignant neoplasms.

2. The cytotechnologist will be able to evaluate gynecologic material with sufficient competence to meet the entry-level responsibility of issuing the final report for negative gynecologic specimens.

3. When given cellular samples from any non-gynecologic cytology specimen, including fine needle aspirations, the cytotechnologist will be able to microscopically identify and discriminate among the following entities:
 - a. specimen adequacy
 - b. cellular constituents within normal limits
 - c. inflammatory cells
 - d. microbiologic entities and associated cytomorphology
 - e. manifestations of cellular degeneration
 - f. benign cellular changes
 - g. cellular manifestations of benign neoplasms
 - h. cellular manifestations of malignant neoplasms
 - i. cellular effects of radiation and chemotherapy
 - j. altered cellular morphology due to collection methods

4. When given a cellular preparation, the cytotechnologist will be able to detect, select, and appropriately mark the cells most representative of the nature of any pathological process.
5. The cytotechnologist will be able to evaluate cellular preparations with a high level of accuracy as defined by the program. Although paramount, accuracy should be combined with the realization that timely reporting of results also contributes to patient care. At **minimum**, the cytotechnologist will be able to evaluate 5 slides per hour.
6. On detection of cellular manifestations of disease, the cytotechnologist will be able to develop a differential diagnosis based on synthesis of appropriate data such as:
 - a. current cell block specimens
 - b. pertinent cognitive knowledge and clinical data
 - c. knowledge of various modes of treatment and their effect on the cytologic interpretation
 - d. review of previous patient material
7. The cytotechnologist will be able to prepare a report using a contemporary and uniform system of diagnostic terminology for gynecologic specimens, such as The Bethesda system or its equivalent, and non-gynecologic specimens.

II. BASIC LABORATORY TECHNIQUES

1. Upon presentation of a cytologic specimen to the laboratory, the cytotechnologist will be able to:
 - a. accept or reject the specimen
 - b. select and perform the most advantageous preparation technique
 - c. select and perform the most advantageous staining procedure
 - d. apply principles of quality control
 - e. solve problems in staining and preparation methods
2. The cytotechnologist will be able to utilize the microscope to properly visualize the specimen with knowledge of
 - a. principles of Kohler illumination
 - b. proper use, care and trouble-shooting of the microscope
 - c. appropriate and effective microscopic slide evaluation methods
3. The cytotechnologist will be able to utilize basic laboratory skills and techniques pertinent to the Cytopathology laboratory.

III. LABORATORY OPERATIONS

1. The cytotechnologist will be able to explain quality control and quality assurance measures as required by current regulations (CLIA, CAP, JCAHO, HIPAA and applicable state regulations).
2. The cytotechnologist will be able to comply with laboratory safety measures and regulations.

IV. ANCILLARY TESTING / NEW TECHNOLOGIES

1. The cytotechnologist will be able to explain the applications of new technologies to the cytopathologic diagnostic process such as, but not limited to:
 - a. HPV DNA testing
 - b. Flow cytometry
 - c. Immunohistochemical techniques
 - d. FISH
 - e. PCR
 - f. Immunophenotyping
 - g. Automated screening devices.

V. SCIENTIFIC METHOD OF INQUIRY

1. The cytotechnologist will be able to demonstrate the ability to read and evaluate published professional literature for its pertinence and reliability and will be able to explain the basic principles of the scientific method through such methods as research projects, journal club and seminars.

VI. PROFESSIONAL DEVELOPMENT

1. The cytotechnologist will be able to explain the importance of continuing education for maintenance of on-going competence, demonstrate knowledge of the consequences of specimen evaluation on patient management, and explain the importance of the cytotechnologist's role in the health care system.
2. The cytotechnologist will be able to demonstrate knowledge of the ethical role and responsibilities of the cytotechnologist by practicing:
 - a. honesty and integrity in professional duties
 - b. the principles of good personal relationships with peers, staff, faculty and the public.