

Unique Standards and Documentation Required for Accredited CG Programs

UNIQUE STANDARDS AND THE REQUIRED DOCUMENTATION

Cytogenetic Technologist Standards

PREAMBLE

Objectives

The purpose of these Standards and the Description of the Profession is to establish, maintain, and promote standards of quality for educational programs in the clinical laboratory sciences and to provide recognition for educational programs which meet or exceed the minimum standards outlined in this document.

The Standards are to be used for the development and evaluation of cytogenetic technology programs. Paper reviewers and site visit teams assist in the evaluation of the program's compliance with the Standards. Lists of accredited programs are published for the information of students, employers, and the public.

Description of the Cytogenetic Technologist Profession

Cytogenetic Technologists are competent in:

- a. evaluating the correct method of collection, transport and handling of specimens for various specimen types for cytogenetic analysis;
- b. identifying culture techniques based on tissue type and reason for referral;
- c. demonstrating the appropriate techniques of chromosome banding and staining;
- d. demonstrating the proper technique and procedures in slide preparation;
- e. recognizing the required principles and techniques of microscopy and photography and/or imaging;
- f. identifying chromosome abnormalities and evaluating their relationship to the appropriate referral process;
- g. recognizing the concepts and principles of cytogenetic reporting mechanisms;
- h. exhibiting appropriate ethical and professional health care standards;
- i. practicing good general laboratory skills, quality assurance principles and safety protocols;
- j. demonstrating professional conduct, stress management, interpersonal and communication skills with patients, peers and other health care personnel and with the public;
- k. demonstrating an understanding of requisitioning and the legal implications of their work environment;
- l. applying basic principles in learning new techniques and procedures;
- m. recognizing and acting upon individual needs for continuing education as a function of growth and maintenance of professional competence.

Upon graduation and initial employment, the cytogenetic technologist will be able to demonstrate entry level competencies in the above areas of professional practice.

20. Program Administration

A. Program Director

1. The program must have a qualified program director.

2. Responsibilities

The program director must be responsible for the organization, administration, periodic review, planning, development, evaluation and general effectiveness of the program. The program director must have input into budget preparation and must be responsible for maintaining NAACLS accreditation of the program.

3. Qualifications

The program director must maintain current certification or licensure in cytogenetic technology, medical genetics, or another human genetics area. The program director must have a minimum of a master's degree and at least three years of experience in education that includes teaching courses, conducting and managing laboratory sciences learning experiences, evaluating student achievement, providing input into curriculum development, policy/procedure formulation and evaluation of program effectiveness. The Program Director must be a cytogeneticist, medical geneticist, or other human geneticist with three years of clinical cytogenetic experience. The program director must have knowledge of education and administration as well as current accreditation, certification and licensure procedures. The program director, if applicable, must demonstrate relevant continuing education hours (3.6 CEUs or 36 hours) within the previous three years.

4. Faculty Appointments

The program director must have a faculty appointment at the sponsoring institution or must have a faculty appointment in each affiliated academic institution. In the case of a clinically based program, the program director's appointment at affiliated academic institutions may be a regular one, a non-salaried clinical or courtesy appointment, or an adjunct appointment, depending upon the regulations of the academic institution.

B. Advisory Committee

1. There must be an advisory committee composed of individuals(s) from the community of interest, (i.e., pathologists, other physicians, scientific consultants, academic professionals, administrators, practicing cytogenetic technologists and other health professionals) who have knowledge of cytogenetic education.

2. Responsibilities

The advisory committee of the program shall have input into any of the program/curriculum with regard to its current relevance and effectiveness into the medical content of the program.

21. Faculty

The program must have qualified didactic and clinical faculty. (Didactic faculty are defined as persons teaching the didactic components of cytogenetic technology. Clinical faculty are defined as instructors teaching the clinical skills components of cytogenetic technology).

A. Faculty Responsibilities

The faculty must participate in teaching courses, supervising applied laboratory learning experiences, evaluating student achievement, developing curriculum, formulating policy and procedures, and evaluating program effectiveness. Faculty must have a working knowledge of educational methodologies and cytogenetic techniques.

B. Qualifications

1. Didactic Faculty

Didactic Faculty designated by the program must demonstrate adequate knowledge and proficiency in their content area and demonstrate the ability to teach effectively at the appropriate level. Didactic faculty must have a minimum of a bachelor's degree. Didactic faculty must also hold an academic appointment at their institution.

2. Clinical Faculty

Clinical instructors must hold a minimum of a Bachelor's degree with 3 years of full-time cytogenetic experience and maintain current certification in cytogenetic technology.

C. Professional Development

The program must assure and document ongoing professional development of the program faculty to assure that the faculty members are able to fulfill their instructional responsibilities.

D. Consortium Education Coordinator (when required, one at each participating entity in a consortium or joint venture)

1. Responsibilities

The Consortium Education Coordinator, when required, is responsible for coordinating classroom teaching and applied education, evaluating program effectiveness, and must have appropriate communications with the Program Director.

2. Qualifications

The education coordinator, when required, must hold an appropriate nationally recognized certification required of a program director as stated in Standard 20, an

academic degree appropriate to the program level, and at least one year of experience in clinical laboratory science education, including teaching courses, conducting and managing learning experiences, evaluation student achievement, and evaluating instructional effectiveness.

22. Curricular Requirements

A. Curricular Structure

Instruction must follow a plan which documents a structured curriculum, including applied education, with clearly written program goals. Course syllabi must include individual course objectives and competencies to be achieved and evaluation criteria.

The curriculum must include all major subject areas currently offered in the contemporary full-service cytogenetic laboratory. Behavioral objectives which address cognitive, psychomotor, and affective domains must be provided for didactic and applied (clinical practice) aspects of the program **and must include clinical significance and correlation**. Course objectives must show progression to the level consistent with entry into the profession.

B. Instructional Areas

The following areas of study must be included in either the professional program or as pre-requisites:

1. General Biology, General Chemistry, Biochemistry or Cell Biology, Genetics, Hematology, Microbiology, Immunology.
2. Principles, practice, and acquisition of computer technology.
3. Cytogenetics
 - a. history of cytogenetics
 - b. mechanisms of numerical and structural abnormalities
 - c. clinical correlation of autosomal and sex chromosome anomalies
 - d. cancer cytogenetics and clinical correlation between diagnosis and treatment
 - e. molecular applications of cytogenetics
4. Principles and methodologies for all major areas (competencies) commonly practiced by a full service diagnostic cytogenetic laboratory, to include:
 - a. specimen processing
 - b. appropriate cell and tissue culture techniques
 - c. harvest techniques
 - d. chromosome banding and staining techniques
 - e. fluorescence in situ hybridization (FISH) Techniques
 - f. microscopy and image analysis
 - g. chromosome analysis
5. Principles and practices of laboratory management and supervision.
6. General laboratory practice, safety, quality control and continuous quality improvement, and professional and ethical standards

C. Learning Experiences

The learning experiences needed in the curriculum to develop entry level competencies must be properly sequenced and include instructional materials, classroom presentations, discussions, demonstrations, laboratory sessions, supervised practice and experience.

1. Student experiences must be educational and balanced so that all competencies can be achieved.
2. Student experiences at different clinical sites must be comparable to enable students to achieve entry level competencies.
3. Policies and processes by which students may perform service work must be published and made known to all concerned in order to avoid practices in which students are substituted for regular staff. After demonstration proficiency, students, with qualified supervision, may be permitted to perform procedures. Service work by students in applied settings outside of regular academic hours must be noncompulsory

D. Evaluations

Include written criteria for passing, failing, and progression in the program. These must be given to each student at the time of entry into the program. Evaluation systems must be related to the objectives and competencies described in the curriculum for both didactic and applied components. They must be employed frequently enough to provide students and faculty with timely indications of the students' academic standing and progress and to serve as a reliable indicator of the effectiveness of instruction and course design.

Documentation Required for CG Unique Standards

	<i>Narrative</i>	<i>Documentation</i>	<i>Site Visitor Role</i>
Standard 20A1	<u><i>No Narrative Required</i></u>	<p>Submit a completed Faculty Fact Sheet for the program director.</p> <p><i>The Faculty Fact Sheet is located in the appendix of this Guide.</i></p>	
Standard 20A2	<u><i>No Narrative Required</i></u>	<p>Submit a position description which describes the responsibilities of the program director.</p>	<p>Verify that the program director is responsible for the required aspects of the program.</p>
Standard 20A3	<u><i>No Narrative Required</i></u>	<p>Submit the curriculum vita for the program director</p> <p>Indicate the date that NAACLS approved the program director.</p> <p>Indicate how knowledge of education, administration & current accreditation/certification procedures was obtained.</p>	<p>Verify that the program director meets the qualifications listed in Standard 20A1-3.</p>

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Standard 20A4	<u>No Narrative Required</u>	Document the faculty appointment for the program director at each affiliated academic institution.	Verify documentation (e.g., notice of appointments, academic catalogs, faculty listings) of faculty appointments for the program director at each affiliated academic institution.
Standard 20B1	<u>No Narrative Required</u>	Submit the names comprising the advisory committee.	
Standard 20B2	Describe the responsibilities of the advisory committee.	Indicate the relationship of the advisory committee member(s) to the program Submit a copy of the advisory committee meeting minutes.	Verify the responsibilities of the advisory committee.
Standard 21	<u>No Narrative Required</u>	List the major clinical/didactic faculty for each laboratory discipline (e.g., microbiology, hematology).	
Standard 21A	Describe the responsibilities of the program faculty.	<u>No Documentation Required</u>	Verify that faculty are responsible for the required aspects of the program.

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Standard 21B	Describe how faculty are evaluated relative to appropriate qualifications.	Submit completed Faculty Fact Sheets for the major didactic faculty for each laboratory discipline. List details of major clinical faculty on Clinical Faculty Fact Sheets.	<p>Verify that faculty have adequate knowledge and proficiency in their content areas.</p> <p>Verify that major clinical/didactic faculty have the ability to teach effectively at the appropriate level.</p> <p>Review faculty evaluations.</p>
Standard 21C	Describe how the program ensures ongoing professional development of its' clinical and didactic faculty.	Submit sample documentation of ongoing professional development of the clinical and didactic faculty to fulfill instructional abilities.	Verify that the program assures and documents the ongoing professional development of clinical and didactic faculty.

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<i>IN CASES OF CONSORTIA OR JOINT VENTURES, SUBMIT INFORMATION FOR STANDARDS 21D1 AND 21D2.</i>			
Standard 21D	<u><i>No Narrative Required</i></u>	Submit a completed Faculty Fact Sheet for the consortium education coordinator.	
Standard 21D1	<u><i>No Narrative Required</i></u>	Submit a position description which describes the responsibilities of the consortium education coordinator.	Verify that the consortium education coordinator is responsible for the required aspects of the program
Standard 21D2	<u><i>No Narrative Required</i></u>	Submit a curriculum vita for the consortium education coordinator. Indicate how knowledge of educational methods and current accreditation/certification procedures was obtained.	Verify that the consortium education coordinator meets the qualifications listed in Standard 20AA2.

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Standard 22B	<p>Describe the coursework required for completion of the program and indicate whether the course work is addressed as part of the professional program or prior to admission to the program.</p> <p>Identify where the items described in Standard 22B1-6 are included in the curriculum</p>	<p>Submit brief summaries or course descriptions for each unit of instruction or course in the program.</p> <p>A matrix is provided in the appendix to assist you in identifying where units of instruction are located in the program's curriculum.</p> <p><i>*Use of the matrix is optional.</i></p>	<p>Verify that the curriculum includes the required areas described in Standard 22B1-6.</p> <p>Verify that course work includes all instructional areas.</p>

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Standard 22C	<p>Briefly describe how the required material and activities listed in Standard 22B are used in the program to develop entry-level competencies.</p> <p>If applicable, describe how student experiences at different clinical sites are ensured as comparable.</p> <p>Justify learning experiences during hours other than the normally scheduled clinical experience.</p> <p>Describe how policies and procedures regarding service work are distributed to students and clinical facilities.</p>	<p>Submit a brief summary of the types of laboratory tests performed in each clinical area.</p> <p>Submit objectives and evaluation instruments for any learning experiences during hours other than the normally scheduled clinical experience.</p> <p>Submit policies and procedures explaining when students may perform service work.</p>	<p>Verify that instruction provides sequenced learning experiences.</p> <p>Verify that the required materials and activities found in Standard 22B are used in the program to develop entry-level competencies.</p> <p>Review the laboratory tests performed in each clinical area.</p> <p>If applicable, verify that student experiences at different clinical sites are ensured as comparable.</p> <p>Review the justification, objectives and evaluation instruments for any learning experiences during hours other than the normally scheduled clinical experience.</p>

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Standard 22C (continued)			<p>Verify that the clinical training is sufficiently balanced to assure that all objectives and competencies are achieved.</p> <p>Verify that policies and procedures explaining when students may perform service work are published, distributed to students and distributed to clinical affiliates.</p> <p>Verify that service work by students in the clinical settings outside of regular academic hours is non-compulsory.</p>

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Standard 22D	<u>No Narrative Required.</u>	<p>Submit the criteria for passing, failing and progression in the program.</p> <p>Indicate when the criteria for passing, failing and progression in the program are given to students.</p> <p>Submit evaluation systems for ONE SAMPLE UNIT OF INSTRUCTION. Evaluation systems must correlate with objectives and competencies submitted for Standard 22A.</p> <p>Indicate the frequency of student evaluation in lectures and student and/or clinical laboratories.</p>	<p>Verify that the criteria for passing, failing and progression in the program are established and given to students at the time of entry into the program.</p> <p>Review the evaluation systems for each subject area.</p> <p>Review the evaluation systems in the affective domain.</p> <p>Verify that the evaluation systems are employed frequently enough to provide faculty and students with timely indications of a student's academic standing and progress, and to serve as a reliable indicator of the effectiveness of instruction and course design.</p>

