

**HISTOLOGY TECHNICIAN
NEEDS ASSESSMENT**

**Prepared by:
Office of Institutional Planning & Analysis
Oakland Community College**

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HISTOLOGY TECHNICIAN NEEDS ASSESSMENT

EXECUTIVE SUMMARY

- This needs assessment was undertaken in order to assess the need for a two year, histologic technician program at OCC, developed and operated in co-operation with William Beaumont Hospital.
- Information for the assessment was obtained from a sample survey of employers in the field, a literature search, data from state and federal government sources, information from professional organizations, and a survey of existing training programs.
- Employment prospects for histology technicians appear favorable. The national vacancy rate is currently estimated at 12% and some areas of the country are reporting shortages of suitably qualified individuals.
- Demand nationally for histology technicians is expected to grow as fast as average up to the year 2005. Demographic and social trends seem to favor the growth of medical laboratory testing.
- The Clinical Laboratory Improvement Act of 1988, although not directly requiring histology technicians to obtain Associate Degree qualifications, may encourage some individuals already working in the field to acquire further education.
- Currently the majority of histology technicians enter the field with high school education and receive training on the job. However, evidence from professional organizations and local employers suggests that an Associate Degree is becoming the preferred credential for employment.
- Evidence from data and discussions with experts suggests that the majority of employers either require or prefer certification of histology technicians by the professional organization in the field.
- There appears to be a lack of training opportunities currently available in S.E. Michigan, for histology technicians. Three institutions of higher education in the state provide four year training programs for histology technologists, while only two centers train technicians. The closest of these to OCC, is located in Flint.

OAKLAND COMMUNITY COLLEGE HISTOLOGY TECHNICIAN NEEDS ASSESSMENT

INTRODUCTION

Initiation of Proposed Program

This proposal is the result of consultations begun in Winter 1991, between Theresa Wangler, OCC Social Sciences faculty member, and Peggy Wenk, Program Director of the School of Histotechnology at William Beaumont Hospital, Royal Oak. The impetus for the proposal stemmed from a perceived lack of training opportunities for histology technicians in S. E. Michigan. Peggy Wenk reported that currently 70% of technicians receive their training as a result of High School education combined with two years training on the job. It is estimated by experts in the field that only 15% of histology technicians receive their training through Associate Degree programs. In addition, the implementation of the Federal Clinical Laboratory Improvement Act of 1988 may create a significant demand for supplemental education for those already in the field.

Description of Proposed Program

The program would be a co-operative venture between OCC and William Beaumont Hospital, following the model of existing Health programs at OCC such as Radiation Therapy. OCC would provide fifty-four credits of general and specialized education, utilizing existing courses, including biology, chemistry, and math. Beaumont hospital would provide six months of additional training, building upon the basic knowledge and skills gained by the students at OCC. This training would take place within the School of Histotechnology, and would be developed from their existing program for training histotechnologists. The number of students training at Beaumont at any one time would be limited by the availability of laboratory space. Initially, Beaumont would provide two opportunities annually. Participation by other local hospitals might be possible in the future which would potentially increase the on-site training segment of the program. On completion of both sections (training and education), students would be eligible to receive an Associate Degree from OCC. Beaumont hospital will maintain accreditation for the program.

Description of Occupation

The Occupational Outlook Handbook, 1992-93, describes the nature of the occupation as follows:

" Medical laboratory technicians usually have an Associate Degree from a community college, or a diploma or certificate from a trade or technical school. They are mid-level laboratory workers who usually function under supervision

of a medical technologist or a laboratory supervisor. They perform a wide range of routine tests and laboratory procedures."

According to the Michigan Occupational Information System (MOIS):

"histologic technicians prepare sections of human and animal tissues for microscopic examination. They may use rapid tissue processing and the frozen section technique to freeze, cut, mount and stain tissue specimen received from surgery. They also operate computerized laboratory equipment to fix, dehydrate, and infiltrate with wax, tissue specimens to be preserved for study."

The Committee on Allied Health Education and Accreditation (CAHEA) in its official job description explains that this work is usually prepared under the supervision of, and for the use of a pathologist.

Most histologic technicians work in hospital laboratories, others work in private laboratories, doctors' offices, clinics, public health agencies, pharmaceutical firms, research institutions, and university laboratories. These employers are usually concentrated in larger cities.

Job skill requirements include analytical judgement, the ability to work under pressure and close attention to detail. Manual dexterity and normal color vision are desirable. The widespread use of automated equipment makes computer skills increasingly desirable.

Relation of Proposed Program to College Mission

This proposal meets the objectives of Goal 1 of the OCC Mission Statement in offering learning opportunities and experiences which respond to the vocational needs of the communities OCC serves.

METHODOLOGY

Methods of Data Collection

A modified version of the OCC needs assessment process was adopted for this report. A literature search was performed for background information on the field. In addition, employment information was obtained from a variety of professional, industry, public and regulatory bodies. A phone survey of seventeen hospitals in the South-east Michigan area was conducted between December 21 and 23, 1992 in order to validate employment opportunities in the area and to elicit employer educational and certification requirements. This sample of employers, although smaller than that normally used in the needs assessment process, was considered appropriate given the nature of the program.

Methods of Data Analysis

Quantitative analysis of employer survey data was conducted by means of frequency distributions. Verbal responses were analyzed for content.

ANALYSIS

Employment

Current Employment

According to the 1992-93 Occupational Outlook Handbook, in 1990 there were 258,000 individuals employed nationally as histologic technicians. Of these, 3 out of 5 worked in hospitals, others in universities, independent laboratories, clinics, HMO's, public health agencies, pharmaceutical firms and research institutions. The American Society of Clinical Pathologists (ASCP) records that 14,712 of these technicians had been certified by them, as of July 1992. One in six histologic technicians worked part-time in 1990. Some geographic areas, primarily on the east and west coasts of the U.S., have an undersupply of histologic technicians. John Ryan, histotechnician representative to the National Accreditation Agency for Clinical Laboratory Science (NAACLS), suggests that there is a national shortfall of qualified people, citing demand in his area of Texas. The 1992 Wage and Vacancy Study, prepared for the American Society of Clinical Pathologists, tends to support this view, estimating that national vacancy rates for histotechnicians are currently 12% (Appendix D). This reflects a considerably increased rate of vacancy from the two previous surveys in 1988 (6.2%) and 1990 (9.5%). The highest vacancy rate (22%) occurs in large city and suburb locations, and in the largest hospitals, with more than 500 beds, (24%). Geographically, the highest vacancy rate is found in the South Central Atlantic (17%) and Far West (15%) regions of the country.

In 1988, there were about 11,050 clinical laboratory workers, as a group, employed in Michigan. The Michigan Employment Security Commission (MESCC) is unable to identify specific numbers of histologic technicians from this data. Our local employer survey indicated that typically hospitals in the area employ approximately two histotechnicians in each laboratory. The industry distribution of histotechnicians in Michigan reflects a concentration of employment in hospitals. (Table I)

Table I
Distribution of Clinical Laboratory Workers in Michigan

Industry	% Employed
Hospitals	62.2
Medical & Dental Laboratories	13.7
Physicians' Offices	12.6
Government	4.3
Business Services	2.1
Colleges & Universities	1.2
Other	3.9

Source: MESC

Future Employment

According to Occupational Outlook Handbook 1992-93, the number of entrants to the field in recent years has dropped off, hence qualified laboratory personnel will be in strong demand and should enjoy very favorable employment prospects. Nationally, employment of clinical laboratory personnel is expected to grow as fast as the average for all occupations through year 2005. However, demographic trends may result in an increase in laboratory testing as a result of the ageing population. The over-60 population traditionally needs more medical tests, performed more frequently. The new Federal regulations in effect after 1992 may affect employment in that medical assistants in doctors' offices may be unable to perform as many tests as previously, increasing the amount of work done in private labs by technicians. Fastest growth is expected in medical laboratories as hospitals send them a greater share of their testing. Routine testing is likely to be retained by the hospitals while more unusual testing is sent out to commercial laboratories. Growth is expected in physicians' offices but little in hospitals. Nationally, replacement needs will be an important source of openings in this occupation. However, local employers answering our survey indicated that currently they were experiencing a low rate of turnover.

The American Society of Clinical Pathologists is sufficiently concerned about the possibility of technician shortages to embark on an extensive information program, including a computer-linked Career Recruitment Network. John Ryan of the National Accreditation Agency for Clinical Laboratory Science (NAACLS) indicated that ASCP

including a computer-linked Career Recruitment Network. John Ryan of the National Accreditation Agency for Clinical Laboratory Science (NAACLS) indicated that ASCP is also expected to lobby for federal funding for training programs, in the belief that a shortage of technicians will ultimately harm the quality of available health care.

Technological changes may have two contradictory effects on employment in the future. On the one hand, new, more powerful diagnostic tests are certain, following current developments in biotechnology. Further advances may spur additional testing as laboratories work to find the cause, treatment and cure for AIDS and other diseases. Increased funding from private and public sources has become available for this purpose. However, employment would grow even faster were it not for advances in automation that make it possible for fewer workers to perform more tests. Simplification of test routines also means that non-lab personnel can perform tests, e.g. physicians. It is predicted by experts in the field that robots may be able to prepare specimens in the future.

Experts in the field have found it difficult to predict whether employers will prefer to hire larger numbers of technologists or technicians, in the future. On the one hand, demand for technologists may be maintained by the complexity of much lab testing, the need for in-depth knowledge and independent judgement to verify test results and advise physicians. On the other hand, laboratory automation and development of more routine tests would favor an increase in the number of technicians.

According to MOIS, employment of clinical laboratory workers, within Michigan, is expected to increase about as fast as the average for all occupations, through the year 2000. An average of 260 annual openings are expected during the period, with 120 due to growth and 140 due to replacement. However, our sample survey indicated that 54% of employers who responded, experienced difficulty in finding suitably qualified technicians. Narrative comments reflected the fact that many of the remaining hospitals contacted had experienced low turnover in the occupation and had not attempted to hire new staff.

Demand for Retraining of Current Employees

The Clinical Laboratory Improvement Act of 1988 (Appendix B) instituted new federal regulations for the training of medical technicians. The guidelines attached to this legislation are still being interpreted, but it is believed by many of those working in the field that these regulations will lead to an increased demand for Associate

Degrees from individuals already employed. Both Roberta Mosedale, Executive Secretary of the National Society for Histotechnology, and John Ryan, Histotechnician representative for NAACLS, agree that the act does not specifically require histotechnicians to have an Associate Degree, except for a very small number of those involved in "grossing" tissue. However, the requirement does apply to other groups of technicians and allows them five years to upgrade their qualifications. It is believed likely that, by association, a similar qualification will become desirable for histotechnicians, also. In fact, the National Society for Histotechnology has already recommended that an Associate Degree should be the minimum educational requirement. John Ryan commented that some states, such as Texas, are passing their own legislation to this effect.

Employee Benefits

Wage and Salary

Salaries of medical laboratory technicians vary by type, size and geographic location of employers. Other factors influencing pay scales are experience, education, seniority, specialty, and certification or registration.

In January 1991, according to the Occupational Outlook Handbook 1992-93, medical lab technicians employed full-time averaged \$11.34 per hour, \$23,587 per annum. In Federal Government service, medical technicians earned \$21,664 per annum.

Nationally, MOIS reports that annual salaries, in mid 1990, of histologic technicians employed in hospitals and related institutions, were on average \$22,916.(Table 2)

Table 2
Salaries of Clinical Laboratory Workers

	Average Salary
Histologic Technician	\$22,916
Med-Lab Technician	\$21,926
Medical Technologist	\$28,343

Source: MOIS

This data is consistent with that provided by the October, 1992 Wage and Vacancy Study conducted on behalf of the American Society of Clinical Pathologists. (Appendix D) This survey determined the average median pay rate for Histologic

Technicians to be \$12 per hour or \$24,960 per annum. Median, beginning rate pay, nationally was calculated at \$9.80 per hour or \$20,384 per annum.

In Michigan, the salary of medical-laboratory technicians as a group is reported by MOIS to be slightly above the national average at \$23,296 per year. MESC reports that the salary of entry level histologic technicians ranges between \$20,044 and \$29,100 per annum. The OCC employer survey was consistent with this; mean salary among those surveyed was \$12.32 per hour, \$25,625 per annum, slightly above the national average.

According to MOIS, Clinical Laboratory workers usually receive paid vacations and holidays; accident, disability, and hospitalization insurance; pension plans; and paid sick leave. Some employers in this field operate profit-sharing plans.

Advancement Opportunities

MOIS cites experience, additional education and certification as important factors for advancement in this field. Technicians can advance to technologist status which requires more problem solving and better interpersonal and communications skills. Technologists may advance to supervisory, administrative, teaching or research positions.

Occupational Desirability

The Occupational Outlook Handbook 1992-93 describes working conditions in this occupation as follows:

" Hours and other working conditions vary according to the size and type of employment setting. In large hospitals or in commercial laboratories that operate continuously, workers are hired specifically for the day, evening or night shift. Weekend or holiday work may be required since these laboratories operate 365 days a year."

"Technicians are sometimes required to be on call several nights a week, training involves work with infectious specimens, the work can cause stress in as much as treatment options often depend on quick, accurate analysis of laboratory specimens."

Laboratories generally are well lighted and clean. However, unpleasant odors and specimens of many kinds of diseased tissues are present and exposure to infectious and toxic agents is a possible hazard. The danger is reduced if regulations concerning the handling of these types of materials are observed.

In addition, Professor Ann Marie Behling, of the SUNY, New York Community Colleges, and others working in the field have suggested that there may be a problem of career recognition for histotechnicians. It is believed that work done in the high schools at career nights, as well as more general publicity, could help improve the level of understanding of the occupation.

Occupation

Level of Training Needed

Training for histotechnicians is available in community colleges, hospitals, vocational and technical schools or in the Armed Forces. It is possible to earn a certificate or Associate Degree through these programs. Some technicians complete on the job training after obtaining a High School Diploma. Peggy Wenk of William Beaumont Hospital, estimates that currently 15% of histology technicians nationally, are trained by accredited hospital programs, 15% have Associate Degrees with one year on the job training, 70% have High School education with two years on the job training.

Professor Ann Marie Behling, Program Director of Histotechnology at SUNY College of Agriculture and Technology at Cobleskill, N.Y. considers that the community college training may look, to some entrants, to be more costly in terms of time and tuition, but produces more qualified technicians, with better chances of gaining certification; (75-85% of SUNY graduates pass on their first exam v 38-48% of High school graduates). Of the employers responding to the OCC survey 56% required a high school education as their minimum educational standard for employment while 44% required an Associate Degree. Narrative comments indicated that a significant number of those who required high school education as a minimum, would prefer applicants with Associate Degrees.

Programs in the field usually include both practical and theoretical courses in the areas of medical ethics, medical terminology, chemistry, laboratory mathematics, anatomy, histology, histochemistry, quality control, instrumentation, microscopy, processing techniques, preparation of museum specimens, and record and

administration procedures. They may also include classes in computer techniques, medical terminology and ethics.

Accrediting agencies include the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) and the Committee on Allied Health Education and Accreditation (CAHEA) which accredits 800 medical programs including histologic technicians. CAHEA recommends that the curriculum for histology technicians should be an integral part of a community college program culminating in an Associate Degree, and that the course of study should include biology, chemistry, and mathematics.

In addition to their educational requirements, most employers require or prefer certification of histotechnicians. Of those contacted during our survey ten hospitals (67%) required certification and a significant number of the remaining 33% preferred it. This type of certification is a voluntary process by which a non-governmental professional organization, the Board of Registry of the American Society of Clinical Pathologists grants recognition to an individual whose professional competence meets prescribed standards. Some states, including California, Florida, Hawaii, Nevada, Tennessee, and New York also require licensing of technicians by a government agency. Licensing has been discussed within the state legislature of Michigan, but no bill is currently being proposed.

Adequacy of Currently Available Training

On the national scale a significant number of states, including Alaska, Arizona, California, Delaware, and Oregon, have no schools offering training for histologic technicians. Nationally, CAHEA recognizes 33 histologic technician programs. The majority of these programs are based in hospitals or medical centers, including the two listed in Michigan at Hurley Medical Center, (Flint) and Blodgett Memorial Center, (Grand Rapids). The program at the Hurley Center is linked with Mott Community College. Only seven programs are administered directly by community colleges. These seven programs are as follows:

Harford Community College, Bel Air, Maryland.
Fergus Falls Community College, Fergus Falls, Minnesota.
SUNY College of Agriculture and Technology, Cobleskill, New York.
Columbus State Community College, Columbus, Ohio.
Shoreline Community College, Seattle, Washington.
Chippewa Valley Technical College, Eau Claire, Wisconsin.
Delaware Technical and Community College, Washington, Delaware

Within the state of Michigan, MOIS lists twelve community college programs in the more general field of medical technology. Within these programs, only Northern Michigan University reports that they have any courses in histology. Three institutions in Michigan, Beaumont Hospital, Eastern Michigan University and Oakland University, have training programs for histotechnologists, at the four year baccalaureate level.

MOIS reports that although technically, individuals may enter the occupation through apprenticeship training there are currently no apprenticeship programs available in Michigan. Given this situation, and in the light of the comments of the director of the SUNY program quoted earlier, the proposed program at OCC might be a good candidate for Tech Prep.

Preliminary Cost Estimate

It is estimated that because of the co-operative nature of the proposed program there will be no cost involved in establishing it as it will utilize existing courses and resources within the college.

SUMMARY

Employment prospects for histotechnicians appear to be favorable, with some experts in the field already identifying a shortage of qualified individuals. Demographic and social trends seem to favor increased employment in the future, although there is some discussion whether this would favor those with a four year degree qualification. In addition, it appears that the Clinical Laboratory Improvement Act may stimulate demand for further education among individuals already working in the field. Currently, the majority of histotechnicians enter employment with high school level education and receive on the job training. However, it appears from the evidence obtained from the professional organizations and local employers that an Associate Degree is becoming the preferred qualification. South-east Michigan currently offers few opportunities to gain this qualification.

APPENDIX A.
Needs Assessment from William Beaumont Hospital

Beaumont®

William Beaumont Hospital
Royal Oak

Anatomic Pathology
School of Histotechnology

November 23, 1992

Teresa Wangler
Department of Applied Sciences and Arts
Oakland Community College
22322 Rutland Dr.
Southfield, MI 48075

Dear Ms. Wangler,

Contained in this letter is further information that you requested concerning a needs study in this area and nationwide for histologic technicians (HT). Also included is information about the impact of CLIA '88 on the HT's currently working in the field.

1. **NEEDS STUDY FOR DETROIT AREA:** When the idea was first proposed last year for starting an HT program, we looked at the Sunday want ads from the Detroit Free Press/News for a 4 months period (March 17-July 14, 1991.) In response to your questions today, I reviewed the wants ads from around the same time this year (March 22-July 19, 1992). Below are the results:

<u>1991</u>			<u>1992</u>		
<u>TTL</u>	<u>HT</u>	<u>HTL</u>	<u>TTL</u>	<u>HT</u>	<u>HTL</u>
32	13	19	25	9	16
	(40%)			(36%)	

2. **SIGN-ON BONUSES:** I reviewed the jobs offered during the same March-July period in three years, looking for sign-on bonuses in Detroit area. Sign on bonuses are offered to fill a position that has been difficult to fill, either due to lack of applicants or to underqualified applicants.

<u>1991</u>		<u>1992</u>		<u>1993</u>	
<u>#</u>	<u>AMT</u>	<u>#</u>	<u>AMT</u>	<u>#</u>	<u>AMT</u>
0	--	1	\$300	1	\$1000

3. **NEEDS STUDY FOR THE NATION:** The National Society for Histotechnology (NSH) provides monthly information to HT and HTL Schools, concerning hospitals in the country that have contacted NSH, needing histotechs. The information from May 1991 was used in the 1991 needs study. Today, I compared the findings with the oldest 1992 list I could find (August):

<u>1991</u>				<u>1992</u>			
<u>TTL</u>	<u>HT</u>	<u>HTL</u>	<u>?</u>	<u>TTL</u>	<u>HT</u>	<u>HTL</u>	<u>?</u>
90	45	35	10	70	30	32	8
	(50%)				(43%)		

9049

4. ASCP SURVEY HT/HTL SHORTAGE: Every 2 years since 1988, the American Society of Clinical Pathologists (ASCP) has done a survey of laboratory technician/technologist shortages in the country. Enclosed is a copy of the article from the October 1992 "Pathology News". Across the country, the percentage of unfilled HT positions has risen from 6.2% (1988) to 9.5% (1990) to 12.0% (1992).

5. CLIA '88 IMPACT ON HT: As I mentioned in the April 8, 1992 letter to you, about 70% of the people taking the HT exam become eligible through the high school plus 2 years on-the-job training route. About 450 people take the HT exam every year. According to CLIA '88, some of these registered HT, depending upon their job duties and classification, may be required to earn a minimum of an associate degree within 5 years of the implementation date (September 1992). I am unable to assess the numbers of working registered HT that this would affect in this area, but I have received about 10 phone calls from individuals who heard about the possible OCC curriculum. I have given these individuals your name, so you may have also received calls.

If you require any other information, please call me at 551-9079.

Sincerely,

Peggy A. Wenk

Peggy A. Wenk, BS, HTL(ASCP)
Program Director

Shortage of lab professionals worsens

The shortage of trained medical laboratory personnel is worsening, according to results of the third biannual Wage and Vacancy Survey sponsored by the American Society of Clinical Pathologists and just released during this meeting. This finding is in sharp contrast to recent reports of a turnaround in the nursing shortage, primarily due to increased salaries, improved working conditions, and government funding of schools of nursing.

Although the vacancy rate in staff cytotechnologist positions has improved - 21.2 percent compared to the 27.3 percent vacancy reported in 1990 - more than one in five of these positions is currently unfilled. The improvement is attributed to significant salary increases for cytotechnologists, with the average pay rate for staff positions reaching \$16.70 per hour, or \$34,736 annually for a standard 40 hour work week. In the cytotechnologist supervisor cat-

of vacancy and wage rates for laboratory personnel. The survey was mailed to 2,500 managers of hospital, blood bank, clinic, and independent clinical medical laboratories throughout the US with 688 replies received, a 28 percent response rate. The sample returns are nationally representative of the type and size of laboratory facilities and of geographic regions of the country.

The ASCP has targeted recruitment of qualified students and retention of

**Vacancy rate and annual salaries in medical laboratories
1988 - 1992**

Position	Vacancy rate			Median beginning hourly rates		
	1988	1990	1992	1988	1990	1992
Medical Technologists						
Staff	9.9%	11.6%	13.8%	\$9.53	\$10.61	\$11.80
Supervisor	5.0%	10.2%	9.3%	\$11.26	\$12.78	\$13.90
Manager	3.2%	7.1%	15.0%	\$13.86	\$15.22	\$16.00
Cytotechnologists						
Staff	13.6%	27.3%	21.2%	\$9.51	\$11.33	\$13.30
Supervisor	5.0%	10.0%	20.0%	\$11.24	\$13.72	\$15.70
Histologic Technicians/ Technologists						
Technician	6.2%	9.5%	12.0%	na	\$8.65	\$9.80
Technologist	na	14.3%	12.0%	na	\$10.00	\$11.10
Supervisor	11.7%	10.3%	10.0%	\$10.77	\$12.26	\$13.60
Medical Laboratory Technician	6.5%	11.1%	14.6%	\$7.65	\$8.50	\$9.30
Phlebotomists	8.2%	12.2%	15.4%	\$5.76	\$6.09	\$7.30

The 1992 survey, commissioned by the ASCP Board of Registry, showed that 13.8 percent of staff medical technologist positions are vacant due to lack of trained personnel to fill them - an increase of 20 percent over the 11.6 percent vacancy rate reported in a similar 1990 survey. Vacancies in medical technologist manager positions have more than doubled since 1990, reaching 15 percent in 1992.

egory, vacancies have doubled, going from ten percent in 1990 to 20 percent in 1992.

The ASCP research documents current vacancy and wage levels for ten medical laboratory positions and compares these data with those collected in identical 1988 and 1990 studies. The studies were done by Market Opinion Research of Detroit, and provide the only continuing biannual comparison

the professionals currently practicing as two methods to reduce shortages, and has embarked on an extensive information program. It disseminates career materials and videotapes, and maintains "Lab Link", a unique computer system that matches interested science students with professionals who have volunteered to mentor potential future colleagues. In 1992, the Society

Continued on page 2

instituted its ASCP Scholarship Program, which provides fifty \$1,000 scholarships to deserving students in their final year of clinical training in a laboratory specialty.

"Increased federal funding for training allied health professionals is also a key issue", said Barbara Castleberry, PhD, MT(ASCP), vice president of the ASCP Board of Registry. "Unfortunately, we have seen many schools of allied health close for lack of funding and reduced student enrollments. Over ten years, the numbers of medical technology education programs has declined from 639 to the current 410 programs. This means fewer graduates annually. In 1982, 5,996 medical technologists were graduated, while the 1991 graduates totaled 2,932", she continued.

Certainly wages play an important part in recruiting students to a field, particularly in the '90s, when the high school age population is the smallest it has been in 30 years and health care is competing with other highly lucrative fields for the limited pool of graduates.

Steve Wright, MT(ASCP) chair of the ASCP Board of Registry, noted that in the case of the nursing shortage, when the profession was valued more highly with appropriate salary levels, more students entered nursing education programs. Starting registered nurses were paid approximately \$32,000 in 1991. "We have seen a similar response in cytotechnology where student enrollment has almost doubled, from 131 graduates in 1988 to 259 graduates in 1991, primarily as a result of substantial salary increases", he said.

The law of supply and demand has not taken hold in most of the medical laboratory field, however. For example, for staff medical technologists, the beginning wage rate increases have averaged about 5.6 percent per year, which brings the 1992 medical starting salary for medical technologists to \$24,500 across the US. Mr. Wright speculates that the stagnant economy may have offset pressure from reduced supply and increasing demand for medical laboratory personnel. "Every person receiving a laboratory test and every health specialist is affected by this shortage and it is imperative that we reverse this trend", he concluded.

APPENDIX B.
Clinical Laboratory Improvement Act, 1988

Public Law 100-578
100th Congress

An Act

To amend the Public Health Service Act to revise the authority for the regulation of clinical laboratories.

Oct. 31, 1988

[H.R. 5471]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Clinical Laboratory Improvement Amendments of 1988".

Clinical
Laboratory
Improvement
Amendments of
1988.
42 USC 201 note.

SEC. 2. REVISION OF AUTHORITY.

Section 353 of the Public Health Service Act (42 U.S.C. 263a) is amended to read as follows:

"CERTIFICATION OF LABORATORIES

"SEC. 353. (a) DEFINITION.—As used in this section, the term 'laboratory' or 'clinical laboratory' means a facility for the biological, microbiological, serological, chemical, immuno-hematological, hematological, biophysical, cytological, pathological, or other examination of materials derived from the human body for the purpose of providing information for the diagnosis, prevention, or treatment of any disease or impairment of, or the assessment of the health of, human beings.

"(b) CERTIFICATE REQUIREMENT.—No person may solicit or accept materials derived from the human body for laboratory examination or other procedure unless there is in effect for the laboratory a certificate issued by the Secretary under this section applicable to the category of examinations or procedures which includes such examination or procedure.

"(c) ISSUANCE AND RENEWAL OF CERTIFICATES.—

"(1) IN GENERAL.—The Secretary may issue or renew a certificate for a laboratory only if the laboratory meets the requirements of subsection (d).

"(2) TERM.—A certificate issued under this section shall be valid for a period of 2 years or such shorter period as the Secretary may establish.

"(d) REQUIREMENTS FOR CERTIFICATES.—

"(1) IN GENERAL.—A laboratory may be issued a certificate or have its certificate renewed if—

"(A) the laboratory submits (or if the laboratory is accredited under subsection (e), the accreditation body which accredited the laboratory submits), an application—

"(i) in such form and manner as the Secretary shall prescribe,

"(ii) that describes the characteristics of the laboratory examinations and other procedures performed by the laboratory including—

“(I) the number and types of laboratory examinations and other procedures performed,

“(II) the methodologies for laboratory examinations and other procedures employed, and

“(III) the qualifications (educational background, training, and experience) of the personnel directing and supervising the laboratory and performing the laboratory examinations and other procedures, and

“(iii) that contains such other information as the Secretary may require to determine compliance with this section, and

the laboratory agrees to provide to the Secretary (or if the laboratory is accredited, to the accreditation body which accredited it) a description of any change in the information submitted under clause (ii) not later than 6 months after the change was put into effect,

“(B) the laboratory provides the Secretary—

“(i) with satisfactory assurances that the laboratory will be operated in accordance with standards issued by the Secretary under subsection (f), or

“(ii) with proof of accreditation under subsection (e),

“(C) the laboratory agrees to permit inspections by the Secretary under subsection (g),

“(D) the laboratory agrees to make records available and submit reports to the Secretary as the Secretary may reasonably require, and

“(E) the laboratory agrees to treat proficiency testing samples in the same manner as it treats materials derived from the human body referred to it for laboratory examinations or other procedures in the ordinary course of business.

“(2) REQUIREMENTS FOR CERTIFICATES OF WAIVER.—

“(A) IN GENERAL.—A laboratory which only performs laboratory examinations and procedures described in paragraph (3) shall be issued a certificate of waiver or have its certificate of waiver renewed if—

“(i) the laboratory submits an application—

“(I) in such form and manner as the Secretary shall prescribe,

“(II) that describes the characteristics of the laboratory examinations and other procedures performed by the laboratory, including the number and types of laboratory examinations and other procedures performed, the methodologies for laboratory examinations and other procedures employed, and the qualifications (educational background, training, and experience) of the personnel directing and supervising the laboratory and performing the laboratory examinations and other procedures, and

“(III) that contains such other information as the Secretary may reasonably require to determine compliance with this section, and

“(ii) the laboratory agrees to make records available and submit reports to the Secretary as the Secretary may require.

“(B) CHANGES.—If a laboratory makes changes in the examinations and other procedures performed by it only

Reports.

with respect to examinations and procedures which are described in paragraph (3), the laboratory shall report such changes to the Secretary not later than 6 months after the change has been put into effect. If a laboratory proposes to make changes in the examinations and procedures performed by it such that the laboratory will perform an examination or procedure not described in paragraph (3), the laboratory shall report such change to the Secretary before the change takes effect.

“(C) EFFECT.—Subsections (f) and (g) shall not apply to a laboratory to which has been issued a certificate of waiver.

“(3) EXAMINATIONS AND PROCEDURES.—The examinations and procedures identified in paragraph (2) are simple laboratory examinations and procedures which, as determined by the Secretary, have an insignificant risk of an erroneous result, including those which—

“(A) have been approved by the Food and Drug Administration for home use,

“(B) employ methodologies that are so simple and accurate as to render the likelihood of erroneous results negligible, or

“(C) the Secretary has determined pose no reasonable risk of harm to the patient if performed incorrectly.

“(4) DEFINITION.—As used in this section, the term ‘certificate’ includes a certificate of waiver issued under paragraph (2).

“(e) ACCREDITATION.—

“(1) IN GENERAL.—A laboratory may be accredited for purposes of obtaining a certificate if the laboratory—

“(A) meets the standards of an approved accreditation body, and

“(B) authorizes the accreditation body to submit to the Secretary (or such State agency as the Secretary may designate) such records or other information as the Secretary may require.

“(2) APPROVAL OF ACCREDITATION BODIES.—

“(A) IN GENERAL.—The Secretary may approve a private nonprofit organization to be an accreditation body for the accreditation of laboratories if—

“(i) using inspectors qualified to evaluate the methodologies used by the laboratories in performing laboratory examinations and other procedures, the accreditation body agrees to inspect a laboratory for purposes of accreditation with such frequency as determined by Secretary,

“(ii) the standards applied by the body in determining whether or not to accredit a laboratory are equal to or more stringent than the standards issued by the Secretary under subsection (f),

“(iii) there is adequate provision for assuring that the standards of the accreditation body continue to be met by the laboratory,

“(iv) in the case of any laboratory accredited by the body which has had its accreditation denied, suspended, withdrawn, or revoked or which has had any other action taken against it by the accrediting body, the accrediting body agrees to submit to the Secretary the

name of such laboratory within 30 days of the action taken,

"(v) the accreditation body agrees to notify the Secretary at least 30 days before it changes its standards, and

"(vi) if the accreditation body has its approval withdrawn by the Secretary, the body agrees to notify each laboratory accredited by the body of the withdrawal within 10 days of the withdrawal.

"(B) CRITERIA AND PROCEDURES.—The Secretary shall promulgate criteria and procedures for approving an accreditation body and for withdrawing such approval if the Secretary determines that the accreditation body does not meet the requirements of subparagraph (A).

"(C) EFFECT OF WITHDRAWAL OF APPROVAL.—If the Secretary withdraws the approval of an accreditation body under subparagraph (B), the certificate of any laboratory accredited by the body shall continue in effect for 60 days after the laboratory receives notification of the withdrawal of the approval, except that the Secretary may extend such period for a laboratory if it determines that the laboratory submitted an application for accreditation or a certificate in a timely manner after receipt of the notification of the withdrawal of approval. If an accreditation body withdraws or revokes the accreditation of a laboratory, the certificate of the laboratory shall continue in effect—

"(i) for 45 days after the laboratory receives notice of the withdrawal or revocation of the accreditation, or

"(ii) until the effective date of any action taken by the Secretary under subsection (i).

"(D) EVALUATIONS.—The Secretary shall evaluate annually the performance of each approved accreditation body by—

"(i) inspecting under subsection (g) a sufficient number of the laboratories accredited by such body to allow a reasonable estimate of the performance of such body, and

"(ii) such other means as the Secretary determines appropriate.

"(3) REPORT.—The Secretary shall annually prepare and submit, to the Committee on Energy and Commerce of the House of Representatives and the Committee on Labor and Human Resources of the Senate, a report that describes the results of the evaluation conducted under paragraph (2)(D).

"(f) STANDARDS.—

"(1) IN GENERAL.—The Secretary shall issue standards to assure consistent performance by laboratories issued a certificate under this section of valid and reliable laboratory examinations and other procedures. Such standards shall require each laboratory issued a certificate under this section—

"(A) to maintain a quality assurance and quality control program adequate and appropriate for the validity and reliability of the laboratory examinations and other procedures of the laboratory and to meet requirements relating to the proper collection, transportation, and storage of specimens and the reporting of results,

“(B) to maintain records, equipment, and facilities necessary for the proper and effective operation of the laboratory, Records.

“(C) in performing and carrying out its laboratory examinations and other procedures, to use only personnel meeting such qualifications as the Secretary may establish for the direction, supervision, and performance of examinations and procedures within the laboratory, which qualifications shall take into consideration competency, training, experience, job performance, and education and which qualifications shall, as appropriate, be different on the basis of the type of examinations and procedures being performed by the laboratory and the risks and consequences of erroneous results associated with such examinations and procedures,

“(D) to qualify under a proficiency testing program meeting the standards established by the Secretary under paragraph (3), and

“(E) to meet such other requirements as the Secretary determines necessary to assure consistent performance by such laboratories of accurate and reliable laboratory examinations and procedures.

“(2) CONSIDERATIONS.—In developing the standards to be issued under paragraph (1), the Secretary shall, within the flexibility provided under subparagraphs (A) through (E) of paragraph (1), take into consideration—

“(A) the examinations and procedures performed and the methodologies employed,

“(B) the degree of independent judgment involved,

“(C) the amount of interpretation involved,

“(D) the difficulty of the calculations involved,

“(E) the calibration and quality control requirements of the instruments used,

“(F) the type of training required to operate the instruments used in the methodology, and

“(G) such other factors as the Secretary considers relevant.

“(3) PROFICIENCY TESTING PROGRAM.—

“(A) IN GENERAL.—The Secretary shall establish standards for the proficiency testing programs for laboratories issued a certificate under this section which are conducted by the Secretary, conducted by an organization approved under subparagraph (C), or conducted by an approved accrediting body. The standards shall require that a laboratory issued a certificate under this section be tested for each examination and procedure conducted within a category of examinations or procedures for which it has received a certificate, except for examinations and procedures for which the Secretary has determined that a proficiency test cannot reasonably be developed. The testing shall be conducted on a quarterly basis, except where the Secretary determines for technical and scientific reasons that a particular examination or procedure may be tested less frequently (but not less often than twice per year).

“(B) CRITERIA.—The standards established under subparagraph (A) shall include uniform criteria for acceptable performance under a proficiency testing program,

based on the available technology and the clinical relevance of the laboratory examination or other procedure subject to such program. The criteria shall be established for all examinations and procedures and shall be uniform for each examination and procedure. The standards shall also include a system for grading proficiency testing performance to determine whether a laboratory has performed acceptably for a particular quarter and acceptably for a particular examination or procedure or category of examination or procedure over a period of successive quarters.

“(C) APPROVED PROFICIENCY TESTING PROGRAMS.—For the purpose of administering proficiency testing programs which meet the standards established under subparagraph (A), the Secretary shall approve a proficiency testing program offered by a private nonprofit organization or a State if the program meets the standards established under subparagraph (A) and the organization or State provides technical assistance to laboratories seeking to qualify under the program. The Secretary shall evaluate each program approved under this subparagraph annually to determine if the program continues to meet the standards established under subparagraph (A) and shall withdraw the approval of any program that no longer meets such standards.

“(D) ON-SITE TESTING.—The Secretary shall perform, or shall direct a program approved under subparagraph (C) to perform, onsite proficiency testing to assure compliance with the requirements of subsection (d)(5). The Secretary shall perform, on an onsite or other basis, proficiency testing to evaluate the performance of a proficiency testing program approved under subparagraph (C) and to assure quality performance by a laboratory.

“(E) TRAINING, TECHNICAL ASSISTANCE, AND ENHANCED PROFICIENCY TESTING.—The Secretary may, in lieu of or in addition to actions authorized under subsection (h), (i), or (j), require any laboratory which fails to perform acceptably on an individual examination and procedure or a category of examination and procedures—

“(i) to undertake training and to obtain the necessary technical assistance to meet the requirements of the proficiency testing program,

“(ii) to enroll in a program of enhanced proficiency testing, or

“(iii) to undertake any combination of the training, technical assistance, or testing described in clauses (i) and (ii).

“(F) TESTING RESULTS.—The Secretary shall establish a system to make the results of the proficiency testing programs subject to the standards established by the Secretary under subparagraph (A) available, on a reasonable basis, upon request of any person. The Secretary shall include with results made available under this subparagraph such explanatory information as may be appropriate to assist in the interpretation of such results.

“(4) NATIONAL STANDARDS FOR QUALITY ASSURANCE IN CYTOLOGY SERVICES.—

(A) ESTABLISHMENT.—The Secretary shall establish national standards for quality assurance in cytology services

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information.

designed to assure consistent performance by laboratories of valid and reliable cytological services.

"(B) STANDARDS.—The standards established under subparagraph (A) shall include—

"(i) the maximum number of cytology slides that any individual may screen in a 24-hour period,

"(ii) requirements that a clinical laboratory maintain a record of (I) the number of cytology slides screened during each 24-hour period by each individual who examines cytology slides for the laboratory, and (II) the number of hours devoted during each 24-hour period to screening cytology slides by such individual,

"(iii) criteria for requiring rescreening of cytological preparations, such as (I) random rescreening of cytology specimens determined to be in the benign category, (II) focused rescreening of such preparations in high risk groups, and (III) for each abnormal cytological result, rescreening of all prior cytological specimens for the patient, if available,

"(iv) periodic confirmation and evaluation of the proficiency of individuals involved in screening or interpreting cytological preparations, including announced and unannounced on-site proficiency testing of such individuals, with such testing to take place, to the extent practicable, under normal working conditions,

"(v) procedures for detecting inadequately prepared slides, for assuring that no cytological diagnosis is rendered on such slides, and for notifying referring physicians of such slides,

"(vi) requirements that all cytological screening be done on the premises of a laboratory that is certified under this section.

"(vii) requirements for the retention of cytology slides by laboratories for such periods of time as the Secretary considers appropriate, and

"(viii) standards requiring periodic inspection of cytology services by persons capable of evaluating the quality of cytology services.

"(g) INSPECTIONS.—

"(1) IN GENERAL.—The Secretary may, on an announced or unannounced basis, enter and inspect, during regular hours of operation, laboratories which have been issued a certificate under this section. In conducting such inspections the Secretary shall have access to all facilities, equipment, materials, records, and information that the Secretary determines have a bearing on whether the laboratory is being operated in accordance with this section. As part of such an inspection the Secretary may copy any such material or require to it be submitted to the Secretary. An inspection under this paragraph may be made only upon presenting identification to the owner, operator, or agent in charge of the laboratory being inspected.

"(2) COMPLIANCE WITH REQUIREMENTS AND STANDARDS.—The Secretary shall conduct inspections of laboratories under paragraph (1) to determine their compliance with the requirements of subsection (d) and the standards issued under subsection (f). Inspections of laboratories not accredited under subsection (e) shall be conducted on a biennial basis or with such other

Records.

frequency as the Secretary determines to be necessary to assure compliance with such requirements and standards. Inspections of laboratories accredited under subsection (e) shall be conducted on such basis as the Secretary determines is necessary to assure compliance with such requirements and standards.

“(h) INTERMEDIATE SANCTIONS.—

“(1) IN GENERAL.—If the Secretary determines that a laboratory which has been issued a certificate under this section no longer substantially meets the requirements for the issuance of a certificate, the Secretary may impose intermediate sanctions in lieu of the actions authorized by subsection (i).

“(2) TYPES OF SANCTIONS.—The intermediate sanctions which may be imposed under paragraph (1) shall consist of—

“(A) directed plans of correction,

“(B) civil money penalties in an amount not to exceed \$10,000 for each violation listed in subsection (i)(1) or for each day of substantial noncompliance with the requirements of this section,

“(C) payment for the costs of onsite monitoring, or

“(D) any combination of the actions described in subparagraphs (A), (B), and (C).

“(3) PROCEDURES.—The Secretary shall develop and implement procedures with respect to when and how each of the intermediate sanctions is to be imposed under paragraph (1). Such procedures shall provide for notice to the laboratory and a reasonable opportunity to respond to the proposed sanction and appropriate procedures for appealing determinations relating to the imposition of intermediate sanctions

“(i) SUSPENSION, REVOCATION, AND LIMITATION.—

“(1) IN GENERAL.—Except as provided in paragraph (2), the certificate of a laboratory issued under this section may be suspended, revoked, or limited if the Secretary finds, after reasonable notice and opportunity for hearing to the owner or operator of the laboratory, that such owner or operator or any employee of the laboratory—

“(A) has been guilty of misrepresentation in obtaining the certificate,

“(B) has performed or represented the laboratory as entitled to perform a laboratory examination or other procedure which is not within a category of laboratory examinations or other procedures authorized in the certificate,

“(C) has failed to comply with the requirements of subsection (d) or the standards prescribed by the Secretary under subsection (f),

“(D) has failed to comply with reasonable requests of the Secretary for—

“(i) any information or materials, or

“(ii) work on materials,

that the Secretary concludes is necessary to determine the laboratory's continued eligibility for its certificate or continued compliance with the Secretary's standards under subsection (f),

“(E) has refused a reasonable request of the Secretary, or any Federal officer or employee duly designated by the Secretary, for permission to inspect the laboratory and its

Fraud.

operations and pertinent records during the hours the laboratory is in operation,

"(F) has violated or aided and abetted in the violation of any provisions of this section or of any regulation promulgated thereunder, or

"(G) has not complied with an intermediate sanction imposed under subsection (h).

"(2) ACTION BEFORE A HEARING.—If the Secretary determines that—

"(A) the failure of a laboratory to comply with the standards of the Secretary under subsection (f) presents an imminent and serious risk to human health, or

"(B) a laboratory has engaged in an action described in subparagraph (D) or (E) of paragraph (1),

the Secretary may suspend or limit the certificate of the laboratory before holding a hearing under paragraph (1) regarding such failure or refusal. The opportunity for a hearing shall be provided no later than 60 days from the effective date of the suspension or limitation. A suspension or limitation under this paragraph shall stay in effect until the decision of the Secretary made after the hearing under paragraph (1).

"(3) INELIGIBILITY TO OWN OR OPERATE LABORATORIES AFTER REVOCATION.—No person who has owned or operated a laboratory which has had its certificate revoked may, within 2 years of the revocation of the certificate, own or operate a laboratory for which a certificate has been issued under this section. The certificate of a laboratory which has been excluded from participation under the medicare program under title XVIII of the Social Security Act because of actions relating to the quality of the laboratory shall be suspended for the period the laboratory is so excluded.

"(4) IMPROPER REFERRALS.—Any laboratory that the Secretary determines intentionally refers its proficiency testing samples to another laboratory for analysis shall have its certificate revoked for at least one year and shall be subject to appropriate fines and penalties as provided for in subsection (h).

"(j) INJUNCTIONS.—Whenever the Secretary has reason to believe that continuation of any activity by a laboratory would constitute a significant hazard to the public health the Secretary may bring suit in the district court of the United States for the district in which such laboratory is situated to enjoin continuation of such activity. Upon proper showing, a temporary injunction or restraining order against continuation of such activity pending issuance of a final order under this subsection shall be granted without bond by such court.

"(k) JUDICIAL REVIEW.—

"(1) PETITION.—Any laboratory which has had an intermediate sanction imposed under subsection (h) or has had its certificate suspended, revoked, or limited under subsection (i) may, at any time within 60 days after the date the action of the Secretary under subsection (i) or (h) becomes final, file a petition with the United States court of appeals for the circuit wherein the laboratory has its principal place of business for judicial review of such action. As soon as practicable after receipt of the petition, the clerk of the court shall transmit a copy of the petition to the Secretary or other officer designated by the Secretary for that purpose. As soon as practicable after receipt

of the copy, the Secretary shall file in the court the record on which the action of the Secretary is based, as provided in section 2112 of title 28, United States Code.

"(2) **ADDITIONAL EVIDENCE.**—If the petitioner applies to the court for leave to adduce additional evidence, and shows to the satisfaction of the court that such additional evidence is material and that there were reasonable grounds for the failure to adduce such evidence in the proceeding before the Secretary, the court may order such additional evidence (and evidence in rebuttal of such additional evidence) to be taken before the Secretary, and to be adduced upon the hearing in such manner, and upon such terms and conditions as the court may deem proper. The Secretary may modify the findings of the Secretary as to the facts, or make new findings, by reason of the additional evidence so taken, and the Secretary shall file such modified or new findings, and the recommendations of the Secretary, if any, for the modification or setting aside of his original action, with the return of such additional evidence.

"(3) **JUDGMENT OF COURT.**—Upon the filing of the petition referred to in paragraph (1), the court shall have jurisdiction to affirm the action, or to set it aside in whole or in part, temporarily or permanently. The findings of the Secretary as to the facts, if supported by substantial evidence, shall be conclusive.

"(4) **FINALITY OF JUDGMENT.**—The judgment of the court affirming or setting aside, in whole or in part, any such action of the Secretary shall be final, subject to review by the Supreme Court of the United States upon certiorari or certification as provided in section 1254 of title 28, United States Code.

"(l) **SANCTIONS.**—Any person who intentionally violates any requirement of this section or any regulation promulgated thereunder shall be imprisoned for not more than one year or fined under title 18, United States Code or both, except that if the conviction is for a second or subsequent violation of such a requirement such person shall be imprisoned for not more than 3 years or fined in accordance with title 18, United States Code or both.

"(m) **FEEs.**—

"(1) **CERTIFICATE FEES.**—The Secretary shall require payment of fees for the issuance and renewal of certificates, except that the Secretary shall only require a nominal fee for the issuance and renewal of certificates of waiver.

"(2) **ADDITIONAL FEES.**—The Secretary shall require the payment of fees for inspections of laboratories which are not accredited and for the cost of performing proficiency testing of laboratories which do not participate in proficiency testing programs approved under subsection (f)(3)(C).

"(3) **CRITERIA.**—

"(A) **FEES UNDER PARAGRAPH (1).**—Fees imposed under paragraph (1) shall be sufficient to cover the general costs of administering this section, including evaluating and monitoring proficiency testing programs approved under subsection (f) and accrediting bodies and implementing a monitoring compliance with the requirements of this section.

"(B) **FEES UNDER PARAGRAPH (2).**—Fees imposed under paragraph (2) shall be sufficient to cover the cost of the Secretary in carrying out the inspections and proficiency testing described in paragraph (2).

“(C) FEES IMPOSED UNDER PARAGRAPHS (1) AND (2).—Fees imposed under paragraphs (1) and (2) shall vary by group or classification of laboratory, based on such considerations as the Secretary determines are relevant, which may include the dollar volume and scope of the testing being performed by the laboratories.

“(n) INFORMATION.—On April 1, 1990 and annually thereafter, the Secretary shall compile and make available to physicians and the general public information, based on the previous calendar year, which the Secretary determines is useful in evaluating the performance of a laboratory, including—

Health care
professionals.

“(1) a list of laboratories which have been convicted under Federal or State laws relating to fraud and abuse, false billings, or kickbacks,

“(2) a list of laboratories—

“(A) which have had their certificates revoked, suspended, or limited under subsection (i), or

“(B) which have been the subject of a sanction under subsection (l),

together with a statement of the reasons for the revocation, suspension, limitation, or sanction,

“(3) a list of laboratories subject to intermediate sanctions under subsection (h) together with a statement of the reasons for the sanctions,

“(4) a list of laboratories whose accreditation has been withdrawn or revoked together with a statement of the reasons for the withdrawal or revocation,

“(5) a list of laboratories against which the Secretary has taken action under subsection (j) together with a statement of the reasons for such action, and

“(6) a list of laboratories which have been excluded from participation under title XVIII or XIX of the Social Security Act.

The information to be compiled under paragraphs (1) through (6) shall be information for the calendar year preceding the date the information is to be made available to the public and shall be accompanied by such explanatory information as may be appropriate to assist in the interpretation of the information compiled under such paragraphs.

“(o) DELEGATION.—In carrying out this section, the Secretary may, pursuant to agreement, use the services or facilities of any Federal or State or local public agency or nonprofit private organization, and may pay therefor in advance or by way of reimbursement, and in such installments, as the Secretary may determine.

“(p) STATE LAWS.—

“(1) Except as provided in paragraph (2), nothing in this section shall be construed as affecting the power of any State to enact and enforce laws relating to the matters covered by this section to the extent that such laws are not inconsistent with this section or with the regulations issued under this section.

“(2) If a State enacts laws relating to matters covered by this section which provide for requirements equal to or more stringent than the requirements of this section or than the regulations issued under this section, the Secretary may exempt clinical laboratories in that State from compliance with this section.

“(q) **CONSULTATIONS.**—In carrying out this section, the Secretary shall consult with appropriate private organizations and public agencies.”.

42 USC 263a
note.

SEC. 3. EFFECTIVE DATE.

Subsections (g)(1), (h), (i), (j), (k), (l), and (m) of section 353 of the Public Health Service Act, as amended by section 101, shall take effect January 1, 1989, except that any reference in such subsections to the standards established under subsection (f) shall be considered a reference to the standards established under subsection (d) of such section 353, as in effect on December 31, 1988. During the period beginning January 1, 1989, and ending December 31, 1989, subsections (a) through (d) and subsections (i) through (l) of such section 353 as in effect on December 31, 1988, shall continue to apply to clinical laboratories. The remaining subsections of such section 353, as so amended, shall take effect January 1, 1990, except that subsections (f)(1)(C) and (g)(2) shall take effect July 1, 1991, with respect to laboratories which were not subject to the requirements of such section 353 as in effect on December 31, 1988.

42 USC 263a
note.

SEC. 4. STUDIES.

(a) **STUDIES.**—The Secretary of Health and Human Services, acting through the Public Health Service, shall conduct studies of—

(1) the validity, reliability, and accuracy of proficiency testing of clinical laboratories under section 353 of the Public Health Service Act (as amended by section 2 of this Act),

(2) the correlation between established standards for personnel employed in clinical laboratories and the accuracy and reliability of the results of the tests performed by the laboratories which are subject to such standards,

(3) the correlation between internal quality assurance and quality control programs for clinical laboratories and the accuracy and reliability of the results of the tests performed by the laboratories,

(4) the extent and nature of problems in the diagnosis and treatment of patients caused by inaccurate laboratory test results, and

(5) the effect on laboratory test accuracy of errors in each of the components of the clinical testing process, including the communication between the attending physician and the clinical laboratory which is to conduct the tests, the selection of the tests to be performed, the limits applicable to the tests selected, the acquisition of the material to be tested, the transportation of the material to the laboratory, the storage of the material by the laboratory, the analysis of the material by the laboratory, and the reporting of the results by the laboratory.

PUBLIC LAW 100-578—OCT. 31, 1988

102 STAT. 2915

(b) REPORT.—Not later than May 1, 1990, the Secretary shall report to the Congress the results of the studies conducted under subsection (a).

Approved October 31, 1988.

LEGISLATIVE HISTORY—H.R. 5471:

CONGRESSIONAL RECORD, Vol. 134 (1988):
Oct. 6, considered and passed House.
Oct. 11, considered and passed Senate.

APPENDIX C.
CAHEA List of Accredited Programs, Histologic Technicians/Technologists

Histologic Technician/Technologist*

Alabama

Baptist Medical Centers
Histologic Technician Prgm
800 Montclair Rd
Birmingham, Alabama 35213
Prgm Dir: Robert L Lott, HTL(ASCP)
Tel: (205) 592-5389
Med Dir: Claire B Elliott, MD
Class Cap: 8. Begins: Jan Jul. Length: 12 mo.
Award: Cert. Next Review: 1996.

University of Alabama at Birmingham
School of Health Related Professions
Histologic Technologist Prgm*
SHRP Bldg, Rm 202Z
Birmingham, Alabama 35294
Prgm Dir: Gunvanti Shah, GFAM CM(IAC)
Tel: (205) 934-3811
Med Dir: Hazel Gore, MB
Class Cap: 8. Begins: Sep. Length: 24 mo.
Tuition: res \$2,440 per yr, non-res \$4,880 per yr.
Award: Cert, BS Degree. Next Review: 1995.
Affiliates: The Univ of Alabama Hosp

Arkansas

Baptist Medical System
Histologic Technician Prgm
11900 Colonel Glenn Rd
Ste 1000
Little Rock, Arkansas 72210 2820
Prgm Dir: Renee Clay, HT/HTL(ASCP)
Tel: (501) 223-7412
Med Dir: Charles Sullivan, MD
Class Cap: 5. Begins: Jul. Length: 12 mo.
Tuition: \$1,200 per yr. Award: Cert. Next
Review: 1994.

*Histologic technologist programs are designated with an asterisk.

Colorado

Penrose Hospital
Histologic Technician Prgm
2215 N Cascade Ave/PO 7021
Colorado Springs, Colorado 80933
Prm Dir: Monte Thompson, HT(ASCP)
Tel: (303) 630-5227
Med Dir: Richard M Sherwin, MD
Class Cap: 3. Begins: Jul. Length: 12 mo.
Award: Cert. Next Review: 1994.

Connecticut

Hartford Hospital
Histologic Technician Prgm
80 Seymour St
Hartford, Connecticut 06115
Prm Dir: Zoe Ann Durkin, HT(ASCP)
Tel: (203) 524-2611
Med Dir: William E Clark, MD
Class Cap: 6. Begins: Sep. Length: 12 mo.
Tuition: \$600 per yr. Award: Dipl. Next Review: 1996.

Florida

U of Miami - Jackson Memorial Med Center
Histologic Technician Prgm
1611 NW 12th Ave
Miami, Florida 33136
Prm Dir: Bonnie M Cohen, HTL(ASCP)
Tel: (305) 549-6044
Med Dir: Maria Valdez-Dapena, MD
Class Cap: 5. Begins: Sep. Length: 12 mo.
Tuition: \$750 per yr. Award: Dipl. Next Review: 1994.

Georgia

Georgia Baptist Medical Center
Histologic Technician Prgm
300 Boulevard NE
Atlanta, Georgia 30312
Med Dir: Robert E DeLashmatt, MD
Class Cap: 5. Begins: Sep. Length: 12 mo.
Award: Cert. Next Review: 1997.

St Joseph Hospital
Histologic Technician Prgm
5665 Peachtree-Dunwoody Rd
Atlanta, Georgia 30342
Prm Dir: Lynn K Nabers, HT(ASCP)
Tel: (404) 851-7208
Med Dir: L David Stacy, MD
Class Cap: 4. Begins: Aug. Length: 12 mo.
Award: Cert. Next Review: 1993.

Illinois

Holy Cross Hospital
Histologic Technologist Prgm*
2701 W 68th St
Chicago, Illinois 60629
Prm Dir: Donna M Parker, MBA MT(ASCP)
Tel: (312) 471-6632
Med Dir: Juan J Ugarte, MD
Class Cap: 4. Begins: Jun. Length: 12 mo.
Tuition: \$1,500 per yr. Award: Cert. Next Review: 1993.
Affiliates: Northern IL U, DeKalb

University of Chicago Hospital
Dept of Pathology
Histologic Technician Prgm
5841 S Maryland Ave
Chicago, Illinois 60617
Prm Dir: Marjorie I James, HTL(ASCP) EMSA
Tel: (312) 702-8492
Med Dir: Cyril Abrahams, MD
Class Cap: 5. Begins: Quarterly. Length: 12 mo.
Award: Cert, Dipl. Next Review: 1992.

Foster G McGraw Hospital of Loyola U
Histologic Technologist Prgm*
2160 S First Ave
Maywood, Illinois 60153
Prm Dir: Mary Schafte Case, MT(ASCP)
Tel: (708) 218-8939
Med Dir: Ralph Leischner, MD
Class Cap: 2. Begins: Feb Aug. Length: 12 mo.
Tuition: \$300 per yr. Award: Cert. Next Review: 1993.

Methodist Medical Center of Illinois
Histologic Technician Prgm
221 N E Glen Oak Ave
Peoria, Illinois 61636
Prm Dir: Linda Hay, HT(ASCP)
Tel: (309) 672-5994
Med Dir: Ronald Winek, MD
Class Cap: 2. Begins: Jun. Length: 12 mo.
Award: Cert. Next Review: 1993.

St Francis Medical Center
Histologic Technician Prgm
530 NE Glen Oak Ave
Peoria, Illinois 61637
Prm Dir: Jane Green, MS MT(ASCP)HTL
Tel: (309) 655-3838
Med Dir: Charles E Kelly, MD
Class Cap: 2. Begins: Aug. Length: 12 mo.
Tuition: \$250 per yr. Award: Cert. Next Review: 1993.

St John's Hospital
Histologic Technologist Prgm*
800 E Carpenter
Springfield, Illinois 62789
Prm Dir: Jane Adnan, EdM MT(ASCP)
Tel: (217) 544-6464
Med Dir: Donald Van Fossan, MD PhD
Class Cap: 4. Begins: Jun. Length: 12 mo.
Tuition: \$1,500 per yr. Award: Cert. Next Review: 1995.
Affiliates: Springfield Coll

Maryland

Harford Community College
Histologic Technician Prgm
401 Thomas Run Rd
Bel Air, Maryland 21014
Prm Dir: Floyd M Grimm, III, MEd
Tel: (301) 836-4372
Med Dir: Ramiro Lindado, MD
Class Cap: 6. Begins: Sep. Length: 24 mo.
Tuition: res \$1,312 per yr, non-res \$5,321 per yr.
Award: AA Degree. Next Review: 1995.
Affiliates: Fallston Gen Hosp, Harford Mem Hosp, Havre De Grace; Johns Hopkins Hosp, Baltimore; Maryland Med Lab, Inc; Franklin Square Hosp Ctr, Baltimore

Michigan

Hurley Medical Center
Histologic Technician Prgm
Number One Hurley Plaza
Flint, Michigan 48502
Prm Dir: Anita S Leader, HT(ASCP)
Tel: (313) 257-9131
Med Dir: Willys Muefler, Jr, MD
Class Cap: 4. Begins: Jan Jul. Length: 6 mo.
Tuition: \$1,070 per yr. Award: Dipl, AS Degree.
Next Review: 1994.
Affiliates: Charles Stewart Mott Comm Coll

Blodgett Memorial Medical Center
Histologic Technician Prgm
1840 Wealthy St SE
Grand Rapids, Michigan 49508
Prm Dir: Cody Best, MS HTL(ASCP)
Tel: (616) 774-7709
Med Dir: Esther Sobong, MD
Class Cap: 4. Begins: Jun. Length: 12 mo.
Award: Cert. Next Review: 1995.

William Beaumont Hospital
Histologic Technologist Prgm*
3601 W 13 Mile Rd
Royal Oak, Michigan 48073 6769
Prm Dir: Peggy Wenk, BS HTL(ASCP)
Tel: (313) 551-9079
Med Dir: Ali-Reza Arman, MD
Class Cap: 4. Begins: Sep. Length: 12 mo.
Tuition: \$1,200 per yr. Award: Cert, BS Degree.
Next Review: 1994.
Affiliates: Eastern Michigan U, Ypsilanti; Oakland U, Rochester; Univ of Detroit, Detroit

St Mary's Medical Center
Histologic Technician Prgm
830 S Jefferson
Saginaw, Michigan 48601
Prm Dir: Rosemary Lar, HT(ASCP)
Tel: (517) 776-8230
Med Dir: George K Tong, MD
Class Cap: 2. Begins: Jun. Length: 12 mo.
Award: Cert. Next Review: 1993.

Minnesota

Fergus Falls Community College
Histologic Technician Prgm
1414 College Way
Fergus Falls, Minnesota 56537
Prm Dir: Dorothy L Ness, MS MT(ASCP)CLS
Tel: (218) 739-7529
Med Dir: Lazel Michaelis, MD
Class Cap: 12. Begins: Sep. Length: 18 mo.
Tuition: res \$2,201 per yr, non-res \$4,464 per yr.
Award: Dipl, AS Degree. Next Review: 1998.
Affiliates: Dakota Clinic & Hosp, Fargo, ND; Douglas Crty Hosp, Alexandria; Lake Reg 1 Hosp; North County Hosp, Remidji; St Cloud Hosp, St Cloud; St Mary's Hosp, Duluth

Missouri

Trinity Lutheran Hospital
Histologic Technician Prgm
3030 Baltimore Ave
Kansas City, Missouri 64108
Prm Dir: Marsha Danley, HT(ASCP)
Tel: (816) 751-2430
Med Dir: Gerardo G Vergara, MD
Class Cap: 2. Begins: Feb Aug. Length: 12 mo.
Tuition: \$800 per yr. Award: Cert. Next Review: 1993.

Truman Medical Center
Histologic Technician Prgm
2301 Holmes
Kansas City, Missouri 64108
Prm Dir: Katherine B Wintle, HT CT(ASCP)
Tel: (816) 881-6223
Med Dir: Edward R Freidlander, MD
Begins: Feb Aug. Length: 12 mo. Tuition: \$300 per yr. Award: Cert. Next Review: 1993.

New Jersey

Mountainside Hospital
Histologic Technician Prgm
Bay & Highland Aves
Glen Ridge/Montclair, New Jersey 07042
Prm Dir: Halcyon St Hill, EdD, MT(ASCP)
Tel: (201) 429-8178
Med Dir: Stephen C Kintler, MD
Class Cap: 2. Begins: Aug. Length: 12 mo.
Tuition: \$1,000 per yr. Award: Cert. Next Review: 1994.

Muhlenberg Regional Medical Center
Histologic Technologist Prgm*
Park Ave & Randolph Rd
Plainfield, New Jersey 07061
Prm Dir: Karen M Noa, HTL(ASCP)
Tel: (908) 668-2296
Med Dir: John K Ashton, MD
Class Cap: 4. Begins: Feb Aug. Length: 12 mo.
Tuition: \$1,500 per yr. Award: Cert. Next Review: 1997.

*Histologic technologist programs are designated with an asterisk.

New York

SUNY Coll of Agric & Tech at Cobleskill
 Histologic Technician Prgm
 Rt 7
 Cobleskill, New York 12043
 Prgm Dir: Ann Marie Behling, HTL(ASCP)
 Tel: (518) 234-5417
 Class Cap: 25. Begins: Aug. Length: 24 mo.
 Tuition: res \$1,650 per yr, non-res \$5,000 per yr.
 Award: Dipl, AAS Degree. Next Review: 1992.
 Affiliates: A O Fox Hosp, Oneonta; Albany Med Ctr; Crouse Irving Mem Hosp, Syracuse; Ellis Hosp, Schenectady; Faxton Hosp, Utica; Glens Falls Hosp; Hosp Shared Services, Poughkeepsie; Mary Imogene Bassett, Cooperstown; Mem Hosp, Albany; Northport VA Med Ctr, Northport; SUNY Upstate Med Ctr, Syracuse; Samaritan Hosp, Troy; St Charles Hosp, Port Jefferson; St Clare's Hosp, Schenectady; St Luke's Hosp, Utica; St Peter's Hosp; U of Rochester, Rochester; United Hlth Services, Johnson City; VA Med Ctr, Albany; Westchester County Med Ctr, Valhalla

North Dakota

University of North Dakota
 Histologic Technician Prgm
 University Station
 Grand Forks, North Dakota 58201
 Prgm Dir: Eileen Nelson, MT HTL(ASCP)
 Tel: (701) 777-2643
 Med Dir: Roger Sopher, MD
 Class Cap: 2. Begins: Aug. Length: 12 mo.
 Tuition: \$350 per yr. Award: Cert. Next Review: 1995.

Ohio

Columbus State Community College
 Histologic Technician Prgm
 550 E Spring St
 Columbus, Ohio 43215
 Prgm Dir: Beverly M Kovanda, MT(ASCP) PhD
 Tel: (614) 227-2608
 Med Dir: Leo Murthy, MD
 Class Cap: 12. Begins: Jun. Length: 12 mo.
 Tuition: \$1,804 per yr. Award: Cert. Next Review: 1993.
 Affiliates: Ohio State U Hosps; Battelle Inst; Doctors Hosp; Grant Med Ctr; Riverside Methodist Hosp; Children's Hosp, St Anthony's Med Ctr; Lancaster-Fairfield Hosp, Lancaster
St Elizabeth Hospital Medical Center
 Histologic Technician Prgm
 1044 Belmont Ave
 Youngstown, Ohio 44501 1790
 Prgm Dir: Denise Gerard, HT/HTC(ASCP)
 Tel: (216) 746-7211
 Med Dir: Norton I German, MD
 Class Cap: 2. Begins: Jul. Length: 12 mo.
 Tuition: res \$375 per yr, non-res \$500 per yr.
 Award: Cert. Next Review: 1996.

Pennsylvania

Gelsinger Medical Center
 Histologic Technician Prgm
 N Academy Ave
 Danville, Pennsylvania 17822
 Prgm Dir: Avin Swartzentruber, MT(ASCP)
 Tel: (717) 271-6700
 Med Dir: Conrad Schuerch, MD
 Class Cap: 4. Begins: Jul. Length: 12 mo.
 Tuition: \$630 per yr. Award: Cert. Next Review: 1995.
Conemaugh Valley Memorial Hospital
 Histologic Technician Prgm
 1086 Franklin St
 Johnstown, Pennsylvania 15905
 Prgm Dir: Charles Shustrick, HT(ASCP)
 Tel: (814) 533-9797
 Med Dir: John F Yergler, MD
 Class Cap: 4. Begins: Aug. Length: 12 mo.
 Tuition: \$1,500 per yr. Award: Cert. Next Review: 1996.

Western Schl of Hlth & Business Careers
 Chamber of Commerce Bldg, 2nd Floor
 Histologic Technician Prgm
 411 Seventh Ave
 Pittsburgh, Pennsylvania 15219
 Prgm Dir: Karl E Williams, MD
 Tel: (412) 488-7518
 Med Dir: Karl E Williams, MD
 Class Cap: 20. Begins: Oct. Length: 11 mo.
 Tuition: \$9,500 per yr. Award: AD AST Degrees.
 Next Review: 1992.
 Affiliates: Magee Women's Hosp, Mercy Hosp, Pittsburgh, McKeesport Hosp, McKeesport

South Carolina

Medical University of South Carolina
 Coll Hlth Related Prof - Med Lab Sci Dept
 Histologic Technician/Technologist Prgm*
 171 Ashley Ave
 Charleston, South Carolina 29425
 Prgm Dir: Ulrich A Hasal, MA HT(ASCP)/HTL
 Tel: (803) 792-2041
 Med Dir: John S Metcalf, MD
 Class Cap: 6. Begins: Aug. Length: 12 mo.
 Tuition: res \$2,475 per yr, non-res \$6,050 per yr.
 Award: Cert. Next Review: 1998.
 Affiliates: VA Med Ctr; St Francis Xavier Hosp; Roper Hosp

Texas

Seton Medical Center
 Histologic Technician Prgm
 1201 W 38th St
 Austin, Texas 78705
 Prgm Dir: Linda Prestridge, HT/HTL(ASCP)
 Tel: (512) 323-1000
 Med Dir: Michael O'Brien, MD
 Class Cap: 4. Begins: Aug. Length: 12 mo.
 Award: Cert. Next Review: 1996.
St Luke's Episcopal Hospital
 Histologic Technician Prgm
 6720 Bertner Ave/PO Box 20269
 Houston, Texas 77030
 Prgm Dir: John P Ryan, MBA HTL(ASCP)/HT
 Tel: (713) 791-2643
 Med Dir: Hugh A McAllister, Jr, MD
 Class Cap: 6. Begins: Feb. Length: 12 mo.
 Tuition: \$600 per yr. Award: Cert. Next Review: 1993.
U Texas M D Anderson Cancer Center
 Histologic Technician Prgm
 1515 Holcombe Blvd/Box 85
 Houston, Texas 77030
 Prgm Dir: Beverly Plocharski, HTL(ASCP)
 Tel: (713) 792-3118
 Med Dir: J G Batsakis, MD
 Class Cap: 4. Begins: Jan. Length: 12 mo.
 Award: Cert. Next Review: 1996.
 Affiliates: Univ of Texas Hlth Sci Ctr Schl of Allied Hlth Sci

Medical Center Hospital at San Antonio
 Dept of Pathology
 Histologic Technician Prgm
 7703 Floyd Curl Dr
 San Antonio, Texas 78284
 Prgm Dir: Margaret S Judge, HTL(ASCP)
 Tel: (512) 567-4057
 Med Dir: D Craig Allred, MD
 Class Cap: 5. Begins: Aug. Length: 12 mo.
 Award: Cert. Next Review: 1896.
 Affiliates: Audie Murphy VA Med Ctr; Humana Hosp-San Antonio; South Texas Dermatopathology Lab; Univ of Texas Hlth Sci Ctr

Washington

Shoreline Community College
 Histologic Technician Prgm
 16101 Greenwood Ave N
 Seattle, Washington 98133
 Prgm Dir: Shirley E Anderson, MED MT(ASCP)
 Tel: (206) 546-4750
 Med Dir: Rodney Schmidt, MD
 Class Cap: 10. Begins: Sep. Length: 23 mo. 12 mo. Tuition: res \$939 per yr, non-res \$3,711 per yr. Award: Dipl, AAS Degree. Next Review: 1992.
 Affiliates: Harborview Med Ctr; Swedish Hosp Med Ctr; U Hosp; Virginia Mason Hosp; Children's Hosp & Med Ctr

Wisconsin

Chippewa Valley Technical College
 Histologic Technician Prgm
 620 W Clairemont Ave
 Eau Claire, Wisconsin 54701
 Prgm Dir: Wayne Kampa, HT(ASCP)
 Tel: (715) 833-6426
 Med Dir: Thomas Hadley, MD
 Class Cap: 16. Begins: Aug. Length: 20 mo.
 Tuition: res \$1,556 per yr, non-res \$10,740 per yr. Award: AS Degree. Next Review: 1993.
 Affiliates: Hennepin Gen Hosp, Minneapolis; Luther Hosp, La Crosse; Mayo Clinic, Rochester; Milwaukee Cnty Med Ctr, Milwaukee; Sacred Heart Hosp; St Luke's Hosp; St Mary's Hosp, Rhinelander; St Nicholas Hosp, Sheboygan; Univ Hosps & Clinic, Madison, VA Med Ctr, Minneapolis; Veterans Memorial Hosp, Madison
St Joseph's Hospital
 Histologic Technician Prgm
 611 St Joseph Ave
 Marshfield, Wisconsin 54449
 Prgm Dir: Virginia R Narlock, PhD MT(ASCP)
 Tel: (715) 387-7202
 Med Dir: Cesar N Reyes, Jr, MD
 Class Cap: 4. Begins: Feb. Aug. Length: 12 mo.
 Award: Cert. Next Review: 1996.

*Histologic technologist programs are designated with an asterisk.

APPENDIX D.

**1992 Wage and Vacancy Study, The American Society of Clinical Pathologists,
Table 6.**

TABLE 6

HISTOLOGIC TECHNICIANS/TECHNOLOGISTS HOURLY
PAY RATES/VACANCIES (TECHNICIANS)

Employer Group	Beginning Pay Rate		Average Pay Rate		Percent FTE Vacancies
	(Base)	Median	(Base)	Median	(Avg.)
Total	(201)	\$9.80	(201)	\$12.00	12.00%
Private Clinic/Reference Labs	(13)	\$10.70	(13)	\$12.50	--
Hospitals	(184)	\$9.70	(184)	\$12.00	12.50
Private doctors practice group	(1)	\$7.00	(1)	\$9.00	--
Hospital Bed Size:					
Less than 100	(19)	\$9.00	(19)	\$10.80	11.11
100-299	(98)	\$9.60	(98)	\$11.70	9.52
300-499	(38)	\$10.10	(38)	\$12.80	11.11
500 or more	(27)	\$10.10	(27)	\$12.70	24.32
Hospital Ownership:					
Federal	(18)	\$10.90	(18)	\$12.50	9.10
Non Federal	(166)	\$9.60	(166)	\$11.90	16.67
City Size:					
Rural area	(42)	\$9.10	(42)	\$10.90	5.0
Small-medium size city	(96)	\$9.40	(96)	\$11.70	11.11
Large city + suburbs	(37)	\$10.80	(37)	\$13.80	22.22
Suburbs 1992	(24)	\$10.80	(24)	\$13.30	NA
Hospital Region:					
Northeast	(34)	\$10.90	(34)	\$12.90	8.70
East North Central	(42)	\$9.70	(42)	\$11.90	12.50
South Central Atlantic	(43)	\$9.20	(43)	\$11.80	16.67
West South Central	(11)	\$7.80	(11)	\$9.80	11.11
West North Central	(25)	\$9.10	(25)	\$11.20	12.12
Far West	(45)	\$10.90	(45)	\$12.70	15.39

REFERENCES

Dictionary of Occupational Titles 1991

Michigan Employment Security Commission, Bruce Weaver.

MOISCRIP 164

Occupational Outlook Handbook 1992-93

American Society of Clinical Pathologists, Wage & Salary Survey, 1992.

National Society for Histotechnology, Membership Survey 1992.

Behling, Professor Ann Marie. Program Director of Histotechnology, SUNY College of Agriculture and Technology at Cobleskill, N.Y. Elimination of HT exam route 3 is long overdue. *NSH in Action, Volume 19, #3, August 1992*

Professional Organizations:

Dr. Barbara Castleberry,
American Society of Clinical Pathologists
Board of Registry,
P.O. Box 12270,
Chicago,
IL 60612
(312) 738-1336 (312) 738-4861

National Certification Agency for Medical Laboratory Personnel,
2021 L St. NW,
Suite 400,
Washington,
DC 20036

International Society For Clinical Laboratory Technology,
818 Olive St.
Suite 918,
St. Louis,
MO 63101

American Society for Medical Technology,
2021 L St. NW,
Suite 400,
Washington,
DC 20036

Dr. Barbara Weithaus

Committee on Allied Health Education and Accreditation,
515 North St.
Chicago,
IL 60610
(312) 464-4660

Roberta Mosedale, Executive Secretary
National Society for Histotechnology
Lanham,
Maryland.
(301) 577-4907, 4908

John Ryan
Histotechnician Representative,
National Accreditation Agency for Clinical Laboratory Science
St. Lukes Episcopal Hospital,
Houston, Texas
(713) 791-2643

Anne-Marie Behling (518) 234-5417
New York SUNY Colleges

Don Hammer
University of Washington
Seattle,
(206) 548-6401