



Project Report

Current Status and Trends in the Labor Market for Clinical Laboratory Workers in Maine

**For: Maine Chapter of the Clinical Laboratory
Management Association
C/O Maine Standards Company
Windham, ME 04062**

**From: Planning Decisions, Inc.
22 Cottage Road, P.O. Box 2414
South Portland, ME 04116-2414**

January 30, 2008

Introduction

It is well known that the health care sector has been the leading engine for employment growth in Maine for at least a generation. Since 1980, total employment in Maine has increased 52% while health care employment has increased 200%. One of the effects of this steady and rapid growth has been increasing difficulty in finding qualified people to fill openings. Such shortages—and the extreme measures taken to overcome them—have been well documented in the field of nursing. Less well known but equally threatening to the overall functioning of our health care system is the shortage of clinical laboratory workers—the people responsible for conducting the underlying tests upon which so much of modern medical treatment depends. Nationally, labor market surveys indicate that the shortage of qualified lab workers numbers in the tens of thousands and represents an immediate and critical potential threat to the lives of thousands of patients nationwide as well as to the quality of ongoing research in the non-profit research institutions and for-profit companies that rely on qualified lab personnel to conduct their operations.¹

To determine the extent of this problem in Maine, three Maine laboratory professional organizations and two pathology groups commissioned a survey of the labor market for laboratory professionals in Maine.² This report presents the results of that research. Its major findings are that the 148 labs licensed by the State of Maine:

1. currently *employ over 2,000 laboratory professionals* in Maine;
2. reported a vacancy rate of 5.5% and filled 6% of their jobs with agency supplied temporary workers; this means that they face a *current shortage of approximately 250 jobs*, jobs whose starting salaries range from \$13 to \$25 per hour but cannot be filled by qualified local applicants;
3. reported a weighted average age across all specialties of 43 and an *expected retirement rate of 9% within five years and 20% within ten years.*

In the face of this current and growing future labor shortage, Maine's educational institutions are *currently graduating approximately twenty trained laboratory professionals per year*. Clearly, this supply of future workers is inadequate to meet current and future demand. Maine must take some action now or face the threat of a severely compromised health care system and research sector.

The balance of this report presents the findings of the survey of licensed Maine laboratories.

¹ U.S. Department of Health & Human Services, Bureau of Health Professions [The Clinical Laboratory Workforce: The Changing Picture of Supply, Demand, Education and Practice](http://bhpr.hrsa.gov/healthworkforce/reports/clinical/default.htm#descrip), July 2005, p. 15. <http://bhpr.hrsa.gov/healthworkforce/reports/clinical/default.htm#descrip>.

² Maine Chapter of the Clinical Laboratory Managers Association (CLMA), Maine AMT, ASCLS Maine, Great Falls Pathology and Dahl Chase Pathology Group.

Who Are Clinical Laboratory Workers?

The clinical laboratory workforce includes several categories of laboratory science practitioners who have various levels of education and training ranging from on-the-job training to associate, baccalaureate and graduate degrees. The general job responsibilities of clinical laboratory workers involve the collection and analysis of body fluids, tissues, and cells in order to diagnose and monitor diseases and medical conditions. Through these processes, clinical laboratory practitioners help in detecting and diagnosing diseases, or pre-disease states, as well as in monitoring the progress and results of treatments. The information produced by clinical laboratory workers aids in 75% to 80% of physician's diagnoses, monitoring diseases and medical conditions. In addition, laboratory professionals work for bio- technology firms, in research, for medical vendors, information technology firms, veterinary medicine, national defense and many other fields.

The clinical laboratory professions include³:

- ✓ **Medical Laboratory Technicians (MLT ASCP)** who complete an 18-month curriculum (Associate Degree) followed by a 12-month clinical internship and successful completion of a national board of registry exam given by the American Society for Clinical Pathology;
- ✓ **Medical Technologists (MT ASCP)** who complete a pre-med college curriculum (Bachelor's Degree) followed by a full 12-month clinical internship and successful completion of a national board of registry exam given by the American Society for Clinical Pathology;
- ✓ **Specialized Practitioners (Specialists)** who have Bachelor's degrees in biological sciences or medical sciences plus extensive on the job training in a particular field plus successful completion of an ASCP certified examination; these include, among others, Specialist Chemistry (SC), Specialist Microbiology (SM), Specialist Hematology (the study of blood) (SH) and Specialists in Blood Banking (SBB) who are trained in the functions of blood banks and transfusion services.
- ✓ **Specialists Trained On the Job** In addition to those professionals with academic degrees, some laboratory workers have certificates provided by the U. S. Department of Health and Human Services (HHS) or its predecessor agency the Department of Health, Education and Welfare (HEW) documenting their on the job training and certifying their qualification to conduct the work they do; these certifications are no longer available but represent the credentials of many older workers in the field.

³ For a complete list of Certifications see the listing at the American Society for Clinical Pathology website summarized in Appendix 1 below.

Who Employs Clinical Laboratory Workers in Maine?

Clinical laboratory practitioners work in a variety of settings, most often hospitals, but also in physicians' offices, independent laboratories, universities, colleges, community colleges and the biotechnology industry. The state of Maine, Department of Health and Human Services, Division of Licensing and Regulatory Services, Medical Facilities maintains a list of certified Maine labs. In December 2007, the Maine Chapter of the Clinical Laboratory Management Association (Maine CLMA) mailed surveys to all of these labs. Based on the results of this survey, Maine CLMA concluded that there are nearly 2,200 clinical laboratory workers currently employed in Maine.⁴

Table 1 summarizes the distribution of employment of laboratory professionals in Maine by job category both for the labs who responded to the CLMA survey and for the estimate of the entire Maine market.

Table 1 Employment of Laboratory Professionals in Maine by Category, 2007

Job Category	From Survey	Estimated Total
MT (ASCP)	411	810
MLT (ASCP)	304	600
Specialty SC, SH, SBB, etc.	71	140
OJT, HEW, HHS, Specialist, etc.	114	225
Other Non-Credentialed Employees	195	390
Total Jobs	1,146	2,165
Total Employers	75	148

These figures are broadly consistent with the Department of Labor who estimated that there were 830 MT's and 630 MLT's employed in Maine in 2004.⁵

Who Trains Clinical Laboratory Workers in Maine?

There are two education / training programs in Maine for laboratory professionals. The first is a baccalaureate program at The University of Maine run in conjunction with Eastern Maine Medical Center in Bangor. The second is an associate degree program, The MLT Program of Maine, offered at The University of Maine at Presque Isle and at the University of Maine at Augusta and run in conjunction with various hospitals statewide. MaineGeneral Medical Center supports the UMA portion of this program by providing faculty to run it. The baccalaureate program graduates a maximum of six people each year, and the associate degree program between ten and fifteen people per year. There has been a third program at Central Maine Community College, but this program is on hold. Under current plans, 2008 graduates will be the last class.

Table 2 illustrates the numbers of graduates from all three programs over the recent past.

⁴ See the Appendix at the end of this report for a list of labs surveyed.

⁵ <http://www.acinet.org/>.

Table 2 Graduating Laboratory Professionals in Maine by School, 2003-2007

School	Degree	2003	2004	2005	2006	2007	2008
EMMC	BS	3	4	6	6	6	6
CMCC	AS	5	6	9	6	4	8
UMA	AS	1	7	10	8	7	9
UMPI	AS	4	8	9	5	5	1
Totals		13	25	34	25	22	24

Source: Director of UMA/UMPI program.

In addition to these formal academic programs, individual labs may employ workers who have completed college science courses, extensive on-the-job training and work under the supervision of board registered Medical Technologists.

What are the key labor market trends for Clinical Laboratory Workers in Maine?

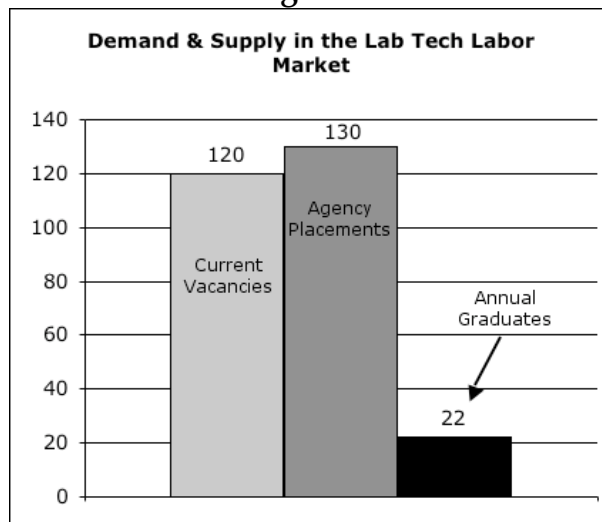
1. *vacancies*

Survey responses indicate a vacancy rate of 5.5% for a total of nearly 120 jobs for all categories of medical laboratory technicians and technologists. This is somewhat higher than the 3.4% vacancy rate reported by the Maine Department of Labor for MT's in 2002 and somewhat less than the Department's reported vacancy rate for MLT's of 6.4%.⁶

2. *temporary workers (travelers or agency placements)*

Survey responses indicate that approximately 6% of Maine's medical laboratory technician and technologist jobs are filled by agency supplied workers. This amounts to nearly 130 jobs and could be added to vacancies to indicate a total number of positions that Maine's clinical labs would prefer to fill with local workers. Figure 1 presents these data graphically.

Figure 1



⁶ Maine Department of Labor 2006 Healthcare Occupations Report, January 21, 2007, p. 160 – 164.

3. *age and retirement*

The weighted average age for all medical laboratory technicians and technologists reported in the survey is 43, ranging from a low of 25 to a high of 56. Specialty credentialed employees had the highest average age (51) and other non-credentialed employees had the youngest average age (39). All groups except MLT's had at least one firm with an average age over 60.

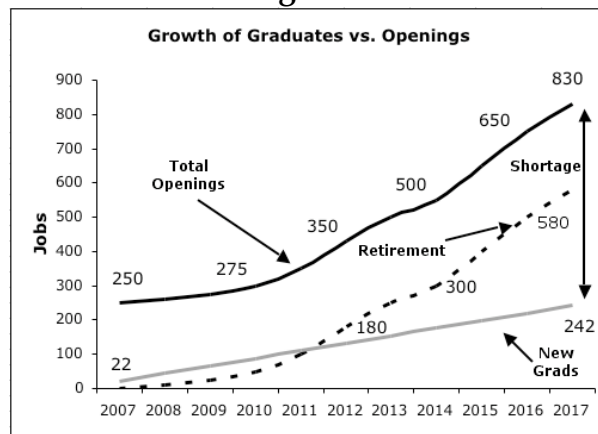
Laboratory technician and technologist occupations face a growing number of vacancies due to planned retirements—9% within 5 years, 20% within 10 years and 23% within 15 years. In addition, coming retirements will place a greater burden on a number of smaller enterprises that face much larger percentages of their total work force expecting to retire within 5 years. For specialists, reporting firms indicate that over 50% of current employees are expected to retire within five years.

Table 3 Age & Expected Retirement of Laboratory Professionals in Maine by Category, 2007

Category	MT (ASCP)	MLT (ASCP)	Specialty SC, SH, SBB, etc	OJT, HEW, HHS, Specialist, etc	Other Non-Credentialed Employees	Total
Avg. age	47	44	51	49	40	43
Low	35	25	42	28	25	25
High	62	59	60	62	62	56
Retire in 5 y's	9%	6%	13%	50%	14%	9%
Retire in 10 y's	27%	18%	25%	61%	17%	20%
Retire in 15 y's	33%	22%	20%	58%	27%	23%

Thus, in addition to the current need for 250 trained medical laboratory technicians and technologists—120 to fill current vacancies and 130 to replace “travelers,” Maine labs will need nearly another 200 workers to fill vacancies from expected retirements over the next five years and another 220 workers to fill the retirements likely to occur over the following five years.

Figure 2



If current trends continue, in ten years the current shortage of qualified laboratory professionals will grow to nearly 600.

Appendix 1: American Society for Clinical Pathology Certifications

ASCP Board of Registry Certification Examinations

General Certification	Specialist Certification
Medical Laboratory Technician (MLT)	Hemapheresis Practitioner (HP)
Medical Technologist (MT)	Pathologists' Assistant (PA)
	Specialist in Blood Banking (SBB)
Categorical Certification	Specialist in Chemistry (SC)
Apheresis Technician (AT)	Specialist in Cytotechnology (SCT)
Cytotechnologist (CT)	Specialist in Hematology (SH)
Donor Phlebotomy Technician (DPT)	Specialist in Laboratory Safety (SLS)
Histotechnician (HT)	Specialist in Microbiology (SM)
Histotechnologist (HTL)	
Phlebotomy Technician (PBT)	Diplomate Certification
Technologist in Blood Banking (BB)	Diplomate in Laboratory Management (DLM)
Technologist in Chemistry (C)	
Technologist in Hematology (H)	Qualifications in Cytometry, Immunohistochemistry, Laboratory Compliance, Laboratory Informatics
Technologist in Microbiology (M)	Contact the Board of Registry for complete information.
Technologist in Molecular Pathology (MP)	

Source: <https://www.ascp.org/certification/certifyingexaminations/cert%5Fprocedures/>.

Appendix 2: Maine Employers of Clinical Laboratory Workers.

The state of Maine, Department of Health and Human Services, Division of Licensing and Regulatory Services, Medical Facilities maintains a list of certified Maine labs. In December 2007, this list contained 159 entities including hospital labs, commercial labs, private companies, research institutions and doctor's offices. The Maine Chapter of the Clinical Laboratory Management Association mailed surveys to all of these labs. Six reported no medical laboratory technician or technologist employees (Cape Technologies, Chemonex, Coral Blood Service, Maine Environmental Testing Lab, Noble Clinic, and Rumford Community Hospital) and six were secondary operations of larger entities (SMMC Respiratory Therapy Department, one office of the Foundation for Blood Research, the Urology Department of Franklin Memorial Hospital, the Waterville lab of Maine General Hospital, one division of the MDI Biological Lab and the oncology treatment center of York Hospital) In addition, the Waldo County General Hospital does employ laboratory technicians and technologists, but was not included in the original list.

In sum, a total of 148 entities in Maine employ medical laboratory technicians and technologists. Of these, 75 (50%) responded to the CLMA Survey. The table below lists these entities and the number of jobs for clinical laboratory professionals they reported.

LAB NAME	CITY	Jobs
AFFILIATED LAB INC PORTLAND	PORTLAND	8
AFFILIATED LABORATORY INC	BANGOR	101
ANATEK EP	SCARBOROUGH	
ARNOLD MEMORIAL MEDICAL CENTER	JONESPORT	
AROOSTOOK MEDICAL CENTER,THE	PRESQUE ISLE	24
ARTHUR C WINTER MD	BIDDEFORD	
BANGOR STD CLINIC	BANGOR	1
BEACON ANALYTICAL SYSTEMS	PORTLAND	
BENJAMIN ZOLPER MD INC	BANGOR	
BETHEL POINT RESEARCH STATION	CUNDYS HARBOR	
BINAX INC	SCARBOROUGH	
BLOCK AND GRATWICK PA	BANGOR	2
BLUE HILL MEMORIAL HOSPITAL	BLUE HILL	9
BOWDOIN MEDICAL GROUP	BRUNSWICK	6
BRIAN P O'DONNELL MD PA	FREEMPORT	
BRIDGTON HOSPITAL	BRIDGTON	12
BUCKSPORT REGIONAL HEALTH CENTER	BUCKSPORT	4
BUSHOVER BIOLOGICAL	VASSALBORO	8
CADILLAC FAMILY PRACTICE	BAR HARBOR	
CALAIS REGIONAL HOSPITAL LAB	CALAIS	7
CAPITAL FAMILY PRACTICE PA	AUGUSTA	
CAPRICORN PRODUCTS INC	PORTLAND	8
CARY MEDICAL CENTER	CARIBOU	24
CENTRAL MAINE MEDICAL CENTER MAIN LAB	LEWISTON	44

CHARLES A DEAN MEMORIAL HOSPITAL	GREENVILLE	8
CITY OF PORTLAND PUBLIC HEALTH LAB	PORTLAND	2
CONNER MOORE MD	BIDDEFORD	
CWCL INC DBA MEDLAB 260	SCARBOROUGH	7
DAHL CHASE DIAGNOSTIC SERVICES	BANGOR	41
DERMATOLOGY ASSOCIATES	PORTLAND	
DIAMED	WINDHAM	
DOWN EAST COMM HOSPITAL	MACHIAS	
ELEANOR WIDENOR DIXON MEM CLINIC	GOULDSBORO	3
ENVIROLOGIX INC	PORTLAND	4
FAMILY PLANNING ASSOC OF ME AUGUSTA	AUGUSTA	
FAMILY PLANNING ASSOCIATION OF MAINE	SOUTH PORTLAND	
FOUNDATION FOR BLOOD RESEARCH	SCARBOROUGH	13
FRANKLIN MEMORIAL HOSPITAL	FARMINGTON	29
GARDINER FAMILY PRACTICE	GARDINER	2
GARRISON FOSTER HEALTH CENTER	WATERVILLE	1
GENE CHENG MD	AUGUSTA	
GOODALL HOSPITAL LABORATORY	SANFORD	19
GREATER PORTLAND PEDIATRIC ASSOCIATES	SACO	1
GREATER PORTLAND PEDIATRIC ASSOCIATES	SOUTH PORTLAND	
HARRINGTON FAMILY HEALTH CENTER	HARRINGTON	
HOULTON REGIONAL HOSPITAL	HOULTON	16
IDEXX LABORATORIES INC	WESTBROOK	
IDEXX VETERINARY SVC INC	PORTLAND	
IMMUCELL CORP	PORTLAND	
INDEPENDENT MEDICAL ASSOCIATES PA	BANGOR	
INLAND HOSPITAL	WATERVILLE	21
INTERMED FODEN ROAD	SOUTH PORTLAND	
ISLANDS COMMUNITY MEDICAL SERVICES INS	VINALHAVEN	
JACKMAN REGION HEALTH CENTER	JACKMAN	
JACKSON LABORATORY	BAR HARBOR	
JOEL OLSTEIN MD PA	LEWISTON	
KENNEBEC INTERNAL MEDICINE ASSOCIATES	AUGUSTA	
KENNEBEC PEDIATRICS PA	AUGUSTA	
LAB 792	BANGOR	
LOVEJOY HEALTH CENTER	ALBION	
MAINE BIOTECHNOLOGY SVC	PORTLAND	
MAINE CENTER FOR CANCER MEDICINE	BIDDEFORD	
MAINE CENTER FOR CANCER MEDICINE	BRUNSWICK	
MAINE CENTER FOR CANCER MEDICINE	SANFORD	
MAINE CENTER FOR CANCER MEDICINE	SCARBOROUGH	
MAINE CENTER FOR REPRODUCTIVE HEALTH	SOUTH PORTLAND	2
MAINE CENTERS FOR ENDOCRINOLOGY	SCARBOROUGH	
MAINE CENTERS FOR HEALTHCARE	WESTBROOK	5

MAINE CHILDRENS CANCER PROGRAM	SCARBOROUGH	
MAINE COAST MEMORIAL HOSPITAL	ELLSWORTH	22
MAINE HEALTH & ENVIRONMENTAL TEST LAB	AUGUSTA	23
MAINE MEDICAL CENTER POINT OF CARE	PORTLAND	
MAINE MEDICAL CTR RESEARCH INSTITUTE	SCARBOROUGH	
MAINE MOLECULAR QUALITY CNTRLS	SCARBOROUGH	7
MAINE NEPHROLOGY ASSOCIATES PA	PORTLAND	
MAINE STANDARDS CO	WINDHAM	10
MAINE UROLOGY ASSOCIATES PA	BANGOR	
MAINEGENERAL MEDICAL CENTER	AUGUSTA	66
MAYO REGIONAL HOSPITAL	DOVER FOXCROFT	17
MDI BIO LABORATORY	BAR HARBOR	14
MDI COMMUNITY HEALTH CENTER	SOUTHWEST HARBOR	
MEDICAL GROUP,THE	KENNEBUNK	
MEDNOW CLINIC	ELLSWORTH	
MERCY HOSPITAL	PORTLAND	10
MERCY HOSPITAL BLOOD GAS LAB	PORTLAND	8
MID COAST HOSPITAL	BRUNSWICK	26
MIDCOAST MEDICAL GROUP	BATH	
MIDCOAST PEDIATRICS	BRUNSWICK	
MIDLAND BIO PRODUCTS	SCARBOROUGH	
MIDMAINE INTERNAL MEDICINE	WINSLOW	
MILES HEALTH CARE CENTER	DAMARISCOTTA	
MILLIKEN MEDICAL CENTER	PATTEN	1
MILLINOCKET REGIONAL HOSP CHAPMAN LAB	MILLINOCKET	11
MOUNT DESERT ISLAND HOSPITAL	BAR HARBOR	
NEWPORT FAMILY PRACTICE	NEWPORT	
NORDX BANGOR CAMPUS	BANGOR	3
NORDX BRIGHTON CAMPUS	PORTLAND	10
NORDX BRUNSWICK CAMPUS	BRUNSWICK	3
NORDX HLA LABORATORY	SCARBOROUGH	5
NORDX MMC CAMPUS	PORTLAND	126
NORDX PLASTIC AND HAND SURGICAL ASSOC	SOUTH PORTLAND	15
NORDX SCARBOROUGH CAMPUS	SCARBOROUGH	60
NORDX VERANDA CAMPUS	PORTLAND	6
NORTHERN MAINE MEDICAL CENTER	FORT KENT	18
OLD TOWN FAMILY PRACTICE	OLD TOWN	
ORONO MEDICAL CENTER	ORONO	2
PARKVIEW ADVENTIST MEDICAL CENTER	BRUNSWICK	13
PENOBSCOT BAY MEDICAL CENTER	ROCKPORT	
PENOBSCOT COMMUNITY HEALTH CENTER LAB	BANGOR	6
PENOBSCOT VALLEY HOSPITAL	LINCOLN	15
PENQUIS CAP HEALTH SERVICES	BANGOR	
PORTLAND BIOLOGICALS LLC	LEWISTON	

PRIMECARE CLINICAL LABORATORY	BIDDEFORD	
REDINGTONFAIRVIEW GENERAL HOSP LAB	SKOWHEGAN	18
REGIONAL MEDICAL CENTER AT LUBEC	LUBEC	1
RESORT WAY MEDICAL CLINIC	ELLSWORTH	
RHEUMATOLOGY ASSOCIATES	PORTLAND	3
ROBERT A SYLVESTER MD	LEWISTON	4
ROBERT R KESTER MD	LEWISTON	
ROGER C HALL MD	AUGUSTA	
RUMFORD VA OPC	RUMFORD	
SACO VA OPC	SACO	
SCARBOROUGH HEALTH CARE	SCARBOROUGH	1
SEAPORT FAMILY PRACTICE	BELFAST	
SEBASTICOOK VALLEY HOSPITAL	PITTSFIELD	12
SHEEPSCOT VALLEY HEALTH CENTER	COOPERS MILLS	
SKOWHEGAN FAMILY MEDICINE	SKOWHEGAN	
SOLIDPHASE INC	PORTLAND	
SOUTH BERWICK MEDICAL SERVICES	SOUTH BERWICK	
SOUTHERN MAINE MEDICAL CENTER LAB	BIDDEFORD	31
SOUTHWEST HARBOR MEDICAL CENTER	SOUTHWEST HARBOR	1
ST ANDREWS HOSPITAL AND HEALTHCARE CENTER	BOOTHBAY HARBOR	8
ST JOSEPH HOSPITAL	BANGOR	22
ST MARYS REGIONAL MEDICAL CENTER	LEWISTON	26
STEPHENS MEMORIAL HOSPITAL	NORWAY	12
SUNBURY PRIMARY CARE LABORATORY	EAST CORINTH	3
THREE RIVERS HEALTH CTR	MILO	3
TRICOUNTY HEALTH SERVICES	Lewiston	1
TRILLIUM DIAGNOSTICS, LLC	Bangor	2
Waldo County General Hospital	Belfast	14
WATERVILLE FAMILY PRCTC	WATERVILLE	
WELLS REGIONAL MEDICAL COMMUNITY LAB	WELLS	
WESTBROOK COMM HOSPITAL	WESTBROOK	3
WINTHROP Laboratory Services	WINTHROP	
WISCASSET FAMILY MEDICINE	WISCASSET	
WOMENS SPECIALTY CENTER	LEWISTON	1
YORK HOSPITAL LABORATORY	YORK	51
Total Labs = 148; those responding = 75		1,146