

HEALTH & MEDICAL SERVICES

FACT SHEET

Summer 2001

I. Sector Description and Definition



The health care industry consists of three inter-related components: the health services delivery sector, the medical laboratories and research sector, and the medical devices manufacturing sector. Approximately 98,965 people, or one out of every seven Boston jobs, are employed in health service within the city of Boston. The laboratory and research sector contains three elements: science-driven research, product development, and manufacturing. NIH recognizes Boston as the nation's largest center of research. Boston received NIH research grants in excess of \$947 million in FY99. The medical devices manufacturing sector produces surgical, laboratory, diagnostic and ophthalmic equipment. It increasingly involves the application of materials science, advanced electronics, and clinical science. The 264 Massachusetts companies are estimated to have generated \$4 billion worth of sales in 2001, and to be growing at 6% per year.

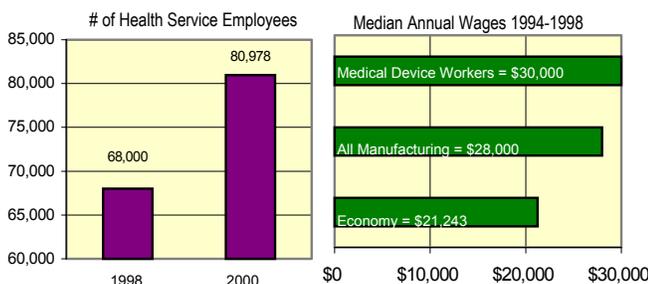
II. Job Opportunities and Salaries

Health Services. As of the year 2000, there were 80,978 Employees in Health Services. The following chart utilizes Data from 1998, the most recent year for which the Massachusetts Division of Employment and Training separated Health Services employees and median wages by job category, to demonstrate the wide range of job opportunities and pay scales that exist in the Health Service sector.

The Massachusetts Division of Employment and Training projects will have an additional 22,020 jobs in the health sector by 2008.

	# employees	median hourly wage
Professional and Technical	38,770	\$23.00
Clerical and Administrative Support	12,550	12.49
Service Workers	12,210	10.23
Managerial and Administrative	3,270	30.38
Construction and Maintenance	1,030	14.05
Sales	170	10.69
	68,000	

Health Services Delivery Employment Projections by Occupation 1998 – 2008 ³			
Occupational Title	Current Jobs	Projected 2008 Jobs	Growth Rate (%)
Registered Nurses	17,990	20,600	14.5
Physicians and Surgeons	8,530	10,220	19.8
Health Prof./Paraprof., NEC	5,720	7,520	31.4
Nursing Aides/Orderlies/Attends.	4,610	5,330	15.6
Psychiatric Aides	4,460	4,470	0.3
Home Health Aides	3,010	4,550	51.4
Licensed Practical/Voc. Nurses	2,440	2,660	9.0
Social Workers, Med./Psychiatric	2,280	2,980	31.1
Medical Secretaries	2,230	2,390	7.0
Med./Clinical Lab Technologists	1,710	1,890	11.0
Medical Assistants	1,680	2,530	50.4
Medical/Health Service Managers	1,530	1,960	28.4
Health Service Workers, NEC	1,330	1,530	15.4
Radiologic Techns./Technologists	960	1,090	13.5
Med./Clinical Lab Technicians	740	820	11.4
Physical Therapists	630	800	28.1
Dentists	600	600	0.7
Dental Assistants	570	780	35.5



Source: Boston Service Delivery Area (SDA) Employment Projections, 1998 & 2000.

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III. Major Employers

Six of the top ten employers in the City of Boston are organizations that combine health services delivery with laboratories and research sector services.

- #1 – Massachusetts General Hospital
- #3 – Beth Israel Deaconess Hospital
- #4 – Brigham and Women’s Hospital



- #6 – Children’s Hospital
- #7 – New England Medical Center
- #9 – Boston Medical Center

Health services and related industries account for 40.5% of the total jobs provided by Boston's largest employers.

Laboratories & Research Employment Typical Education Level Requirements		
59.4% of employees in the laboratories & research area of the health care sector have a bachelors degree or less; 21.3% have an associates degree or less.	Degree	%
	PhD	2.7
	MS	27.8
	BS	37.9
	AS	15.2
	HS	6.3

As of 2001, there were eleven medical device industry companies located in Boston. They average 40 employees per company. Of Massachusetts’s 264 companies, two dozen are headquartered, publicly held medical device companies headquartered in the Commonwealth; they had \$3.2 billion in sales in 1998. The largest is Boston Scientific Corporation, with \$2.8 billion combined in sales in 1999. The vast majority of medical device companies in Massachusetts are privately held and small by comparison. Half employing fewer than 20 people. Altogether, the state’s 264 manufacturing establishments employed 20,800 workers and generated \$4 billion in sales in 1997. Massachusetts ranks second in the country to Minnesota in sales.

IV. Related Industries & Sectors

Education. The health sector is dependent on the education sector for a skilled workforce. Area universities, community colleges, and training programs provide training and degree programs to all levels of the health and medical services sector.

Real Estate Construction. With a growing need for space in the City, the health sector is dependent on the real estate and construction industry. Infrastructure in underbuilt areas, traffic congestion, parking, and loss of open space are major issues accompanying promotion of the health/medical services sector.

V. Education and Training

The Training Institute. Through the Neighborhood Jobs Trust, the City is currently funding a number of health-care-related job training programs. These programs involve partnerships with eight major hospitals and educational institutions and two community development corporations. This group of employers and training providers has established *The Training Institute*, with the objectives of preparing Boston residents for entry-level jobs in the health care industry and providing career-ladder training opportunities for those already employed in health care. Neighborhood Jobs Trust funding is derived from linkage fees paid by developers, and is distributed through Request for Proposals (RFP) issued periodically by the BRA’s Office of Jobs and Community Services.

“Every year, Boston receives more than \$1 billion in federal research & development funds. That’s from NIH alone. It creates more than 10,000 jobs”

Mayor Menino, Boston Municipal Research Bureau, March 5, 2002

Health Service Delivery. Employment in support services in the healthcare sector typically requires less than one year of skills training. Training is generally provided through publicly funded Community-Based Organizations and community colleges. Training is available in accounting, computer literacy, and allied health positions such as phlebotomy and home health aide training.

Home Health Aides: A Struggle to Attract/Retain Qualified Individuals. Home health aide training can be completed in six months or less. Poor wages and lack of career ladders have made it difficult to attract and retain individuals, despite employment projections that the field will grow by 51% by 2008.

Medical Instruments: The proportion of medical device workers with some college education is substantially higher than that for other manufacturing workers - 57.1% compared to 44.1%. Similarly the proportion of workers in the medical device industry with college degrees is higher than that for all workers in the workforce.

VI. On the Horizon – New Training Programs & Initiatives

Roxbury Community College, in concert with Mass Biotech Council, has a new Bio-manufacturing Certificate Program, started in 2002.

Private Industry Council. The Incumbent Health Care Worker and the Health Care Technology Skills Shortage grants offer eligible individuals college preparation courses and training for healthcare positions such as radiology technologist or laboratory technician.

The BEST Initiative has been awarded a \$500,000 grant that will fund a project to create a training model for bio-manufacturing technicians. The money will fund certificate programs at two Massachusetts community colleges.

Employee Education Levels	Medical Device Industry	Overall Workforce
Associates degree	9.2%	7.8%
Bachelor degree	18.4%	15.8%
Professional/graduate degree	12.0%	6.3%

Source: UMass Boston Study 2001

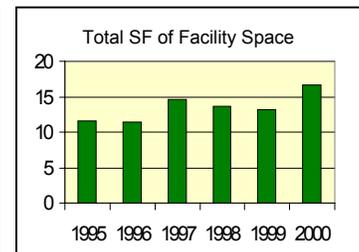
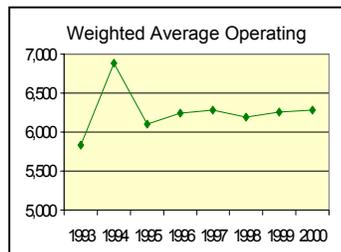
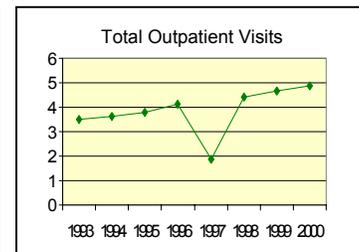
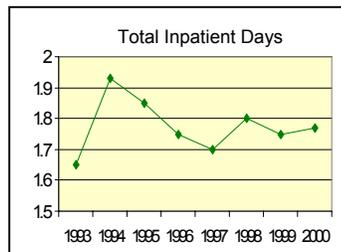
VII. Sector Trends and Issues

Employment expansion in Massachusetts. For years, health care in Massachusetts has been a major engine of economic growth and a source of stability during economic downturns. From 1988 to 2002, employment in health-care services experienced a growth of 23%. During the ten years ending in 2002, employment has increased by 11,936 persons while employment in all other sectors of Boston's economy increased by 95,705 persons. Health services employment accounted for 12.5% of the increase during that time. Over the past two years, however, federal budget cuts and private-sector market forces have reversed the industry's expansion. Health services employment declined an estimated 1.4% from 2001 to 2002.

NIH funding to Medical Institutions. Boston's high intellectual capital and the presence of distinguished, world-renowned medical and education institutions yield strong economic benefits. Since 1994, Boston has received more NIH funding than any other city in the nation. During FY01, Boston institutions were awarded an all-time high of over \$1.2 billion. If the Longwood Medical Area were considered a city by itself, it would rank 5th in the nation between Philadelphia and Baltimore, receiving \$629 million in funding. Brigham & Women's \$178 million would rank 25th if it were a city. New York City was Boston's closest competitor with nearly \$1.1 billion. Cambridge ranked 17th with about \$235 million. The economic importance of biotech and NIH funds cannot be overstated. Although Boston continues to lead the way, other cities are gaining a greater share of NIH funding.

Inpatient vs. Outpatient. Boston hospitals have experienced a steady increase in the number of outpatient days from 1993 to 2000, from 3.5 million to 4.86 million. The total number of inpatient days declined from 1.93 million in 1994 to 1.7 million in 1997, but increased to 1.77 million in 2000. The average number of operating beds has steadily increased, with a total of 6,285 beds in 2000. Total square footage of facility space rose from 11.4 million in 1995 to 16.7 million in 2000.

Biotech Space Demands. As of February 2002, there is a regional backlog of one million SF of demand for research and development space and a shrinking vacancy rate in private buildings. This demand is fueling the development of not only purpose-built space, but also the conversion of office buildings to research space in Boston/Cambridge. The shortage has also generated a market for research space in the suburbs. The number of products now in trial project to an enormous growth in demand for manufacturing facilities—one million of new production capacity. While it is not absolutely necessary that manufacturing space be located close to academic centers, easy movement among corporate offices, R&D labs, and manufacturing facilities does offer a potential competitive advantage, especially for companies employing newer biological—as opposed to pharmaceutical—manufacturing methodologies.



VIII. Budgetary Issues

Impact of the Balanced Budget Act of 1997. The federal Balanced Budget Act of 1997 aimed to reduce Medicare's expenditure growth through 2002 by removing about \$116 billion from previously projected spending. In November 1999, the legislation was modified to restore about 10% of the cuts. Net reductions in Medicare payments to Massachusetts' health care providers are estimated to grow from \$389 million in fiscal 1998 to \$1.54 billion in fiscal 2004. The legislation also raises premiums charged to Medicare beneficiaries, costing Massachusetts residents an estimated \$309 million in fiscal 2004.

Hospital Costs and Funding Update:

- **Hospital Financial Losses.** On November 1, 2001 the Mass. Hospital Association reported that 58 Massachusetts hospitals surveyed lost a total of \$1.2 billion over the past five years. Public and Private payers were to blame because they do not cover the full cost of health care. Dwindling investment returns from the stock market also contributed to the problem.
- **Medicaid.** Governor Romney has cut \$75 million to Medicaid, which will limit providers' access to more expensive drugs and cut payments to providers. It is expected that for each million dollar cut, 19 jobs will be lost. Medicaid is anticipating a cut of 7.5% of payments to hospitals for treating the poor and disabled. Patients who are in the hospital more than 20 days are considered outliers and will either be treated for free or not treated at all. As Boston copes with its deficit, 22 state Medicaid programs already have cut fees to providers and 15 more plan to. Medicaid accounts for more than one-fourth of the \$23 billion state budget, and costs are rising by double-digit percentages every year due to increasing health care costs and eligibility expansions enacted during the 1990s. As of November 2002, Medicaid expenses had grown by about 12.8% in Massachusetts, to \$6.1 billion.

IX. Initiatives

Regional - Urban Ring Project. The alignment established for the Urban Ring Project connects the Boston Medical Center, the Longwood medical area, and the medical research space in the West Fenway. The roadways serving these medical centers are congested, in large part by regional through traffic but also by traffic generated by the area institutions. Transit service is limited to buses in the Boston Medical Center area and to the most congested segment of the transit system, the Green Line, the Longwood and West Fenway areas. The proposed Urban Ring Project would address these transportation deficiencies in three phases: Phase I would add new, limited-stop crosstown buses serving each of these areas; phase II would establish protected rights of way for crosstown buses, including a corridor between Boston Medical Center and Ruggles Center, and phase III would construct rapid transit in tunnel between Sullivan Square and Dudley Square, serving the West Fenway and Longwood.

Health Related PILOT Payments FY02 Budget Amount	
Institution	Payments
Mass. General Hospital	\$1,741,363
Brigham & Womens Hospital	787,781
New England Medical Center	624,771
Childrens Hospital	250,000
Harvard Community Health Plan	217,000
Beth Israel Hospital	125,000
N.E. Deaconess Hospital	84,000
Dana Farber Cancer Institute	73,267
Medical Area Services Corp.	73,000
Boston Medical Center	67,053
North End Comm Health Center	56,000
Spaulding Rehab. Hospital	55,000
Mental Health Programs	28,634
Bay Cove Human Services	11,650
Metro Health Foundation	8,707
Domicilia	3,589
Total	\$4,206,816

Access Boston. Access Boston is a citywide transportation study that identifies deficiencies in the current transportation system and establishes future investment priorities to address these deficiencies. Programs and projects emerging from this study will form the foundation for Boston's vision of public transportation, roadway improvements, and parking policies. It contains recommendations related to health facility concentrations, such as the Longwood area.

1999 Recipients of R&D Funding

- #1 – MGH with \$160M
- #2 – Brigham & Women with \$151M
- #3 – General Hospital Corporation with \$22M

*Almost 50% of all R&D funds received by Boston's medical institutions go to these two hospitals and the General Hospital Corporation.

Growing Demand for Biotech Technicians

As the current pipeline of products in development moves from approval to manufacturing there will be a need for 1,000 new technicians jobs in 2002. According to a March 24, 2002 Boston Globe article, educational qualifications for technician training programs are a high school diploma or a GED. Graduates are expected to make \$13 to \$15 per hour.

X. In the Neighborhoods

Several neighborhoods have completed plans that provide for medical/institutional development.

The Chinatown Master Plan. The Chinatown Master Plan and its companion zoning article contain six neighborhood subdistricts, one of which is the Chinatown Institutional Subdistrict. Its primary purpose is to encourage clinical, research, and educational uses, while contributing to the quality of life of the residents of Chinatown.

Crosstown Corridor Plan. The plan for the Crosstown Corridor is an important component of the Roxbury Strategic Master Plan currently in the final stages of community adoption. This plan provides a strategic and physical framework for future growth and reuse of land parcels along the Melnea Cass Boulevard. The availability of land, proximity to adjacent residential neighborhoods and workforce as well as easy access to transportation infrastructure make the Corridor an attractive location of many industries including bio-technology. Any new development along the Corridor, however, must fulfill the most important goal of the strategic plan in creating new job opportunities and other community benefits accessible to residents of Roxbury.

Downtown North Planning Study. This is an area study initiated privately by the Artery Business Committee. It encompasses the Massachusetts General Hospital campus, as well as

the Massachusetts Eye and Ear Infirmary and the Spaulding Rehabilitation Center.

The Longwood Medical and Academic Area (LMA) is a 210-acre district adjacent to Mission Hill, Audubon Circle and the Fenway. It is one of the world's most highly respected centers of medical and academic institutions. Altogether, the institutions and organizations within the LMA occupy 14 million SF of space, supporting 30,000 jobs, and receiving over 1.5 million annual patient visits. The growth of the area in recent years has reached the point that it cannot easily accommodate future development unless it follows a comprehensive plan. In February 2003, the BRA adopted Interim Guidelines that will:

- Guide institutional development to include contributions to the area's transportation, urban design, & workforce development needs.
- Enhance physical environment & quality of life through improvements to the public realm & transportation infrastructure.
- Improve residents' opportunities for jobs, housing, education, & business development.

Several neighborhood planning projects will form conclusions and recommendations on health sector related development.

Turnpike Air Rights Civic Vision Parcels 4-6, located between Commonwealth Avenue and Beacon Street, are designated to accommodate research, academic, and related facilities as part of a Boston University research campus.



The University of Massachusetts Laboratory plans to build a \$77 million drug laboratory on the grounds of the old Boston State Hospital in Mattapan. This would significantly expand the state's unique role of producing vaccines and treatments for rare medical conditions across the country. It will be an 80,000 square foot laboratory that will double the vaccine and drug output of the current production facility in Jamaica Plains, which was established more than 100 years ago. The new lab will provide 130 permanent jobs at a variety of skilled levels. It is expected to open in the summer of 2005.

The West Fenway District Plan. There are four distinct neighborhood Subdistricts in the West Fenway Neighborhood Plan. Institutional uses are conditional in the Fenway North Boylston Subdistrict; research and development uses are conditional in the Fenway Triangle Mixed-Use Subdistrict and the Brookline Avenue Commercial Subdistrict; and, institutional uses are discouraged in the Fenway South Boylston Subdistrict. Companion zoning is being prepared.

XI. Infrastructure & Land Use Requirements

The private inventory of laboratory space in Boston and Cambridge contains 7,700,000 square feet of space. As of February 2002, 7%, or 520,000 square feet of this space is vacant. By comparison, the suburban market contains 4,500,000 square feet, of which 2 percent or 90,000 square feet is vacant. Vacant space in Boston/Cambridge is declining. There is current regional demand of one million square feet of space in this market. Vacant suburban space is growing.

XII. Institutional Master Plans (IMP)

A majority of the health care institutions do not have a Master Plan. This is due to one or more of the following factors:

- (1) An institution is not located where a master plan was required prior to May 2000
- (2) An institution is smaller in building floor area than the standard set in the Zoning Code and therefore is exempt
- (3) An institution has not proposed an expansion which triggers the master plan requirement. Of those institutions that have received Master Plan approval, the time period for some Plans has expired.

Boston Redevelopment Authority Economic Planning Initiative

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The Economic Planning Initiative's nine interdepartmental teams connect the BRA to industry leaders, issues, and the latest trends in the greater Boston area.

Health and Medical Sector Team

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Economic Sector Teams

Education
Financial Services, Insurance, Real Estate
Health & Medical
Hotels
Industrial
Professional Services
Retail
Technology
Culture, Sports & Recreation

Medical Institutional Master Plans

Beth Israel Hospital	Mass. College of Pharmacy
BU Medical Center	New England Baptist
Dana-Farber Cancer Institute	New England Medical Center
Deaconess Hospital	St. Elizabeth's Medical Center
Emmanuel College	Tufts University
Franciscan Children's Hospital	

Pipeline Projects

Project Name	SF
Approved	
Emmanuel College Building A	166,000
Mass. College of Pharmacy (White Building addition)	93,000
Emmanuel College Libby Building renovation	48,135
Under Review	
Blackfan Street Research Center*	575,000
Joslin Development Plan Project*	518,395
BIDMC Longwood North Research Center	440,000
Brigham & Women Center (Advanced Medicine)*	350,000
Harvard New Dental School Project	53,000
Under Construction	
New Clinical & Research Buildings*	439,000
Harvard Institutes of Medicine*	435,000
Emmanuel College Merck Building	300,000

*Longwood Medical Area

Research

Assessing the SDA Economies (Massachusetts Division of Employment & Training, 2002. Employment Figures are classified through Service Delivery Area (SDA).

The Massachusetts Health-Care Industry: A Stalled Engine of Economic Growth (Massachusetts Hospital Association Report), April 2000.

Insignia/ESG, Gregory P. Lucas, presented to NAIOP, February 8, 2002.

Boston Service Delivery Area (SDA) Employment Projections, 1998 and 2008.

The Largest Private Employers in Boston 2001, BRA Report #545, August 2001.

Doing Business in Boston, Boston Business Journal, 3rd ed., 1998/2000.

Massachusetts Division of Healthcare Finance and Policy, 1993-2000.

Massachusetts Biotechnology Directory, 2000.

Tax Rate Budget Book, City Assessor's Office.

The American Prospect: Ladders to a Better Life, Joan Fitzgerald & Virginia Carlson, Vol. 11, No. 15, June/July 2000.

The Medical Device Industry in Massachusetts, Alan Clayton Matthews, University of Massachusetts Boston, 2001.

Boston's Strong Economy, BRA Report #546, June 2001.

BRA Research Reports are available free of charge on the BRA website:
www.bostonredevelopmentauthority.org.