

**THE DALLAS/FORT WORTH HEALTH INDUSTRY:
ECONOMIC IMPACT AND GROWTH**

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Summary of Findings

This report updates an assessment of the size and impact of the health industry in the Dallas/Fort Worth Metroplex performed by the authors in April 1993. Growth in the D/FW health industry continues to outpace the regional economy to become one of the largest, if not the largest, source of employment for the region. Major findings of this analysis include:

- In 1995, there were 9,203 health industry establishments in the D/FW Metroplex providing 198,000 jobs and paying almost \$6 billion in annual wages and salaries.
- Health industry employment grew 43.5 percent between 1989 and 1995, faster than area population and overall employment growth.
- For 1995, the health industry generated almost \$50 billion in local economic activity.
- The health industry in D/FW provided more jobs in 1995 than the communications/ information industry (165,000) or the hospitality industry (192,000).
- 1998 data show that non-physician health services occupations pay a very respectable average wage of \$13.30 per hour. Perhaps more than any other large industrial sector in the Metroplex, the health industry provides jobs to area residents that require a wide range of skills and training.
- About 82 percent of all health industry jobs are in the services sector, such as doctors' offices, hospitals, extended-care facilities and laboratories. Public health program administration represents 7 percent of total health industry employment, while wholesale traders and manufacturers of health-related products each represent about 4 percent of total industry employment. Health insurance carriers and brokers make up the smallest sector at approximately 3 percent.
- D/FW trails the more mature markets in the northeast (i.e. New York, Boston, and Philadelphia), as well as Chicago and Los Angeles in percentage of total employment in health services occupations. However, D/FW's growth in health services employment between 1995 and May 1998 more than tripled the average rate of growth in these other markets.
- Between 1995 and May of this year, D/FW outperformed its largest regional competitor, Houston, in health services employment growth and the total number of health services jobs.
- Healthcare-related manufacturing turned in a comparatively weak performance between 1989 and 1995. Employment in medical equipment and supplies manufacturing grew just 10 percent, and area drug manufacturers experienced an 8 percent decline in employment for this period. This identifies an opportunity for community and industry leaders to target development efforts in these employment sectors. A preliminary analysis suggests that the D/FW health industry could generate an additional 16,000 healthcare-related manufacturing jobs if it could develop the manufacturing sector to a level comparable to these other metropolitan areas.

1. Introduction

The health industry continues to be one of the largest and fastest growing industries in the Dallas/Fort Worth economy. Increasingly, civic leaders, business people and area residents realize that healthcare is big business and fuels regional economic development. However, understanding of the full scope and impact of the health industry remains limited. This report, updating an earlier analysis performed in 1993, identifies the components of the health industry in the Dallas/Fort Worth region and compares the Metroplex's health services employment with other major metropolitan areas.

1.1 Outline of this Report

In the following section of this report, the health industry is defined within industry classifications established by the U.S. Department of Commerce. Using Standard Industrial Classification (SIC) codes, health industry-related activities are identified in the manufacturing, trade, government, insurance and services sectors. This serves two purposes: First, it illustrates the complexity and magnitude of the health industry. Second, it provides a framework for obtaining industry and employment data from a variety of government sources including the U.S. Department of Commerce Bureau of the Census, the U.S. Department of Labor Bureau of Labor Statistics and the Texas Workforce Commission.

The third section of the report examines health industry employment, establishment and payroll data for the Dallas/Fort Worth region. The health industry's economic impact is estimated and local health industry employment is compared with other large industries in the region. Section four looks at development opportunities that may be present in D/FW's health industry goods-producing sectors. The fifth section of the analysis compares health services employment in Dallas/Fort Worth with other selected metropolitan areas. Finally, the sixth section presents some recommendations as to how industry, community and political leaders can continue to foster growth in the health industry.

1.2 Data Sources

Most of the data used to examine the broadly-defined health industry are drawn from the County Business Patterns series published by the U.S. Department of Commerce, Bureau of Census. This series is the only source that offers annual subnational employment and payroll data at the two-, three- and four-digit Standard Industrial Classification (SIC) levels for private employers. The major shortcoming of the information is that it omits certain data in instances where publication would disclose the operations of an individual employer. Additionally, there is a substantial lag in data availability published in this source. The latest data available at the time of this analysis are for 1995. More recent data for the narrowly defined health services component of the industry are available from the U.S. Department of Labor Bureau of Labor Statistics.

Keeping in mind that the data are not strictly comparable, we judiciously utilized employment data from the Texas Workforce Commission when other data sources proved insufficient. Data pertaining to hourly earnings of health industry workers were drawn from the U.S. Department of Labor, Bureau of Labor Statistics' Occupational Earnings and Employment and Earnings series.

1.3 Geography

The data analyzed in this report are for the Dallas/Fort Worth Consolidated Metropolitan Statistical Area (CMSA). The CMSA in turn is comprised of two Primary Metropolitan Statistical Areas (PMSAs): Dallas and Fort Worth-Arlington. Each PMSA represents an aggregation of contiguous counties. These constructs were devised by the U.S. Office of

Management and Budget and are the geographical basis for most of the demographic and economic data collected by federal and state agencies.

2. Parameters of the Health Industry

Although the health industry in Dallas/Fort Worth has benefited from increasing media attention and public awareness in recent years, and is widely recognized as having enormous growth potential in the future, confusion remains as to what businesses comprise the health industry. The most common perception of the industry limits its definition to the services provided by doctors, nurses, hospitals and other healthcare professionals. While health services do represent the lion's share of the industry's employment and payroll, this definition overlooks other significant components in the goods-producing and services sectors.

The health industry definition used in this report rests on the distinction between "core" and "related" components. The core components are represented by sixteen SICs selected from the goods-producing and services sectors (see Table 1). These core SICs are unambiguously and specifically focused on healthcare products or services. Related components include those SICs whose products or services are not focused exclusively on healthcare, such as apparel manufacturers who also produce hospital uniforms and surgical gowns. Other examples of related industries would include manufacturers of rubber products whose product lines could include surgical tubing or gloves, social service agencies, and professional associations (additional examples of related industries are included in Appendix A). These SICs' links to the health industry are ambiguous, and their aggregated data are not useful for the purpose of this analysis. The point of this distinction is to note that the definition of the health industry used in this analysis probably understates the industry's size and regional role. The following report focuses exclusively on the core components, unless otherwise noted.

Table 1

Health Industry Definition	Core Components
<u>SIC</u>	<u>Description</u>
Manufacturing	
2830	Drug manufacturing
3840	Medical instruments and supplies manufacturing
Wholesale Trade	
5047	Wholesale distribution of medical, dental, hospital equipment and supplies
5122	Wholesale distribution of drugs, drug proprietaries and druggist' sundries
Insurance	

6320	Medical service and health insurance carriers
Services	
7352	Medical equipment rental and leasing
8010	Offices and clinics of medical doctors
8020	Offices and clinics of dentists
8030	Offices of osteopathic physicians
8040	Offices of other health practitioners
8050	Nursing and personal care facilities
8060	Hospitals
8070	Medical and dental laboratories
8080	Home healthcare services
8090	Health and allied services, not elsewhere classified
Government	
9431	Administration of public health programs

Source: U.S. Department of Commerce.

3. Update of Industry Characteristics, Trends and Regional Impact

This section of the report assembles and analyzes data pertaining to the structure of the health industry in Dallas/Fort Worth and its patterns of growth during the period 1989-1995.

3.1 Structure of the Health industry

As shown in Figure 1 below, service-related occupations dominate the health industry. About 82 percent of all health industry employment in 1995 was in the service sectors. The administration of public health programs employs 7 percent of all health industry workers. Manufacturing and wholesale trade each represent about 4 percent of total healthcare employment, while health insurance carriers and brokers make up 3 percent of the total.

Source: U.S. Department of Commerce.

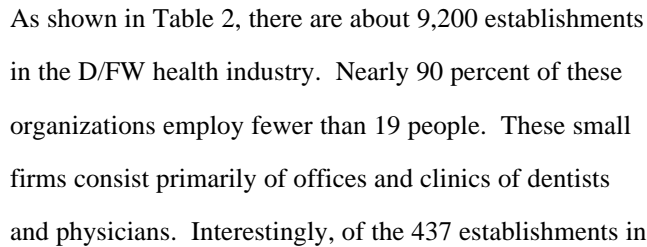


Table 2

SIC	Description	Number of Establishments by Number of Employees				
		Total	1-19	20-99	100-499	>500
Manufacturing						
2830	Drugs	20	11	5	2	2
3840	Medical Instruments & Supplies	76	55	13	7	1
	Subtotal	96	66	18	9	3
	Percentage Breakdown	100.0%	68.8%	18.8%	9.4%	3.1%
Wholesale Trade						
5047	Medical Equipment & Supplies	245	207	35	3	0
5122	Drugs & Druggist Sundries	192	152	32	8	0
	Subtotal	437	359	67	11	0
	Percentage Breakdown	100.0%	82.2%	15.3%	2.5%	0.0%
Insurance						
6320	Medical & Health Insurance	81	40	24	16	1
	Subtotal	81	40	24	16	1
	Percentage Breakdown	100.0%	49.4%	29.6%	19.8%	1.2%
Services						

7352	Medical Equipment Rental	48	34	12	2	0
8010	Doctors' Offices & Clinics	3,818	3,610	188	20	0
8020	Dentists' Offices & Clinics	1,825	1,799	24	2	0
8030	Osteopathic Physicians' Offices	325	315	10	0	0
8040	Other Health Practitioners' Offices ^{1,296}	1,263	28	4	1	
8050	Nursing & Personal Care Facilities ²⁶⁴	63	117	83	1	
8060	Hospitals	99	11	9	44	35
8070	Medical & Dental Laboratories	271	241	26	3	1
8080	Home Healthcare Services	315	184	96	28	7
8090	Health & Allied Services, NEC*	<u>328</u>	<u>249</u>	<u>67</u>	<u>11</u>	<u>1</u>
	Subtotal	8,589	7,769	577	197	46
	Percentage Breakdown	100.0%	90.5%	6.7%	2.3%	0.5%
<hr/>						
	GRAND TOTAL	9,203	8,234	686	233	50
	% by Size of Employer	100.0%	89.5%	7.5%	2.5%	0.5%

* Not elsewhere classified. Source: U.S. Department of Commerce.

** Employee size statistics are not available for SIC 9431 (Public Health Programs Administration).

Table 3 details the distribution of D/FW health industry employment. The majority of health industry employment is still found in hospitals and the offices of physicians and dentists. Combined, these sectors make up over 52 percent of total health industry employment. Home healthcare services now represent almost 9 percent of total industry jobs. Drug and medical equipment manufacturing, combined, represent about 3.7 percent of area healthcare employment, about the same as health-related insurance activities.

Table 3

Distribution of Dallas-Fort Worth Health Industry Employment

SIC	Description	1995 Employment	% of Total
Manufacturing			
2830	Drugs	4,231	2.1%
3840	Medical Instruments & Supplies	3,182	1.6
Wholesale Trade			
5047	Medical Equipment & Supplies	3,323	1.7
5122	Drugs & Druggist Sundries	3,848	1.9
Insurance			
6320	Medical & Health Insurance	6,765	3.4

Services			
7352	Medical Equipment Rental	846	0.4
8010	Doctors' Offices & Clinics	25,700	13.0
8020	Dentists' Offices & Clinics	9,826	5.0
8030	Osteopathic Physicians' Offices	1,855	0.9
8040	Other Health Practitioners' Offices	6,404	3.2
8050	Nursing & Personal Care Facilities	21,753	11.0
8060	Hospitals	67,955	34.3
8070	Medical & Dental Laboratories	3,700	1.9
8080	Home Healthcare Services	17,287	8.7
8090	Health & Allied Services, NEC*	8,235	4.2
Government			
9431	Public Health Programs Admin.	13,204	6.7
TOTAL		198,114	100.0

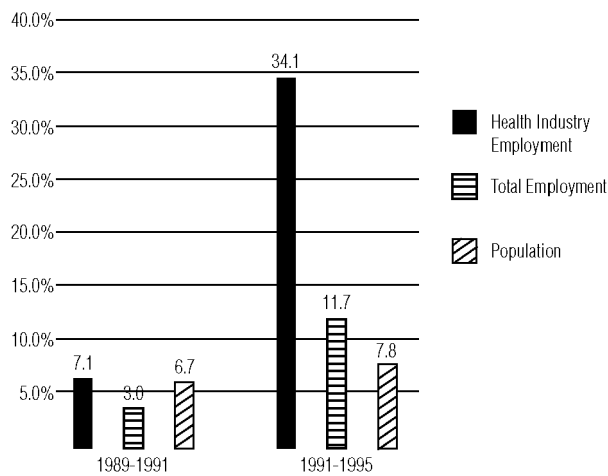
* Not elsewhere classified. Source: Bureau of the Census and U.S. Department of Commerce.

3.2 Patterns of Growth, 1989-1995

Between 1989 and 1995, health industry employment in Dallas/Fort Worth rose by 43.5 percent, from 138,000 to more than 198,000, an average annual rate in excess of 7.2 percent (see Table 4 on page 12). In 1989, health industry employment represented 8.1 percent of total area employment. By 1995, that percentage had risen to 8.8 percent, indicating that health industry employment growth continues to outpace other sectors of the Dallas/Fort Worth economy. Health industry growth has been particularly pronounced since the beginning of the nation's last economic expansion. Between 1991 and 1995, industry employment increased by about 34 percent, compared to the relatively weak 1989 to 1991 period (see Figure 2). Employment gains in the health industry have also outpaced population growth in the Metroplex, suggesting that the industry is continuing to expand its role as a regional, and even national, provider of health products and services.

Figure 2

Comparison of Growth Rates
Source: U.S. Department of Commerce.



Among the health industry's component sectors, the fastest employment growth between 1989 and 1995 occurred in home healthcare services and medical equipment rental services. The rapid growth of these sectors is attributable to at least three factors: the aging of the population, favorable Medicare rules, and shifts in demand from hospitals and long-term care facilities to lower cost alternatives, such as the at-home setting. Growth in the medical equipment rental services industry also likely reflects hospitals' and other healthcare providers' efforts to lower equipment acquisition costs. Employment at the offices and clinics of osteopathic physicians' and "other" healthcare practitioners' offices rose by 90 and 98 percent, respectively, during the 1989 to 1995 period. This, perhaps, reflects the growing popularity of "alternative" healthcare options.

Of particular note, and concern, is the relatively weak performance of D/FW area drug and medical equipment manufacturers. Area manufacturers of medical equipment and supplies realized a job growth rate of only 10.4 percent during the 6-year review period – a rate of growth substantially below overall employment trends for the region. Employment at drug manufacturers in the Dallas/Fort Worth Metroplex declined by 376 employees between 1989 and 1995, an 8.2 percent decrease.

Government jobs administering public health programs grew by 5,420 for an increase of almost 70 percent, representing the seventh highest gain among the 16 component industries examined. Employment at medical and dental laboratories increased a comparatively modest 21.2 percent in the first half of this decade.

Table 4

Change in Employment, Dallas-Fort Worth Health Industry
1989-1995

SIC	Description	1989	1995	% Chng 1989-1995	Chng 1989-1995
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Manufacturing					
2830	Drugs	4,607	4,231	-8.2%	9.6%
3840	Medical Instruments & Supplies	2,882	3,182	10.4	18.0
	Subtotal	7,489	7,413	-1.0	---
Wholesale Trade					
5047	Medical Equipment & Supplies	2,321	3,323	43.2	22.2
5122	Drugs & Druggist Sundries	2,810	3,848	36.9	27.9
	Subtotal	5,131	7,171	39.8	---
Insurance					
6320	Medical & Health Insurance	3,910	6,765	73.0	49.0
	Subtotal	3,910	6,765	73.0	---
Services					
7352	Medical Equipment Rental	333	846	154.1	72.7
8010	Doctors' Offices & Clinics	19,465	25,700	32.0	27.6
8020	Dentists' Offices & Clinics	7,317	9,826	34.3	20.0
8030	Osteopathic Physicians' Offices	977	1,855	89.9	34.8
8040	Other Health Practitioners' Offices	3,236	6,404	97.9	52.7
8050	Nursing & Personal Care Facilities	16,276	21,753	33.7	23.6
8060	Hospitals	52,297	67,955	29.9	21.3
8070	Medical & Dental Laboratories	3,052	3,700	21.2	31.7
8080	Home Healthcare Services	6,205	17,287	178.6	135.5
8090	Health & Allied Services, NEC*	4,546	8,235	81.1	44.7
	Subtotal	113,704	163,561	43.8	---
Government					
9431	Public Health Programs Admin.	7,784	13,204	69.6	---
	Subtotal	7,784	13,204	69.6	---
TOTAL		138,018	198,114	43.5	28.4

* Not elsewhere classified. Source: U.S. Department of Commerce.

3.3 Compensation in Health Services Occupations

Reviewing payroll data for the more narrowly defined health services occupations reveals that health occupations, on average, continue to provide salaries and wages competitive with other industries. This comparison considers only the general workforce and excludes executive management and physicians. The range of salaries for skilled and unskilled laborers is broad. Below is a sample of these positions and their corresponding salaries:

- Janitorial workers employed by health services firms in 1995 earned in the range of \$186 to \$268 per week;
- Nursing assistants' average earnings ranged from \$237 to \$312 per week;
- Electrician's and electronic technicians in health services earned between \$480 and \$745 per week in base salary;
- Registered nurses earned between \$566 and \$1,001 per week; and

- Specialists, such as nurse anesthetists, were reported as earning up to \$1,512 per week.

Consistently, workers at government hospitals and clinics had lower salary and wages earnings than their private industry counterparts.

Furthermore, hourly earnings in the health services sector compare favorably with those paid in other key Metroplex industries. The hourly wages identified in Table 5 represent only a broad comparison of rates. The average wages have not been weighted for each industry to accurately represent the number of employees in each occupational category. However, the table indicates that health services has hourly earnings somewhat lower than the communications sector, but markedly higher than those found in the hospitality industry. And, importantly, the health industry offers job opportunities across a wide range of skill levels and wages, from orderlies to nurses to hospital administrators.

Table 5

Mean Hourly Earnings
Dallas-Fort Worth, 1996

<u>Occupation</u>	<u>Hourly Earnings</u>
Health Care Services	
Dental Assistants	\$9.90
Health Prof/Paraprfr/Techns, NEC	\$7.41
Managers, medicine and health	\$31.06
Licensed Practical Nurses	\$14.88
Medical Assistants	\$9.54
Home health aides	\$7.87
Med/Clinical Lab Technician	\$12.98
Medical Secretaries	\$9.94
Nursing Aides & Orderlies	\$6.63
Pharmacists	\$26.79
Pharmacy Technicians	\$9.30
Average	\$13.30
Hospitality Industry	
Curators, Archivists, Museum Tech.	\$13.48
Animal Caretakers, Ex Farm	\$6.81
Amusement and recreation attendant	\$6.86
Reception & Information Clks	\$8.65
Hotel Desk Clerks	\$7.01
Dining Room & Bartender Hlprs	\$5.45
Hosts & Hostesses: Rest, Lounge	\$5.76

Waiters & Waitresses	\$5.16
Cooks, Restaurant	\$7.15
Comb Food Prep & Serv Wkrs	\$5.60
Average	\$7.19
Communications Industry	
Communication, transportation, utility managers	\$27.09
Computer scientists, NEC	\$20.10
Computer operators	\$12.66
Computer programmers	\$22.01
Computer support specialists	\$17.16
Data entry keyers	\$8.95
Database administrators	\$20.90
Marketing, advertising, public relations managers	\$26.38
Printing and binding workers	\$9.07
Writers and editors	\$14.46
Average	\$17.88

Source: Texas Workforce Commission.

Note: The above "averages" only represent the mean of the various hourly earning levels. They do not represent an industry-wide average.

3.4 Regional Impacts

As noted in Table 6, Dallas/Fort Worth's health industry paid \$5.9 billion in salaries and wages in 1995, a 78.8 percent increase over 1989. Total annual economic output, which relates to the industry's net sales, rose to almost \$18 billion in 1995. However, total annual economic output only tells part of the story of the health industry's impact on the D/FW economy.

Measuring the total economic impact of the health industry requires consideration of activities at "related" firms, as discussed in Section 1, and activities of firms linked to the health industry. These firms provide raw materials, supplies and services to the health industry, and they include manufacturers of primary steel and extruded metal products, transportation companies, financial services firms and computer services firms, just to name a few (see Appendix B for a more extensive list of industries linked to healthcare). When all of these linkages are combined, activities related to the health industry generate almost \$40 billion of economic activity in the D/FW economy each year. In addition, employees of health industry firms spend a substantial portion of their earnings in the local economy, producing an indirect economic impact. In 1995, we estimate that health industry employee spending boosted D/FW economic activity by \$10.5 billion. In total, the direct and indirect economic impact of the health industry on the Dallas/Fort Worth economy exceeded \$50 billion in 1995. Table 6 compares the industry's economic impacts in 1995 with 1989.

Table 6

Dallas-Fort Worth Health Industry

	1989	1995	% Change
Employment	138,018	198,114	43.5 %
Annual Payroll (000)	\$ 3,309,773	\$ 5,916,260	78.8 %
Annual Output (000)	\$ 10,448,046	\$ 17,828,688	70.0 %
Total Direct & Indirect Economic Impact (000)*	\$ 29,302,501	\$ 50,002,188	--
Total Direct Impact (000)	\$ 23,133,704	\$ 39,475,668	--
Total Indirect Impact (000)	\$ 6,168,797	\$ 10,526,520	--

* Due to limitations of the I-O models, 1989 economic impact figures should be treated as broad estimates only for illustrative purposes.

Source: Center for Economic Development and Research.

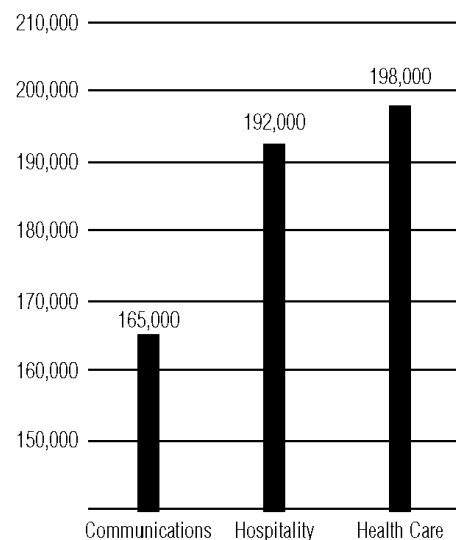
3.5 Comparison with Other Major Industries in the Region

As shown in Figure 3 below, health industry employment in Dallas/Fort Worth compares favorably with the region's other largest employers. The hospitality industry closely follows the health industry in size with about 192,000 employees, followed by the communications and information industry with approximately 165,000. More dramatic, however, is the difference in total regional economic impact among these industries. As noted above, the health industry's direct economic impact on the region approaches \$40 billion annually (in 1995). By comparison, the communications/information industry contributes about \$22.9 billion to the local economy each year, while the hospitality industry generates \$13.4 billion in local economic activity.

Figure 3

Employment in Major D/FW Industries, 1995

Source: U.S. Department of Commerce.



4. Healthcare-Related Manufacturing: Comparison with Other Metro Areas

In this section, we compare the two goods producing sectors of the health industry, drug and equipment manufacturing, in the D/FW CMSA with these sectors in other major metropolitan areas. To compare the relative strength of these sectors, we calculated a “location quotient” for each of the comparison metropolitan areas. The location quotient compares the proportion of total employment in the D/FW region in the specified manufacturing sector with the same proportion in the comparison metropolitan area. If the location quotient is less than 1.0, the proportion of total employment represented by the subject sector in D/FW is lower than that in the comparison region. This would indicate that the D/FW region is comparatively underrepresented in the subject sector. Conversely, if the location quotient is greater than 1.0, then the D/FW region has proportionately more employees in the subject sector. This could indicate some relative advantage over the comparison region.

As shown in Table 7, the Dallas/Fort Worth region is comparatively, in some cases substantially, underrepresented in both drug- and medical equipment-producing industries. For example, the D/FW region has approximately one-sixth the employees in drug manufacturing, as proportionately compared to the New York CMSA. New York also has proportionately many more employees engaged in the manufacture of medical equipment and instruments. Although not to the same extent, the D/FW region also does not compare favorably with the other metropolitan areas in either drug or medical equipment manufacturing. This relative underrepresentation can be considered an opportunity to target growth in these specific sectors of Dallas/Fort Worth’s health industry.

Table 7

D/FW Location Quotients for Health Industry Goods Producing Sectors
Selected Metropolitan Areas, 1995

CMSA	SIC 2830 Drug Manufacture Employment	SIC 3840 Medical Equipment Manufacture Employment	Total Area Employment	SIC 2830 Location Quotient	SIC 3840 Location Quotient
New York	42,748	23,638	3,820,200	0.168	0.228
Philadelphia	8,834	4,803	2,186,700	0.465	0.643
Boston	6,439	16,005	1,820,400	0.531	0.160
Chicago	19,375	8,625	3,914,300	0.380	0.641
Los Angeles	11,794	21,412	3,746,500	0.597	0.247
Houston	430*	3,488	1,766,400	7.719*	0.716
D/FW	4,231	3,182	2,251,800	1.000	1.000

* There is an apparent data anomaly for this sector in Houston that makes comparisons unreliable.

Source: U.S. Department of Commerce and UNT Center for Economic Development and Research.

Turning the location quotient around allows us to estimate potential employment gains that could be realized by the D/FW region if our employment in drug and medical equipment manufacturing were to increase. By matching the average proportion of employment in these medical goods producing sectors of the other non-Texas metropolitan areas, the D/FW economy could, theoretically, generate more than 8,700 additional jobs in the drug manufacturing sector and 7,640 more jobs in the medical equipment manufacturing sector (see Table 8).

Table 8

Potential Gains In The D/FW Health Industry Goods Producing Sectors

Sector	1995 Employment	Potential Employment	Potential Gain
Drug Manufacturing	4,231	12,978	+ 8,747
Medical Equipment Manufacturing	3,182	10,823	+ 7,641

5. Focus on Health Services

In this section, we focus our analysis on the health services component of the health industry. Focusing on this component has two distinct advantages. First, it allows us to highlight the primary sectors of the health industry and to judge the D/FW region's growth in these sectors with our set of comparison metropolitan areas. Second, by focusing on health

services—SIC 8000—we can utilize employment data from the Bureau of Labor Statistics for a much more recent time period, in this case, May 1998.

As shown in Figure 4, total health services employment in the Dallas-Fort Worth metropolitan area reached 164,500 by May 1998. By comparison, the New York region boasts about 368,000 health services jobs and the Chicago metropolitan area's health services employment surpasses 317,000. Closer to home, the Houston area trails Dallas-Fort Worth with 129,700 health services jobs.

Figure 4

Health Services Employment
Selected Metropolitan Areas, May 1998
(000s)

Source: U.S. Department of Labor, Bureau of Labor Statistics.

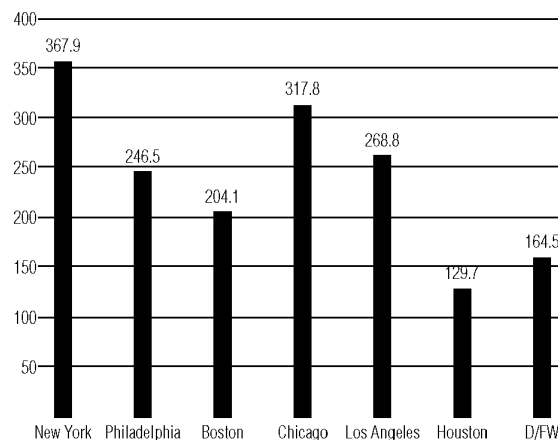
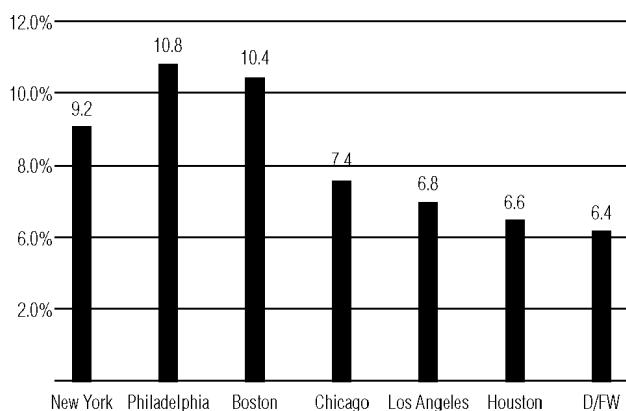


Figure 5 shows the percentage share of total employment represented by health services for each of the metropolitan areas. There appear to be two distinct groups among the selected metropolitan areas. At the high end, Philadelphia and Boston both have more than 10 percent of their total employment base in health services. New York follows closely behind at 9.2 percent. Los Angeles, Houston and Dallas are very similar, with each having roughly 6.5 percent of total employment in health services. Chicago falls between these two groups with a 7.4 percent share. This may suggest that Boston, Philadelphia and New York are serving health service demand outside their home region. It is also possible that Dallas, Houston and Los Angeles are exporting health services. Another potential factor to consider is physician and other provider practice patterns which may also influence the demand for health service employees.

Figure 5

Health Services Share of Total Employment
Selected Metropolitan Areas

Source: U.S. Department of Labor Bureau of Labor Statistics.



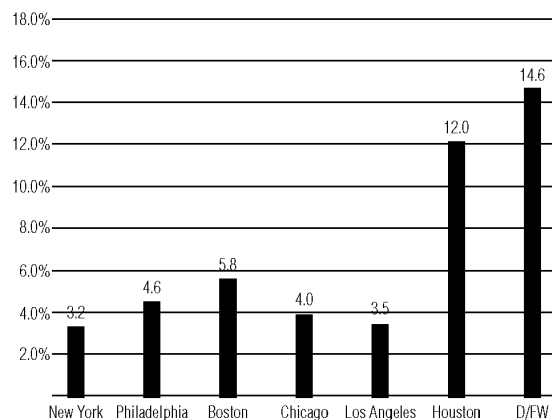
Even though the Dallas/Fort Worth region trails the major eastern and mid-western medical centers in proportion of total employment represented in health services, the data show that

D/FW's health services sector is growing faster than these other metro areas. As indicated in Figure 6, between 1995 and May 1998, health services employment in Dallas/Fort Worth grew 14.6 percent. Houston has also posted significant health services employment growth during this time, at 12.0 percent. By comparison, the major eastern medical centers have had comparatively slow growth, ranging from 3.2 percent (New York) to 5.8 percent (Boston). Chicago's health services employment increased 4.0 percent between 1995 and 1998 and Los Angeles grew by 3.5 percent.

Figure 6

Percentage Change in Health Services Employment Selected Metropolitan Areas, 1995 – May, 1998

Source: U.S. Department of Labor Bureau of Labor Statistics.



6. Summary and Recommendations

The health industry is a large and fast-growing component of the Metroplex economy. In 1995, the industry employed about 200,000 workers and contributed a total of \$50 billion, directly and indirectly, to the local economy. Undoubtedly, the industry's employment level and economic impact are considerably larger today. As the region's population is projected to grow by at least two percent annually for the foreseeable future, the demand for health services and products will continue to expand.

Considerable growth has been achieved since the last extensive evaluation of the region's health industry was conducted in 1993 (based largely on 1989 data). In recent years, the Dallas/Fort Worth region has gained recognition as a top-tier

medical center, drawing patients and research dollars from across the Southwest and, increasingly, the nation. The region has added a school of public health, and, thanks in large part to efforts of the Health Industry Council, public awareness of the importance of the health industry to the local economy has been heightened significantly. State reforms in tort and liability law, including medical malpractice, have clearly been a plus for the region's health industry, but much more remains to be done.

Specific recommendations include the following:

- Continued expansion of the health industry in the Dallas/Fort Worth Metroplex can be encouraged by promoting greater awareness of the industry's impact on the regional economy and obtaining even more support from local business and political leaders. In particular, serious efforts should be made in the next few years to market the D/FW region to healthcare-related manufacturers, who would be logical complements to the existing healthcare infrastructure. The Health Industry Council should take the lead in this initiative and involve other economic development groups across the region, as well as the Texas Healthcare and Bioscience Institute, a statewide, non-profit organization dedicated to promoting medical research and manufacturing in the State.
- The Health Industry Council should work closely with the Metroplex legislative delegation to ensure that state and federal regulations promote growth of the health industry in the region.
- Health industry leaders should work with other local business leaders to promote policies and strategies to enhance the availability of venture capital for health product commercialization and improve ties between industry and area universities to enhance technology transfer and commercialization.
- Finally, joint marketing strategies should be examined for enhancing awareness of D/FW health services providers to super-regional and national markets.

Appendix A

Health Industry Related Industries

Selected Examples

SIC	Description (example)
Manufacturing	
2326	Men's and Boys Work Clothing (medical uniforms)
2676	Sanitary Paper Products (disposable hospital apparel)
3061	Molded, Extruded and Lathe-Cut Rubber Goods (surgical tubing)
3069	Fabricated Rubber Products NEC* (surgical gloves)
Insurance	
6411	Insurance Agents, Brokers, Services (sales & contract claims processing)
Services	
7629	Electrical and Electronic Repair Shops NEC (medical equipment repair)
7699	Repair Shops and Related Services NEC (equipment repair, nonelectrical)
8221	Colleges and Universities (medical schools)
8222	Junior Colleges and Technical Institutes
8322	Individual and Family Social Services
8331	Job Training and Vocational Rehabilitation Services
8361	Residential Care Services (substance abuse treatment centers)
8399	Social Services NEC (health advocacy organizations)
8621	Professional Membership Organizations (AMA, AHA)
8731	Commercial Physical & Biological Research (commercial research)
8733	Non-commercial Research Organizations (American Heart Assoc.)
Government	
9411	Administration of Social Programs

* NEC: Not Elsewhere Classified.

Source: U.S. Department of Commerce.

Appendix B

D/FW Health Industry

Backward Linkages

SIC	Description
Manufacturing	
2820	Plastics and Fibers
2860	Organic Chemicals
3310	Primary Steel Products

Transportation & Utilities	
4210	Trucking
4510	Air Transportation
4811	Telephone Communication
4911	Electric Utilities
Financial Services	
6000	Banking Institutions
6100	Credit Institutions
6200	Security Brokers and Dealers
Wholesale Trade	
5080	Wholesale Machinery and Equipment
5140	Wholesale Groceries
Services	
7210	Laundry, Cleaning and Garment Services
7370	Computer Processing Services
8111	Legal Services
8931	Accounting, Auditing, and Bookkeeping Services

Source: U.S. Department of Commerce.

Appendix C

Definitions of Communications and Hospitality Industries

Communications Industry Definition

SIC code	Industry description
2700	Printing and publishing books, periodicals, newspapers, commercial printing
3570	Computer and office equipment manufacturing
3660	Communications equipment manufacturing
3670	Electronic components and accessories manufacturing
4800	Communications services
5045	Computer and peripheral equipment and software wholesale distribution
7310	Advertising services including agencies, services and representatives
7370	Computer programming, data processing and related services including repair
7800	Film and video production and distribution

Hospitality Industry Definition

SIC	Industry description
5800	Eating and drinking establishments

7000	Hotels/motels
7900	Amusements and entertainment
8400	Private museums, botanical gardens and zoological parks

Source: U.S. Department of Commerce.

Appendix D

Location Quotients for Health Services

	6320 Med/ Health Ins	8010 Med Clinics	8050 Nursing/ Personal Care	8060 Hospitals
CMSA				
New York	0.5361	0.3143	0.2674	0.2404
Philadelphia	0.8722	0.7309	0.5177	0.4949
Boston	0.4865	0.4381	0.2958	0.3581
Chicago	0.9015	0.8987	0.7269	0.6539
Los Angeles	0.7939	0.4410	0.6438	0.5543
Houston	4.1201	0.9683	1.4063	0.7309
D/FW	1.0000	1.0000	1.0000	1.0000

Source: U.S. Department of Commerce and UNT Center for Economic Development and Research.