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The Greater San Antonio Chamber of Commerce
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HEALTH CARE AND BIOSCIENCE INDUSTRY:

ECONOMIC IMPACT IN 2007

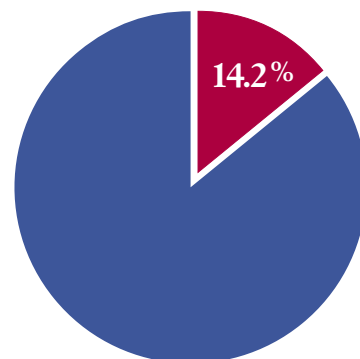




HIGHLIGHTS

- The Health Care and Bioscience industry continues as a **dominant force in the San Antonio economy**. Its economic impact in 2007 was **\$16.3 billion**.
- The industry paid nearly **\$4.8 billion in wages and salaries to 116,417 employees** in 2007.
- **One of every seven** San Antonio employees works in the Health Care and Bioscience industry.
- The Health Care and Bioscience industry has added over **23,000 net new jobs** over the past decade, fueling San Antonio's growth.

HEALTH CARE AND BIOSCIENCE 1/7 OF THE SAN ANTONIO WORKFORCE



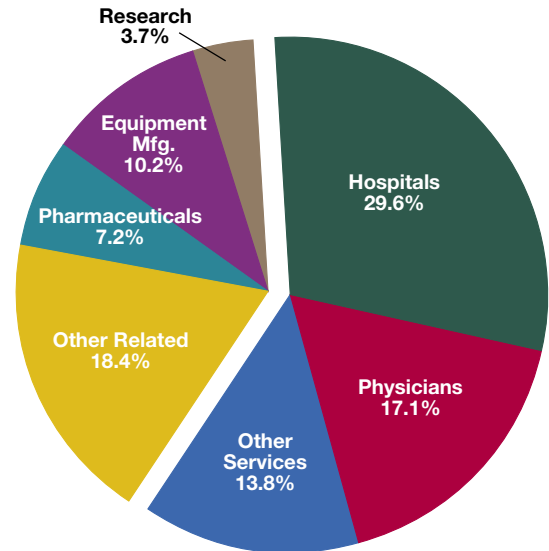
The Health Care and Bioscience Industry
Economic Impact Study
was conducted by
Richard V. Butler, Ph.D.
and
Mary E. Steff, Ph.D.,
both professors at Trinity University



OVERVIEW

The Health Care and Bioscience industry is both large and diverse. It includes a wide variety of direct health care services as well as industries related to the provision of health and medical care.

THE HEALTH CARE AND BIOSCIENCE INDUSTRY IN 2007



Direct health care services include the care provided in hospitals, physicians' offices, nursing homes, the offices and clinics of a variety of other health care providers, and various other outpatient and ambulatory care settings. In San Antonio, health services include both civilian and military medicine, a Veterans Administration medical center, and a variety of governmental, for-profit and non-profit operations and facilities.

Related industries complement and support the provision of medical and health care. These industry sectors include health insurance carriers, pharmaceutical companies, medical equipment producers and wholesalers, biomedical research organizations, residential care and social service providers, and a variety of related endeavors.

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Cord Blood Bank

The South Texas Blood and Tissue Center's Texas Cord Blood Bank is a facility unique in Texas that collects and supplies umbilical cord blood used to treat cancers and deadly blood diseases.

Center for the Intrepid

The Center for the Intrepid is the world's most technologically advanced rehabilitation center for burn victims and amputees. Located next to Brooke Army Medical Center, its \$50 million construction cost was funded entirely by private donations.

And, there is more. These figures do not include some significant parts of San Antonio's Health Care and Bioscience activity. For example:

- Currently some 2,983 uniformed military medical personnel are assigned to Wilford Hall Medical Center. An additional 1,462 uniformed military medical personnel are stationed at Brooke Army Medical Center. Together they earn a payroll of approximately \$353 million per year. In addition, these two facilities also have 2,434 contract employees who together earn almost \$93 million.
- The 5,035 faculty and staff employed by the University of Texas Health Science Center at San Antonio earn approximately \$329 million.

The economic impact of these uniformed military and health education activities, as well as those at Brooks City-Base (for which no current data are available) could not be included due to the limitations of the data sources on which this study is based (See "Conservative Estimates," p. 20). In actuality, these personnel and institutions are an integral part of the local Health Care and Bioscience community. If they could be included, the industry's estimated economic impact would increase significantly.

Construction Boom

During 2007, 2.7 million square feet of hospitals, medical office buildings, and other medically-related construction was underway in San Antonio, representing over a billion dollars of investment.



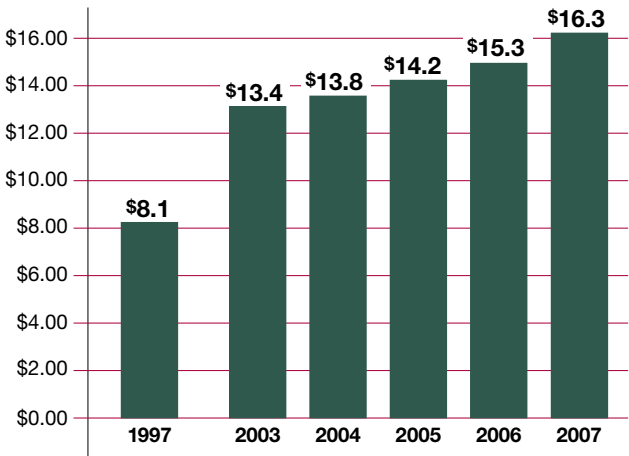
(left) The symbol of a damaged ring, cracked but still intact, marks the entrance to the new Center for the Intrepid, a 65,000 square foot rehabilitation center next to Brooke Army Medical Center in San Antonio. (U.S. Air Force photo/Daren Reehl)



OVERALL ECONOMIC IMPACT

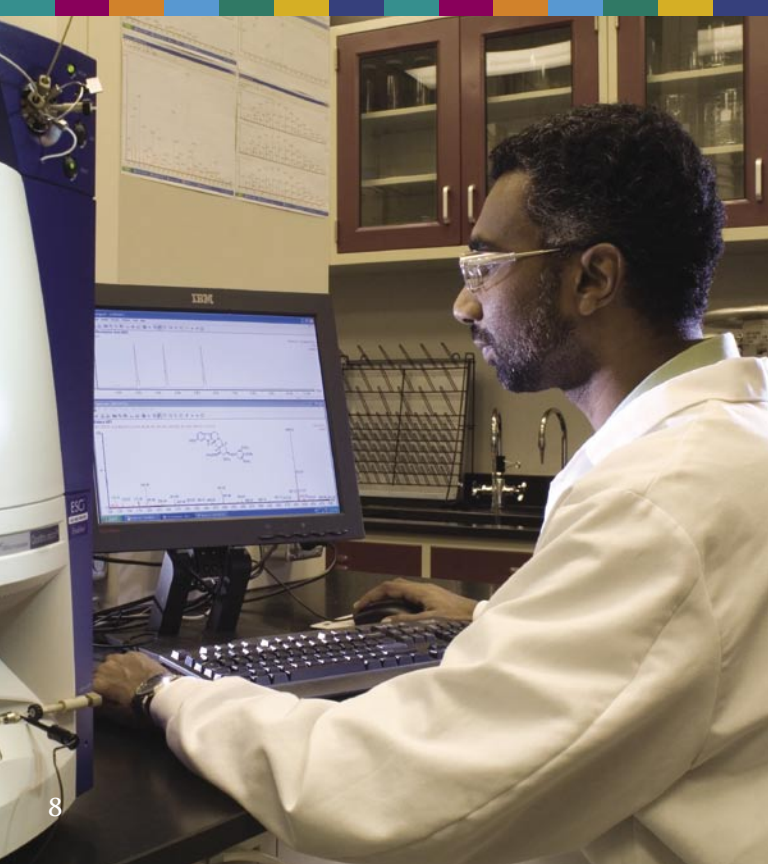
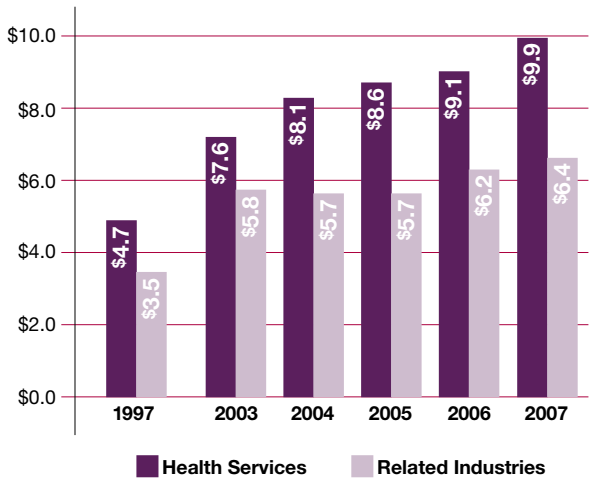
In 2007, the Health Care and Bioscience industry contributed a total of \$16.3 billion to the local economy, a healthy 6.5% increase from the 2006 level. This is a very conservative estimate, for reasons discussed elsewhere in this report. The industry has doubled in size over the past decade.

OVERALL ECONOMIC IMPACT
(BILLIONS)



The economic impact of Health Services has grown steadily over time, while the Related Industries were stable between 2003 and 2005 before growing 12% over the past two years. The long-term growth in both sectors has been robust. Over the past decade, Health Services has grown by 111% and Related Industries by 83%. The impact of direct Health Services has been consistently higher than that of the Related Industries.

ECONOMIC IMPACT OF THE SECTORS
(BILLIONS)



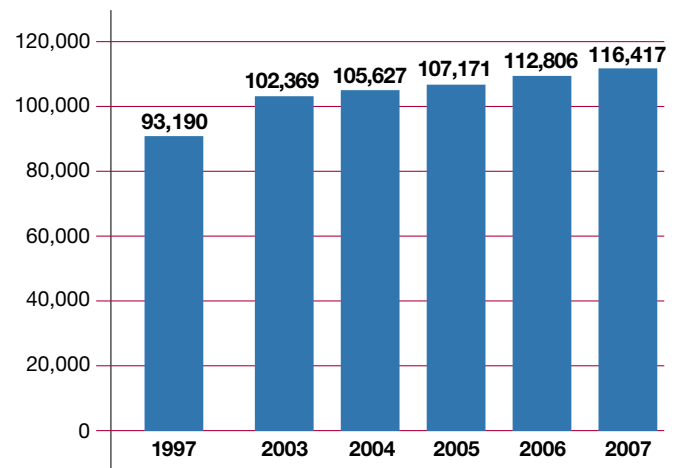


ONE-SEVENTH OF THE SAN ANTONIO WORKFORCE

In 2007, a total of 116,417 people worked in the Health Care and Bioscience industry. Though this represents only a 3.2% increase over the previous year, that growth represents 3,611 new jobs added to the San Antonio economy. Over 80% of these new jobs were in the Health Services sector. Over the past decade, employment in the industry has grown by over 23,000 jobs – an average of approximately 2,300 net new jobs each year.

In 2007, Health Care and Bioscience workers constituted 14.2% of the San Antonio workforce. 74% of these employees were involved in the direct provision of health and medical services; the remaining 26% were employed in related industries.

NUMBER OF EMPLOYEES



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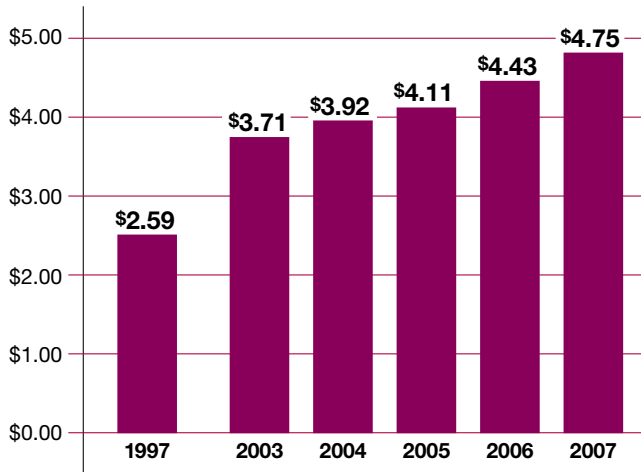
Military Medicine USA

When fully operational in 2012, the San Antonio Military Medical Command (SAMMC) will be the largest medical teaching and research center in the military.

A GROWING ANNUAL PAYROLL

The annual payroll in Health Care and Bioscience was \$4.75 billion in 2007. Payroll has grown by 7.3% over the previous year and by a robust 83.6% over the decade.

ANNUAL PAYROLL
(BILLIONS)



AN ANNUAL SALARY WELL ABOVE THE SAN ANTONIO AVERAGE

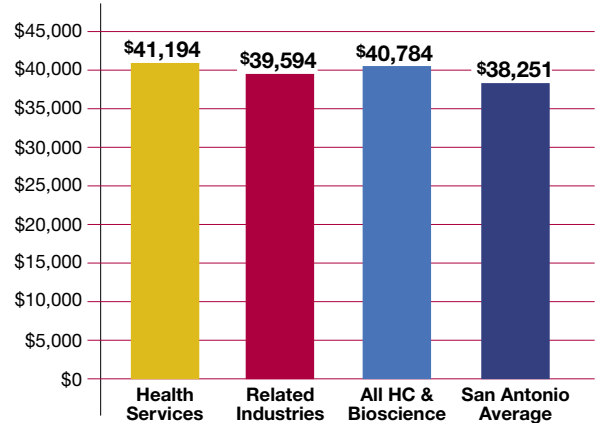
Individuals employed in the Health Care and Bioscience industry earned, on average, \$40,784 in 2007. This is some 6.6% higher than the 2007 average of \$38,251 for all workers in San Antonio.

Annual incomes of workers in the Health Services sector averaged \$41,194. The average salary for the Related Industries sector was \$39,594.

These figures include only direct wage payments. Total compensation, which includes benefits, would be considerably higher.

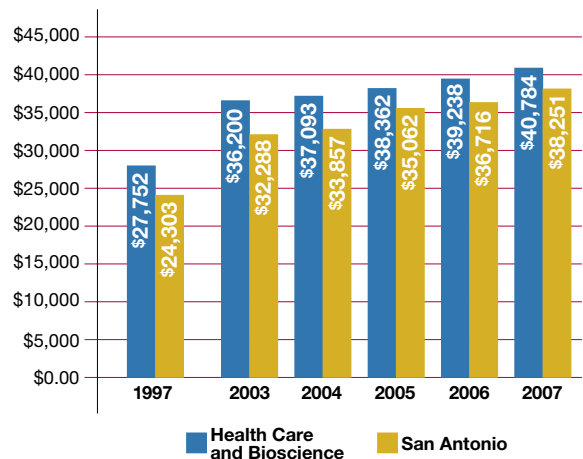
In interpreting these averages, it is important to note that employees in the Health Care and Bioscience sector include not just well-paid health care providers and scientists but also support staff of various types. Also, since the employment figures include both full-time and part-time employees, the average salary reported here is no doubt lower than that received by a typical full-time employee.

2007 AVERAGE WAGES



The average salary in the Health Care and Bioscience sector has been consistently higher than the San Antonio average.

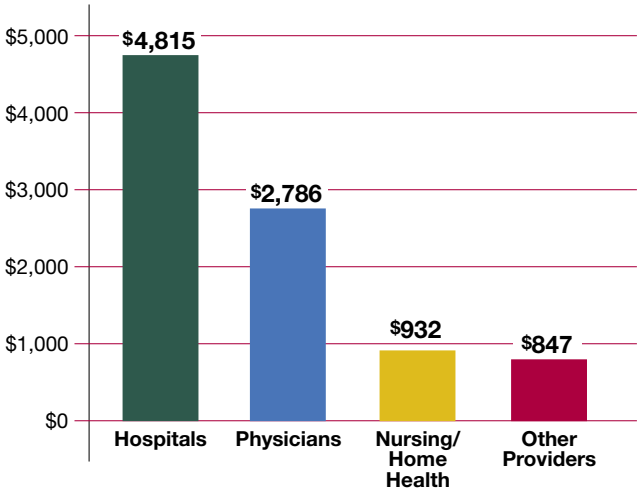
HEALTH CARE & BIOSCIENCE AVERAGE SALARY VS. SAN ANTONIO AVERAGE



THE HEALTH SERVICES SECTOR

The Health Services sector includes a wide range of health care professionals and businesses providing direct care to patients. Within that sector, there are four major groups: hospitals; physicians; other providers of health services (dentists, therapists, optometrists, chiropractors and others); and nursing and home health services providers.

ECONOMIC IMPACT OF
SELECTED HEALTH SERVICES
(MILLIONS)



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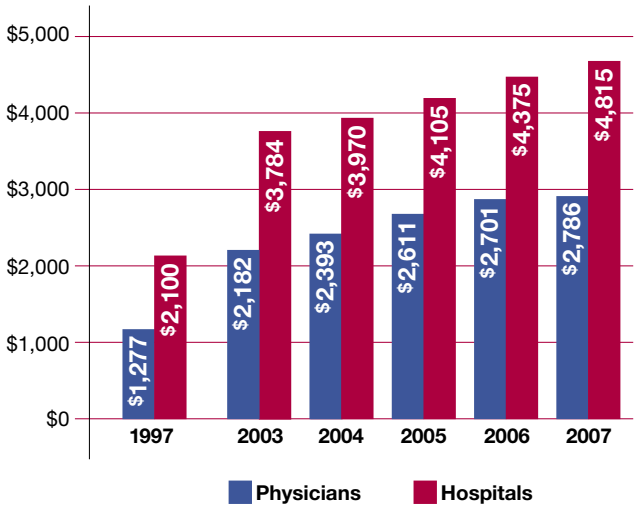
Specialized Care Management

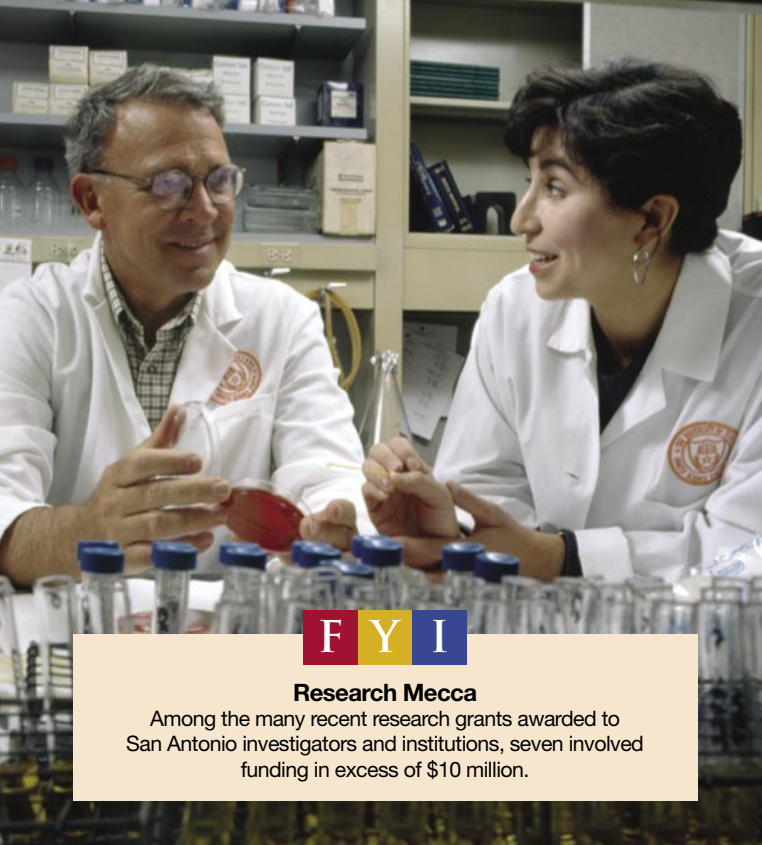
San Antonio is becoming a hub for call centers specializing in care management for individuals with chronic conditions such as diabetes and cardiovascular disease.



Physicians and Hospitals, the two largest provider groups, have consistently made a substantial contribution to the San Antonio economy. Over the 10-year period shown in the chart below, both have more than doubled in size: the economic impact of hospitals has increased by 129% and that of physicians has jumped by 118%.

ECONOMIC IMPACT OF
PHYSICIANS AND HOSPITALS
(MILLIONS)





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Research Mecca

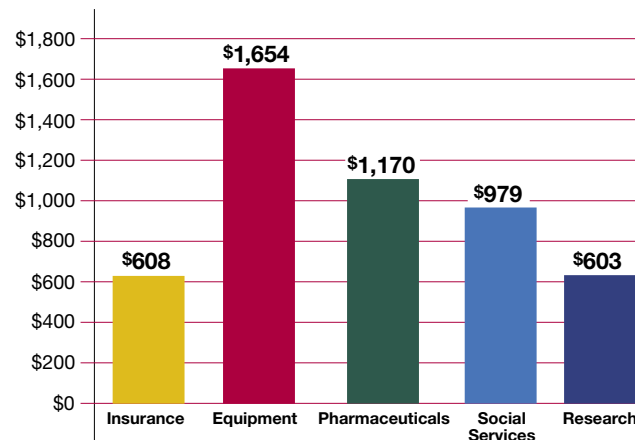
Among the many recent research grants awarded to San Antonio investigators and institutions, seven involved funding in excess of \$10 million.



RELATED INDUSTRIES

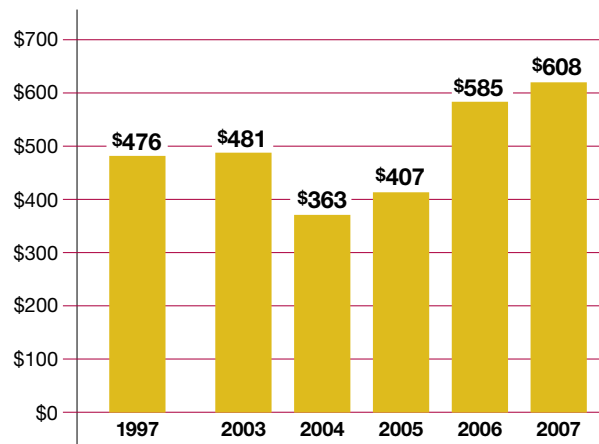
The Related Industries sector incorporates a variety of businesses that support and complement the direct provision of health care services. The chart below shows the economic impact of some of the major industry groups in this sector.

ECONOMIC IMPACT OF SELECTED RELATED INDUSTRIES IN 2007 (MILLIONS)



The insurance category reflects health and medical insurance only. As the graph that follows indicates, its economic contribution to the local economy has been somewhat erratic. Following a low of \$363 million in 2004, the 2007 contribution was \$608 million, a 67% increase over the three year period. However, the change from 2006 to 2007 has been modest (4%).

INSURANCE: ECONOMIC IMPACT (MILLIONS)

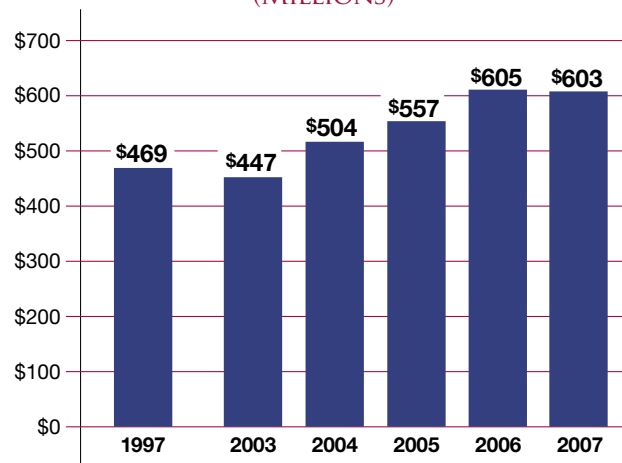


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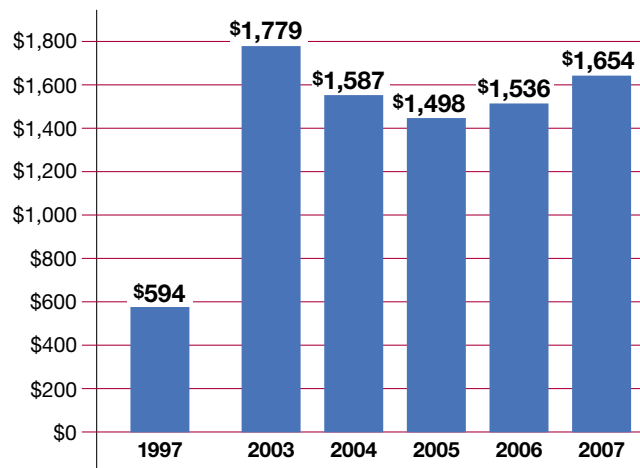
Research makes an important contribution to the community and beyond, and the economic impact of the research sector held its ground over the past year. In the ten-year period, the economic contribution of research has increased 29%. And, it is important to note that the significant military health and bioscience research efforts at Brooks City-Base are not included in these totals.

RESEARCH: ECONOMIC IMPACT (MILLIONS)



Equipment Manufacturing and Wholesaling also play an important role in the Health Care and Bioscience industry. Its current economic impact of \$1,654 million is down from a high of \$1,779 million in 2003, but the impact has grown by 178% since 1997.

EQUIPMENT MFG & WHOLESALING: ECONOMIC IMPACT (MILLIONS)



The Pharmaceutical sector provided \$1.17 billion in economic impact in 2007. This segment of the Health Care industry has declined slightly over the past two years. Still, the pharmaceutical sector employs 1,457 individuals who earn a healthy \$61,543 average wage.



CONSERVATIVE ESTIMATES

While \$16.3 billion sounds like a big number, this estimate of the economic impact of Health Care and Bioscience is in fact very conservative. Indeed, the true number is almost certainly billions of dollars higher than the available data indicate. These estimates are conservative for the following reasons:

- ***No multipliers have been used in calculating these estimates.***

The economic impact reported here represents actual spending on products and services in San Antonio. By using no multipliers, the study treats all of this economic activity as if it were purchased only by local residents. In fact, a substantial number of out-of-town and foreign patients seek health care in San Antonio, and many firms in the Related Industries sector have substantial sales to out-of-town customers. These “export” sales bring new money into San Antonio, generating additional economic activity as the new spending circulates throughout the local economy. However, because good estimates of the share of each sector’s business derived from care provided to out-of-towners or export sales are not available, estimates of the multiplier effects would be little more than guesswork. Accordingly, this study takes the conservative course by ignoring the multiplier effects entirely and, in effect, treating all sales as if they were local.

- ***Some significant economic activity in the Health Care and Bioscience Industry is absent from the TWC’s database.***

For example, all the educational and research activities of the University of Texas Health Science Center (UTHSC) at San Antonio are excluded because, under the North American Industrial Classification System (NAICS) classification system, the Health Science Center is grouped with all other institutions of higher education in San Antonio and cannot be identified separately. Similarly, the health care and bioscience-related functions at Brooks City-Base are excluded because Brooks is classified as a national security installation along with Lackland and Randolph Air Force Bases. In addition, the Texas Workforce Commission (TWC) collects employment and payroll data from military facilities only for the civilian employees who work there. Thus, none of the thousands of uniformed military personnel working at Wilford Hall, Brooks City-Base and the Brooke Army Medical Center (BAMC) are included in the study. Finally, it is likely that very few of the contract workers at the military installations are included since they are reported to the TWC under the NAICS codes of the companies that employ them, not the places where they do their work. Only those companies that have Health Care or Bioscience as their principal line of business are included in the employment data from the TWC. Many companies that provide contract employees are classified in the NAICS code for staffing, so none of their workers would show up in Health Care and Bioscience.

This omission has a significant impact. The UTHSC and the uniformed military presence at Wilford Hall and BAMC, and the contractors at those two facilities, account for nearly 12,000 employees who are paid in excess of \$775 million. If Brooks City-Base were added, these numbers would be considerably larger. Including this activity would clearly add substantially to the estimated economic impact of Health Care and Bioscience if it could be included in the total.

NAICS CODES FOR THE HEALTH CARE AND BIOSCIENCE INDUSTRY

HEALTH SERVICES

Physicians

62111 Offices of physicians

Other Health Care Providers

62121 Office of dentists
62131 Offices of chiropractors
62132 Offices of optometrists
62133 Offices of mental health practitioners
62134 Offices of specialty therapists
62139 Offices of all other health practitioners

Nursing Homes/Home Health

62311 Nursing care facilities
62161 Home health care services

Hospitals

62211 General medical and surgical hospitals
62221 Psychiatric and substance abuse hospitals
62231 Other hospitals

Labs

62151 Medical and diagnostic laboratories

Other Direct Services

62191 Ambulance services
62199 All other ambulatory health care services

RELATED INDUSTRIES

Research

54171 Physical, engineering and biological research

Social Services

62142 Outpatient mental health and substance abuse centers
62149 Other outpatient care centers
62321 Residential mental retardation facilities
62322 Residential mental health and substance abuse facilities
6233 Community care facilities for the elderly
62399 Other residential care facilities
62412 Services for the elderly and disabled
62431 Vocational rehabilitation services

Pharmaceuticals

32541 Pharmaceutical and medicine manufacturing
42421 Druggists’ goods merchant wholesalers

Equipment Manufacturing and Wholesaling

33911 Medical equipment and supplies manufacturing
42345 Medical equipment merchant wholesalers
42346 Ophthalmic goods merchant wholesalers

Insurance

524114 Direct health and medical insurance carriers

Miscellaneous

44611 Pharmacies and drug stores
44613 Optical goods stores
44619 Other health and personal care stores
92313 Administration of public health programs

TECHNICAL NOTES

In 1996, The Greater San Antonio Chamber of Commerce conducted its first Medical Economic Impact Study. This effort was sponsored by the Major Industry Council's Medical Committee, whose overall charge was to maintain, expand, and promote San Antonio as a world-class center of excellence in medical care and the biosciences. It was widely acknowledged that the Health Care and Bioscience sector's contribution to the local economy was substantial, but there had never before been an attempt to quantify that impact.

The Committee subsequently decided to compile this information on an annual basis. The present report is the twelfth iteration of the study.

The Medical Committee and its current successor, the Chamber's Health Care and Bioscience Committee, have employed an inclusive definition of the Health Care and Bioscience industry. It includes not only hospitals and direct health care providers (physicians, dentists, optometrists and others), but also medical and biological research centers, producers of pharmaceuticals and other health care-related products, and health insurance companies. Publicly funded providers of primary health care and health-related social services are also included, as are military and veterans' health care. The definition of "health care" includes both preventive care and the traditional medical services.

Information Sources

The information for The Chamber's Economic Impact Studies is derived from the Texas Workforce Commission's Covered Employment and Wages database. This data (total employment and wages) is assembled from unemployment insurance reports to the state. The data is aggregated by the TWC into the lines of business defined by the North American Industrial Classification System (NAICS) coding framework. It represents essentially a 100% sample of all the businesses with employees in each NAICS subcode.

The specific subcodes included in this study are listed on page 21. They cover both the Health Care and related industry segments in great detail.

Since the TWC is constantly revising its historical data in the interest of greater accuracy, the data for 2006 and earlier years used in this study reflect many small changes from the data upon which previous Economic Impact Studies were based. The figures in this report are based upon the latest release of the TWC data, so they represent the most accurate measure now available of the industry and its subsectors in those earlier years.

Selecting which NAICS codes to include is not a simple task. Often it is obvious that all (or virtually all) of the businesses classified in a given NAICS category are part of the Health Care and Bioscience industry (for example, NAICS category 32541, pharmaceutical and medicine manufacturing). In other sectors, however, health-related products and services make up only a fraction of the activity included in that code. For example, category 44611 (Pharmacies and drug stores) describes a group of businesses that are an integral part of the health care delivery

system but which also sell items, like greeting cards, that really do not belong in this sector.

It is therefore a matter of judgment to determine which industries to include and which to exclude. The rule the Committee followed was to include any NAICS industry that in San Antonio seems to include a high proportion of medical- or bioscience-related businesses and to exclude other categories for which only a small proportion of the included business activity is medically related. Thus, industry 54171 (Physical, engineering and biological research) was included even though many of the kinds of research described in the NAICS code book are not health-related, because the Committee believes that in this city the largest share of such research is medical or biological in nature. Similarly, the Committee excluded code 6113 (colleges, universities and professional schools), even though it includes the UT Health Science Center and many other educational and research activities relevant to Health Care and Bioscience, because these programs constitute only a small portion of higher education in San Antonio. By following this rule, the overall estimates of employment, payroll and economic impact should be approximately correct even though some relevant activity has been left out and some irrelevant activity included. Studies using the TWC database will always be constrained to this sort of compromise. However, the database's advantages of near-100% coverage of employers, consistent collection procedures and ready availability are considerable.

Methodology

The TWC provides employment and salary information for each quarter of the calendar year. The employment figures for the four quarters in each year were averaged to obtain a representative employment level, and payroll figures were computed by summing the wages reported for each of the four quarters. Average salaries were calculated by dividing the total payroll by the number of employees.

Translating payroll information into economic impact involves the application of a conversion factor. Sales or revenue for each NAICS industry is calculated from the TWC's payroll figures using the ratio of sales to payroll for the corresponding industry in the San Antonio MSA as reported in the most relevant economic census. Thus, conversion factors based on the 2002 Economic Census were applied to data from years 2003 to 2007; conversion factors based on the 1997 Economic Census were applied to the 1997 data. These figures are specific to each NAICS code, and ranged (in 2002) from a low of 1.79 for research to a high of 28.83 for Druggists' goods merchant wholesalers. This conversion factor simply translates payroll information into the amount of economic activity or impact generated for each specific industry.

This conversion factor is not the multiplier often employed in economic impact studies to calculate the total impact of an industry's export sales on the local economy. In fact, as already noted, since this study does not use a multiplier it predicts economic impact based on the assumption that all services and products are consumed by local residents. Since the multiplier effect of the industry's export sales has been omitted, the estimates of economic impact in this report are quite conservative.