THE STATE OF HEALTH

HOUSTON/HARRIS COUNTY
TEXAS

2007

THE STATE OF HEALTH IN HOUSTON/HARRIS COUNTY

JANUARY 2007

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The State of Health in Houston/Harris County

January 2007

Welcome to the State of Health in Houston/Harris County. We are pleased to provide our many constituencies with this broad assessment of the health of our community. Many organizations have joined together to determine the most pertinent health indicators, and then to gather and organize these measures into a format we hope will be both interesting and informative. This report provides:

- the most current measures available to evaluate the health in our community
- trends in key health measures to allow readers to evaluate changes in local health status and compare these measures to national goals
- resources for priority setting in preventing disease, promoting health and improving access to care
- healthcare information and websites for more detailed information
- summaries of key public health actions to address the identified issues

Please feel free to use this information as needed for planning and decision making. We hope this report assists you in your efforts to address health-related concerns in our community.

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Acknowledgments

In 2005, Stephen L. Williams, Director, Houston Department of Health and Human Services (HDHHS), and Herminia Palacio, Executive Director, Harris County Public Health and Environmental Services (HCPHES), created a joint State of Health annual report. In 2006, that document has expanded to include three more public health groups, bringing together more than sixty people from a total of five public health groups to create a comprehensive and practical publication **—The State of Health of Houston/Harris County, January 2007**.

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Introduction

Public Health focuses on the well being of the nearly four million people who live in Houston/Harris County. Public Health emphasizes prevention and health promotion for the whole community rather than individuals, employs interventions aimed at the environment, human behavior, lifestyle and medical care, and is stimulated by threats to the health of that population. Public Health is committed to protect the community against infectious disease and environmental hazards; to collect, analyze and disseminate health data; to provide leadership, planning and policy development; and to assure community-wide quality and accessible health services.

The report offers concise summaries on more than forty health topics. Where possible, each section is organized using **Trends**, **Population Differences**, **Geographic Distribution**, **Economic Impact**, **Healthy People 2010** and **Public Health Actions**.

Trends reflects the direction the health issue is taking over a specified period of time using statistics from the Behavior Risk Factor Surveillance System (BRFSS). BRFSS is the world's largest, on-going telephone health survey system, tracking health conditions and risk behaviors in the United States yearly since 1984. Conducted by the 50 state health departments as well as those in the District of Columbia, Puerto Rico, Guam, and the U.S. Virgin Islands with support from the U.S. Department of Health and Human Services Centers for Disease Control and Prevention (CDC), BRFSS provides state-specific information about issues such as asthma, diabetes, health care access, alcohol use, hypertension, obesity, cancer screening, nutrition and physical activity, tobacco use, and more. Federal, state, and local health officials and researchers use this information to track health risks, identify emerging problems, prevent disease and improve treatment.

Population Differences brings to light the ethnic, gender and socioeconomic disparities apparent with many health issues. **Geographic Distribution** presents how various locales are impacted by health issues. The **Economic Impact** sections provide statistics on the dollars and lives lost and human suffering related to the consequences of each health issue.

Healthy People 2010 is a measure developed by the U.S. Department of Health and Human Services. The study uses leading health indicators to measure the health of the nation over the next 10 years. The Leading Health Indicators are: Physical Activity, Overweight and Obesity, Tobacco Use , Substance Abuse, Responsible Sexual Behavior, Mental Health, Injury and Violence, Environmental Quality, Immunization and Access to Health Care. Each of the 10 Leading Health Indicators has one or more objectives from Healthy People 2010 associated with it. As a group, the Leading Health Indicators reflect the major health concerns in the United States at the beginning of the 21st century. (Find out more at www.healthypeople.gov/.)

Public Health Actions lists the actions being taken by Public Health to address the health issue based on the Ten Essential Public Health Functions. They are: monitor health status to identify community health problems; diagnose and investigate health problems and health hazards in the community; inform, educate, and empower people about health issues; mobilize community partnerships to identify and solve health problems; develop policies and plans that support individual and community health efforts; enforce laws and regulations that protect health and ensure safety; link people to needed personal health services and assure the provision of health care when otherwise unavailable; assure a competent public health and personal health care workforce; evaluate effectiveness, accessibility, and quality of personal and population-based health services; and research for new insights and innovative solutions to health problems.

Due to the breadth of health issues included, no section can go into great detail; however, this year "**For More Information**" has been added to each section. It leads the reader to more information on each topic using both governmental and advocacy organizations' websites.

Much of the data presented is collected at the county level—that is, there is no distinction made between the jurisdictions of HDHHS and HCPHES when the data is gathered. When data can be differentiated between the two jurisdictions, in many cases, the results are actually quite similar; therefore, much of the data is reported as "Houston/Harris County." In most cases, this designation will not include information from the areas of Houston within Fort Bend and Montgomery Counties. If significant differences in health data were noted between the two jurisdictions, the findings are reported separately as either "Houston" or "Harris County (excluding the City of Houston)." In this case, "Houston" is inclusive of the areas of the city within Fort Bend and Montgomery Counties.

Public health uses many acronyms. Please see the **Appendicies** for definitions.

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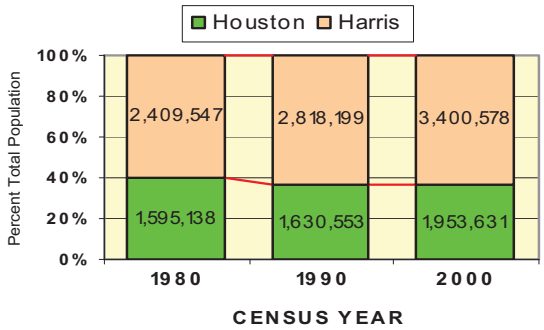
Population Facts

Photo courtesy of U.S. Census Bureau

Demographics

Harris County is the third most populous county in the United States, with an estimated 3.6 million residents in 2005. Of those, approximately 2 million (53%) were residents of the City of Houston, the fourth largest city in the country. While most of the City of Houston is contained within Harris County, Houston also extends slightly into Fort Bend County to the southwest and Montgomery County to the north. The population of Harris County is growing rapidly, having doubled from 1970 to 2000 and increasing by 8.6% from 2000 to 2005. Most of this growth took place in the suburbs; the City of Houston population increased by 3.0% during this time.

Total Population of the City of Houston Compared to Harris County 1980-2000

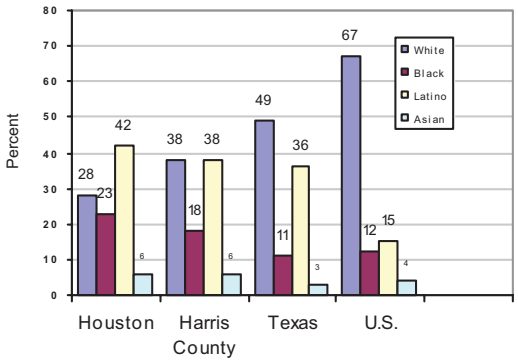


Source: U.S. Census Bureau

Houston's population density in 2000 exceeded that of Harris County, according to the U.S. Census Bureau. Houston included 579 square miles of land area and had 3,371.7 persons per square mile. Harris County included 1,728 square miles with 1,966.8 persons per square mile in 2000. By contrast, New York City includes 303 square miles with 26,402.9 persons per square mile.

Photo courtesy of U.S. Census Bureau

Race and Ethnicity in Houston, Harris County, Texas and the U.S. 2005



Source: U.S. Census Bureau, American Community Survey, 2005

Harris County's population is diverse—more so than Texas or the U.S. According to the U.S. Census Bureau's 2005 *American Community Survey*, Harris County has a greater proportion of African American and Asian residents than Texas or the nation, and a significantly higher proportion of Hispanic residents than the U.S. population. The Hispanic proportion (42%) of City of Houston residents is also greater than Harris County.

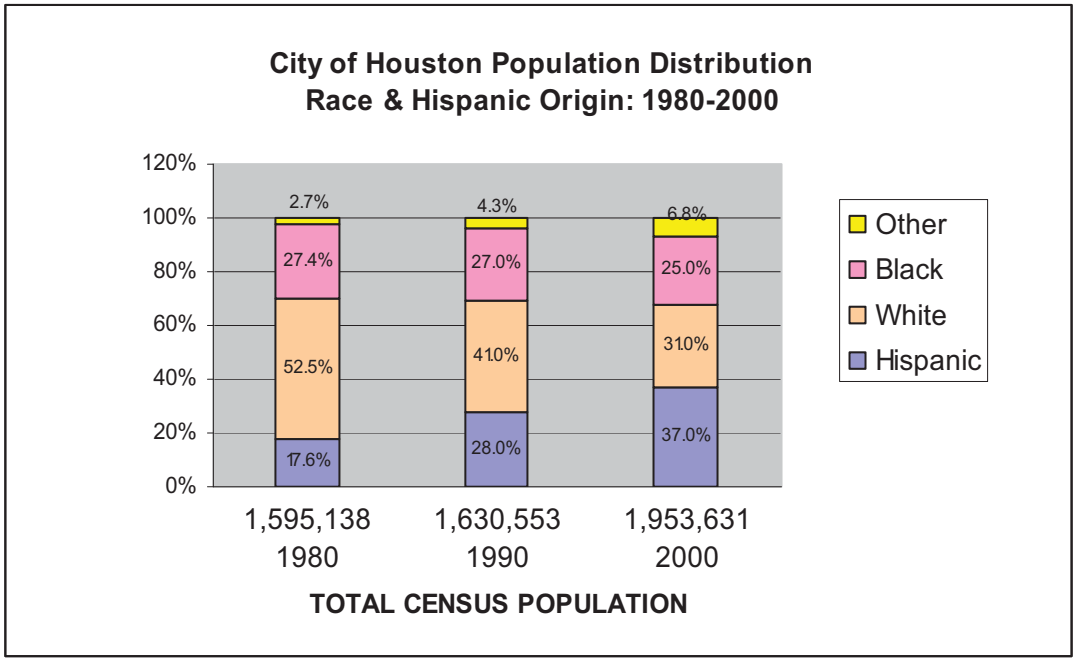
Year 2005 Census data show that 29% of county residents are under the age of 18, compared with 25% of the U.S. population. Seven percent of the county's population is aged 65 or over, compared to 10% of the population of Texas and 12% of the U.S. population.

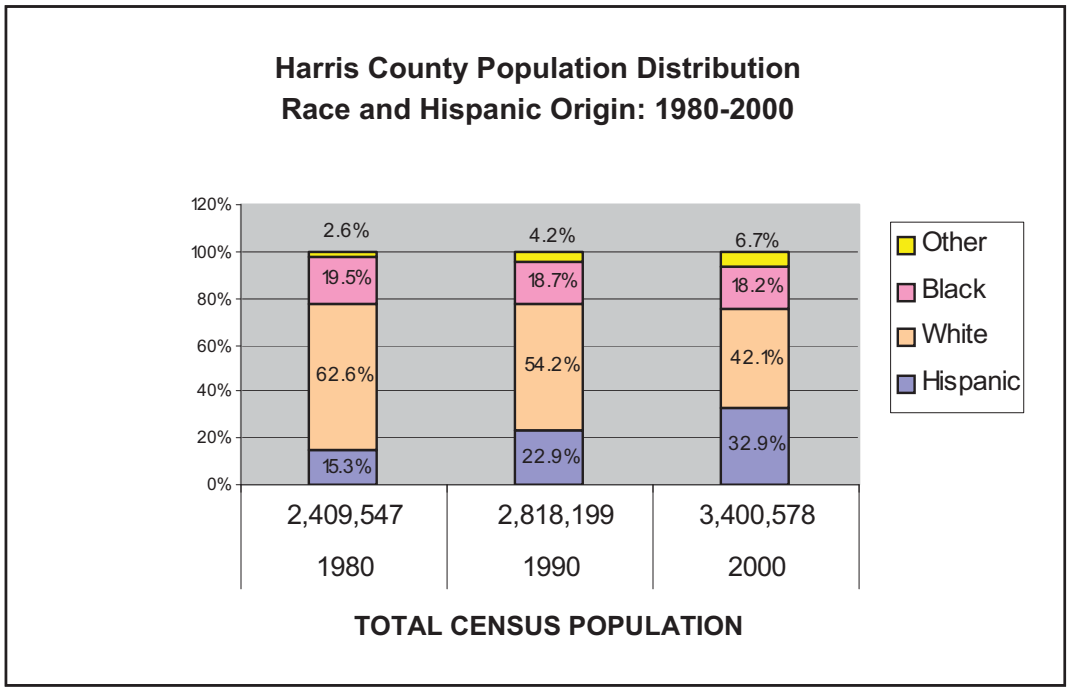
Male and female residents are closely balanced in Houston and Harris County. Census figures show that in 2005, Harris County and Houston had 50.0% and 50.1% female persons, respectively.

[See detailed data for Houston and Harris County in Appendix A]

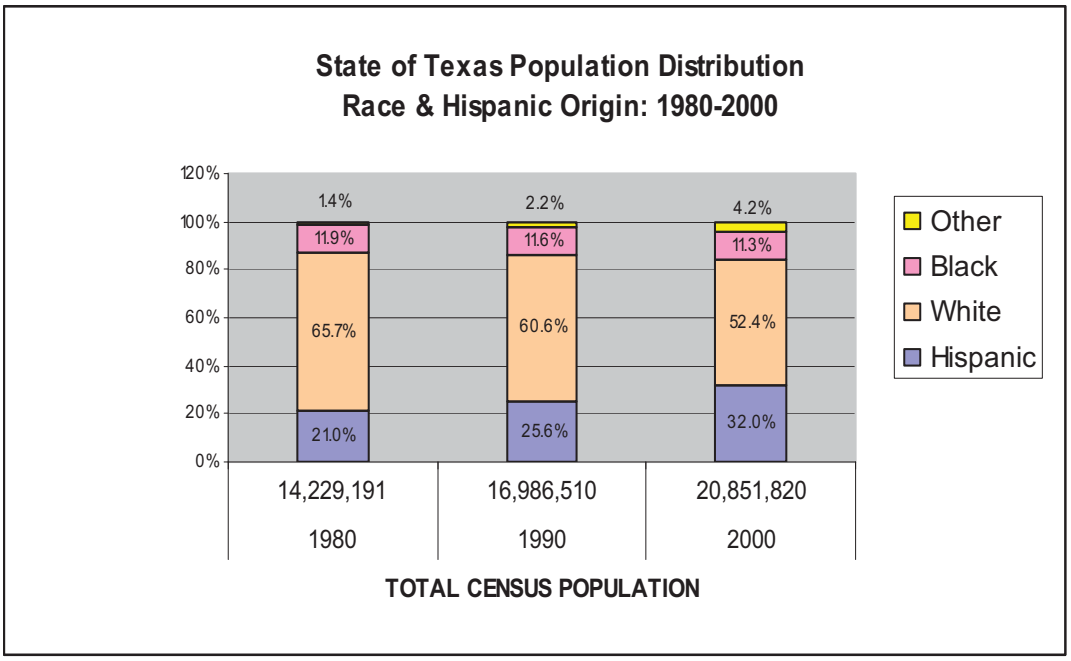
Race and Hispanic Population Trends: 1980-2000 for the City of Houston, Harris County, Texas and the U.S.

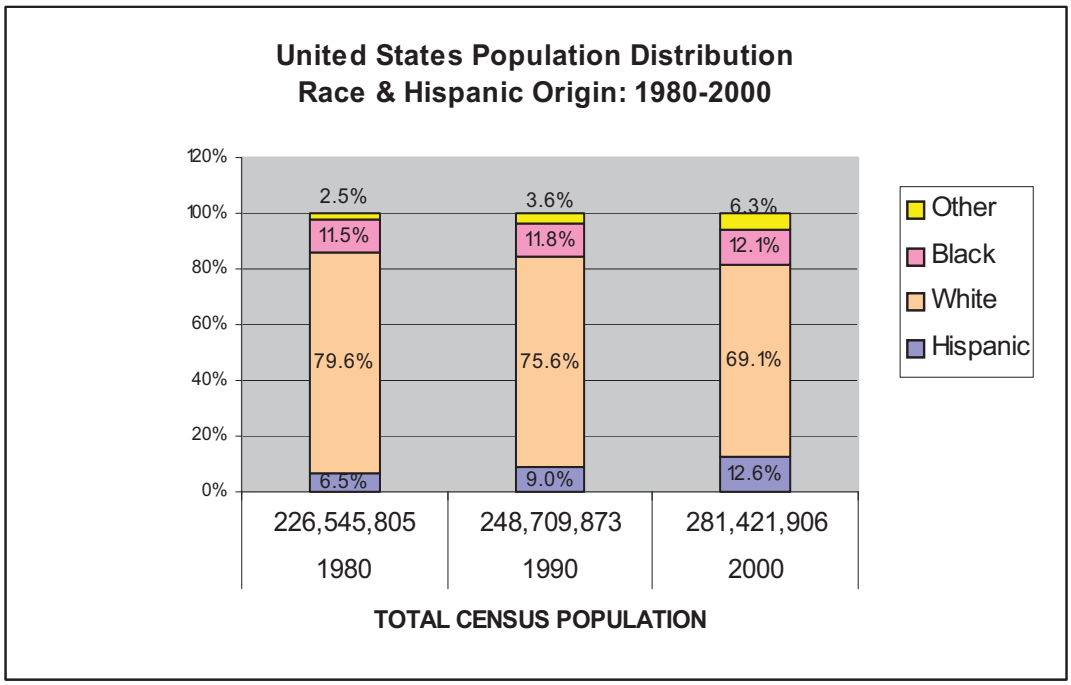
Much of the growth in Houston/Harris County can be attributed to an expanding immigrant population. The following charts show the changing racial and ethnic composition in Houston, Harris County, Texas and the U.S.





In *The Houston Area Survey,* published in 2002, Dr. Stephen Klineberg wrote that the United States is moving from "a *European* to a *universal* nation." The graphs below depict the nature of that change showing increasing percentages of minority groups. The Hispanic population is growing more rapidly than the other groups, while the white population is decreasing.





Source: U.S. Census Bureau

Factors Influencing Health

Healthy People 2010 is the prevention agenda for the Nation. It identifies steps we can take to maintain and improve health for ourselves, our families and our communities. It is a broad-based collaborative effort among government, private, public, and nonprofit organizations, and has set national disease prevention and health promotion objectives to be achieved by the end of this decade.

The effort has two overarching goals: to help individuals of all ages increase life expectancy and improve their quality of life; and to eliminate health disparities.

Healthy People 2010

Factors Influencing Health

Socioeconomic Indicators

According to the World Health Organization (WHO), "Poor social and economic circumstances affect health throughout life." Also, "People further down the social ladder usually run at least twice the risk of serious illness and premature death as those near the top."[1] Such social and economic indicators include education level, employment, income and housing.

Education

Harris County's high school graduation rate is lower than that of the U.S. population. According to 2005 Census data, an estimated 77% of Harris County residents aged 25 and over are high school graduates or the equivalent. This compares to a high school completion rate of 72% in Houston, 79% in Texas and 84% in the U.S. Among Harris County adults aged 25 and over, 27% have a bachelor's degree or higher, equal to the rate in the U.S. population. Twenty-five percent of Texas adults have a bachelor's degree or higher.

There are differences in educational attainment among racial and ethnic groups in Harris County. According to the 2005 Rice University *Houston Area Survey*, 5% of U.S.-born white Harris County residents have not completed high school, compared with 12% of U.S.-born African American residents and 20% of U.S.-born Hispanic residents. Further, 51% of Hispanic immigrants living in Harris County lack a high school diploma. In addition, 46% of U.S.-born white Harris County residents have a bachelor's degree or higher, compared with 25% of U.S.-born African American residents and 16% of U.S.-born Latino residents. Among Asian immigrants, who make up 88% of all Asian adults in Harris County, 7% have not completed high school, while 61% have a bachelor's degree or higher.

Economic Impact of Education

Education contributes significantly to one's income potential. On average, individuals who complete high school earn $25,900 a year while college graduates earn on average $45,400 annually. Individuals with masters, doctoral, and professional degrees earn $54,500, $81,400, and $99,300, respectively. In addition, those individuals with a bachelor's degree are also more likely to work full-time than individuals who have not finished high school and thus further increase their earnings.

During a lifetime, the individual who has not finished high school earns an estimated $1 million dollars while the high school graduate earns $1.2 million. With a bachelor's degree one's lifetime earning estimate nearly doubles to $2.1 million. Those with master's, doctoral, and professional degrees are estimated to earn $2.5 million, $3.4 million, and $4.4 million during a lifetime respectively.[2]

Secondary School Dropout Rates for 21 Harris County ISDs 2002-2005

	% Annual Dropout Rate 2002-03		% Annual Dropout Rate 2003-04		% Annual Dropout Rate 2004-2005	
	Grades 7-8	Grades 7-12	Grades 7-8	Grades 7-12	Grades 7-8	Grades 7-12
Harris County ISDs	0.4	1.2	0.3	1.2	0.3	1.3
Houston ISD	0.9	2.4	0.6	2.2	0.7	2.4
State of Texas	0.2	0.9	0.2	0.9	0.2	0.9

Source: Texas Education Agency: Academic Excellence Indicator System/2004-05 District Performance and Secondary School Completion and Dropouts, 2004-05, 2002-03, County Supplement-District Supplement. Available at http://www.tea.state.tx.us/research.

[1]World Health Organization. *Social determinants of health: the solid facts.* 2nd ed. 2003.
[2]Newburger EC, Cheeseman J. The big payoff: educational attainment and synthetic estimates of work-life earnings. *Current Population Reports.* U.S. Census Bureau, 2002.

Language and Nativity

Houston/Harris County has a greater proportion of foreign-born residents, as well as residents who do not speak English at home, than that of Texas or the nation. Year 2005 Census data show that 25% of Harris County residents are foreign-born, compared with 29% of Houston residents, 16% of Texas residents and 12% of U.S. residents. In 2005, 73% of foreign-born Harris County residents reported Latin America as their place of birth and 18% reported Asia. In Houston, 75% of foreign-born residents reported being born in Latin America and 17% in Asia.

Of Harris County residents aged five or older, 2005 Census data show that 41% speak a language other than English at home, compared with 47% of Houston residents, 34% of Texas residents and 19% of U.S. residents. Of Harris County residents who speak a language other than English at home, 52% report not speaking English very well compared to 55% of Houston residents. Eighty-one percent of those who speak a language other than English at home speak Spanish.

Economic Impact of Language and Nativity

Immigrants may find that limited proficiency at English restricts their job choices. An immigrant is more likely to be employed in construction or housecleaning compared to banking or health services.[1] As a result, immigrants are over-represented in the low income population. In Texas, immigrants make up 12% of the state population but 18% of the low income population, where low income is defined as 200% below the federal poverty level.[2] In Houston, an estimated one quarter of the low income population is comprised of immigrants.[1]

Employment and Income

According to the Texas Workforce Commission, in 2005 the average annual unemployment rate for the Harris County civilian labor force was 5.7%. This compares to a rate of 5.3% in Texas and 5.1% in the U.S. Census data show that in 2005 the median household income in Harris County was $44,002 and

$36,894 in Houston. In comparison, the median income in Texas households was $42,139 and $46,242 in U.S. households.

2005 Census data show that 18% of Harris County residents and 23% of Houston residents live below the Federal Poverty Level (FPL), which in 2005 was $9,973 for an individual and $19,971 for a family of four. In comparison, 18% of Texas residents and 13% of U.S. residents live below the FPL. In Harris County, 26% of children under age 18 live below the FPL, compared to 35% of Houston children and 19% of U.S. children. Twelve percent of Harris County residents and 15% of Houston residents over age 65 live below the FPL, compared with 10% of U.S. adults over age 65.

Disparities in income are also seen among racial and ethnic groups. According to the 2002 *Houston Area Survey*, among Harris County employed residents 24% of whites earned less than $25,000 per year, compared with 55% of African Americans, 58% of U.S.-born Hispanics and 70% of Hispanic immigrants.

Economic Impact of Employment and Income

Many studies have found a strong correlation between overall well-being and employment. For example, employed individuals experience fewer health disorders than those who are unemployed.[3] Further, well-being also depends in part on the person's job satisfaction. Individuals who report being satisfied with their job are healthier than those who report dissatisfacton.[4]

Studies suggest improved health among employed persons may be attributed in part to the increased income from employment, which allows them to afford a higher standard of living, including better health care.[3]

---

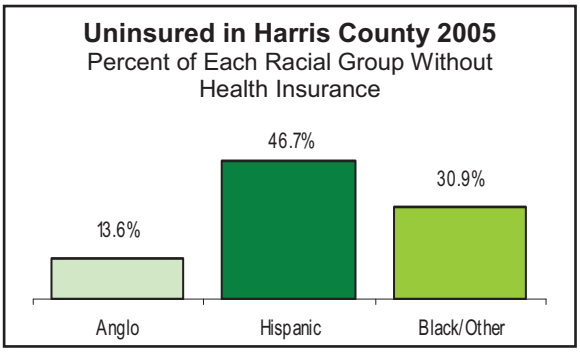
[1]Tumlin K, Zimmerman W. *Immigrants and TANF: A Look at Welfare Recipients in Three Cities.* The Urban Institute; October 2003.
[2]Urban Institute. *Current Population Survey*. Data for March 1998 to March 2000. Available at www.urban.org. Accessed July 2006.
[3]Newburger EC, Cheeseman J. The big payoff: educational attainment and synthetic estimates of work-life earnings. *Current Population Reports.* U.S. Census Bureau; 2002.
[4]Wilkinson R, Marmot M, Eds. *Social determinants of health: the solid facts,*2nd ed. World Health Organization; 2003.

Uninsured in Houston Area

Texas has the highest rate of uninsured persons in the nation. According to 2004 Census data, one in four residents, or 25%, is without any form of health insurance, compared to 16% of U.S. residents. In the Houston-Baytown-Sugar Land MSA, data from the U.S. Census Bureau's *Current Population Survey* indicate that in March 2005-March 2006, a total of 1,424,557 residents under age 65, or 30.4% had no health insurance. Among all ages, 28.1% were without insurance.

Pronounced differences in insurance status are apparent among racial and ethnic groups in Houston/Harris County. The Texas State Data Center reports show that in Harris County, in 2005, 13.6% of whites are uninsured, compared to 46.7% of Hispanics and 30.9% of persons in the black/other group.

Costs prevent some persons from obtaining insurance. A Texas Department of State Health Services (TDSHS) Advisory Council report noted that Texas health insurance costs increased 49% for families between 2002 and 2004 while wages rose 12%.[1]



Source: Texas State Data Center. Available at www.txsdc.utsa.edu.

Houston-Baytown-Sugar Land 10-County MSA
Estimated Insured and Unsured Civilian Population
March 2005-March2006

Age Group	Insured	Uninsured	Total	Percent Uninsured
0-6	425,524	154,519	580,043	**26.6**
7-17	668,705	202,420	871,125	**23.2**
18-24	256,788	233,388	490,176	**47.6**
25-34	471,209	301,629	772,838	**39.0**
35-44	558,975	237,793	796,768	**29.8**
45-64	877,718	294,810	1,172,528	**25.1**
65+	403,453	8,555	412,008	**2.1**
Total	**3,662,369**	**1,433,112**	**5,095,481**	**28.1**

Source: U.S. Census Bureau Current Populations Surveys for Texas

Homelessness

The homeless are one group that often is uninsured. The 2005 Enumeration and Needs Assessment of Homeless Persons in Houston/Harris County[2] estimated 12,000 to 14,000 homeless persons are in the local area. Of these, a minimum of 6,200 do not have access to shelter when needed. Among 2,200 persons surveyed, 40% of the homeless had been without a residence for three or more years. People of color were over-represented among the homeless who participated in the survey. For example, African Americans comprise 18% of the County population, but 65% of those surveyed were African American. In addition, more

[1]TDSHS, DSHS Advisory Council. Demographic & Health Trends, March 3, 2005. Available at www.dshs.state.tx.us/council/agendas/030305/3c.ppt. Accessed December, 2006.
[2]Blue Ribbon Commission to End Chronic Homelessness. Coalition for the Homeless of Houston/Harris County. *Houston/Harris County Enumeration/Needs Assessment.* Available at www.homelessnesshouston.org.

than 80% of the homeless respondents were male.

More than 66% of those surveyed reported no income or access to financial resources. Substance abuse was reported by 58% of the respondents and mental health disorders were reported by 56%. Over 75% stated that they needed dental care and 70% needed medical care.

Almost half the group indicated that they did not have health insurance. Significant barriers were described in their attempts to access health care, although 72% stated they were able to access at least minimal health services.

Children's Health Insurance Program (CHIP)

The Children's Health Insurance Program (CHIP) is designed for families who earn too much money to qualify for Medicaid health care, yet cannot afford to buy private insurance. The parents may have jobs that do not offer health insurance for children, or offer health insurance that is too expensive for the family to afford.

CHIP insurance assists many Texas families with this problem. Higher-income families may pay monthly premiums. Most families also will have co-payments for doctor visits and prescription drugs. CHIP is offered by private health plans and covers services such as routine medical care, hospital care, physical therapy, prescription drugs, dental care and immunizations. Recently, CHIP began providing health care for unborn children of qualified women.

Only Texas residents and U.S. citizens or legal permanent residents quality for CHIP.[3] Most CHIP enrollees were ages six to 18. Race-ethnicity proportions in CHIP are difficult to assess due to poor reporting; 49% of that information was missing.[4]

The number of children enrolled in CHIP in October 2006 decreased 9.9% from the 65,139 enrolled in October 2005. Some of those left CHIP for the Medicaid program.

CHIP Enrollment in Harris County October 2006

	Age 0-5		Age 6-11		Age 12-18		Totals	
Race/Ethnicity	Total	Percent	Total	Percent	Total	Percent	Total	Percent
Anglo	466	4.4	1,179	4.8	1,458	6.3	3,103	5.3
Black	454	4.1	1,684	6.9	2,446	10.5	4,584	7.8
Hispanic	2,888	26.2	8,819	36.2	8,522	36.5	20,229	34.5
Native American	4	0.0	10	0.0	18	0.1	32	0.1
Asian	292	2.6	902	3.7	987	4.2	2,181	3.7
Not Known*	6,919	62.8	11,771	48.3	9,892	42.4	28,582	48.7
Total	11,023	100	24,365	100	23,323	100	58,711	100
Percent by Age	18.8		41.5		39.7		100	

Source: ACS—A010 CHIP Monthly Enrollment File. October 2006. Data compiled by : Demographic Analysis Unit/Strategic Decision Support/ Texas Health & Human Services Commission.
*Race and ethnicity are poorly reported for CHIP enrollees; 49% missing.

[3]TexCare Children's Health Insurance. Children's Health Insurance Program (CHIP). Available at www.chipmedicaid.org. Accessed January 17, 2007.
[4]ACS—A010 CHIP Monthly Enrollment File. October 2006. Data complied by Demographic Analysis Unit/Strategic Decision Support/Texas Healt and Human Services Commission.

Medicaid

Medicaid is a jointly funded state-federal health care program, established in Texas in 1967 and administered by the Health and Human Services Commission (HHSC). In July 2006, about one in nine Texans (2.6 million of the 23.5 million) relied on Medicaid for health insurance or long-term services and supports.[1]

In state fiscal year 2005, all funds (which include state and federal funds) for Medicaid are estimated to comprise 25.5% (about $16.6 billion) of all state expenditures.[2] Medicaid pays for acute health care (physician, inpatient, outpatient, pharmacy, lab and X-ray services). It also covers long-term services and supports for aged and disabled clients.

Medicaid serves primarily low-income families, non-disabled children, related caretakers of dependent children, pregnant women, the elderly and people with disabilities. In 2005, women and children accounted for the largest percentage of the Medicaid population. Fifty-five percent of the Medicaid population was female, and 74% was under age 21. Non-disabled children make up the majority (68%) of all Medicaid clients, but account for a relatively small portion (28%) of Texas Medicaid spending on direct health care services.[1]

As of October 2006, 411,514 Harris County residents, or approximately 11% of the population, were enrolled in the State Medicaid program. Seventy-one percent (291,980) of these enrollees were aged 18 or younger. This represents a slight decrease from October 2005 when 429,647 were enrolled with 72% of them aged 18 or younger.

In Harris County, the largest proportion of Medicaid enrollees was in the age group under 6 years old (36%) while the smallest group was age 65 or over (11%). Hispanics were the largest (47%) ethnic group enrolled in the Medicaid Program followed by African Americans with 34%.

Temporary Assistance to Needy Families accounted for 73% of Medicaid enrollees in Harris County compared to 69% of Texas enrollees. Thirty-eight percent of the Refugee program enrollees were in Harris County, but across all programs, Harris County represented 16% of Texas Medicaid Enrollees in October.[2]

Medicaid Point-in-Time Enrollment
Harris County—October 2006[2]

Age Group>	Age 0-5		Age 6-11		Age 12-18		Age 19-24		Age 65+		Total	
Race/Ethnicity	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%
Anglo	12,136	8.2	6,544	8.4	6,610	10.1	16,376	22.1	11,104	24.5	52,770	12.8
Black	35,495	24.1	26,362	33.3	27,350	41.7	36,385	49.0	13,817	30.5	139,409	33.9
Hispanic	94,054	63.9	42,442	53.7	28,319	43.1	16,640	22.4	10,819	23.9	192,274	46.7
Native American	569	0.4	216	0.3	198	0.3	338	0.5	382	0.8	1,703	0.4
Asian	3,829	2.6	1,885	2.4	1,683	2.6	2,237	3.0	5,985	13.2	15,619	3.8
Not Known*	1,171	0.8	1,635	2.1	1,493	2.3	2,220	3.0	3,236	7.1	9,755*	2.4
Total	147,254	100	79,084	100	65,653	100	74,196	100	45,343	100	411,530	100
Percent by Age	35.8		19.2		16.0		18.0		11.0		100	

*Race and ethnicity are poorly reported.

[1]Texas Health and Human Services Commission website. Available at hhp://www.hhsc.state.tx.us/Medicaid/reports/PB6/PDF/Chapter01.pdf.
[2]Texas Medicaid Program Monthly Eligibles (Med-ID) file for October 2006. Data compiled by Demographic Analysis Unit/Strategic Decision Support/ Texas Health & Human Services Commission.

Primary Care Physicians

The U.S. Department of Health and Human Services (DHHS) defined primary care physicians as those in the following specialties: family practice, general practice, internal medicine, pediatrics, and obstetrics and gynecology. The number of physicians in these specialties is important as they typically serve as the entry point for patients into the health care system, and the majority of patient visits are to these doctors.

Physician shortages are generally more acute in rural areas. However, even metropolitan areas can be considered to have physician shortages due to physician location, accessibility to transportation, income level, and natural and physical barriers. Houston/Harris County, largely a metropolitan area, contains areas designated as medically underserved areas (MUAs) with shortages of primary care physicians as one of the defining features.

MUAs were defined by the federal government as those areas having inadequate health services. The determining factors in these areas are the percentage of the population aged 65 and over, the poverty rate, the infant mortality rate, and the ratio of number of primary care physicians to the area's population.

As of April, 2006, TDSHS reports that Houston/Harris County had 20 areas designated as MUAs, and three areas of medically underserved populations (MUPs).

In Harris County, the chart below shows the ratio of physicians to 100,000 population. In 2002, Harris County showed a ratio of 81.0 primary care physicians to 100,000 population. This is compared to the Texas ratio of 70.7 and the U.S. ratio of 80.9.[1]

Primary Care Physicians (PCP) in Harris County and Texas 2000-2005

Harris County	2000	2001	2002	2003	2004	2005
Population	3,320,437	3,376,128	3,432,035	3,563,988	3,642,461	3,708,107
Primary Care	2,728	2,772	2,779	2,866	2,892	2,942
Ratio per 100,000 population	82.2	82.1	81.0	80.4	79.4	79.3
Texas						
Population	20,344,798	20,698,441	21,056,712	21,828,569	22,549,142	23,002,555
Primary Care	14,283	14,460	14,902	15,304	15,360	15,718
Ratio per 100,000 population	70.2	69.9	70.7	70.0	68.1	68.3

Source: Texas Medical Board—September-October: 2000-2005

[1]TDSHS Center for Health Statistics, Highlights: the supply of primary care physicians in Texas—2005. Available at http://www.dshs.state.tx.us/chs/hprc/PCphys.pdf. Accessed January 2007.

Health Behaviors

According to Healthy People 2010, “individual behaviors and environmental factors are responsible for about 70% of all premature deaths in the United States.” Such behaviors include cigarette smoking, poor diet and lack of preventive health services. Environmental health risks include poor air and water quality, lack of food safety and lead in the home environment. Further, the level of community preparedness for public health emergencies impacts the health and well-being of all citizens.

Healthy People 2010

Tobacco Use

Overview

Tobacco use is the leading cause of preventable disease and death in the nation. The Centers for Disease Control and Prevention (CDC), a component of the U.S. Department of Health and Human Services, reports that nationally 20% of all deaths can be linked to tobacco, a causative agent in lung cancer, heart disease and stroke. The rates of tobacco use have decreased dramatically since the 1960s, in part due to greater public awareness about the risks of smoking. However, according to the CDC, about one out of five American adults continues to smoke.

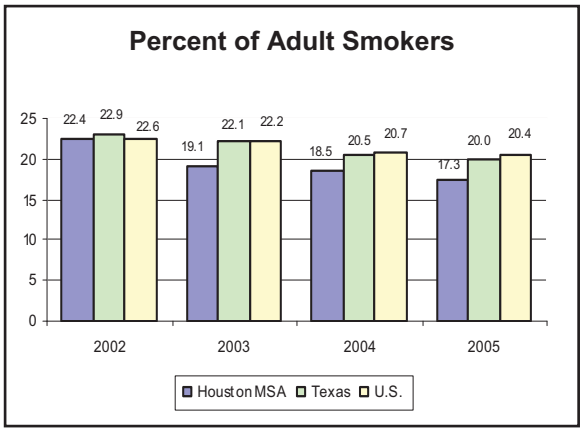
Nationally, tobacco use among youth has declined in recent years. The CDC notes that 22% of high school students were smokers in 2003, compared to 28.5% in 2001.

Photo courtesy of CDC

A similar trend can be found in Texas. The TDSHS *Texas Youth Tobacco Survey* reports that among high school students in Health Service Region 6 (HSR 6), an area that includes Houston/Harris County, prevalence of current tobacco use in 2001 was 26%, compared to 40% in 1998. For middle school students in HSR 6, prevalence of current tobacco use was 16% in 2001, compared to 18% in 1998.

More than 4,000 chemical compounds have been identified in tobacco smoke. Of these, at least 43 are known to cause cancer in humans or animals.
—CDC Fact Sheet

Trends: Houston/Harris County 2002-2005



Source: TDSHS BRFSS survey

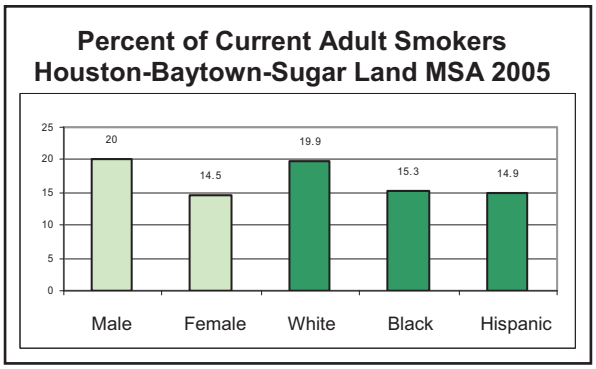
The Behavior Risk Factor Surveillance System (BRFSS) survey of adults shows that the percents of adults who report that they smoke has been declining each year in the Houston-Baytown-Sugar Land Metropolitan Statistical Area (MSA) (see appendix for map of this area), as well as in Texas and the U.S.

TDSHS Vital Statistics data indicate that in 2003, 3.5% of all women who gave birth in Harris County smoked during pregnancy, a decrease from 4.8 % in 1999. In Texas, 5.9% of women who gave birth in 2003 smoked during pregnancy, a decrease from 6.8% in 1999.

Population Differences

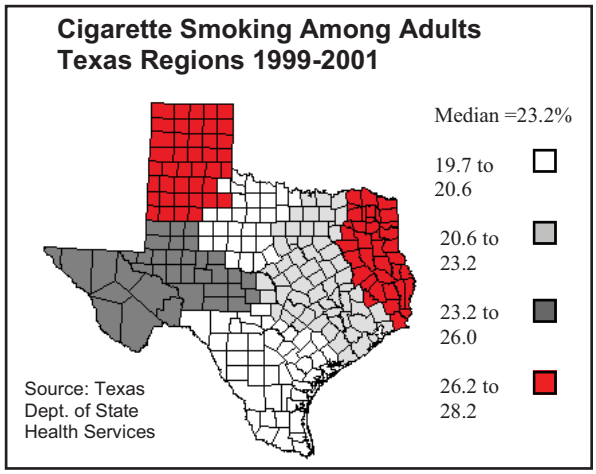
Whites are heavier smokers than blacks or Hispanics. The 2003 Texas BRFSS, with further analysis by HDHHS to create Harris County data, showed that 21.03% of Harris County whites smoked, compared to 13.11% of blacks and 12.81% of Hispanics.

Men are also more likely to smoke than women in Harris County. In 2003, 21.55% of men were smokers, compared to 14.72% of women.



Source: TDSHS BRFSS survey

Geographic Distribution

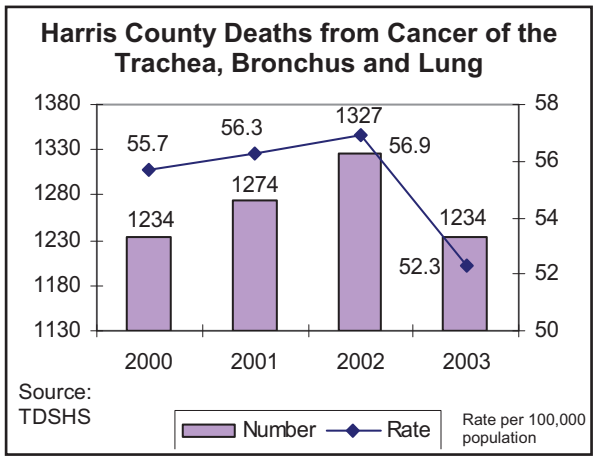


Economic Impact of Tobacco Use

During 1997-2001, costs related to cigarette smoking in the U.S. exceeded $167 billion per year. This included an estimated $75 billion in health-care expenditures and $92 billion in productivity losses.[1] For each pack of cigarettes sold, an estimated $3.45 is spent on medical care and $3.73 is lost in productivity.[2]

Tobacco use is an enormous burden on Texas, leading to 24,000 deaths and costs exceeding $10 billion in direct medical costs and lost productivity each year.[2]

In Harris County, in 2004, there were 468 deaths from cancer of the lung and bronchus among persons who died before age 65. These individuals average of 8.4 years of potential life lost (YPLL), had they lived to 65.[3]



Healthy People 2010

Objective 27-1: Reduce cigarette smoking by adults aged 18 and older

Adult Cigarette Smokers	
Area	**Percent**
National Baseline 1998	24
Target for 2010	12
Houston-Baytown-Sugar Land MSA 2005	17
State of Texas 2005	20
United States 2005	20

Public Health Actions

- Inform, educate and empower people about the risks of smoking; provide health assessment and education about healthy lifestyles through public health clinics and outreach.
- Enforce laws and regulations that protect health and ensure safety through investigation of violations of non-smoking city ordinances.

Tobacco is the leading cause of preventable disease and death in the nation. Tobacco harms nearly every organ in the body.

For More Information

CDC: Smoking and Tobacco Use: *www.cdc.gov/doc.do/id/0900f3ec802346d8*
Fact Sheet for Youth: *www.cdc.gov/HealthyYouth/tobacco/facts.htm*
Tobacco Information and Prevention Source (TIPS): *www.cdc.gov/tobacco/factsheets.htm*
Spanish Fact Sheets: *www.cdc.gov/tobacco/factsheets_es.htm*
American Lung Association: *www.lungusa.org*
Harris County Public Health and Environmental Services: *www.hcphes.org*

[1]CDC. Annual smoking–attributable mortality, years of potential life lost, and productivity losses—United States, 1997-2001. *MMWR* 2005;54:625-628.
[2]CDC. Annual smoking–attributable mortality, years of potential life lost, and economic costs—United States, 1995-1999. *MMWR* 2002;51:300-303.
[3]TDSHS, with further analysis by Bexar County Community Health Collaborative, Dr. Bill Spears.

Secondhand Smoke

Overview

Secondhand smoke, also known as environmental tobacco smoke (ETS), is a complex mixture of gases and particles that includes smoke from the burning cigarette, cigar, or pipe tip (sidestream smoke) and exhaled mainstream smoke. Increasing concern is developing about the dangers of secondhand smoke. The following is taken from a report from the Surgeon General.

Exposure to Tobacco Smoke: a Report of the Surgeon General 2006[1]

Major Conclusions of the Report

1.1 Secondhand smoke causes premature death and disease in children and in adults who do not smoke

1.1.1 Concentrations of many cancer-causing and toxic chemicals are higher in ETS than in the smoke inhaled by smokers.

1.1.2 Breathing ETS for even a short time can have immediate adverse effects on the cardiovascular system and interferes with the normal functioning of the heart, blood, and vascular systems in ways that increase the risk of a heart attack.

1.1.3 Nonsmokers who are exposed to ETS at home or at work increase their risk of developing heart disease by 25-30 percent.

1.1.4 Nonsmokers who are exposed to ETS at home or at work increase their risk of developing lung cancer by 20-30 percent.

1.2 Children exposed to secondhand smoke are at an increased risk for sudden infant death syndrome (SIDS), acute respiratory infections, ear problems and more severe asthma. Smoking by parents causes respiratory symptoms and slows lung growth in their children.

1.2.1 Children who are exposed to ETS are inhaling many of the same cancer-causing substances and poisons as smokers. Because their bodies are developing, infants and young children are especially vulnerable to the poisons in ETS.

1.2.2 Both babies whose mothers smoke while pregnant and babies who are exposed to ETS after birth are more likely to die from sudden infant death syndrome (SIDS) than babies who are not exposed to cigarette smoke.

1.2.3 Babies whose mothers smoke while pregnant or who are exposed to ETS after birth have weaker lungs than unexposed babies, which increases the risk for many health problems.

1.2.4 Among infants and children, ETS causes bronchitis and pneumonia, and increases the risk of ear infections.

1.2.5 ETS exposure can cause children who already have asthma to experience more frequent and severe attacks.

1.3 The scientific evidence indicates that there is no risk-free level of exposure to ETS.

1.3.1 Short exposures to ETS can cause blood platelets to become stickier, damage the lining of blood vessels, decrease coronary flow velocity reserves, and reduce heart rate variability, potentially increasing the risk of a heart attack.

100% Smokefree Ordinances In Large Texas Cities

City	Workplace	Restaurants	Freestanding Bars
Austin	Yes	Yes	Yes
Corpus Christi	No	Yes	No
Dallas	Yes	Yes	No
El Paso	Yes	Yes	Yes
Houston*	Yes	Yes	Yes
San Antonio	Yes	No	No

Source: Texas DSHS Texas Smoke-free Ordinance Database at http://txshsord.coe.uh.edu, retrieved on 11-30-06.
*Houston ordinance will become effective in September, 2007.

[1]The United States Department of Health and Human Services, *The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General, June 7, 2006*: *http://www.surgeongeneral.gov/library/secondhandsmoke/*

Nine Texas cities have 100% smoke free workplaces, restaurants and freestanding bars: Austin, Beaumont, Benbrook, Copperas Cove, El Paso, Houston, Laredo, Vernon and Victoria.

Source: Texas DSHS Texas Smoke-free Ordinance Database at http://txshsord.coe.uh.edu, retrieved on 11-30-06.

1.3.2 ETS contains many chemicals that can quickly irritate and damage the lining of the airways. Even brief exposure can result in upper airway changes in healthy persons and can lead to more frequent asthma attacks in children who already have asthma.

1.4 Exposure of adults to secondhand smoke has immediate adverse effects on the cardiovascular system and causes coronary heart disease and lung cancer.

1.5 Many millions of Americans, both children and adults, are still exposed to secondhand smoke in their homes and workplaces despite substantial progress in tobacco control.

1.6 Eliminating smoking in indoor spaces fully protects nonsmokers from exposure to secondhand smoke. Separating smokers from nonsmokers, cleaning the air and ventilating buildings cannot eliminate exposures of nonsmokers to secondhand smoke.

1.61 Conventional air cleaning systems can remove large particles, but not the smaller particles or the gases found in ETS.

1.62 Routine operation of a heating, ventilating, and air conditioning system can distribute ETS throughout a building.

1.63 The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), the preeminent U.S. body on ventilation issues, has concluded that ventilation technology cannot be relied on to control health risks from ETS exposure.

There is no risk-free level of exposure to Environmental Tobacco Smoke.

—The Surgeon General

Report from the Environmental Protection Agency

An excerpt from a 1992 report follows:

1.2 Conclusions from the Environmental Protection Agency (EPA) 1992 report Respiratory Health Effects of Passive Smoking: Lung Cancer and Other Disorders:[2]

1.21 ETS has been classified as a Group A carcinogen under EPA's carcinogen assessment guidelines. This classification is reserved for those compounds or mixtures, which have been shown to cause cancer in humans, based on studies on human populations.
1.22 Exposure to ETS is responsible for approximately 3,000 lung cancer deaths each year in non-smoking adults.

ETS is a mixture of over 4,000 compounds, more than 40 of which are known to cause cancer in humans or animals, and many of which are strong irritants according to the 1993 EPA report The Inside Story. A Guide to Indoor Air Quality.

In Houston/Harris County 81% of people surveyed by the Texas State 2005 BRFSS said that they did not allow smoking inside their homes.

For More Information

The United States Department of Health and Human Services: The Surgeon General's Report (Fact Sheets can also be downloaded from this site): *www.surgeongeneral.gov/library/secondhandsmoke/*

The United States Environmental Protection Agency: *www.epa.gov*

Texas Department of State Health Services: *www.dshs.state.tx.us./tobacco/*

Americans for Nonsmokers Rights and ANR Foundation: *www.no-smoke.org/*

American Heart Association: *www.americanheart.org*

American Lung Assocation: *www.lungusa.org*

[2]U.S. Environmental Protection Agency, Office of Health and Environmental Assessment and Office of Research and Development, *Respiratory Health Effects of Passive Smoking: Lung Cancer and Other Disorders,* 1992.

Nutrition

Overview

According to the CDC, poor nutrition is a major cause of the epidemics of obesity and diabetes in the U.S. Poor nutrition, when combined with physical inactivity, is associated with many chronic diseases that develop into preventable disabilities and deaths, such as heart disease and cancer. Conversely, practicing good nutrition, being active and maintaining a healthy weight can lower the risk of these chronic conditions and others, including osteoporosis, arthritis and stroke.

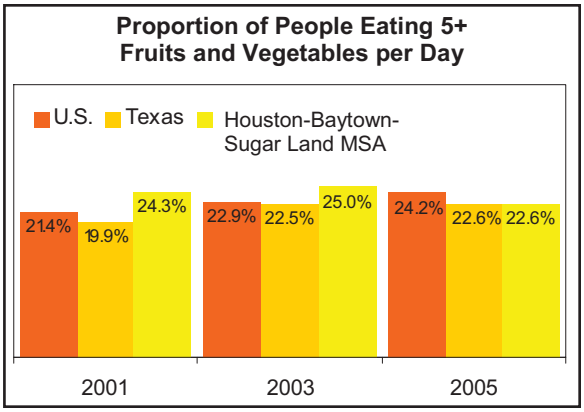
Key components of a healthy diet are low in fat, especially saturated fat, and plenty of fruits, vegetables and whole grains.

Photo courtesy CDC

Fruit and Vegetable Consumption

CDC recommends that all Americans consume at least five servings of fruits and vegetables each day. According to the 2005 BRFSS, 23.6% of surveyed Harris County adults reported eating an average of five or more servings of fruits and vegetables a day, a decrease from 25.1% in 2003. In comparison, 22.6% of Texas adults reported consuming five or more servings, and 24.2% of U.S. adults reported eating the recommended number of servings for fruits and vegetables in 2005.

Trends: Houston/Harris County



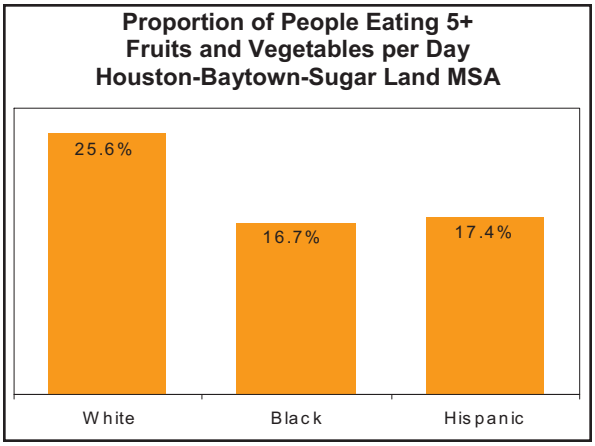
Source: TDSHS BRFSS survey

Fruit and vegetable intake may decline during the adolescent and teenage years—a time crucial to establishing a healthy lifestyle. According to the School Physical Activity and Nutrition (SPAN) project, 48% of 4th graders surveyed in Harris County during the 2004-2005 school year reported eating two or more servings of fruit per day, compared with 18% of 8th graders and 13% of 11th graders. Twenty-two percent of 4th graders reported eating three or more servings of vegetables per day, compared with 4% of 8th graders and 5% of 11th graders.

Population Differences

2005 BRFSS survey data collected within the Houston-Baytown-Sugar Land MSA indicate that more females eat the recommended servings of fruits and vegetables than males. Five or more servings per day were reported by 26.1% of women but only 19.4% of men.

In addition, more whites than blacks or Hispanics reported eating 5+ fruits and vegetables daily. In the white population, 25.6% reported the recommended servings, compared to 16.7% of black and 17.4% of Hispanic respondents.



Source: TDSHS BRFSS survey

Nutrition Education for WIC Mothers

Economic Impact of Nutrition

Inadequate nutrition, linked with poverty, can result in nutritional deficiencies that impede cognitive development, growth and functioning among children. Adequate nutrition for children provides savings in the form of reduced health care costs and special education needs.[1]

The Federal Women, Infants, and Children Supplemental Nutrition Program (WIC) provides supplemental food, nutrition education, and health care referrals for low-income persons including infants and children up to age five, and pregnant, breastfeeding or post partum mothers. According to cost-benefit studies, every dollar spent on WIC saved Medicaid up to $4.21 for every woman and child served.[2]

Studies have shown that WIC improves birth outcomes and infant health through encouraging earlier prenatal care and breastfeeding. WIC also contributes to fewer premature births and to increased birth weight among infants.[2,3] For each infant that is born at a healthy weight, rather than a low birth weight, Medicaid costs are reduced by up to $15,000.[2] WIC health benefits for children include increased intake of iron, vitamin B6, and folate, lower rates of anemia, increased immunization rates and improved access to health care.[2,4]

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[1]Brandeis University Center on Hunger and Poverty. Statement on the Link Between Nutrition and Cognitive Development in Children, 1998. Available at www.centeronhunger.org/cognitive.html. Accessed February 20, 2007.
[2]Whale S, True L, *California WIC and Proposition 10: Made for Each Other*, Halfon N, Shulman E, Shannon M, Hochstein M, eds., UCLA Center for Healthier Children, Families, and Communities, 2000.Available at www.healthychild.ucla.edu/Publications/BuildingCommunitySystems Pubs.asp. Accessed February 20, 2007.
[3]Lee BJ, Mackey-Bilaver L, Chin M. *Effects of WIC and Food Stamp Program Participation on Child Outcomes.* A study by the University of Chicago Chapin Hall for Children, published with support from the Economic Research Service, USDA. December 2006. Available at www.ers.usda.gov/Publications/CCR27/. Accessed February 20, 2007.
[4]Oliveria V and Gundersen C. WIC increases the nutrient intake of children. *Food Review*. 2001;24(1):27-30.

Healthy People 2010

Objective 19-5: Increase the proportion of persons aged 2 years and older who consume at least two daily servings of fruit.

Objective 19-6: Increase the proportion of persons aged 2 years and older who consume at least three daily servings of vegetables, with at least one-third being dark green or orange vegetables.

5+ Fruits and Vegetables Daily	
Area	**Percent**
Houston-Baytown-Sugar Land MSA 2005	22.6
State of Texas 2005	22.6
United States 2004	23.0

Public Health Actions

- Educate the community and health clinic patients about the importance of good nutrition
- Assure the provision of health care support where otherwise not available through activities such as providing food vouchers to low-income women and children in the WIC program and working with vendors to provide Meals on Wheels to seniors

For More Information

Food and Nutrition Information Center: *www.nal.usda.gov/*

CDC: Nutrition Information: *www.cdc.gov/nccdphp/dnpa/nutrition/index.htm*
Spanish Information: *www.cdc.gov/Spanish/indice.htm#N*

American Dietetic Association: *www.eatright.org/*

Coordinated Approach to School Health Program (CATCH), currently active in 22 ISDs in Harris County: *www.catchtexas.org*

National Breastfeeding Promotion Campaign: *www.fns.usda.gov/wic/breastfeeding/lovingsuppor.htm*

MD Anderson Cancer Center: *www.mdanderson.org/topics/food*

HCPHES: *www.hcphes.org*

Physical Activity

Overview

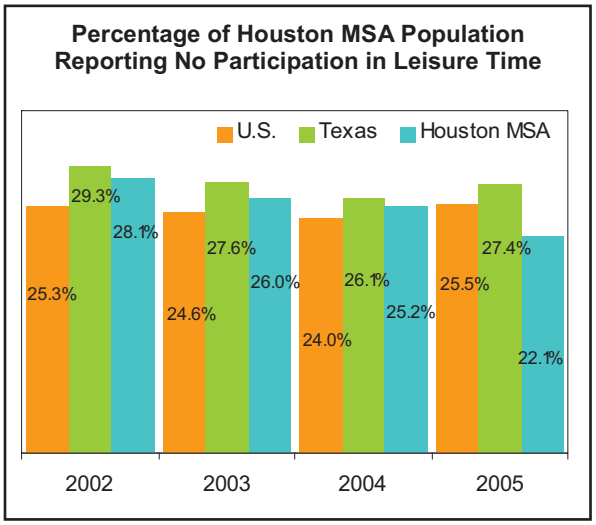
Physical activity, combined with poor nutrition, is a leading cause of preventable death, second only to tobacco use, according to CDC. These behaviors, along with the resulting conditions of overweight and obesity, are linked with chronic diseases such as heart disease, diabetes and cancer. Conversely, being active can help maintain a healthy weight and can lower the risk of these chronic conditions and others, including osteoporosis, arthritis and stroke.

CDC and the American College of Sports Medicine recommend that adults should participate in moderate to vigorous physical activity for at least 30 minutes on most days of the week. 2004 Texas BRFSS data show that 25.2% of surveyed adults in the Houston-Baytown-Sugarland MSA reported participating in no leisure-time physical activity during the past month, compared with 26.1% of Texas adults and 24% of U.S. adults.

The School Physical Activity and Nutrition (SPAN) monitoring system is used in Texas to track children's weight and activity. A representative sample of 4th, 8th and 11th grade children are measured for height and weight, and complete a survey about nutrition and physical activity. 2004-2005 SPAN data show that 18% of 4th graders surveyed in Harris County reported at least 30 minutes of moderate physical activity on five or more days per week, compared with 30% of 8th graders and 31% of 11th graders.[1]

Statewide SPAN data show that in 2004-2005, 30% of Texas high school students were enrolled in daily physical education classes. Currently, State of Texas statutes require that school districts adopt policies to ensure that elementary school, middle school and junior high school students engage in at least 30 minutes of physical activity per day or 135 minutes per week.[2]

Trends: Houston/Harris County 2002-2005



Source: TDSHS, BRFSS survey

While residents of Houston/Harris County still need to get moving, the trend since 2002 shows some encouragement. In 2002, BFRSS data show 71% of Houston-Baytown-Sugar Land MSA residents reported some leisure time physical activity. This number has risen to 78% by 2005.

In Harris County, 60% of 8th graders view more than two hours of television per day, compared with 41% of 4th graders and 47% of 11th graders

—2004-2005 SPAN data

[1]The University of Texas School of Public Health and TDSHS. School physical activity and nutrition project. Information available at the TDSHS website, *Eat Smart, Be Active*, www.eatsmartbeactivetx.org/data_state_child.
[2]Texas Education Code §28.004.

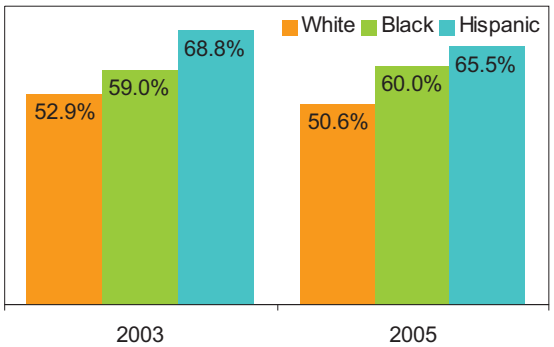
Population Differences

In the Houston/Harris County area, more men (48%) than women (41%) met the Healthy People 2010 goal for physical activity.

Education also makes a difference. For college graduates, 53% reach the recommended activity levels, compared to 41% of high school graduates and 35% of those without a high school diploma. Income variations are also significant. For those with a household income of less than $25,000 per year, only 38% meet the recommended level of activity, compared to 44% with income of $25,000 through $49,999, and 51% with income of $50,000 or more.

Age differences are also apparent. We exercise less as we get older. According to the BFRSS, 86% of adults age 18-29 participated in leisure time physical activity, compared to 83% of those aged 30-44 years, 72% of those ages 45-64 , and 64% of those aged 65+ years.

Percentage of Houston MSA Population Not Meeting Recommended Moderate or Vigorous Physical Activity



Source: TDSHS, BRFSS survey

Economic Impact of Physical Activity

A lack of physical activity and the resulting complications cost both patients and the U.S. government dearly, approximately $117 billion a year.[3] Analysis by the CDC found that if the 88 million inactive Americans incorporated daily moderate physical activity, medical costs could be reduced by an estimated $76.6 billion.[4]

Healthy People 2010

Objective 22-2: Increase the proportion of adults who engage regularly, preferably daily, in moderate physical activity for at least 30 minutes per day.

Meet Recommendations for Moderate Physical Activity

Area	Percent
National Baseline 1997	32.0
Target for 2010	50.0
Houston-Baytown-Sugar Land MSA 2005	44.4
State of Texas 2005	46.7
United States	48.1

Public Health Actions

- Inform, educate and empower people to understand the importance of physical activity and incorporate it into their lives
- Assure health care where otherwise unavailable by providing health assessment and education for residents served in public health clinics
- Monitor health status by tracking lifestyle and activity trends among residents and providing reports to the community

For More Information

Eat Smart, Be Active Campaign: *www.tdh.state.tx.us/nutrition/index.htm*

CDC: *www.cdc.gov/nccdphp/dnpa/physical/index.htm*

CDC Information in Spanish: *www.cdc.gov/Spanish/indice.htm#A*

American Heart Association: *www.americanheart.org*

Texas DSHS Nutrition, Physical Activity and Obesity Prevention Program: *www.dshs.state.tx.us/phn/phn.shtm*

HCPHES: *www.hcphes.org*

[3]U.S. Department of Health and Human Services. The Surgeon General's call to action to prevent and decrease overweight and obesity, 2001. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, Office of the Surgeon General; 2001. (Available from US GPO, Washington)

[4]Pratt M, Macera CA, Wang G. Higher direct medical costs associated with physical inactivity. *The Physician and Sportsmedicine.* 2000;28:63-70.

Overweight/Obesity in Adults

Overview

According to CDC, the U.S. is experiencing an "epidemic" of people becoming overweight and obese. The proportion of overweight people has increased dramatically since the late 1980s. Individuals are considered overweight if their Body Mass Index (BMI), a correlate of body fat, is in the range of 25.0-29.9, and considered obese if their BMI is 30.0 or above.

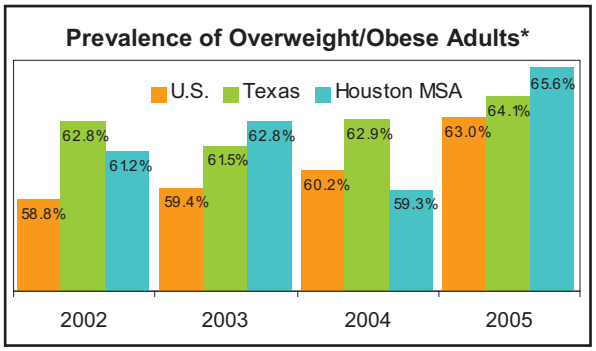
The National Center for Health Statistics (NCHS) data show 30% of U.S. adults over age 20 are obese, more than 60 million people. Among young people, the percentage who are overweight has more than tripled since 1980.

Among children and teens aged 6–19 years, more than nine million, or 16 percent, are considered overweight. The NCHS reports that being overweight or obese increases the risk of many diseases and conditions, including:

- Hypertension
- Dyslipidemia (high total cholesterol or high levels of triglycerides)
- Type 2 diabetes
- Coronary heart disease
- Stroke
- Gallbladder disease
- Osteoarthritis
- Sleep apnea and respiratory problems
- Cancers (endometrial, breast, and colon)

Although one of the national health objectives for the year 2010 is to reduce the prevalence of obesity among adults to less than 15%, current data indicate that the situation is worsening rather than improving.

Trends: Houston/Harris County 2002-2005



*BMI of 25 or greater
Source: TDSHS BRFSS survey

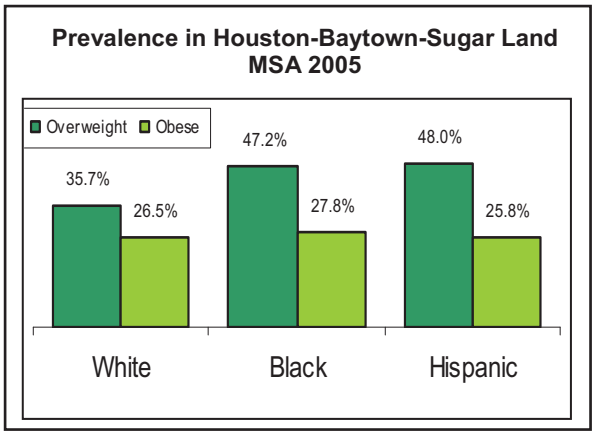
The BRFSS 2005 reports that 65.6% of surveyed adults in the Houston-Baytown-Sugar Land MSA were overweight or obese, compared to 64.1% of Texas adults and 63.0% nationwide. The population is becoming increasingly overweight in each of these areas.

***Overweight** is defined as ≥ 95th percentile based on BMI charts.*
***At risk for overweight** is defined as ≥ 85th but < 95th percentile based on BMI charts.*

Population Differences

BRFSS data showed that males in the Houston-Baytown-Sugar Land MSA area are more likely (75.8%) to be overweight or obese than females (53.8%). Among blacks, 75.0% were overweight or obese, compared with 73.8% of Hispanics and 62.2% of whites. Only 34.4% of the total adult population was not in the overweight/obese category.

Those aged 46-64 are most likely to be overweight or obese (73.4%), compared to those who are younger: 18-29 (53.8%) or 30-44 (70.1%), or those who are older: over 65 (58.2%).



Source: TDSHS BRFSS survey

Walking and other exercises help prevent obesity

Economic Impact of Obesity

Individuals who are overweight or obese are prone to develop an advanced sickness or complication such as hypertension and cardiovascular disease. On average, obese individuals spend 36% more than the general population on health services and spend 77% more on medications.[1] Proper weight management can lead to a decrease in physician visits and reduce the need for medication.

Based on an analysis of trends in Medicare spending from 1987 to 2002, the study found that obesity has emerged as a major driver of increasing Medicare costs, with the percentage of obese beneficiaries roughly doubling from 11.7% to 22.5%. Spending on those patients nearly tripled from 9.4% to 24.8% of total Medicare expenditures.[2]

In terms of productivity, employers have an incentive to implement physical activity programs. Studies show that such programs could reduce sick leave from 6% to 32%, reduce health care costs by 20% to 55%, and increase productivity from 2% to 52%.[3] In Texas, overweight and obesity related illnesses cost an estimated $10.5 billion in 2001.[4]

BMI for a 5' 9" individual		
Weight Range	**BMI**	**Weight Status**
124 lbs or less	Below 18.5	Underweight
125 to 168 lbs	18.5 to 24.9	Normal
169 to 202 lbs	25.0 to 29.9	Overweight
203 lbs or more	30 or higher	Obese

Healthy People 2010

Objective 19-2: Reduce the proportion of adults who are obese

Adults Aged 20 and Older Identified as Obese	
Area	**Percent**
National Baseline 1988-94	23.00
Target for 2010	15.00
Houston-Baytown-Sugar Land MSA 2005	25.96
State of Texas 2005	27.00
United States 2004	23.50

Public Health Actions

- Inform, educate and empower people about health issues through health education for the community about the importance of physical activity
- Provide healthcare where otherwise not available through assessment and education about healthy lifestyles for the residents served by public health clinics and outreach

For More Information

Centers for Disease Control and Prevention: *www.cdc.gov/nccdphp/dnpa/obesity/index.htm*

National Institute of Health, BMI Table: *www.nhlbi.nih.gov/guidelines/obesity/bmi_tbl.htm*

Texas Department of State Health Services (Obesity information in Spanish): *www.dshs.state.tx.us/phn/spdefault.shtm*

Harris County Public Health and Environmental Services: *www.hcphes.org*

[1]Strum R. The effects of obesity, smoking and problem drinking on chronic medical problems and health care costs. *Health Affairs.* 2002; 21(2):245-253.
[2]Thorpe and Howard. The rise in spending among Medicare beneficiaries: the role of chronic disease prevalence and changes in treatment intensity. *Health Affairs*, 2006; 25(4): 378-388.
[3]U.S. Department of Health and Human Services. Physical activity and health: *a report of the Surgeon General.* Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, 1996.
[4]Texas Department of Health (now the Department of State Health Services). The burden of overweight and obesity in Texas, 2000-2004. June 23, 2004. Available at: http://www.tdh.state.tx.us/sshp/Cost_Obesity_Report.pdf on March 14, 2005.

Overweight in Youth

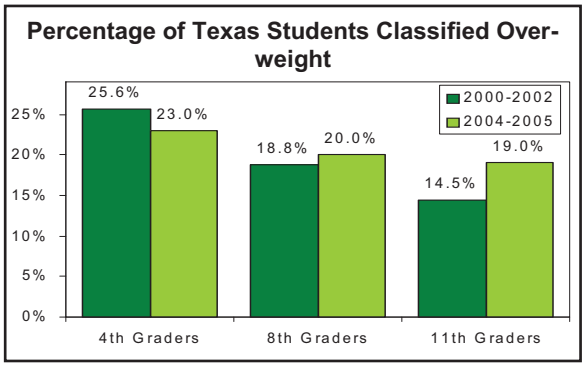
Overview

The definition of overweight is different in most sources for children as compared with adults. For children, overweight is defined by the Youth Risk Behavior Survey (YRBS) as at or above the 95th percentile for BMI by age and sex. Thus, the term "overweight" includes weights that would be termed "overweight and obese" for adults.

The rate of childhood overweight is increasing yearly. According to the Third National Health And Nutrition Examination Survey (NHANES III/1988-1994) conducted by the CDC's Division of Health Examination Statistics, the prevalence of overweight children has nearly doubled in comparison to the data from NHANES II (1976-1980). The results from NHANES IV (1999-2000) show that an estimated 15% of children and adolescents between the ages of 6-19 are overweight.

Studies have also shown that overweight children are more likely to become obese adults.[1] The CDC reports numerous consequences associated with pediatric overweight, including heart disease, high blood cholesterol levels, high blood pressure, gallbladder disease and Type II diabetes.

Trends: Houston/Texas 2000-2005



Source: TDSHS

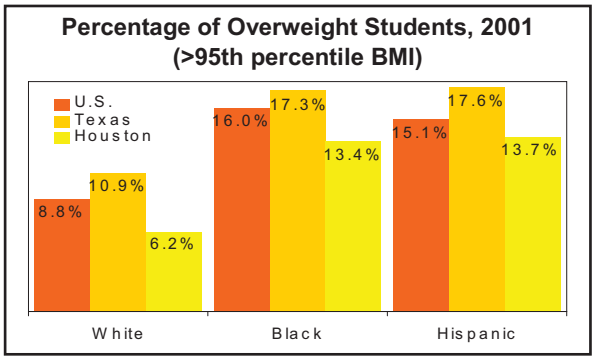
The 2001 Youth Risk Behavior Survey results, published by TDSHS, indicates that among Houston high school students 13% are overweight, 17% are at risk for becoming overweight (BMI of 85th to 95th percentile) and 76% ate fewer than five servings of fruits and vegetables per day during the past 7 days.

Higher rates of child overweight are apparent in southern states as compared to other regions of the country. Some research has shown that lower socioeconomic status groups are also exhibiting increasing rates of overweight.[2]

Population Differences

The prevalence of overweight among black and Hispanic adolescents increased more than 10 percentage points between 1988-1994 and 1999-2000.[3]

The prevalence of overweight in children and adolescents is higher than it was twenty years ago in all racial-ethnic groups.[3] While the incidence of childhood overweight is increasing, the rate of this disease is higher for Hispanic children, Native American children and black girls.[2]



Source: CDC. Youth Risk Behavior Surveillance System Survey, 2001.

[1]Power C, Lake Jk, Cole TJ. Measurement and long-term health risks of child and adolescent fatness. *International Journal of Obesity and Related Metabolic Disorders.* 1997;21(7):507-26.
[2]American Obesity Association. AOA Fact Sheets - Obesity in the U.S. Available at http://www.obesity.org/subs/fastfacts/obesity_US.shtml. Accessed October 23, 2006.
[3]Ogden CL, Flegal KM, Carroll MD, Johnson CL. Prevalence and trends in overweight among US children and adolescents. JAMA 288(14):1728-32. 2000

Overweight Risk Factors

The 2001 Youth Risk Behavior Survey results published by the Texas Department of State Health Services, indicated that among Houston High School students:

- 45% had not participated in sufficient vigorous physical activity during the past seven days.
- 82% had not participated in sufficient moderate physical activity during the past seven days.
- 50% were not enrolled in a physical education class.
- 83% did not attend physical education class daily.

The 2002 School Health Profiles results published by the Texas Department of State Health Services, indicated that among Houston middle/junior and senior high schools:

- Only 37% of schools required students to take two or more health education courses.
- 0% of schools prohibit students from purchasing candy, high fat snacks, or soft/sports drinks during lunch periods.

Other risk factors for child overweight are diets high in fats, sugars and calories; large meal portions; lack of nutrition knowledge; income below poverty level; non-active personal leisure activity preference; accessibility to fast food; and media promotion of food for enjoyment over physical activity or nutritional value.

Economic Impact of Overweight Children

The direct and indirect costs of Type 2 diabetes attributable to childhood overweight were $32.4 billion and $30.74 billion, respectively. About 70% of the total annual health care expenditures for overweight children is financed by Medicaid and private insurance.

However, 26% of the health care costs for overweight children is paid out-of-pocket by their families. Some of these payments may be for services not generally covered by health insurance, such as weight-management programs or supportive services. Low-income families are more likely to have restricted access to these types of services.[4]

Healthy People 2010

Objective 19-3c: Reduce the proportion of overweight or obese children and adolescents

Overweight or Obese Children and Adolescents Aged 6 to 19 Years

Area	Percent
National Baseline 1988-94	11
Target for 2010	5
Houston 2001	13
State of Texas 2005	14
United States 2005	13

Public Health Actions

- Develop plans and programs that support individual and community health efforts through health education about nutrition and physical activity for individuals and community groups.
- Inform and educate people about health issues through nutrition and exercise education for those served by public health clinics and outreach

For More Information

Coordinated Approach to Child Health Program (CATCH): *www.catchtexas.org*

U.S. Department of Health and Human Services: *www.surgeongeneral.gov* Click: Call to Action.

Mayor's Wellness Challenge for Kids—Get Moving Houston: *gmh.infovine.com/default.asp?id=103*

Centers for Disease Control and Prevention (Spanish): *www.cdc.gov/pcd/issues/2005/apr/04_0039_es.htm*

Walk To School Day: *www.walktoschool-usa.org*

5 A Day Month: *www.5aday.com/events/events*

TV –Turnoff Week: *www.tvturnoff.org/index.htm*

HCPHES: *www.hcphes.org*

[4]Center on Aging Society analysis of data from the 1997 Medical Expenditure Panel Survey

Injury Risk Behaviors

Overview

According to the CDC, injuries are among the top ten leading causes of death among persons of all ages. Injuries such as motor vehicle crashes, drownings, poisonings, animal bites, homicide and suicide are preventable. There are many factors that affect injury risk, such as failure to use safety belts, impaired driving and domestic violence.

Motor Vehicle Safety

According to the TDSHS Bureau of Vital Statistics, in 2003 transportation accidents were the leading cause of all accidental deaths in Harris County. In addition, motor vehicle crashes are the leading cause of death due to unintentional injuries among children in Harris County. During the period of 2002-2003, the Houston/Harris County Child Fatality Review Team (HHCCFRT) identified 104 deaths among children attributed to motor vehicle crashes.

Family Violence

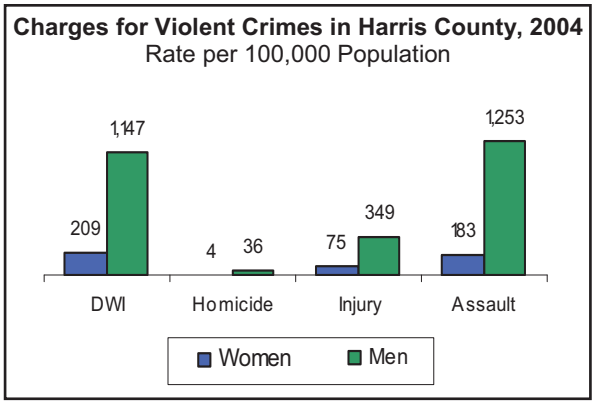
Family or domestic violence is defined by the Texas Family Code as "an act by a member of a family or household against another member of the family or household that is intended to result in physical harm, bodily injury, assault or sexual assault." In 2004, there were 31,055 family violence incidents reported to law enforcement agencies within Harris County. This includes 7,950 incidents reported to the Harris County Sheriff's Office; 20,113 reported to the Houston Police Department; and, an additional 2,992 incidents reported to other local and municipal police departments within Harris County.

According to court records, 6,643 of the criminal charges filed in 2004 involved family violence, among which 5,066 were for assaults and 732 were for injuries.

Homicide

Homicide was the 11th leading cause of death in Harris County in 2003, with 380 deaths—a rate of 10.2 per 100,000 persons.

According to the HHCCFRT, 112 homicides were children under age 18 in Harris County during the period of 2002-2003. Forty-six percent of these were committed using a firearm. In 22%, the injury was caused by striking the child with a blunt object or by shaking the child. Almost half of these homicides occurred among children under age five, and one-third occurred among children aged 15-17.



Source: Harris County Criminal Justice Records

During 2004, court records indicated that 303 charges for murder, manslaughter or homicide were filed. Of these, 57 were for manslaughter with a vehicle while intoxicated.

Assault

During 2004, 11,988 court cases were for assaults. This translates to a rate of 722 assault incidents per 100,000 adults. Four-in-ten assaults (n=5,066) involved a family member, and 655 were against children.

Suicide

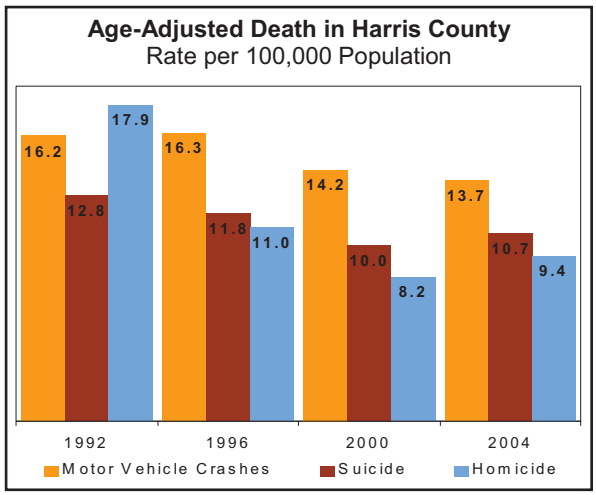
Suicide was the 12th leading cause of death in Harris County in 2003, with 348 deaths—a rate of 10.4 per 100,000 persons.

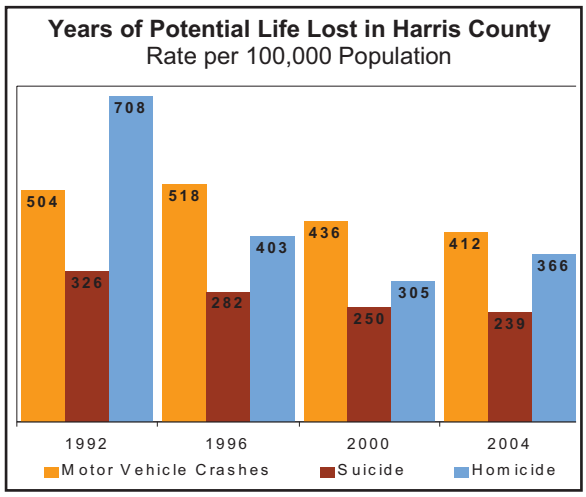
The HHCCFRT reports that there were 34 deaths from suicide among Harris County youth during 2002-2003. Firearms were used in 44% of suicides, closely followed by asphyxiation or hanging. Thirty-five percent of youth suicides occurred among 16 year-olds. Thirty-eight percent occurred among children aged 10-14. The suicide death rate among male youth in Harris County is 2.3 deaths per 100,000 persons, twice the rate among females.

All Intentional Injuries

During 2004, 3,539 injury cases were filed against Harris County adults, 2,923 of which were committed by men and 616 by women. Almost one-in-ten injury cases involved a child as a victim.

Trends: Houston/Harris County 1992-2004





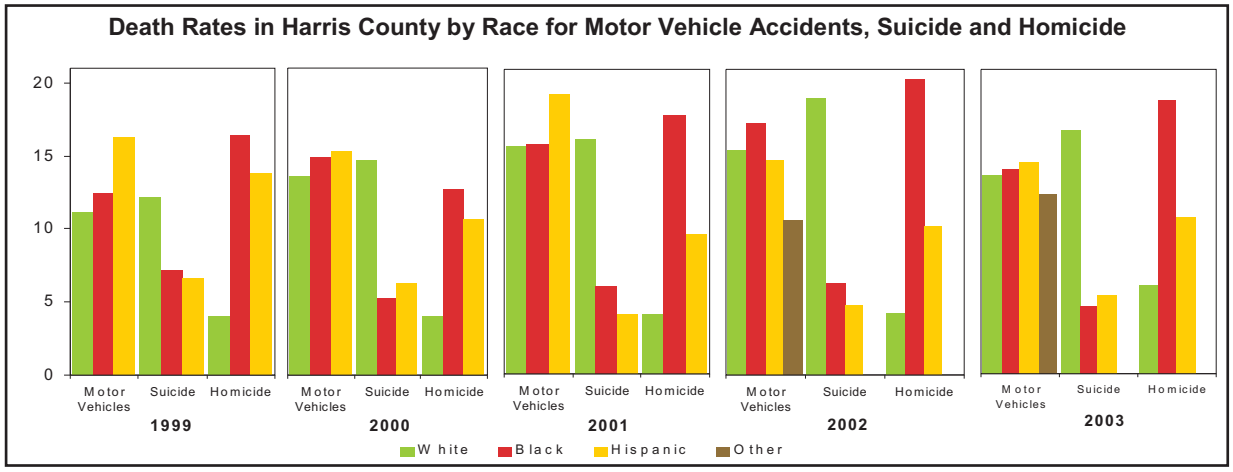
Age adjusted to the 2000 standard population
Source: TDSHS Vital Statistics. Further analysis by Bexar County Community Health Collaborative, Dr. Bill Spears. Available at www.healthcollaborative.net/assessment06/assessmentData.php.

Population Differences

Homicide rates vary widely among demographic groups in Harris County, occurring more frequently among males, both black and Hispanic. Of the 380 deaths due to homicides in 2003, 31.7 per 100,000 were black men, and 18.0 per 100,000 were Hispanic men. Males more frequently died of homicide, a rate of 16.0 compared to 4.5 for women. The overall homicide rate for Harris County was 10.2 per 100,000.

Suicides occur more frequently among white male residents. Of the 348 suicides in 2003, 70% occurred among white males, a rate of 25.6 per 100,000. The suicide rate was 8.1 per 100,000 among Hispanic males. There were too few suicides among black males to calculate a rate. Suicides among white females were also higher than women other races, with a rate of 8.7. There were too few suicides among women of other races to calculate a rate.

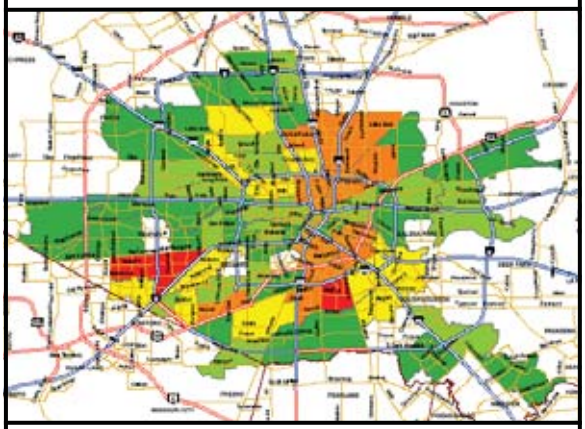
Aggregating homicides, injuries, and assaults, the highest rate of violent acts during 2004 occurred among blacks (1,002 per 100,000 black adults), followed by whites (618 per 100,000). Hispanics and Asian adults had the lowest rate of violent acts (134 and 125 per 100,000, respectively). The highest rate of family violence is found among blacks (706 per 100,000), followed by whites (469 per 100,000).



Rate per 100,000 population, age adjusted to the 2000 standard population.
Source: TDSHS Vital Statistics

Injury Risk Behaviors, cont.

Child Pedestrians Involved in a Motor Vehicle Accident Related Crash with EMS Response
City of Houston 1999-2001, Children under age 16



Source: Houston Trauma LINK. Available at www.bcm.edu/traumalink. Used with permission.

Economic Impact of Injuries

Injuries can result from domestic violence, not using seatbelts or helmets, suicide, homicide, assault, sexual assault, etc. As a result, injuries are a substantial economic burden to the U.S. The total lifetime costs of injuries which occurred in 2000 could total more than $406 billion, including $80.2 billion in direct medical costs and $326 billion in lost productivity.

A worker who suffers from a temporarily disabling injury will miss an average of 11days of work. The burden of injury falls across all age groups. In 2000, injuries for children between the ages of 5 and 14 were estimated to result in $34.6 billion in lifetime medical costs. Though adults 75 and older accounted for only 6% of all injuries in 2000, they were estimated to account for 12% of lifetime medical costs.[1]

The costs of injury are in most cases preventable. A study examining the effectiveness of helmets for motorcycle riders estimated a medical expense savings of $3,618 for those individuals who wore helmets in an accident as compared to those individuals who did not.[2]

Healthy People 2010

Objective 15-13: Reduce deaths caused by unintentional injuries

Death Rate from Unintentional Injuries per 100,000

Area	Rate
National Baseline 1998	35.0
Target for 2010	17.5
Harris County 2004	35.3
State of Texas 2005	39.2
United States 2002	38.8

Public Health Actions

- Monitor health problems through methods such as tracking emergency room visits
- Diagnose and investigate problems and hazards through programs such as the Houston/Harris County Child Fatality Review Team (HHCCFRT), which evaluates child deaths and can refer cases to law enforcement or physician review as needed
- Inform people about health issues through venues such as HHCCFRT sponsored teacher training about suicide warning signs, and efforts by public health educators to encourage use of seatbelts and other safety measures

For More Information

Relocation Crime Lab Index, for city and zip code crime rate: *www.homefair.com/homefair/calc/crime.html*

CDC National Center for Injury Prevention & Control, for US injury/death statistics. See also the WISQUARS section for multiple reports: *www.cdc.gov/ncipc*

Texas DSHS for morbidity, mortality, risk data: *www.dshs.state.tx.us/chs/pubs/pub_hea/my.shtm*

Houston Trauma LINK: *www.bcm.edu/traumalink*

[1]Finkelstein EA, Corso PS, Miller TR, Associates. *Incidence and Economic Burden of Injuries in the United States*. New York: Oxford University Press; 2006.
[2]Eastridge, Brian. Economic impact of motorcycle helmets: from injury to discharge. *Journal of Trauma-Injury Infection & Critical Care*. May 2006; 60(5):978-984.

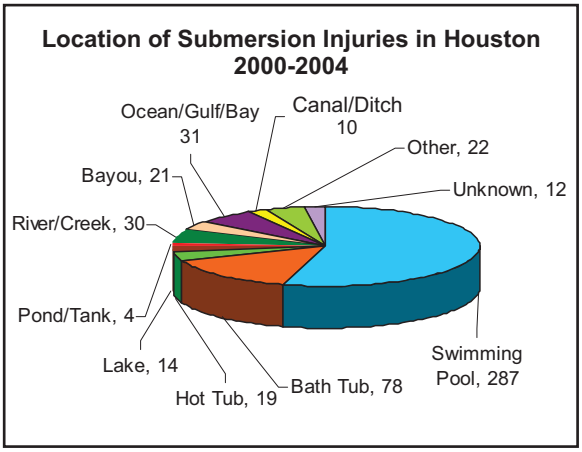
Injury Risk/Submersion

Overview

Submersion injuries consist of drowning and near drowning. A drowning is defined by the TDSHS as a death due to suffocation *within* 24 hours of submersion under water.[1] A near drowning is classified as victim survival for at least 24 hours *after* submersion in water.

Submersion injuries were first reportable in Texas in 1994. HDHHS and HCPHES collect and analyze data regarding submersion injuries.

Drowning is the seventh leading cause of unintentional injury deaths for all ages and the second leading cause of injury deaths in children aged one to 14 years in the United States.[2]

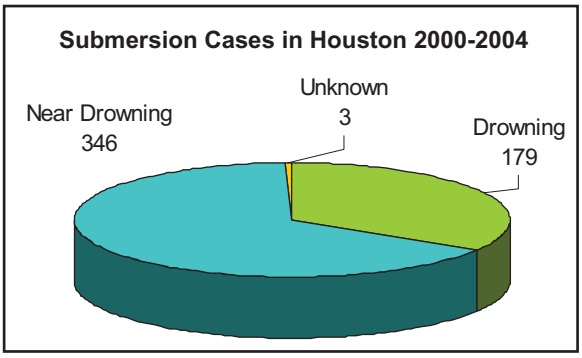


Source: HDHHS case files

Trends: Houston/Texas 2000-2004

Children between the ages of one and four account for one quarter of all submersion injuries in Houston. This has been a consistent pattern in the period from 2000 to 2004 and also applies across all racial/ethnic categories.[3] This pattern can also be seen in state and national observations.[4]

The majority (65.3%) of local submersion injuries occurred in the summer months between April and July and peaked in the month of June.



Source: HDHHS case files

Population Differences

During the period 1995-1999, the highest number of drownings occurred among blacks. This has changed in recent years. In the years 2000-2004, more submersion incidents in Houston occurred among Hispanics with 127 (38%) events, compared to blacks with 121 (36%) events. Victims are more likely to be male, young or adolescent. Surveys indicate that nationwide, 10% of children under five have experienced a situation with a high risk of drowning.[5]

Public Health Actions

- Inform, educate and empower people to not leave children unattended around pools, bathtubs or other bodies of water
- Encourage all people to wear life vests when participating in recreational activities around water, such as boating, fishing, etc
- Educate people about the dangers of drinking alcohol around water activities
- Enforce swimming pool safety laws

[1]Texas Dept of Health. Submersions occurring in swimming pools, 1998. Texas Department of Health, 1999 Epidemiology Annual Report. 1999.
[2]MMWR Nonfatal and Fatal Drownings in Recreational Water Settings --- United States, 2001—2002. June 4, 2004; Vol. 53, No21.
[3]Bureau of Epidemiology, Houston Department of Health and Human Services. *Epidemiology in Review, 1995-1999* (Unpublished).
[4]Center for Disease Control and Prevention. Water-Related Injuries: Fact Sheet. Available at www.cdc.gov. Accessed October, 2006.
[5]Wikipedia Website, article on drowning. Available at http://en.wikipedia.org/wiki/Drowning, Accessed October, 2006.

Child Abuse and Neglect

Photo courtesy CDC

Overview

According to the Texas KIDS COUNT 2005 Annual Data Book, Texas' future economic and social potentials are linked to today's child population, and Harris County alone boasts 1,042,168 children.[1] It is important for this child population to grow up healthy.

Abuse and neglect influence a child's physical and psychological health. Maltreatment disrupts proper brain development, which can lead to sleep disorders, attention deficit disorder and hyperactivity.[2] In addition, abused children are more likely as adults to have alcoholism, drug abuse, eating disorders, obesity, depression and other chronic diseases. They also show an increased incidence of smoking, suicide attempts and sexually transmitted diseases.[3]

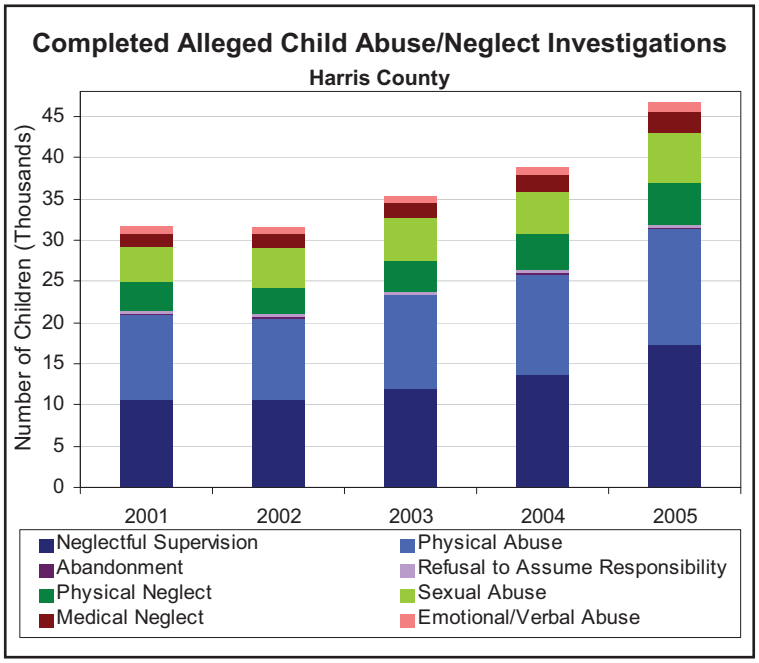
The National Children's Alliance reports that one-in-four girls and one-in-six boys in the U.S. are at risk of being sexually abused before the age of 18. In 2003, the Harris County Children's Assessment Center provided intervention and treatment services for 4,730 child sexual abuse victims and their non-offending caregivers. Sex offenders may be jailed for this crime; however, once paroled, they may live in the local area. According to the Texas Department of Criminal Justice, 21% of the paroled sex offenders in Texas reside in Harris County.

During 2004, 1,824 charges were filed in Harris County for crimes involving children—an overall rate of 110 per 100,000 adults.

Trends: Houston/Harris County 2001-2005

The number of alleged abuse or neglect cases assigned to Harris County Child Protective Services has steadily increased, from 18,666 in 2001 to 25,856 in 2005. Of these investigations, 8-10% consistently result in removal of children from the home, and 25-30% of investigated cases are resolved through family-based safety services, such as parenting classes and family counseling.

Despite these high numbers, the rate per 1,000 of children in Harris County confirmed as having been abused or neglected 2001-2005 is 6.3, compared to an average of 8.3 children per 1,000 for the State of Texas.



Source: Harris County Child Protective Services, Annual Reports 2001 through 2005

The total number of Harris County children in protective custody remains between 3,500 and 4,400. From 2001 to 2005, the number of foster homes within Harris County did not increase above 361 (2002) and only an average of 560 children were adopted each year over the five-year period.

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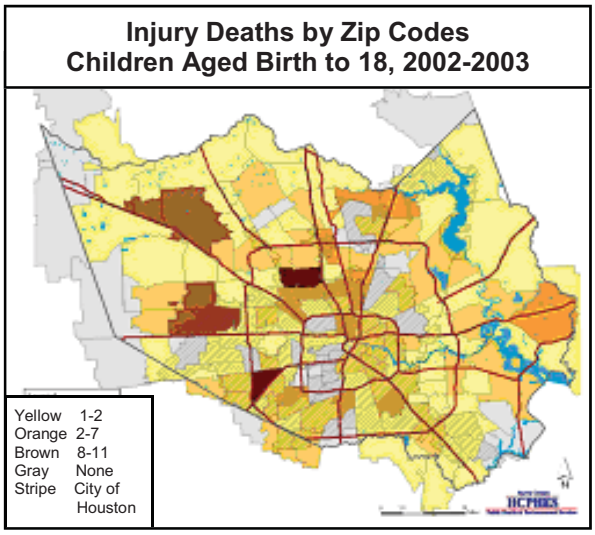
[1]Harris County Child Protective Services 2005 Annual Report

[2]Department of Health and Human Services (DHHS) (US), Administration on Children, Youth, and Families (ACF). *Child maltreatment 2003.* Available on line. Washington (DC): Government Printing Office; 2005. Accessed April 5, 2005.

[3]Felitti V, Anda R, Nordenberg D, Williamson D, Spitz A, Edwards V, et al. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. *American Journal of Preventive Medicine.*1998;14(4):245–58.

Geographic Distribution

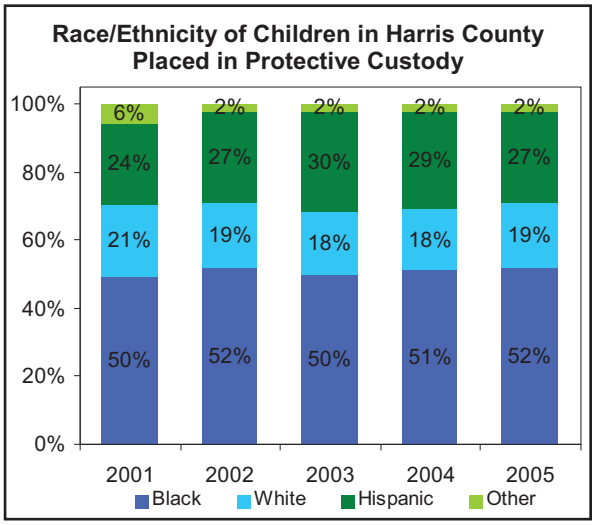


Source: Houston/Harris County Child Fatality Review Team 2002-2003 Child Fatality Report. Includes 112 homicides, 34 suicides, and 179 deaths from unintentional injuries.

Population Differences

Instances of child abuse are not specific to a victim's age or gender. From 2001 to 2005, the number of children taken into protective custody within Harris County was split equally between boys and girls and was evenly distributed among all age groups (0-17 years of age).

Over the five year period, the ethnic proportion of children put into protective custody has remained constant. Black children are the largest group, accounting for half of those removed from their homes.



Source: Harris County Child Protective Services, Annual Reports

Healthy People 2010

Objective 15-33: Reduce maltreatment of children under 18 years.

Maltreatment of Children	
Area	**Rate***
National Baseline 1998	12.9
Target for 2010	10.3
Houston/Harris County 2005	6.8
State of Texas 2005	9.8
United States 2005	12.4

*Rate is reported cases per 1,000 children under 18 years

Economic Impact of Child Abuse

Due to child abuse in 2005, an estimated $94 billion in direct and indirect costs was spent in the U.S. This amount averages to $258 million per day and $1,462 per family. Direct costs ($24.4 billion) include hospitalization, continuing health care, law enforcement and judicial costs. Indirect costs ($69.6 billion) include psychiatric care, juvenile delinquency and adult prosecution.[4]

Public Health Actions

- Assure quality and accessible community-wide health and human services that support positive child rearing and development
- Educate to promote and encourage healthy behaviors that will foster positive development of Houston's children
- Mobilize partnerships such as the Houston/Harris County Child Fatality Review Team to evaluate deaths and risks for children

For More Information

Family and Protective Services: *www.dfps.state.tx.us/*

National Association of Counsel for Children: *www.naccchildlaw.org*

Collaboration for Children: *www.collabforchildren.org/*

Baylor College of Medicine: *www.bcm.edu/traumalink/*

[4]Reed, S. Total estimated cost of child abuse and neglect in the United States. *Prevent Child Abuse in America*, 2005.

Alcohol and Drug Use

Overview

Alcohol Use

Alcoholism is a diagnosable disease characterized by strong craving for alcohol, continued use despite harm or personal injury, the inability to limit drinking, physical illness when drinking stops, and the need to increase the amount drunk in order to feel the effects.[1] Heavy drinking generally refers to more than an average of two drinks a day for men and one drink for women.[2]

According to the National Institute on Alcohol Abuse and Alcoholism, one of every 13 adults is an alcoholic or abuses alcohol, and an even greater number engage in such activities as binge drinking and regular heavy drinking.

The NIH reports that alcohol contributes to over 100,000 deaths in the U.S. each year. Linked with cirrhosis of the liver, motor vehicle crashes, injuries, cancer and drowning, alcohol is involved in 40% of traffic deaths and 36% of all deaths for persons aged 16 to 20.

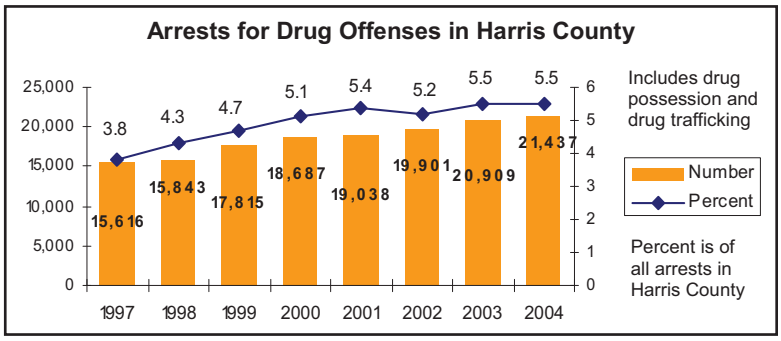
Illegal Drug Use

TDSHS reported 3,119 deaths in Texas during 2002 related to drug use. Most of these deaths involved overdose, HIV/AIDS, homicide, suicide or injuries. Harris County, with 541 such deaths, accounted for 17% of the Texas incidents.

In the region of Texas that includes Harris County, an estimated 5.7% of people over 12 have used an illicit substance in the past month. This compares to 5.4% in Texas. Of local residents over age 12, 3.8% are estimated to have used marijuana in the past month and 2.7% used cocaine or crack cocaine in the past year.[3]

In 2004, over 15,000 persons were arrested on substance abuse charges in Houston/Harris County, a rate of 195.2 per 100,000 persons.

Trends: Houston/Harris County 2002-2005

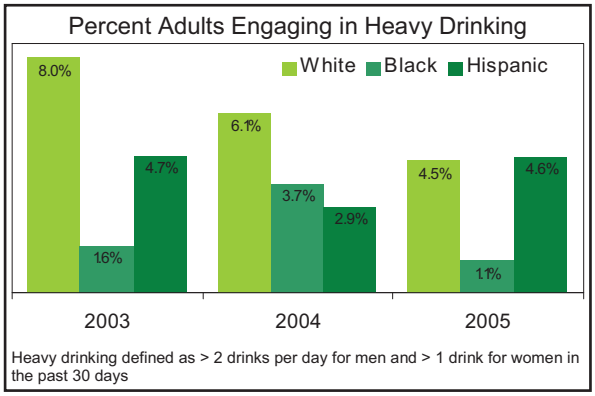


Source: Texas Commission on Alcohol and Drug Abuse

The chart to the left shows rising numbers of arrests for drug offenses in Harris County. At the same time, the BRFSS survey showed that in 2005, fewer residents in the Houston-Baytown-Sugar Land MSA (15.0%) reported binge drinking, defined as having five or more drinks on one occasion, a decrease from 17.2% in 2002, 16.2% in 2003 and 17.4% in 2004.

Population Differences

Harris County Court records show that in 2004, 22,671 criminal charges were filed involving prohibited substances. The highest rate of these offenses is found among blacks, 2,374 per 100,000, which is more than twice that of whites, 872 per 100,000. Hispanics and Asians had the lowest rates: 146 and 118 per 100,000, respectively.

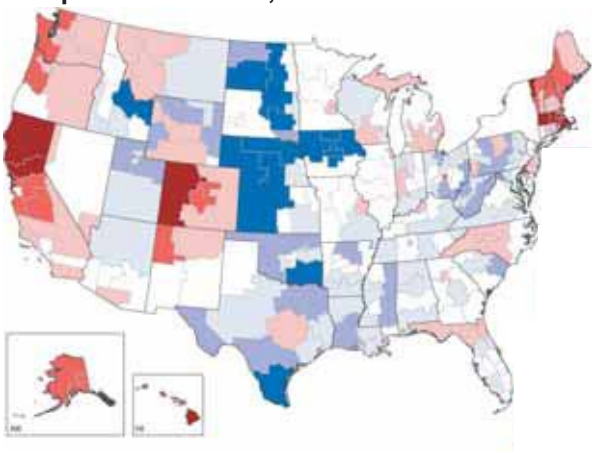


Source: TDSHS BRFSS

[1]American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders Fourth Edition (DSM-IV), Washington, DC, 1994.
[2]CDC, Frequently Asked Questions about Alcohol. Available at http://www.cdc.gov/alcohol/faqs.htm#10. Accessed January 2007.
[3]U.S. Substance Abuse and Mental Health Services Administration's National Survey on Drug Use and Health.

Geographic Distribution

Marijuana Use Within the Past Month for People 12 and Older, 1999-2001



Percentage of Persons Reporting Marijuana Use

8.02-12.16	6.66-8.01	5.21-6.65	4.06-5.20	3.40-4.05	3.04-3.39	2.28-3.03

Source: National Survey on Drug Use and Health, data from their national survey. Available at www.oas.samhsa.gov

Economic Impact of Alcohol and Drug Use

Alcohol and drug abuse pose significant economic costs on U.S. and Texas residents. In 1997, the estimated cost of alcohol and drug abuse for Texans was $19.3 billion, $8.1 billion of which was the result of lost work productivity.[1]

Underage drinking is a substantial burden itself. Drinking by youth under the age of 21 cost Texas $1.8 billion dollars a year, $374 million in direct medical expenses and $1.4 billion in lost productivity.[2] Additional costs of underage drinking should also include the expenses of youth violence, traffic crashes, high-risk sex, and possible later alcoholism.

Drug-related illness, death, and crime cost the nation approximately $66.9 billion. Every man, woman, and child in America pays nearly $1,000 annually to cover the expense of unnecessary health care, extra law enforcement, auto accidents, crime, and lost productivity resulting from substance abuse.[3]

In 2000, total economic costs of illegal drug abuse in Texas were estimated at $9.5 billion.[4]

Healthy People 2010

Objective 26-3: Reduce drug-induced deaths

Rate of Drug-Induced Death per 100,000

Area	Rate
National Baseline 1998	6.3
Target for 2010	1.0
Harris County 2003	1.9
State of Texas 2003	1.4
United States 2002	1.4

Public Health Actions

- Educate persons served by public health, such as pregnant women, TB patients, the mentally ill, and those with HIV/AIDS about the health issues of substance abuse
- Inform the community about substance abuse concerns through health education presentations and publications
- Mobilize community partnerships to develop plans to support individual and community health drug abuse treatment and prevention

In 2004, Harris County Court records show that 10,851 DWI charges were brought against Harris County adults—a rate of 140.8 incidents per 100,000 adults.
Texas DSHS reported 1,677 deaths in Harris County related to alcohol use in 2002.

For More Information

Texas Commission on Alcohol and Drug Abuse: *www.tcada.state.tx.us*

Council on Alcohol and Drugs Houston: *www.council-houston.org*

Alcoholics Anonymous: *www.aahouston.org*

U.S. Drug Enforcement Administration: *www.dea.gov/pubs/publications.html*

[1]Liu LY. Economic cost of alcohol and drug abuse in Texas:1997 Update. Texas Commission on Alcohol and Drug Abuse.
[2]Levy DT, Miller TR and Cox KC. Costs of underage drinking. Prepared by the Pacific Institute for Research and Evaluation in support of the Office of Juvenile Justice and Delinquency Prevention, Enforcing the Underage Drinking Laws Program,1999.
[3]Rice DP, Kelman S, Miller LS and Dunmeyer S, *The economic costs of alcohol and drug abuse and mental illness: 1985,* report submitted to the Office of Financing and Coverage Policy of the Alcohol, Drug Abuse, and Mental Health Administration (San Francisco, Calif.: Institute for Health & Aging, University of California, U.S. Department of Health and Human Services, 1990).
[4]Texas DSHS. Available at www.dshs.state.tx.us/sa/2003DrugReduction.pdg. Accessed July 2006.

Use of Preventive Services

Public health encompasses three core functions: *assessment* of information on the health of the community, comprehensive public health *policy development*, and *assurance* that public health services are provided to the community. The totality of the public health infrastructure includes all governmental and nongovernmental entities that provide any of these services.

Service providers, such as managed care organizations, hospitals, nonprofit corporations, schools, faith organizations, and businesses, also are an integral part of the public health infrastructure in many communities. All public health services depend on the presence of basic infrastructure.

Every categorical public health program—childhood immunizations, infectious disease monitoring, cancer and asthma prevention, drinking water quality, injury prevention, and many others—requires health professionals who are competent in cross-cutting and technical skills, public health agencies with the capacity to assess and respond to community health needs, and up-to-date information systems. Federal public health agencies rely on the presence of infrastructure systems at the local and State levels to support the implementation of their programs.

Healthy People 2010

Prenatal Care

Ultrasound
Photo courtesy: free-photographs.net

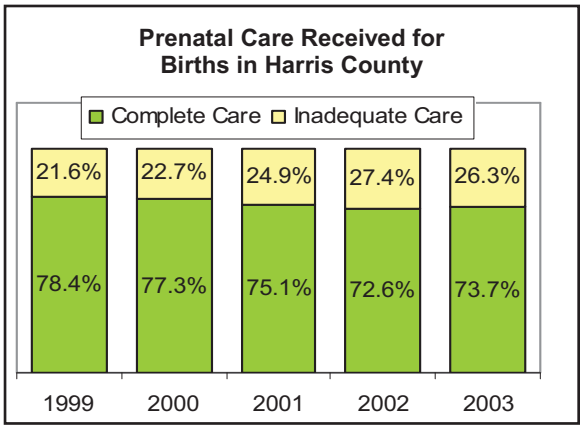
Overview

The American College of Obstetrics and Gynecology recommends that all pregnant women receive prenatal care beginning in the first trimester. Receiving prenatal care includes regular health check-ups and education regarding nutrition and health care, as well as proper physical activity during pregnancy. Expectant mothers should also be informed about the birthing process and be counseled on basic infant parenting skills.

The National Institutes of Health reports that adequate prenatal care is closely tied with the birth of healthy babies. Women who begin prenatal care late in the pregnancy or receive no prenatal care throughout a pregnancy have been linked with low birth weight infants, premature birth and increased rates of infant mortality.

TDSHS reports that in 2003, 81% of women in Harris County received prenatal care during the first trimester, the same as the state rate. U.S. Health Resources and Services Administration reports show that in 2003, 84% of U.S. women received prenatal care in the first trimester.

Trends: Houston/Harris County 1999-2003



Source: TDSHS

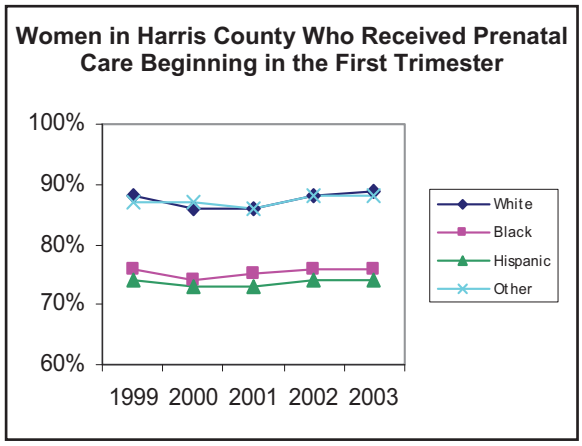
In 1993, TDSHS noted that 68.3% of all women who had live births received adequate prenatal care, defined as care that meets the Kessner Criteria. By 1999, this number had risen to 78.4%. Between 1999 and 2003, however, the number of women who received adequate prenatal care had dropped to 73.7%. This Harris County percent can be compared to the 75.2% of women in Texas who received adequate prenatal care in 2003.

Data is not yet available on the number of women receiving prenatal care from 2003 to 2006.

Population Differences

TDSHS reports show that in Harris County, in 2003, 79% of all expectant mothers received prenatal care beginning in the first trimester. Of married women, 84.5% received complete prenatal care, compared to only 69.7% of single women.

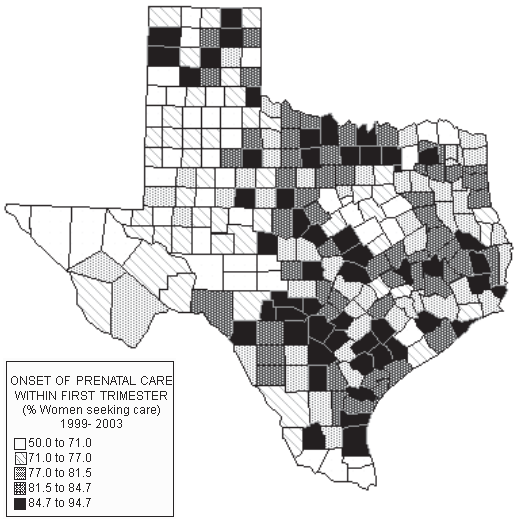
Though the percent of Hispanic mothers without adequate prenatal care (32.5%) is higher than that for black (25.8%) or white (16.5%) mothers, Hispanic women gave birth to fewer babies with low birth weight (6.4%) in 2003, compared to babies born to black (13.8%) or white (7.2%) mothers.



Source: TDSHS

Geographic Distribution

Texas Women Beginning Prenatal Care in the First Trimester, Rate per 100 Births, 1999-2003



Source: TDSHS

Economic Impact of Prenatal Care

Adequate prenatal care can save money and time, and can prevent complications at birth. For example, low birth weight babies are more frequent among mothers who did not receive prenatal care. A California study found the average cost of an initial hospitalization for infants with mothers who received prenatal care was $1,589 as compared to $3,930 for those without prenatal care, largely due to the greater frequencies of low birth weight babies among those without prenatal care. The researchers estimated that every dollar spent on prenatal care would save $3.33 in neonatal care and $4.63 in incremental long-term care.[1]

Premature births also become more likely when mothers do not have prenatal care. Direct health costs to employers for a premature baby average $41,610, which is 15 times higher than the $2,830 cost for a healthy full-term delivery.[2] If needed, neonatal intensive care can be very expensive, and is more often needed if the infant is premature. Neonatal intensive care units can cost between $1,000 to $2,500 per day[3] and $300,000 a month.[4]

Healthy People 2010

Objective 16-6: Increase the proportion of pregnant women who receive early and adequate prenatal care

Women Beginning Prenatal Care in the First Trimester of Pregnancy

Area	Percent
National Baseline 1998	83
Target for 2010	90
Houston-Baytown-Sugar Land MSA 2003	79
State of Texas 2003	81
United States 2003	84

Public Health Actions

- Link women to prenatal services in the community; provide prenatal care for low-risk, low-income women when health care is otherwise unavailable.
- Educate women about prenatal health through support groups and prenatal education programs such as Baby Basics.
- Provide food vouchers for low-income mothers and young children through the WIC Nutrition Program (funded by the U.S. Department of Agriculture and TDSHS).
- Contraception and abstinence promotion to prevent unwanted pregnancies

For More Information

Medline Plus: *www.nlm.nih.gov/medlineplus/prenatalcare.html*

March of Dimes: *www.marchofdimes.com*

The National Women's Health Information Center: *www.4woman.gov/faq/prenatal.htm*

[1]Lu MC, Lin YG, Prietto NM, and Garite TJ. Elimination of public funding of prenatal care for undocumented immigrants in California: a cost/benefit analysis. *American Journal of Obstetrics and Gynecology*. 2000;181(1 part 1):233-239.
[2]March of Dimes. About prematurity: help reduce cost: the cost to business. Available at www.marchofdimes.com. Accessed January 2007.
[3]Krebs G. Maternity medical case management: a study of employer attitudes. Presentation before the national Managed Health Care Congress; Dec. 9, 1993.
[4]Personal communication with local Houston hospital staff.

Immunizations

Overview

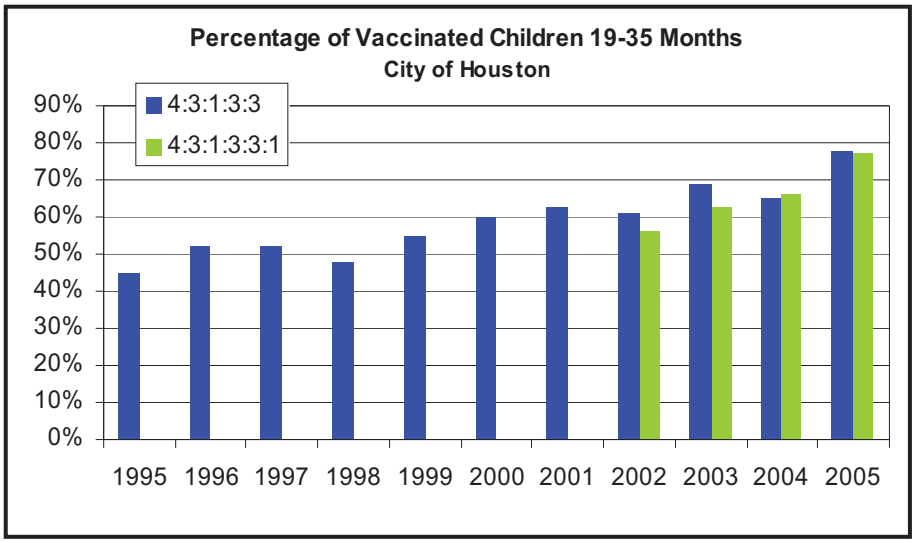
Immunizations are one of the greatest public health achievements in the past 100 years. Immunizations are responsible for the control of once common diseases such as polio, measles, mumps, pertussis, and tetanus. High immunization coverage rates across the country have not only protected those inoculated against the disease but also protected those who have not received the immunization by reducing the spread of infection.

The Advisory Committee on Immunization Practices (ACIP) and the American Academy of Family Physicians (AAFP) recommend the schedule for childhood vaccinations. Currently, children receive eight vaccines inoculating against twelve diseases. Most vaccines require numerous doses per visit to the child's medical provider.

While childhood immunizations provide greatly increased immunity to disease, this immunity can fade over time. A patient's increasing age can also increase susceptibility to infection. For these reason, some vaccines are recommended for adults. The CDC recommends that all adults over the age of 65 be vaccinated against influenza annually and receive a one-time vaccine against pneumococcal pneumonia. Influenza and pneumonia remain deadly diseases, especially for the elderly. Each year, 36,000 Americans die from the influenza virus, and 40,000 Americans die from pneumonia. More people die from pneumonia in a given year than from all other preventable diseases combined.

Trends: Houston/Harris County 2000-2005

As of 2005, the CDC's National Immunization Survey showed that 76.6% of Houston infants received the recommended vaccinations (series 4:3:1:3:3:1), compared to 76.8% and 76.1% for Texas and the U.S., respectively. This series of vaccinations controls for many of the most deadly childhood diseases including diphtheria, tetanus, pertussis, polio, measles, mumps, rubella, influenza, hepatitis B, and chicken pox.



Source: CDC National Immunization Survey
Note: Chicken pox (varicella) added in 2002

For adults in 2005 aged 65 and older, Texas BRFSS reported that 64% of seniors in the Houston-Baytown-Sugar Land MSA had received an influenza vaccination in the past year, and 62% had been vaccinated against pneumonia. In Texas, 62% had a flu shot in the past year (63% nationwide) and 62% had been vaccinated against pneumonia (64% nationwide).

The 4:3:1:3:3 series of vaccines includes the following: four or more doses of DTaP (dipththeria, tetanus, pertussis), three or more doses of poliovirus vaccine, one dose of measles, containing vaccine such as MMR (measles, mumps, rubella), three or more doses of Hib (Haemophilus Influenzae), and three or more doses of Hep B (Hepatitis B).
The 4:3:1:3:3:1 series adds the chicken pox vaccine, and was recommended after 2002.

Populations Differences

Many people are still without adequate immunizations. Many of the non-immunized children and adults are those in the lowest socioeconomic levels. They may be unable to pay for their own vaccinations and are unlikely to have insurance coverage to supplement the fees.

BRFSS data show that in 2005, in the Houston-Baytown-Sugar Land MSA, white adults are more likely to have gotten a flu shot in the past year (28.9%), compared to blacks (20.7%) or Hispanics (23.5%).

Economic Impact of Immunizations

In addition to saving lives and improving the quality of life, immunizations generate significant economic benefits. According to a cost-benefit analysis by the CDC, every dollar spent on immunization saves $6.30 in direct medical costs. When indirect costs to society are included, such as missed work, death and disability, the CDC reported that every dollar spent on immunization saves $18.40.

Many studies have reported significant cost savings from immunizations. Routine childhood immunization in the U.S. has been evaluated as resulting in a net savings for direct medical and societal costs of more than $53 billion per year.[1] The Institute of Medicine estimated $21 saved for each dollar spent on the MMR (measles, mumps, rubella) vaccine.[2] A 2003 study conducted in Houston and Dallas showed a benefit-cost ratio of 5.26 to 1 for vaccinating against hepatitis B.[3]

For Every $1 Spent :	
DTaP saves	$27.00
MMR saves	$26.00
H. Influenza type b saves	$5.40
Perinatal Hep B saves	$14.70
Varicella saves	$5.40
Inactivated Polio (IPV) saves	$5.45

Source: Every Child by Two website. Available at http://www.ecbt.org/advocates/economicvaluevaccines.cfm#_edn1

Healthy People 2010

Objective 14-24: Increase the proportion of young children and adolescents who receive all vaccines that have been recommended for universal administration for at least five years.

Children Aged 19-35 Months Who Received the Recommended Vaccines*	
Area	**Percent**
National Baseline 1998	73
Target for 2010	80
City of Houston 2005	78
State of Texas 2005	78
United States 2005	81
*4DTaP, 3 Polio, 1MMR, 3Hib, 3 HepB	

Public Health Actions

- Mobilize partnerships such as the Vaccines for Children (VFC) program through which 500 private and public providers have given free immunizations to low-income children in Houston and Harris County
- Develop methods to support health such as the local and statewide Immunization Registries to track children's current vaccines
- Educate the public through outreach programs to promote vaccinations
- Provide care where otherwise unavailable through provision of immunizations to low-income mothers and children

For More Information

CDC National Immunization Program: *www.cdc.gov/nip*
Texas Department of Health Immunization Branch: *www.dshs.state.tx.us/immunize*
Children's Hospital of Philadelphia Vaccine Education Center: *www.vaccine.chop.edu*
PKIDS: *www.pkids.org*
HDHHS Immunization Bureau: *www.houstontx.gov/*
HCPHES: *www.hcphes.org*

[1]Zhou F, Santoli J, Messonnier M, Yusuf H, Shefer A, Chu S, Rodewald L, Harpaz R. Economic evaluation of the 7-vaccine routine childhood immunization schedule in the United States, 2001. *Archives of Pediatric & Adolescent Medicine*. 2005;159:1136-1144.
[2]Institute of Medicine, National Academy of Sciences: *America's Vital Interest in Global Health*, National Academy Press, Washington, 1997.
[3]Zhou F, Euler GL, McPhee SJ, Nguyen T, Lam T, Wong C, Mock J. Economic analysis of promotion of hepatitis B vaccinations among Vietnamese-American children and adolescents in Houston and Dallas. *Pediatrics*. 2003;111(6 Pt 1):1289-96.

Immunizations, cont.

News Releases!

Texas Increases Key Immunization Rate 11% in National Survey

News Release from Texas Department of State Health Services, September 14, 2006

The immunization rate for Texas children increased 11% in 2005, moving the state up in the national rankings to number 24, according to statistics released today by the U.S. Centers for Disease Control and Prevention.

"Thousands of young Texans are healthier because of an aggressive immunization outreach effort by state officials," Gov. Rick Perry said. "This is the kind of progress I envisioned when I issued an executive order to improve our immunization program."

In 2003, Gov. Perry signed an executive order directing the Texas Department of Health (now the Department of State Health Services) to implement a comprehensive plan to increase immunization rates statewide.

The CDC's National Immunization Survey, which tracks immunization rates among preschool children, found that the Texas rate for a key vaccine series was 76.8% in 2005. That's an 11% increase over the state's 2004 rate of 69.3% and it's the first time since the survey's inception in 1995 that Texas ranked above the national average. Texas now ranks 24 in the nation for immunization rates, up from 41 in 2004.

"This is excellent news, and it reflects a steadfast focus on improving our immunization rates," said Dr. Eduardo Sanchez, commissioner of the Texas Department of State Health Services. "Because the National Immunization Survey measures how many children receive a complete vaccination series, a state can't change this rate overnight. It takes a couple of years of sustained effort to see significant improvement, and we've certainly been doing that in Texas."

He stressed that continued effort is needed for continued improvement.

The national survey also examined immunization rates in four Texas metropolitan areas:

- The Houston rate increased 24% to 76.6% from 61.7%.
- The El Paso County rate increased 9% to 69.2% from 63.5%.
- The Dallas County rate increased 8% to 72.8% from 67.1%.
- The Bexar County rate decreased 3% to 71.3% from 73.3%.

The National Immunization Survey provides vaccination coverage estimates for children 19 through 35 months of age. State rankings are based on the percentage of children completing the 4:3:1:3:3:1 series of immunizations. That series includes four doses of diphtheria, tetanus and pertussis (DTaP), three doses of polio vaccine, one dose of measles-containing vaccine, three doses of Hib vaccine, three doses of hepatitis B vaccine and one dose of varicella vaccine.

FDA Licenses New Vaccine for Prevention of Cervical Cancer Caused by Human Papillomavirus[1]

News Release from the Federal Drug Administration, June 8, 2006

The FDA announced the approval of Gardasil, the first vaccine developed to prevent cervical cancer, precancerous gential lesions and genital warts due to human papillomavirus (HPV) types 6, 11, 16 and 18. The vaccine is approved for use in females 9-26 years of age. HPV is the most common sexually-transmitted infection in the U.S. The Center for Disease Control estimates that about 6.2 million Americans become infected with genital HPV each year and that over half of all sexually active men and women become infected at some time in their lives. On average, there are 9,710 new cases of cervical cancer and 3,700 deaths attributed to it in the U.S. each year.

Gardasil is a recombinant vaccine (contains no live virus) that is given as three injections over a six-month period.

[1]Federal Drug Administration. Available at www.fda.gov/bbs/topics/News/2006/NEW01385.html. Accessed November 14, 2006.

Recommended Adult Immunization Schedule by Vaccine and Age Group

United States * October 2006—September 2007

Age group> Vaccine	18-49 years	50-64 years	>65 years
Tetanus, diphtheria, pertussis (TD/Tdap)[1, *]	1 dose TD booster every 10 years 19-64 years substitute 1 dose of Tdap for TD		
Human papillomavirus (HPV)[2]	3 doses (females)		
Measles, mumps, rubella (MMR)[3,*]	1 or 2 doses	1 dose	
Varicella[4,*]	2 doses (0, 4-8 weeks)	2 doses (0, 4-8 weeks)	
Influenza [5,*]	1 dose annually	1 dose annually	
Pneumococcal (polysaccharide)[6,7]	1-2 doses		1 dose
Hepatitis A[8, *]	2 doses (0, 6-12 mos, or 0, 6-18 mos)		
Hepatitis B [9,*]	3 doses (0, 1-2, 4-6 mos)		
Meningococcal[10]	1 or more doses		

Source: CDC

*Covered by the Vaccine Injury Compensation Program.

For all persons in this category who meet the age requirements and who lack evidence of immunity (e.g. lack documentation of vaccination or have no evidence of prior infection.

Recommended if some other risk factor is present (e.g., on the basis of medical, occupational, lifestyle, or other indications).

NOTE: These recommendations must be read with the footnotes found at Department of Health and Human Services Centers for Disease Control and Prevention. Available at www.cdc.gov/nip/recs/adult-schedule.doc.

Recommended Childhood and Adolescent Immunization Schedule

United States—2006

Disease	Immunization Starts	Number of Doses
Hepatitis B[1]	Birth	4
Dipththeria, Tetanus, Pertussis[2]	Two months	5
Haemophilus influenzae type b[3]	Two months	4
Inactivated Poliovirus	Two months	4
Measles, Mumps, Rubella[4]	One year	2
Varicella (Chicken Pox)[5]	One Year	1
Meningococcal[6]	Eleven Years	1
Pneumococcal[7]	Two months	5
Influenza[8]	Six months	Yearly
Hepatitis A[9]	One Year	2

Source: CDC
NOTE: These recommendations must be read with the chart and footnotes found at Department of Health and Human Services Centers for Disease Control and Prevention. Available at http://www.cdc.gov/nip/ACIP/slides/oct06/03_Child-Adolescent_Immunization_Schedule/cais-3-calugar.pdf.

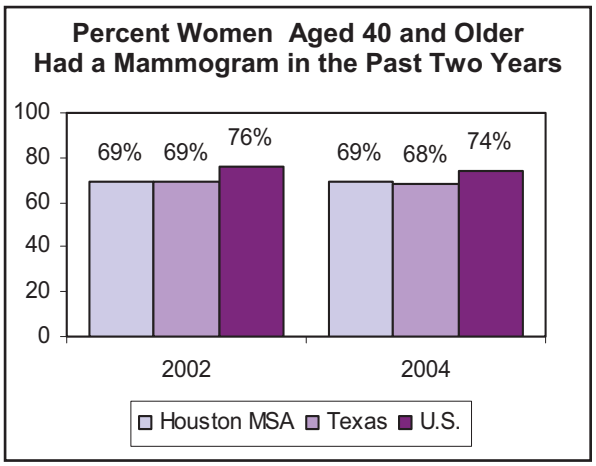
Cancer Screening

Overview

The use of screening tests to detect cancers during early stages can allow patients to obtain more effective treatment with fewer side effects, and also increase their chances of survival. Appropriate screening could prevent many of the half million annual cancer deaths in the U.S. Cervical, colorectal and breast cancer screening detect cancers accurately, allowing the patient to receive lifesaving or life-extending treatment.

The National Cancer Institute reports that fecal occult blood tests every 1-2 years in people aged 50-80 reduces deaths from colorectal cancer as much as 30%. Regular mammograms have been shown to decrease the chance of dying for women over 40 by 17%, and by 30% for women ages 50-69, if done every one to two years, providing crucial information for the 13% of women (1 out of 8) who will eventually be diagnosed with breast cancer at some time in their lives. Nearly all cervical cancer deaths could be avoided if all women followed screening and follow-up recommendations.

Trends: Houston/Harris County



Source: TDSHS BRFSS survey

CDC BRFSS data for 2004 indicates that 86% of women aged 18 or older in Harris County had received a pap smear test within the past 3 years, down from 87% in 2002. These percentages can be compared to 82% in Texas for 2004, and 86% in the U.S.

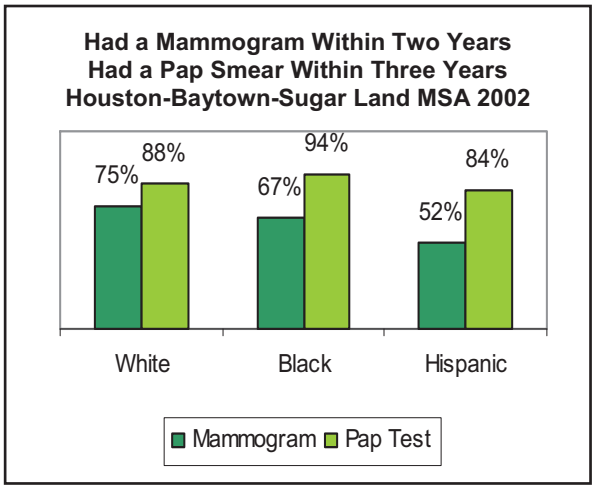
In 2004, 19% of adults aged 50+ in Harris County reported a fecal occult blood test in the past two years, down from 24% in 2002. The 2004 rate was 23% in Texas and 27% in the U.S.

In 2004, 49% of adults aged 50 and over in Harris County reported ever having had a sigmoidoscopy or colonoscopy, down from 51% in 2002. For 2004, 48% of Texans had one of the tests compared to 53% of those in the U.S.

Population Differences

The 2004 BRFSS data for the Houston MSA show income and education levels are related to whether women get mammograms and pap smears. Among women with incomes of $50,000 or more, 76% reported a mammogram in the past two years compared to 63% of those with incomes of $15,000 or less. Among college graduates, 75% reported the breast screening but only 65% of those with a high school diploma.

Males are more likely to report having a fecal occult blood test than women. In Harris County, 55% of males and 45% of females age 50+ reported having this test, compared to 50% of males and 47% of females in Texas in 2004.



Source: TDSHS BRFSS survey

The U.S. Preventive Services Task Force recommends that adults receive regular screening for certain cancers:

Breast cancer: Women over the age of 40 should receive mammography screening every one to two years.

Cervical cancer: All women should initiate screening for cervical cancer by age 21 or the onset of sexual activity and receive continued screening every three years at minimum.

Colon cancer: Clinicians should periodically screen adults aged 50 and up for colon cancer.

Regular screening by health professionals can detect cancers of the breast, colon, rectum, cervix, prostate, testes, oral cavity and skin at early stages. Self-exams of the breast and skin may also detect early tumors.

Cancers that can be detected by screening account for about half of all new cancer cases.

—The American Cancer Society

Economic Impact of Early Cancer Detection

Cancer is the second leading cause of death in the United States, causing nearly half a million deaths each year. However, early detection can prevent many of these deaths.[2]

The economic impact of cancer screening is evaluated by cost effectiveness in terms of cost per life year saved, an evaluative technique which divides the cost of a procedure or medicine by life year extended. Any value less than $50,000 is usually considered cost-effective. The cost per life year saved for colorectal cancer screening is $11,890 to $29,725.[3] If a mammogram is conducted every two years for women 65 and older, the cost per life year saved is $36,924.[4] If a pap screen is conducted for cervical cancer every three years, the cost per year of life saved is $5,392.[5]

Healthy People 2010

Objective 3-12a: Increase colorectal cancer screening

Fecal Occult Blood Test in Last 2 Years Adults Aged 50 and Older

Area	Percent
National Baseline 1998	35
Target for 2010	50
Houston-Sugar Land-Baytown MSA 2004	19
Harris County 2004	19
Texas 2004	23
United States 2004	27

Public Health Actions

- Inform, educate, and empower people about the importance of early cancer screening tests
- Link people to needed personal health services through referrals to sources for cancer screening
- Assure the provision of health care when otherwise unavailable by providing cancer screening for low income persons
- Mobilize partnerships with public health organizations, universities, medical centers, and other groups to monitor cancer rates

For More Information

National Cancer Institute: *www.cancer.gov*
CDC Division of Cancer Prevention and Control: *www.cdc.gov/cancer/*
American Cancer Society: *www.cancer.org*
Texas Cancer Registry, for cancer information and statistical data: *www.dshs.state.tx.us/tcr/default.shtm*
State Cancer Profiles: *http://statecancerprofiles.cancer.gov/micromaps/index.htm*

[1]Jemal A, et al. Annual report to the nation on the status of cancer, 1975-2001. *Cancer.* 2004;101(1):3-27.
[2]Center of Disease Control and Prevention. Screening to prevent cancer deaths. Available atwww.cdc.gov/nccdphp/publications/factsheets/Prevention/cancer.htm. Accessed July 2006.
[3]Pignone M, Saha S, Hoerger T, Mandelblatt J. Cost-effectiveness analyses of colorectal cancer screening: a systematic review for the U.S. Preventive Services Task Force. *Ann of Intern Med.* 2002;137(2):96–104.
[4]Mandelblatt J, et al. The cost-effectiveness of screening mammography beyond age 65 years: a systematic review for the U.S. Preventive Services Task Force. *Ann of Intern Med.* 2003;139(10):835–42.
[5]McCrory DC, et al. Evaluation of cervical cytology. Evidence Report/Technology Assessment No. 5. Rockville, Maryland: Agency for Health Care Policy and Research, 1999. AHCPR publication no. 99–E010.

Oral Health

Early childhood caries (ECC)

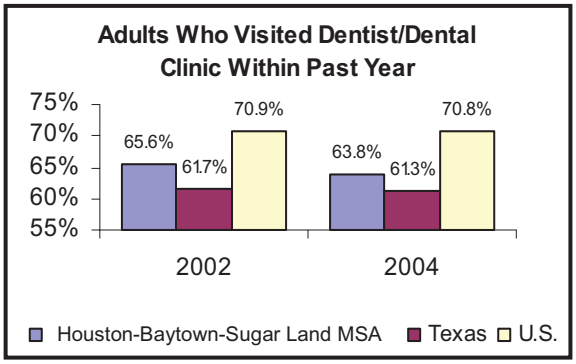
Overview

The American Academy of Pediatric Dentistry recommends an oral exam for all infants within the first year of life or within 6 months of their first tooth. According to the CDC, healthy children and adults should routinely receive annual dental exams, and professional cleaning at least once every 1-2 years.

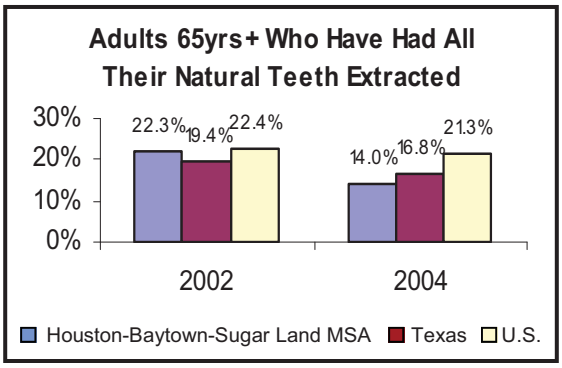
The two most common oral diseases are dental caries (tooth decay) and periodontitis (advanced gum disease affecting the surrounding bone of the teeth). Both conditions are preventable, but if untreated, can lead to pain, infection, and partial or complete tooth loss. Dental caries can also be passed from mothers to infants.[1] Chronic oral infections and periodontal disease have been linked to other health conditions as well, such as diabetes, heart disease, stroke, lung disease, and low birth weight and prematurity among infants.[2]

A 2001 assessment of dental needs in Harris County noted that 52.4% of county pre-kindergarten children had untreated dental caries, and that persons with lower socioeconomic status had less access to dental care.[3]

Trends: Houston/Harris County 2002-2004



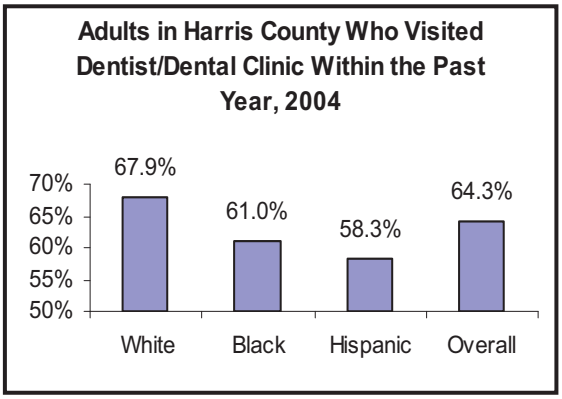
Source: CDC, BRFSS



Source: CDC, BRFSS

Population Differences

The BFRSS shows that 64.3% of Harris County adults visited a dental professional in 2004. Whites had the highest percentage of dental visits in 2004, at 67.9%. Persons with higher education also had higher rates of dental visits. Overall, the percentage reporting a dental visit in the past year for each racial/ethnic group in Harris County was higher than those surveyed throughout Texas, with the exception of the Hispanic population. In 2004, only 58.3% of Hispanics in Harris County had visited a dentist in the preceding year, compared to 63.5% of Hispanics in Texas.



Source: TDSHS BRFSS, with additional analysis by HDHHS

[1]Kale, KJ. Oral health risk assessment timing and establishment of the dental home, *Pediatrics*, 2003;111(5):1113-6.
[2]Satcher D. Oral Health in America: A Report of the Surgeon General, May 2000.
[3]2001 Dental Needs Assessment; The University of Texas Health Science Center at Houston – Dental Branch and the Dental Health Task Force of the Greater Houston Metropolitan Area, 2001.

Fluoridation

Fluoridation of community drinking water systems is considered an effective and inexpensive measure to reduce tooth decay. Studies of tooth decay in children before and after community drinking water fluoridation show a median decrease in tooth decay of almost 30% after fluoridation.[4] The annual cost per capita to fluoridate community water is $0.50.[5]

In their annual report for 2005, HCPHES reports that levels of fluoridation among the 1,200 public drinking water systems in Harris County vary widely. Approximately 980,000 persons in Harris County, or 27% of the total population, are served by residential drinking water systems that do not meet the minimum level of fluoridation that may benefit oral health.

The Surgeon General's Report on Oral Health *(May 2000) emphasizes the link between oral health and general health. The report describes associations between chronic oral infections/periodontal disease and diabetes, heart and lung diseases, stroke and premature, low birth weight children. The report can be found at www.surgeongeneral.gov.*

Economic Impact of Dental Care

Visiting the dentist routinely can delay or eliminate the need for more extensive or emergency visits later, even in infancy. A dental visit before age one can reduce subsequent restorative and emergency visits.[6] For example, the average cost of dental treatment in a hospital operating room is $1,502 compared to $102 for children who received preventive dental care.[7]

Expansion of preventive dentistry into the schools provides additional savings. Students who received dental sealants in school-based dental programs were 60% less likely to develop new decayed pits and fissures in the following 2-5 years.[8]

Community water fluoridation provides cost savings by reducing dental caries. Every dollar spent on fluoridation saves $7 to $42 dollars in dental costs. In the last decade, the savings total as much as $25.7 billion.[8]

Healthy People 2010

Objective 21-10: Increase the proportion of children and adults who use the oral health care system each year

Dental Visit in the Previous Year Aged 18 and Older

Area	Percent
National Baseline 1996	43
Target for 2010	56
Harris County 2004	63
State of Texas 2004	61
United States 2004	71

Public Health Actions

- Educate people about health issues such as the importance of optimal nutrition and drinking fluoridated water to promote good dental health
- Promote routine dental care and oral health education, and provide health care when otherwise unavailable for low income pregnant women and children
- Mobilize partnerships to solve health problems such as access to dental health services for residents in Houston/ Harris County and fluoridation of water

For More Information

American Dental Association: *www.ada.org*

Texas Dental Association: *www.tda.org*

Greater Houston Dental Society: *www.ghds.org*

Texas Oral Health Coalition: *www.txohc.org*

HCPHES: *www.hcphes.org*

Surgeon General's Report on Oral Health: *www.surgeongeneral.gov*

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[4]Macek MD, Heller KE, Selwitz RH, Manz MC. 2004. Is 75 percent of dental caries really found in 25 percent of the population? *Journal of Public Health Dentistry* 64 (1): 20-25.
[5]Task Force on Community Preventive Services, 2002. Guide to Community Preventive Services: Oral Health. Atlanta, GA: Community Guide Branch, Centers for Disease Control and Prevention.
[6]Savage, MF et al. Early preventive dental visits: effects on subsequent utilization and costs. *Pediatrics.* 2004;114(4):418-423.
[7]Griffin SO et al. Dental services, costs, and factors associated with hospitalization for Medicaid-eligible children, Louisiana 1996-97. *J Public Health Dent*. 2000. 60(1):21-27.
[8]CDC. *Chronic disease prevention: investing wisely in health: preventing dental caries.* Fact sheet, available at www.cdc.gov/NCCdphp/publications/factsheets/Prevention/oh.htm. Accessed July 18, 2006.

Environmental Health Indicators

Broadly defined, the environment, including infectious agents, is one of three primary factors that affect human health. The other two are genetic factors and personal behavior.

Poor environmental quality is estimated to be directly responsible for approximately 25% of all preventable ill health in the world, with diarrheal diseases and respiratory infections heading the list.

Because the effect of the environment on human health is so great, protecting the environment has been a mainstay of public health practice since 1878. National, Tribal, State, and local efforts to ensure clean air and safe supplies of food and water, to manage sewage and municipal wastes, and to control or eliminate vector-borne illnesses have contributed significantly to improvements in public health in the United States.

Healthy People 2010

Air Quality

Overview

Unhealthy interaction between people and their environment can result in acute and chronic health conditions. Environmental risk factors include poor air and water quality, improper food handling practices and the presence of lead in the home environment.

Houston has long had a problem with outdoor air pollution and was once called the smog capital of the U.S. The city is taking strides to correct this problem.[1] Under the direction of the federal Clean Air Act, cities and states are reducing airborne levels of ozone and particulate matter.[1]

Houston and Harris County fall into one of four regions within Texas that exceed the National Ambient Air Quality Standard (NAAQS) for ozone levels. This region is required to reduce ozone levels to 85 parts per billion over an eight-hour period by the summer of 2010.[1]

Ozone is caused by motor vehicle exhaust, industrial emissions, gasoline vapors, and chemical solvents, as well as natural sources of nitrogen-oxygen and volatile organic compounds. During hot weather, these chemicals react with sunlight, forming dangerous ground-level ozone.

For particulate matter, however, Houston and Harris County meet the current NAAQS standards of 15 micrograms per cubic meter.[2] Particulate matter is defined as a mixture of airborne solid particles and liquid droplets. The particles can vary in size from dirt, soot, or smoke large enough to see with the naked eye to particles only visible under a high-powered microscope.

Particle pollution includes coarse particles with diameters of 2.5 to 10 microns, up to one-seventh the diameter of a human hair. Particles designated as “fine” have diameters less than 2.5 microns.

A report completed by the Health Task Force, commissioned by Mayor Bill White, on the health effects of air pollution indicated that, beyond ozone and particulate matter, ten additional air contaminants pose a significant health risk to the Houston/Harris County region: diesel particulate matter, 1,3-butadiene, acrolein, acrylonitrile, benzene, chlorine, chromium VI, ethylene dibromide, formaldehyde and hexamethylene diisocyanate.[1]

How Big is Particle Pollution?

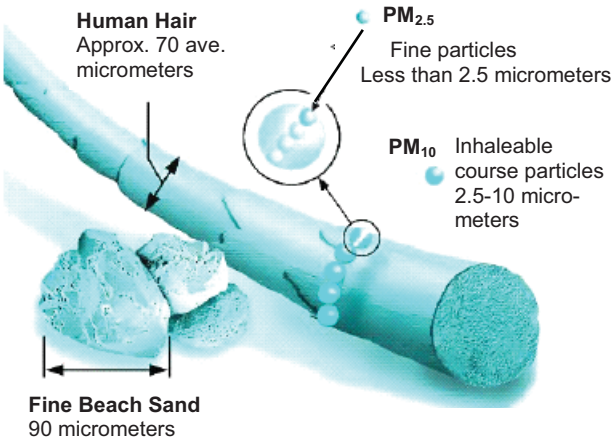


Image courtesy of EPA, Office of Research and Development

Short-term exposure to diesel particles may cause eye, throat, and bronchial irritation, lightheadedness, nausea, cough and phlegm. It can exacerbate allergic responses and asthma-like symptoms. Long-term exposure may contribute to chronic respiratory disease, and could increase the risk of developing lung cancer.

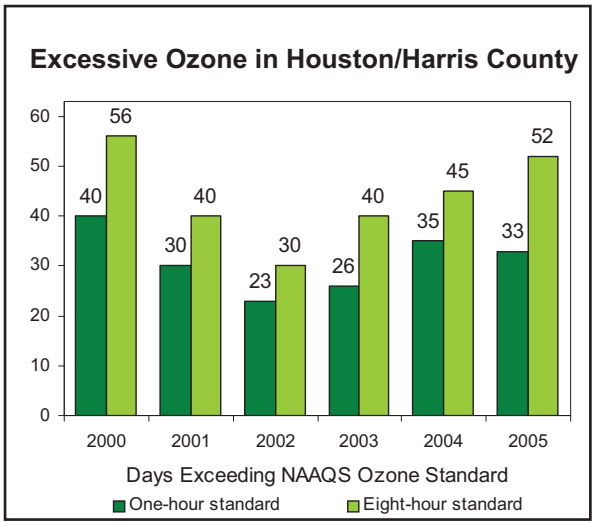
Short-term, high-level exposure (minutes to hours) to many of the other EPA Hazardous Air Pollutants, like benzene and formaldehyde, can cause headaches, difficulty breathing, nausea, confusion and seizures.

Long-term, lower-level exposure (months to years) to these pollutants may cause many adverse health effects, including cancer and can damage the respiratory, circulatory, nervous, reproductive, digestive, endocrine and immune systems. Long-term exposure can also lead to developmental effects in children.

[1]Mayor’s Task Force on the Health Effects of Air Pollution. A closer look at air pollution in Houston: identifying priority health risks. 2006. Available at http://www.houstontx.gov/environment/UTreport.pdf. Last accessed February 22, 2007.
[2]Particulate matter annual average standards of the Environmental Protection Agency.

Trends: Houston/Harris County

The Houston-Galveston-Brazoria area continues to exceed the NAAQS for ground-level ozone, but with notable improvement over the last 20 years. Recently, however, the number of days exceeding the federal ozone standard have shown an upward trend.



Source: Texas Commission on Environmental Quality

Economic Impact of Air Quality

Poor air quality in a geographic region increases health risks for its population. For example, increased levels of ozone are linked with asthma and other respiratory illnesses. High levels of fine particulate matter, which come from automobile exhaust and industrial processes, can cause shortness of breath and can aggravate patients with respiratory illnesses or cardiovascular diseases.

In the Houston ship channel and other industrial areas, long term exposure to air pollution increases cancer risk by a factor of 1000.[3] These increased risks can lead to higher health-care costs for individuals as well as taxpayers.

Further, health complications arising from poor air quality may lead to decreased worker productivity. One study suggests that one quarter of the participants in regions with poor air quality indicated lower productivity because of coughing, chest pains, and watery eyes.[4]

Healthy People 2010

Objective 8-1a: Reduce the proportion of persons exposed to air that does not meet the U.S. Environmental Protection Agency's health-based standards for ozone

Proportion of Persons Exposed to Air Does Not Meet EPA Standards for Ozone

Area	Percent
National Baseline 1997	43
Target for 2010	0
Houston/Harris County 2005	100
Texas 2005	N/A*
United States 2005	N/A*

*Measures not available

Public Health Actions

- Research new insights and innovative solutions through activities such as participation in a study by the University of Texas, commissioned by Mayor Bill White, on steps to fight identified pollutant risks
- Mobilize partnerships such as settlement agreements reached between local government and industry to reduce emissions
- Educate residents to reduce emissions through methods such as carpooling and use of electric yard equipment and natural gas fireplaces
- Enforce laws and compliance with regulations, and monitor air contaminants

For More Information

AirNow: *www.airnow.gov*
EPA: *www.epa.gov/air/oaqps/cleanair.html*
Texas' Nonattainment Areas: *www.tceq.state.tx.us/implementation/air/sip/siptexas.html*
Environmental Defense: *www.environmentaldefense.org/cleanairforlife.cfm*
Mothers for Clean Air: *www.mothersforcleanair.org/*
HCPHES: *www.hcphes.org*
HDHHS, Daily Mold and Pollen Report: *www.houstonhealth.org or call 713-247-5846*

[3]Galveston-Houston Association of Smog Prevention. *Where does Houston's smog come from?* 2003.
[4]Wright, L. Poor air quality lowers worker productivity in New England. *UNH Media Relations.* 2004; Available www.unh.edu/news/. Accessed July 27, 2006.

Air Quality, cont.

Populations at Risk

All areas in the Houston/Harris County region are exposed to unhealthy levels of at least one air contaminant—a result of urban concentrations of vehicle exhaust and industrial emissions. Communities closest to the largest sources of air toxins are at a greater risk of detrimental health effects from air pollution. In Houston and Harris County, the greatest air pollution is next to and around the Houston Ship Channel. Residents and employees in this area should monitor their health closely, looking for warning signs of long-term effects of air pollution.

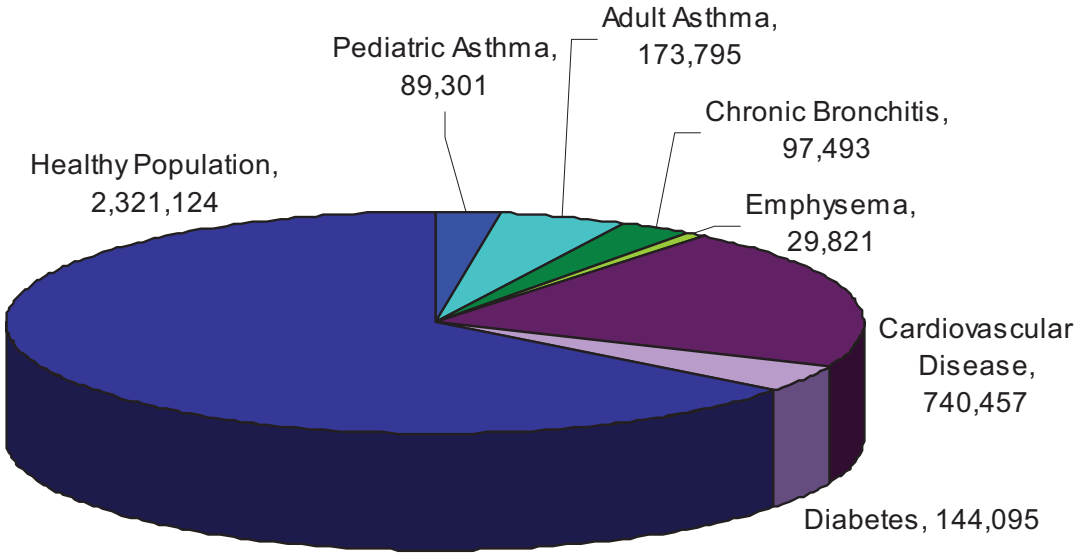
Those also at high risk are individuals with pre-existing medical conditions who are easily affected by exposure to airborne contaminants. These conditions are primarily respiratory ailments, but also include cardiovascular disease and diabetes. This accounts for about 35% of the Harris County population, both children and adults.

Adults over the age of 65 and children under the age of 18 are also more susceptible to air toxins, whether or not they have a pre-existing condition. According to the American Lung Association, of over 3.5 million people living in Harris County in 2005, more than 250,000 were over 65 (approx. 7.5%) and more than one million were under 18 (approx. 12%).

HDHHS Air Quality Testing Site

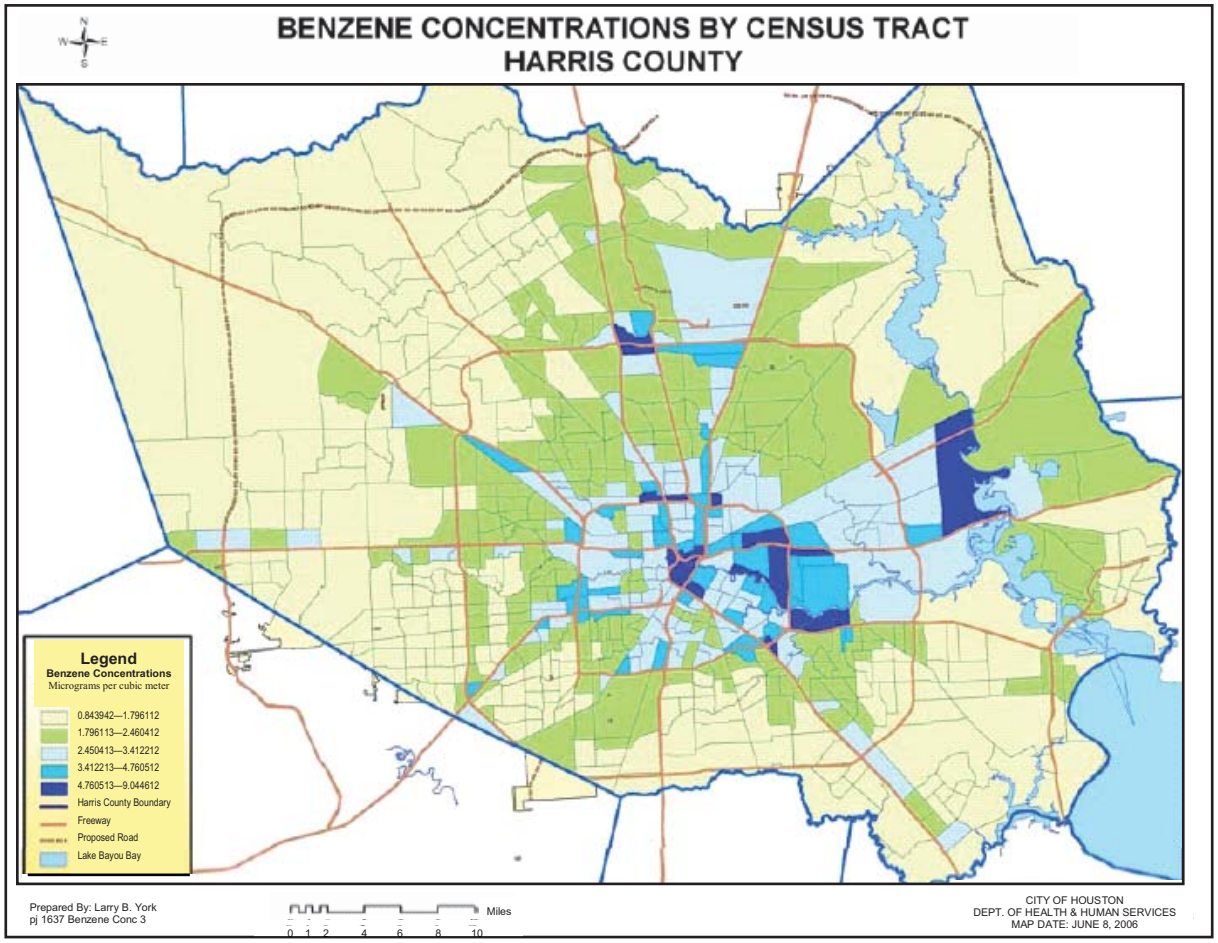
Those who fall into high risk categories should monitor the air quality on a daily basis through local weather reports, newspapers, and online sources and should avoid exercising outdoors when pollution levels are high.

Population of Harris County with High-Risk Pre-existing Medical Conditions



Source: American Lung Association, State of the Air 2005

Geographic Distribution of Benzene Levels



Source: Measures done by the Environmental Protection Agency, mapping by HDHHS Office of Surveillance and Public Health Preparedness, GIS Section

The above map illustrates local concentrations of one air pollutant, benzene. Benzene can cause headaches, difficulty breathing, nausea, confusion and seizures. It is widely used in industrial processes, to make crude oil, gasoline, some types of rubbers, lubricants, dyes, detergents, drugs and pesticides. It is also found in cigarette smoke.

Natural sources of benzene include volcanoes and forest fires. However, the U.S. Environmental Protection Agency notes that industrial processes and motor vehicles are the main sources of benzene in the environment.

The Mayor's Task Force

As noted, only one pollutant map is shown above. It is beyond the scope of this report to document all air pollutants present in the air of Houston/Harris County. In addition, air pollution issues are complex and clarification of these issues is also beyond what can be discussed in this report. For further information regarding local air quality, see the report from the Mayor's Task Force on the health effects of air pollution, *A Closer Look at Air Pollution in Houston: Identifying Priority Health Risks,* available at *www.houstontx.gov/environment.*

Surface Water Quality

Overview

Monitoring Surface Water Quality

Clean water is crucial to the health of residents of Houston/Harris County. Continuous evaluation of the quality and possible contamination of the streams, rivers, bayous and lakes is performed throughout the City and the County. HDHHS and HCPHES cooperate in this endeavor, each monitoring its respective areas.

Elevated bacteria levels continue to be a prevailing problem affecting many streams in the Houston/Harris County area. In 2005, approximately 40% of the sites routinely monitored for *Escherichia coli* (*E. coli*) by the City of Houston's Bureau of Public Health Engineering failed to meet the Texas Surface Water Quality Standards for contact recreation.

Escherichia coli *is a bacteria which is part of the normal flora of our intestines. Outside the body, it can grow very rapidly and some strains can cause diarrhea, sometimes severe. Most E. coli is spread by contaminated food and water.*

Approximately 70% of the stream segments in Harris County outside the City of Houston are contaminated by fecal matter. Recent studies indicate this contamination is largely due to sources other than wastewater treatment facilities, including malfunctioning septic systems, animal waste and gray water discharges. As a result, these water bodies are unsafe for most recreation activities, and fish or shellfish living in the streams may be unsafe for human consumption.

Gray water *is residential waste water other than water from toilets, such as, sink, shower and laundry water.*

Bacterial Variations in Surface Water

Bacteria levels vary widely during both high-flow and low-flow conditions, circumstances determined by rain amounts and tidal flow. Though many sources contribute to this variance, two of the most influential are the frequent and relatively large amounts of rainfall in the Houston area and an aging infrastructure that involves leaks, spills, bypasses, overflows and cross-flows between sanitary and storm systems. Figures 1 and 2 illustrate the changes in bacteria in Spring Creek following significant rainfall.

Testing Local Surface Water

Surface-water quality in Houston/Harris County has remained largely consistent in recent years, with no appreciable year-to-year change.

Water segments of streams and bayous, or portions of segments that often failed to meet established standards, are identified through routine surface water monitoring, complaint investigations, and intensive surveys. Water-quality management has improved over time and the public has become more involved through education. Public service TV spots inform people that trash put into storms drains flows into Galveston Bay and the Gulf of Mexico. However, problem areas remain and continue to require attention and investigation.

The EPA reports that nationwide, 40% of streams, 45% of lakes and 51% of estuaries were polluted in 2000. These waters were assessed as not clean enough to support uses such as fishing and swimming.

Rainfall and E. Coli

The following graphs depict the strong relationship between measurable rainfall and elevated levels of *E. coli* in Spring Creek in North Harris County. Stations represent sample areas in a particular segment of stream or bayou. All water segments throughout the Houston and Harris County are designated for contact recreational use, except the Houston Ship Channel segment. All bacteriological results are compared to the contact recreational standard which is 394 colonies per 100 ml.

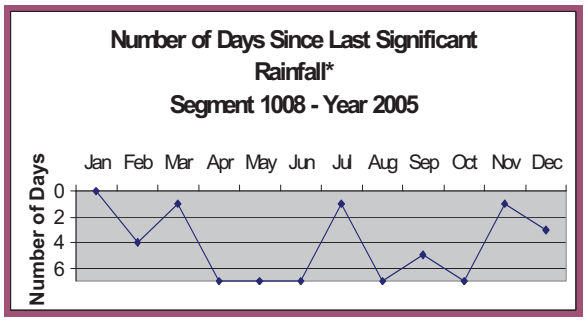


Figure 1

***Number of days since last significant rainfall** determined by counting the number of days between the sampling date and the last date prior to sampling in which a rainfall greater than or equal to 0.25 inches occurred. Rainfall Data Source: Harris County Office of Emergency Management

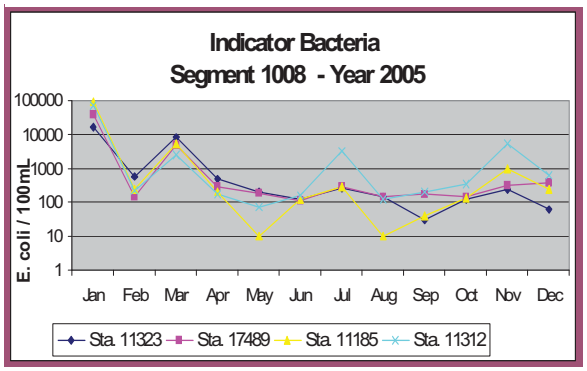


Figure 2

Source: HDHHS Bureau of Public Health Engineering

The **Harris County Waterway Assessment and Restoration Project** consists of HCPHES, the Texas Department of Criminal Justice and the Texas Commission on Environmental Quality, with participation from the Bayou Preservation Association, Harris County Flood Control District, the City of Houston, Gulf Coast Waste Disposal Authority and other community partners. The project is supported by supplemental environmental project funds from County and State pollution cases.

Healthy People 2010

Objective 8-8: Increase the proportion of assessed rivers, lakes and estuaries that are safe for fishing and recreational purposes

Safe Rivers, Lakes, Estuaries	
Area	Percent
National Baseline 1994	60
City of Houston 2005	60*
Harris County, outside Houston 2005	30*

*Approximate measures

Public Health Actions

- Enforce laws and regulations to protect health and ensure safety by testing and monitoring the quality of surface water, swimming pools, spas, hazardous waste sites, landfills, illegal dumpsites and wastewater treatment plants.
- Mobilize community partnerships and action to solve health problems through activities like the Harris County Waterway Assessment and Restoration Project. From 1998 to 2005, HCPHES documented removal of over 200,000 pounds of solid waste such as lumber, glass, metal and plastic, from area waterways. Brays Bayou, Buffalo Bayou, White Oak Bayou and a portion of the Houston Ship Channel were a part of the project.
- Diagnose and investigate health problems, through projects such as inventorying of waterway waste, showing that litter on streets often becomes floating debris in waterways.

For More Information

City of Houston residents who want to determine if streams or other surface water are safe for recreation can contact the HDHHS Bureau of Public Engineering/Water Quality at 713-640-4256.

Harris County, outside the City Limits. HCPHES: *www.hcphes.org* or call 713-439-6000.

Houston Bayou Preservation Association for monthly data about local bayous: *www.bayoupreservation.org.*

Water for Drinking

Overview

The Federal Safe Drinking Water Act authorizes the EPA to set health-based standards for public drinking water to protect against naturally-occurring and man-made threats to the water supply. Such threats include animal and human waste, improperly disposed chemicals, naturally occurring substances such as radium 226 and poorly maintained water treatment and distribution systems. The standards apply to every public water system in the U.S. Public water systems are drinking water systems that serve at least 25 people per day for at least 60 days per year. Like most states, Texas has the authority to implement statewide drinking water standards that are at least as stringent as those outlined by the EPA.

Within Harris County there are approximately 1,200 public drinking water systems, ranging from the City of Houston's, which is the largest in Texas, to many that are among the state's smallest. HCPHES focuses its efforts on these smaller systems—such as those maintained by mobile home parks, subdivisions, child-care facilities and small businesses. HCPHES conducts approximately 130 plant inspections each month. Through these inspections, HCPHES determines if a drinking water system has exceeded federal standards on certain contaminants, including those that can affect human health. If a system is in exceedence, HCPHES coordinates with the system as well as with State and Federal partners to address issues and, if necessary, to identify alternate drinking water sources.

Drinking water standards within Houston are measured and enforced by the City of Houston Department of Public Works and Engineering.

For More Information

HCPHES: *www.hcphes.org*

City of Houston, Public Works and Engineering: *www.houstontx.gov*

Public Residential Drinking Water Systems in Exceedence of Selected Contaminants Harris County, 2005

Contaminant	Source	Health Risks after Long-Term Consumption	Systems in Exceedence	Residents Served by System(s)
Total Trihalomethanes	Byproduct of disinfection process	Increased risk of cancer and problems in the liver, kidney or central nervous system	2	18,360
Alpha Radiation	Erosion of natural deposits	Increased risk of cancer	8	15,607
Uranium	Erosion of natural deposits	Increased risk of cancer and kidney problems	2	14,775
Radium 226 and 228	Erosion of natural deposits	Increased risk of cancer	4	7,515
Benzene	Discharge from industry; leaching from storage tanks and landfills	Increased risk of anemia and cancer; decrease in blood platelets	1	2,328

Source: HCPHES Environmental Public Health Division, 2006. Available at hcphes.org/2005annual.pdf. Accessed January 8, 2007.

Occupational Health

Overview

The toll of workplace injuries and illnesses is significant. Healthy People 2010 points out that every five seconds a worker is injured in the United States. On average, each day 137 workers die from work-related diseases, and an additional 17 die from injuries on the job.

In 2003, according to the Texas Workforce Compensation Commission and the U.S. Department of Labor, 65 fatal occupational injuries occurred in Harris County. These Harris County fatalities accounted for 13% of the 471 fatal occupational injuries that occurred statewide.

The top five events or exposures that caused fatal occupational injuries in Harris County from 1997-2002 included assaults and/or violent acts, transportation incidents, falls, contact with objects and equipment, and exposure to harmful substances.[1]

Of the 424 fatal occupational injuries that occurred in Harris County during the five-year period of 1997-2002, 35% occurred among persons classified as "operators, fabricators and laborers," which includes the transportation industry. Over 25% occurred among persons in industries classified as "precision production, craft and repair," which includes persons in the construction and mechanic trades.[1]

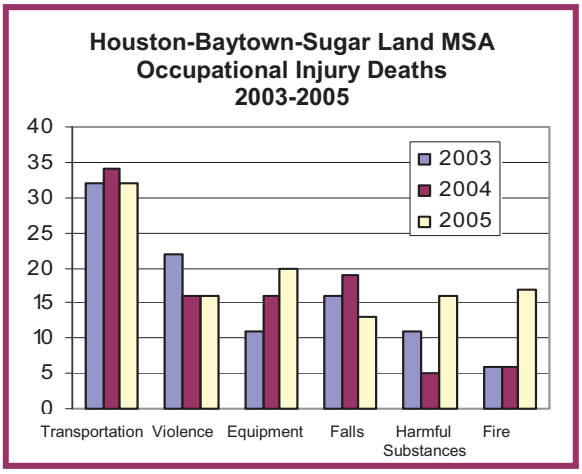
A fall from a ladder is a common cause of occupational injury

As of 2003, motor vehicle-related fatalities remained the leading cause of death for U.S. workers since 1980. Workplace homicides became the second leading cause of death in 1990, surpassing machine-related deaths.[2]

Population Differences

From 2003 through 2005 there were 325 fatal occupational injuries in the Houston-Baytown-Sugar Land MSA. Of those injured, 45% were Hispanic, 44% white and 11% black. Males accounted for 311 of those fatal occupational injuries.[1]

The Houston-Baytown-Sugar Land MSA had 117 of the 495 occupational injury deaths in Texas in 2005. Of the Texas fatalities, 469 were men and 26 were women. Whites accounted for 49% of the deaths, Hispanics 41%, blacks 7% and Asians 3%.[1] Nationally, from 2003 through 2005, whites comprised 70% of the deaths, Hispanics 15%, blacks 10% and Other 5%.[1]



Source: U.S. Department of Labor

Public Health Actions

- Inform the public about occupational health issues and hazards
- Develop policies and plans to support individual and community efforts to improve worker safety
- Enforce laws and regulations to protect worker health and ensure safety

For More Information

U.S. Department of Labor, Bureau of Labor Statistics: *www.bls.gov*

Texas Department of Health: *http://soupfin.tdh.state.tx.us*

Texas Workforce Commission: *www.twc.state.tx.us*

[1]U.S. Department of Labor, Bureau of Labor Statistics. Available at www.bls.gov. Accessed February 8, 2007.
[2]National Institute for Occupational Safety and Health. Work-related roadway crashes. DHHS (NIOSH) Publication No. 2003-119. Available at www.cdc.gov. Accessed February 9, 2007.

Food Safety

Overview

Although the food supply in the U.S. is among the safest in the world, CDC estimates that food-borne illnesses caused by bacteria and other pathogens affect 76 million people each year. The CDC reports that most cases of illness are mild, but 325,000 individuals are hospitalized, and some 5,000 deaths occur annually. Each step in the journey from farm to table can impact food safety, including production, transportation, storage, preparation and consumption.

*A **pathogen** is an agent that causes disease, especially a living microorganism such as a bacteria or fungus.*

Campylobacter is one of the most common causes of food poisoning in the U.S. This bacteria is estimated to infect almost one million people annually. Most people recover from the infection without any medical treatment, but antibiotics can be used to treat severe cases.[1]

While individuals can protect themselves at home by following basic food-handling precautions, the public must trust that restaurants and other dining establishments have complied with locally-adopted food safety guidelines based on the Texas Food Establishment Rules.

The most common complaints concern outside dumpsters, public restrooms or employee practices. Establishments that do not comply with city or county ordinances may be issued citations, temporarily closed, or have permits to operate revoked.

To protect the public, food products may be condemned due to contamination during an occurrence such as a fire, flood, power outage, sewage water back-flow, extended interruption of water service, food borne disease outbreak, gross unsanitary occurrence such as pest infestation or other event that might prevent potentially hazardous food from being held at required temperatures.

Food service inspections in Houston include fast food and five-star restaurants, coffee shops, bakeries, catering facilities, delis, bars, schools, daycares, movie theaters, gas stations, vending machines, mobile units, outdoor and indoor events such as the Houston Livestock Show and Rodeo, supermarkets, church kitchens, processing plants and butchers. Inspectors typically perform 6-10 inspections each day. In 2005, HDHHS conducted 29,992 inspections and discarded 384,812 pounds of condemned food.

Trends: Houston/Harris County 2005-2006

Inspections Within the City of Houston		
	2005	Jan-Jun 2006
Total Establishments*	13,699	12,565
Violations of the City Food Ordinance	90,079	47,907
Citations Issued to Establishments	1,747	646
Complaints Investigated	2,077	1,528
Alleged Food-Borne Illnesses	260	411
Establishment Closures per 1000 Inspections	20.7	15.8

*Includes mobile units but not temporary food establishments
Source: HDHHS Bureau of Consumer Health Services

In 2005, HCPHES identified 1,855 food establishments in unincorporated Harris County and 16 municipalities within the County that required follow-up inspection, where critical food safety violations were identified at routine inspection.

This represents 11.2% of the 16,602 food establishment inspections conducted in 2005. In addition, HCPHES issued 104 warnings and 159 citations to food establishment operators for failing to comply with food safety guidelines.

[1]CDC, Division of Bacterial and Mycotic Diseases. Campylobacter infection. Available at :*http://www.cdc.gov/ncidod/dbmd/diseaseinfo/campylobacter_g.htm#What%20is%20campylobacteriosis.* Accessed November, 2006.

New Website Available With Food Establishment Inspection Results

At the end of May 2005, the sanitarians at the HDHHS Bureau of Consumer Health Services began using tablet personal computers to document inspection results at food establishments. This has allowed the results to be made available to the public.

The Bureau now has a public website where consumers can check a food establishment's most recent inspection report in order to make an informed decision about dining out or shopping at a specified food establishment.

The inspection reports are available on line. The public website is located at *www.houston.tx.gov.* This website provides a snapshot of the facility's condition and practices at the time of the most recent inspection.

Economic Impact of Food Illnesses

Major causes of food-borne illnesses are enteric diseases such as those caused by salmonellosis and *E. coli*. Food-borne salmonellosis in the United States is estimated to cost $1 billion a year.[2]

The most common effects of enteric disease are diarrhea and vomiting, which can lead to lost productivity and absenteeism. However, in some cases, such as infection by *Vibrio volnificus*, which can be found in raw oysters, it can lead to life-threatening complications.

Campylobacter infections usually have little economic impact. Patients may miss a few days of work while recovering, but for otherwise healthy people, the bacteria does not require medical attention. Only for those in high risk groups, such as children, elderly persons, or people with compromised immune systems, does a *Campylobacter* infection incur medical expenses such as antibiotic treatment.[1]

Healthy People 2010

Objective 10-1a: Reduce infections caused by *Campylobacter* species

Reduce Infections Caused by *Campylobactor* (Cases per 100,000 Population)

Area	Rate
National Baseline 1997	24.6
Target for 2010	12.3
Houston/Harris County 2004	3.8
State of Texas 1998	4.5
United States 2005	12.7

Public Health Actions

- Enforce laws and regulations that protect health and ensure safety by licensing restaurants, inspecting food establishments and responding to public complaints
- Educate food establishment owners and workers about safe food handling and inform the public about the results of restaurant inspections
- Empower people about health issues through events such as promoting National Food Safety Month in September
- Monitor health through methods such as the national surveillance program administered by the CDC to track *campylobacter* infection rates

For More Information

City of Houston Food Ordinance and Food Establishment Inspection Results at HDHHS: *www.houston.tx.gov/health*

HCPHES: *www.hcphes.org*

Texas Department of State Health Services, Food Establishment Group: *www.dshs.state.tx.us/foodestablishments/default.shtm*

Food-Borne Illness: *www.cdc.gov/foodborne*

USDA Food Safety and Inspection Service: *www.fsis.usda.gov/*

[2]CDC. Food-borne illness. Available at www.cdc.gov/ncidod/dbmd/diseaseinfo/foodborneinfections_t.htm. Accessed 18 July 2006.

Lead Poisoning

Overview

A high level of lead in the bloodstream can lead to learning disabilities, behavioral problems, seizures and even death. The primary source for lead poisoning in children is from the lead dust given off by aging paint. Lead-based paint was banned in 1978. However, Houston/Harris County still has almost 700,000 pre-1978 occupied residences, based on data from the 2000 Census.

Children under age six, particularly those living in older housing, are at the highest risk for lead poisoning. A few of the most common sources of lead poisoning in children are: lead based paint, lead glazed pottery (jarros/jars) and tiles, certain vinyl mini-blinds, home remedies (Azarcon and Greta), toys and crayons (made with lead), contaminated soil and automobile parts such as batteries and radiators.

Testing blood for lead level

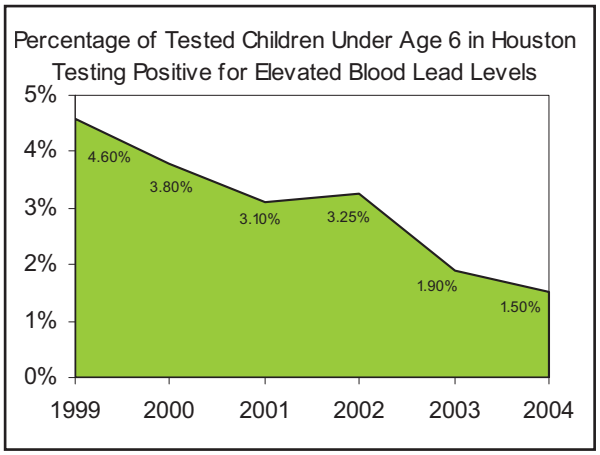
Both the City and County health departments provide ongoing lead screening among high risk populations. In 2004, the two health departments tested 46,445 children, and identified 699, or 1.5% with elevated blood lead levels. The majority of confirmed cases were children living in pre-1950 housing.

Within the 610 Loop, 25% of homes were built before 1950. In some zip codes, this fraction is as high as 35%. The extent of the lead poisoning problem varies by location, by socioeconomic status, and by ethnic group.

Trends: Houston/Harris County 1999-2004

HDHHS tests children in high risk areas for blood lead levels. In 2000, 6.5% of children under age 6 in Houston were tested for blood lead levels. This percentage increased to 10.8% in 2004. Of those children who are tested, the percent who test positive for elevated blood lead levels has decreased over time.

The decreasing incidence of children with elevated blood levels can be attributed in part to the Department of Housing and Urban Development (HUD) programs administered through local public health organizations to remediate houses with dangerous paint.



Source: HDHHS case files

Population Differences

The prevalence of lead poisoning correlates along socioeconomic divisions. Those near or below the poverty line are more likely to live in older housing containing lead-based paint than are families in the middle or upper middle class. Also, children in lower socioeconomic levels are less likely to receive prompt and adequate medical care for elevated blood lead levels.

Based on HUD databases, Houston has 402,626 families (42.25%) with less than 50% of the city's annual median income (AMI) and has 158,246 families (17.8%) in the jurisdiction-wide area with less than 80% of the city's AMI.

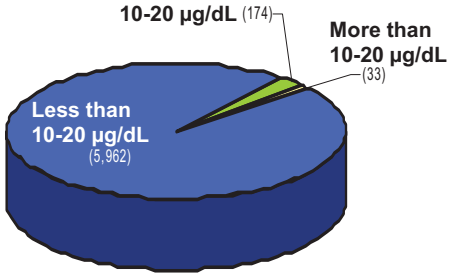
The CDC reports that some racial and ethnic groups are disproportionately affected by lead. For example, 3% of black children were found to be affected by elevated lead blood levels, compared to 1.3% of white children in the U.S.

Geographic Distribution

High Risk* Zip Codes, Houston 2006

Source: HDHHS Bureau of Children's Environmental Health, TDSHS Childhood Lead Poisoning Prevention Registry, 2004.
*High Risk is determined by CDC and HUD criteria, through measures of pre-1978 housing, poverty level, race/ethnicity, historical prevalence of lead and numbers of children living in the ZIP code.
Note: Map targeted zip codes are those areas in color.

Blood Lead Levels of Tested Children Under Age Six in High-Risk Houston Areas 2004



Source: HDHHS case files

Economic Impact of Lead Poisoning

Since lead poisoning can lead to learning disability, behavioral problems, seizures, and even death, it poses a substantial economic burden. A 2002 study estimated the annual cost of lead poisoning in the U.S. at $43.4 billion.[1] Since lead poisoning can decrease intellectual potential, the result may be a loss in lifetime earnings. One study estimates an increase of $110 billion to $319 billion in lifetime earnings for the 3.8 million children affected by lead poisoning today compared to their lifetime earning potential had they not been subject to 1975 lead levels.[2]

Healthy People 2010

Objective 8-11: Eliminate elevated blood lead levels in children

Children Aged 1-to-6 Years with Blood Lead Levels Exceeding 10 µg/dl

Area	Percent
National Baseline 1991-94	4.4
Target for 2010	0.0
Houston/Harris County 2004	1.1
State of Texas 2005	1.3

Public Health Actions

- Monitor health status to identify and solve community health problems by testing children in high risk areas for elevated blood lead levels
- Link people with needed health services through referral of children positive for lead poisoning for medical treatment
- Diagnose health hazards by assessing houses with young children in the home as well as crumbling lead-based paint
- Enforce laws and regulations to remediate houses with dangerous paint

For More Information

U.S. Department of Housing and Urban Development: *www.hud.gov/offices/lead*

State of Texas: *www.dshs.state.tx.us/lead*

City of Houston: *www.houstontx.gov/health/environmental/leadprogrampage.html*

HCPHES: *www.hcphes.org*

National Safety Council: *www.nsc.org/library/facts/lead.htm*

CDC Prevention Program: *www.cdc.gov/nceh/lead*

[1]Landrigan, PJ, Schecter CB, Lipton JM, Fahs MC, Schwartz J. Environmental pollutants and disease in American children: estimates of morbidity, mortality, and costs for lead poisoning, asthma, cancer, and developmental disabilities. *Environ. Health Perspect.* 2002;110:723-730.
[2]Grosse S, Matte T, Schwartz J, Jackson R. Economic gains resulting from the reduction in children's exposure to lead in the United States. *Environ. Health Perspect*. 2002;110:563-567.

Mental Health Indicators

Mental disorders generate an immense public health burden of disability. The World Health Organization, in collaboration with the World Bank and Harvard University, has determined the "burden of disability" associated with the whole range of diseases and health conditions suffered by peoples throughout the world.

A striking finding of the landmark *Global Burden of Disease* study is that the impact of mental illness on overall health and productivity in the United States and throughout the world often is profoundly under recognized. In established market economies such as the United States, mental illness is on a par with heart disease and cancer as a cause of disability. Suicide—a major public health problem in the United States—occurs most frequently as a consequence of a mental disorder.

Mental disorders occur across the lifespan, affecting persons of all racial and ethnic groups, both genders, and all educational and socioeconomic groups. In the United States approximately 40 million people aged 18 to 64 years, or 22 percent of the population, had a diagnosis of mental disorder alone (19 percent) or of a co-occurring mental and addictive disorder in the past year.

Healthy People 2010

Mental Health Indicators

Overview

Mental health refers to positive emotional and psychological well-being. While many persons experience days with less than ideal well-being, public health is most concerned with the three severe mental illnesses: schizophrenia, bipolar disorder and major depression. All three can lead to severe impairment in the person's ability to cope with daily life, and depression may lead to suicide, as well.

Poor mental health can also impact physical health. The Mental Health and Mental Retardation Authority of Harris County (MHMRA) offers the following estimates:[1]

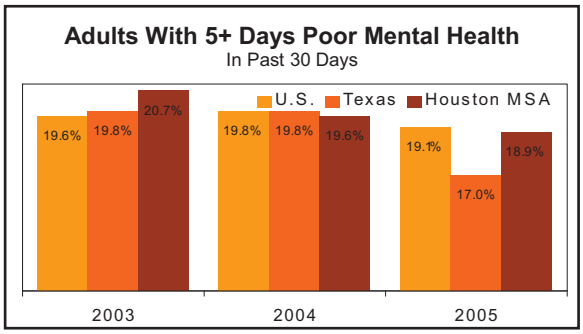
- About 140,000 of adults with a mental health condition suffer a severe mental illness.
- Almost half of adults in Harris County with a severe mental illness could not access treatment from public or private health systems.
- Almost 20,000 Harris County youth need services from the public mental health system each year, but the majority (76%) have not received treatment services.

Additionally, the Harris County Mental Health Needs Council estimated that more than 62% of the 16,000 youth in the Harris County Juvenile Probation Department have a diagnosable mental illness.

On a typical night, 37% of inmates in the Harris County Jail had once been a consumer of the Texas mental health system and 11% of inmates suffered a diagnosable severe mental illness. For 2004, a total of 24% of incarcerated individuals had a history of mental illness.[2]

The public mental health system in Harris County (MHMRA and Harris County Psychiatric Center) was able to provide services to about 39,000 persons (about 10,000 youth and 29,000 adults) during fiscal year 2005; whereas the total number of persons in need was 340,295.

Trends: Houston/Harris County 2003-2005



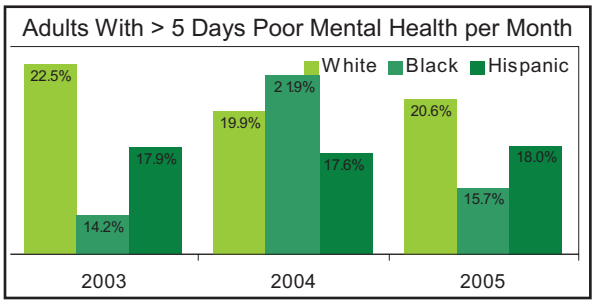
Source: TDSHS BRFSS

The Harris County MHMRA estimates that about 500,000 adult residents and 186,000 youth in Harris County experience a mental health condition or emotional disturbance each year. Of children with an emotional disturbance, 108,480 suffer a severe mental illness.

The BRFSS assesses mental health by asking survey participants if they had five or more days of poor mental health, including problems with stress, depression and emotions during the past 30 days. (see chart at left)

Population Differences

The 2005 BRFSS for the Houston-Baytown-Sugar Land MSA, shows that women more frequently reported five or more days of poor mental health (24.3%) compared to men (13.9%). Also, those with incomes of $50,000 or more were less likely to report poor mental health (13.8%), compared to 22.7% of those with incomes below $25,000.

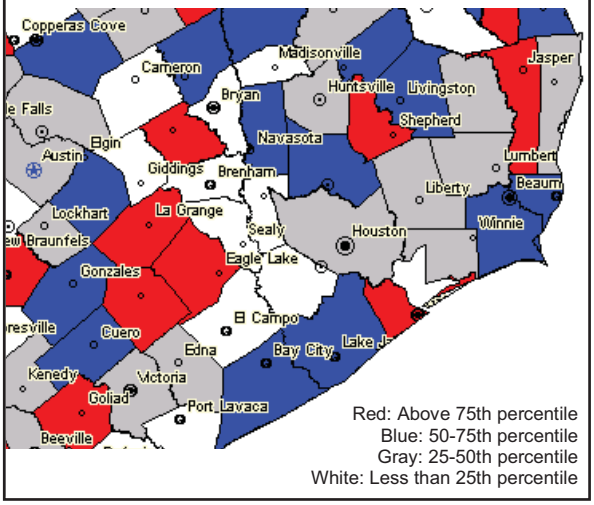


Source: TDSHS BRFSS

[1]Extrapolated from prevalence rates regarding mental illness by MHMRA staff.
[2]Data created by matching jail booking records with MHMRA and TDSHS mental health clinical practice databases.

Geographic Distribution

Suicide Rates in Southeast Texas, 1989-1998



Source: CDC

Economic Impact of Mental Health

The medical, societal, and lost productivity costs of mental health total more than $113 billion dollars nationally.[3] In Texas, mental health illness costs state and local governments $1.5 billion dollars.[4] Lost family income and economic productivity is estimated at $16.6 billion dollars.[5]

In some cases, the suffering individual is the head of the household. Stress and other factors can lead to depression and absenteeism at work, resulting in unemployment and further debt. Many severely mentally ill receive some form of social security disability or supplemental security income.[5]

Businesses can benefit when appropriate mental health facilities and counseling are available. Health plans with lower financial barriers to mental health treatment have lower rates of psychiatric long-term disability than health plans with more restricted access to mental health services.[6] Cases also show that decreasing mental health services can result in greater costs for companies due to increased health care use and more frequent sick days.[7]

Healthy People 2010

Objective 18-1: Reduce the suicide rate

Rate of Suicide per 100,000	
Area	**Rate**
National Baseline 1998	11.3
Target for 2010	5.0
Harris County 2003	10.4
State of Texas 2004	10.6
United States 2004	10.9

Public Health Actions

- Monitor health status by tracking those with severe mental illness in the county
- Provide health care where otherwise unavailable by diagnosing and treating low-income persons with severe mental illness in Harris County
- Mobilize community partnerships and action to identify and solve mental health problems through support or organization of groups such as the Mental Health Association and the MHMRA Mental Retardation Planning Advisory Council

For More Information

National Mental Health Association: *www.nmha.org/*

National Institute of Mental Health: *www.nimh.nih.gov/nimhhome/index.cfm*

CDC: *www.cdc.gov/mentalhealth/index.htm*

MHMRA: *www.mhmraharris.org/*

Texas DSHS: *www.dshs.state.tx.us/mentalhealth.shtm*

Suicide & Crisis Center: *www.sccenter.org*

Suicide Prevention Resource Center: *www.sprc.org/stateinformation/statepages/texas.asp*

[3]Rice, DP, Miller LS. Health economics and cost implications of anxiety and other mental disorders in the United States. *British Journal of Psychiatry.* 1998;173(34),4-9.
[4]Mental Health Association in Texas. *Turning the corner: toward balance and reform in Texas mental health services.* Available at www.mhatexas.org. Accessed July 2006.
[5]Edgar, E, et al.; Technical Assistance Collaborative. *Priced Out in 1998: The Housing Crisis for People with Disabilities.* Consortium for Citizens with Disabilities Housing Task Force, 1999.
[6]Salkever DS, Goldman H, Purushothaman M, Shinogle J. Disability management, employee health and fringe benefits, and long-term-disability claims for mental disorders: an empirical exploration. *The Milbank Quarterly*. April 2002;78;79-114.
[7]Rosenheck, R et al. Effect of declining mental health service use on employees of a large corporation: general health costs and sick days went up when mental health spending was cut back at one large self-insured company. *Journal of Health Affairs.* September 1999; 18(5).

Leading Causes of Mortality

Data for most Healthy People mortality objectives are based on the underlying cause of death. The underlying cause of death is defined by the World Health Organization as the disease or injury that initiated the sequence of events leading directly to death or as the circumstances of the violence or accident that produced the fatal injury. It is selected from the conditions entered by the physician in the cause of death section on the death certificate.

Healthy People 2010

Leading Causes of Mortality

When considering the leading causes of death and disability, HCPHES, HDHHS and other public health organizations examine factors that impact death and disability throughout a person's lifetime, including infant, adolescent, maternal and senior health concerns.

In 2003, the most recent year for which comprehensive vital statistics data are available, there were 20,646 deaths in Harris County. The leading cause of death was heart disease, with more than one out of four deaths attributed to diseases of the heart. Cancer followed with 22% of all deaths, more than the next five leading killers combined.

There are differences in mortality rates among racial and ethnic groups. For example, while heart disease was the leading cause of death for all races in Harris County in 2003, the age-adjusted mortality rate for heart disease among black residents was 334.0 deaths per 100,000 persons, compared with 249.5 among white residents and 168.4 among Hispanic residents.

Leading Cause of Mortality, Harris County, 2003

Cause of Death	Total Deaths	Age-Adjusted Mortality Rate*
All Causes	20,646	861.4
Heart Disease	5,486	244.6
Cancer	4,601	190.0
Stroke	1,423	66.3
Chronic Lower Respiratory Disease	770	35.9
Accidents	1,148	35.6
Diabetes	647	26.5
Alzheimer's Disease	399	20.6
Kidney Diseases	431	19.3
Influenza/Pneumonia	412	18.7
Septicemia	385	17.0
Suicide	348	10.4
Chronic Liver Disease and Cirrhosis	295	10.4
Homicide	380	10.2
HIV/AIDS	296	8.4

*Deaths per 100,000 persons, age-adjusted to the 2000 Census population.
Age adjustment is a method that eliminates differences in rates that result from age differences in population composition.

Source. Texas Department of State Health Services, Bureau of Vital Statistics, 2005

Leading Causes of Mortality, Harris County, 2003			
Cause of Death	Age-Adjusted Mortality Rate* and (Rank)		
	White	Black	Hispanic
All Causes	874.2	1.167,3	631.0
Heart Disease	249.5 (1)	334.0 (1)	168.4 (1)
Cancer	196.3 (2)	258.4 (2)	127.3 (2)
Stroke	61.4 (3)	97.9 (3)	58.6 (3)
Chronic Lower Respiratory Disease	43.5 (4)	33.5 (7)	13.5 (9)
Accidents	38.3 (5)	39.2 (5)	30.0 (5)
Diabetes	18.6 (7)	53.8 (4)	35.1 (4)
Alzheimer's Disease	25.6 (6)	12.8 (14)	9.9 (12)
Kidney Diseases	14.8 (11)	37.1 (6)	22.0 (6)
Influenza/Pneumonia	18.5 (8)	23.3 (10)	16.3 (8)
Septicemia	15.1 (10)	27.2 (8)	16.4 (7)
Suicide	16.8 (9)	4.7 (20)	5.4 (13)
Chronic Liver Disease and Cirrhosis	10.9 (12)	8.6 (17)	13.4 (10)
Homicide	6.1 (14)	18.9 (11)	10.8 (11)
HIV/AIDS	4.9 (17)	26.5 (9)	5.0 (14)

*Deaths per 100,000 persons, age-adjusted to the 2000 Census population

Source:Texas Department of State Health Services, Bureau of Vital Statistics, 2005

Maternal and Infant Health

The health of mothers, infants, and children is of critical importance, both as a reflection of the current health status of a large segment of the U.S. population and as a predictor of the health of the next generation.

Infant mortality is an important measure of a nation's health and a worldwide indicator of health status and social well-being. As of 1995, the U.S. infant mortality rates ranked 25th among industrialized nations. In the past decade, critical measures of increased risk of infant death, such as new cases of low birth weight (LBW) and very low birth weight (VLBW), actually have increased in the United States. In addition, the disparity in infant mortality rates between whites and specific racial and ethnic groups (especially African Americans, American Indians or Alaska Natives, Native Hawaiians, and Puerto Ricans) persists. Although the overall infant mortality rate has reached record low levels, the rate for African Americans remains twice that of whites.

Healthy People 2010

Pregnancy/Infant Outcomes

Overview

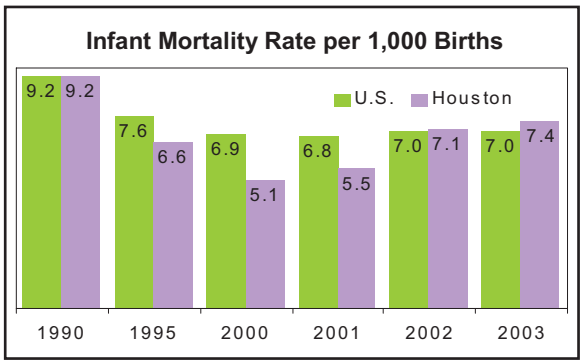
Improper prenatal care, short intervals between pregnancies, socioeconomic stressors, poor health of mothers and unavoidable genetic defects all contribute to poor pregnancy outcomes. These outcomes include low birth weight children (under 2.5 kilograms or 5.5 pounds), premature birth, and infant death (less than a year of age).

Timely prenatal care is one of the best ways to ensure the health of mothers and their infants. See the section on Prenatal Care for more detail about this topic.

A medical visit prior to becoming pregnant is also crucial for women with chronic disorders such as diabetes and high blood pressure to assure a healthy pregnancy and outcome.[1]

Once the infant is born, breastfeeding appears to reduce infant mortality in the first year of life, regardless of the cause of death—including infection, Sudden Infant Death Syndrome (SIDS) or other unknown causes.[2] Positioning infants on their backs to sleep also is protective because it reduces the incidence of SIDS.[3]

Trends: Houston and the U.S. 1990-2003



Source: TDSHS

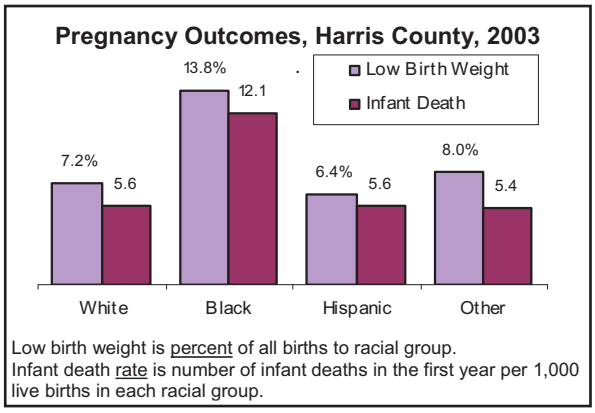
The death of an infant can be viewed as a sentinel event that is a measure of a community's overall social and economic well-being.[4]

The infant mortality rate in the United States has either declined or remained steady every year from 1958 to 2001. However, in 2002, the U.S. rate rose 3%, from 6.8 deaths per 1,000 live births in 2001 to 7.0 deaths in 2002. The infant death rate in Houston also rose in 2002, from 5.5 to 7.1, and was higher than the national rate for the first time since 1994.

Population Differences

TDSHS reports for Harris County show marked racial disparities in infant mortality, a pattern also seen in many areas of the U.S. Blacks have the greatest percentage of infant deaths. They also have a higher percentage of low birth weight children.

The age of the mother also is important in the birth outcome. Premature birth, or birth before 37 weeks gestation, is a risk factor for infant death, and is more common among very young mothers and mothers over age 35.

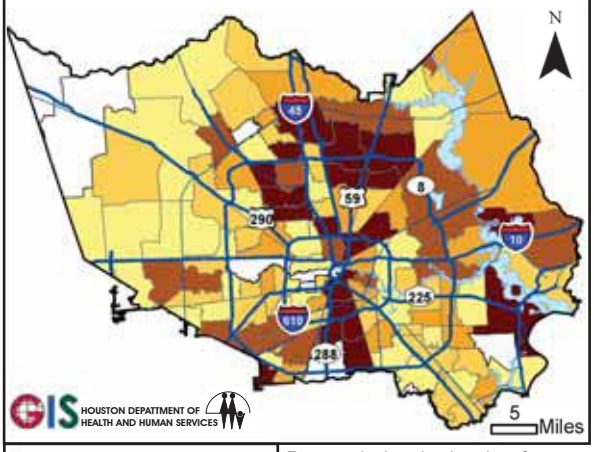


Source: TDSHS

[1]March of Dimes. Pre-term birth. Available at www.marchofdimes.com professionals/14332_1157.asp.
[2]Barret, JR. Children's health: breastfeeding and babies' lives. E*nvironmental Health Perspectives.* 2004;112:1-2.
[3]National SIDS/Infant Death Resource Center. What is SIDS? Available at www.sidscenter.org. Accessed January 2007.
[4]National Fetal and Infant Mortality Review Program. Available at www.acog.org/goto/nfimr. Accessed January 2007.

Geographic Distribution

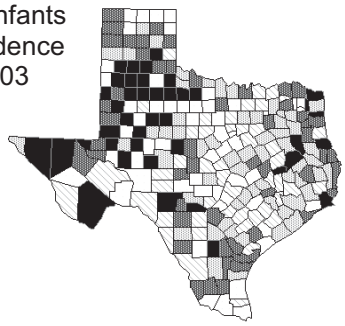
Infant Mortality Houston/Harris County 1999-2003
Compared to Healthy People 2010 Goal, by Zip Code



Infant Deaths Per 1,000 Live Births
- Similar to Healthy People 2010 Goal of 4.5
- Up to 25% above Healthy People 2010 Goal
- Up to 50% above Healthy People 2010 Goal
- Up to 75% above Healthy People 2010 Goal
- Greater than 75% above Healthy People 2010 Goal
- Rates Unreliable

Rates calculated using data from: Texas Dept. of State Health Services, Center for Health Statistics, Vital Statistics Data Request 8/2006. Map prepared by HDHHS, Community Health Statistics

Low Birth Weight Infants
By County of Residence
Texas, 1999-2003



Source: TDSHS

Economic Impact of Adverse Pregnancy Outcomes

Approximately eleven percent of children covered by employer health plans are born prematurely. The cost covered by these health plans is much higher in the first year of life for a premature child ($41,610), compared to a full-term baby ($2,830).[5] Employers are also burdened by lost productivity of the parents of premature children, approximately $2,766 in the first year.[5]

Smoking during pregnancy can have significant impacts on newborn children. A child of a mother who smokes during and immediately after pregnancy is 1.5-3.5 times more likely to have a low birth weight and is 2.3 times more likely to die from SIDS. Medicaid alone paid more than $227 million in neonatal health costs in 2002 attributable to maternal smoking.[6]

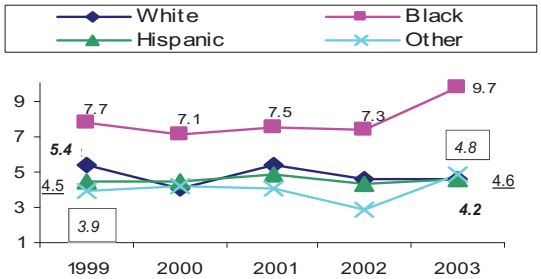
Healthy People 2010

Objective 16-1g: Reduce the number deaths from congenital heart defects

Deaths from Congenital Heart Defects
Rate per 1,000 live births

Area	Rate
National Baseline 1998	0.53
Target for 2010	0.38
Harris County 2003	0.61
State of Texas 2003	0.79
United States 2002	0.46

Fetal Deaths per 1,000 Live Births, Harris County
20 Weeks or Less Gestation



Source: TDSHS with analysis by HDHHS Office of Surveillance and Public Health Preparedness

Public Health Actions

- Monitor health status to identify and solve community health problems by tracking infant mortality rates
- Educate low-income women served directly by public health about health issues during pregnancy
- Mobilize community partnerships and action to identify and solve health problems, such as the Houston/Harris County Fetal and Infant Mortality Review (FIMR) program under development by HDHHS with support from 20 local organizations

For More Information

March of Dimes: *www.marchofdimes.com*
Premature Children: *www.prematurity.org*
Sudden Infant Death Syndrome: *www.firstcandle.org*
Genetic Counseling: *www.kidshealth.org*

[5]March of Dimes. Available at www.marchofdimes.com/prematurity/15341_15349.asp. Accessed July 2006.
[6]*Health and Economic Impact: Smoking Cessation for Pregnant Women*. Available at www.cdc.gov. Accessed July 2002.

Adolescent Pregnancy

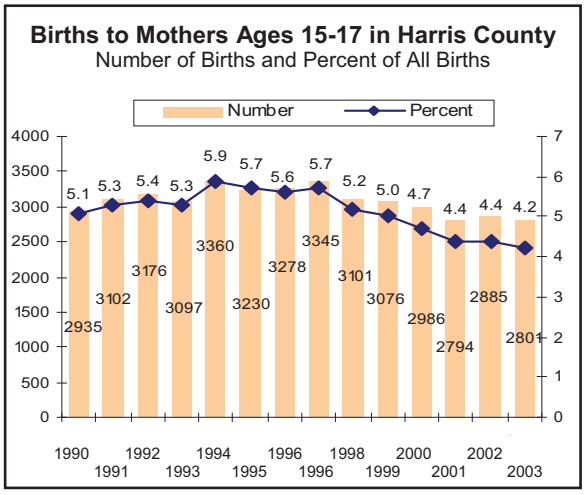
Overview

According to TDSHS, teenage mothers are less likely to receive adequate prenatal care, are less likely to gain adequate weight during pregnancy and are more likely to smoke than older mothers. TDSHS also states that children born to teenage mothers are at greater risk of low birth weight, disability and mortality during the first year of life.

Children born to these young mothers do worse in school than those born to older parents. They are also 50% more likely to repeat a grade, and in general perform less well on standardized tests. The children of teen parents also suffer higher rates of abuse and neglect than occur among mothers who delay child bearing.

Higher rates of premature births among younger mothers can be seen in Harris County in 2003. According to TDSHS, 11.9% of births to mothers age 10-19 were premature, compared to 10.2% of births to mothers aged 20-29.

Trends: Rates and Cases in Houston/Harris County 1990-2003



Source: TDSHS

TDSHS 2003 vital statistics data reported that in Harris County there were 2,961 births to mothers ages 10 through 17 years. This represents 4.4% of all births in Harris County.

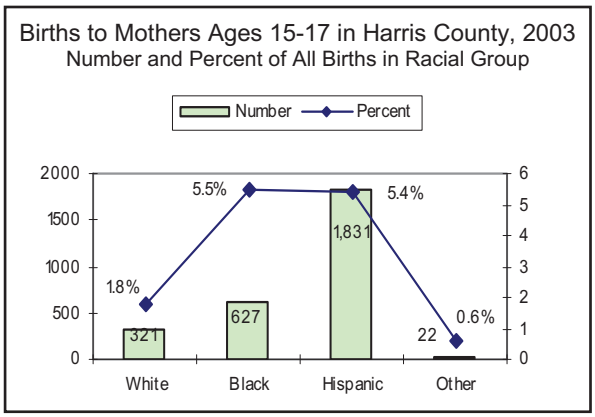
In comparison, in Texas, 5.1% of mothers were ages 10-17, as were 3.4% of mothers nationwide. Following the national trend, births to teenage mothers in Harris County have declined since the 1990's.

A 2002 TDSHS Vital Statistics report on teen pregnancy states that in Texas one out of 35 teenage girls (ages 13-17) becomes pregnant, and one out of 42 teenage girls gives birth. Of all births to Texas teens (ages 13-17) 12.9% were repeat births.

Population Differences

TDSHS reports indicate that of the births to teen mothers ages 10-17 years of age and younger, 66% were born to Hispanic mothers, 11% were born to white mothers and 23% were born to black mothers.

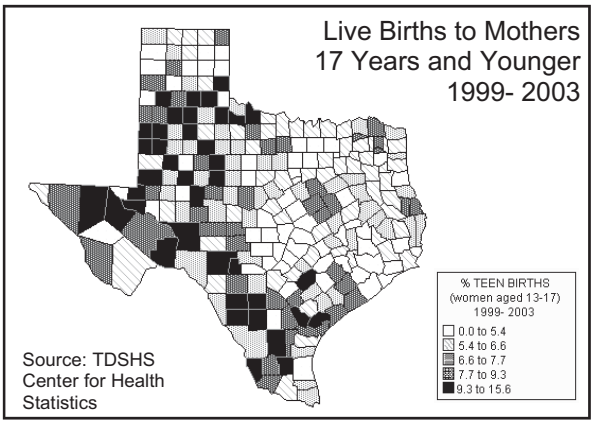
Adolescent mothers are at greater risk of adverse outcomes than older mothers; however, prenatal care is even more important in relation to birth outcomes than is maternal age.[1]



Source: TDSHS

[1] Leppert PC, Namerow PB, Barker D. Pregnancy outcomes among adolescent and older women receiving comprehensive health prenatal care. *J Adolesc Health Care*. 1986 Mar; 7(2):1112-7

Geographic Distribution



Economic Impact of Adolescent Pregnancy

Due to an increased likelihood of risk factors such as inadequate prenatal care, poor nutrition, and smoking, adolescent pregnancies may have greater healthcare costs, such as those associated with premature and low birth-weight babies.[1] As a result, one study estimates the cost of Medicaid, food stamps, and medical expenditures from adolescent pregnancies to range between $13 and $19 billion nationally.[2]

Due to the time and resource commitment to raise a child, the mother may lose education and job opportunities, resulting in lower lifetime earnings.[3] A 1997 study showed that only 41% of women who had children before the age of 18 graduated from high school, compared to 61% of women who had babies at age 21.[4] A teenager is less likely to keep a stable job, is more dependent on her family and is more likely to depend on welfare. Three-fourths of unmarried teen mothers need welfare within the first five years after the birth of their first child.[4]

Further, adolescent mothers are not always willing to obtain adequate reproductive health services, in part because they may be afraid of losing confidentiality. In Texas, the estimated cost of teenagers under 18 avoiding appropriate reproductive health care is $43.6 million due to additional pregnancies, abortions, and untreated sexually transmitted infections.[5]

Healthy People 2010

Objective 9-7: Reduce pregnancies among adolescent females

Pregnancy Among Females Age 15-17
Rate per 1,000

Area	Rate
National Baseline 1996	68
Target for 2010	43
Harris County 2003	42
State of Texas 2003	48
United States 2002	43

Public Health Actions

- Assure the provision of health care when otherwise unavailable through case management services for pregnant teens such as home visits, prenatal education, breastfeeding promotion, referral assistance and parenting skills
- Mobilize partnerships to solve health problems through support and implementation of programs such as the Healthy Families Home Visitation Program to provide family support and education when needed during the child's early years

For More Information

TDSHS Family Planning and Teen Pregnancy and Birth Facts: *www.dshs.state.tx.us/famplan*

National Campaign to Prevent Teen Pregnancy: *www.teenpregnancy.org*

Planned Parenthood of Houston and Southeast Texas: *www.pphouston.org*

Teen Pregnancy in the Black Community: *www.blackwomenshealth.com/teen_sex.htm*

CDC: *www.cdc.gov/reproductivehealth/AdolescentReproHealth/index.htm*

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[1]National Organization on Adolescent Pregnancy, Parenting, and Prevention. *Pregnancy, poverty, school, and employment.* Bethesda, MD: NOAPPP, 1995.
[2]Jorgensen, SR. Pregnancy and parenting. In Gullota,TP, Adams,GR, and Montemayer,R eds. *Adv. in Adol. Develop.* Vol. 5. Newbury Park, CA: Sage.1993:103-140.
[3]Allen Guttmacher Institute. Sex and America's teenagers. New York: AGI, 1994.
[4]The National Campaign to Prevent Teen Pregnancy. Not just another single issue: teen pregnancy's link to other critical social issues. Washington, D.C., 2002.
[5]Franzini et al. Projected economic costs due to health consequences of teenagers' loss of confidentiality. *Arch Pediatr Adolesc Med.*2004:158: 1140-1146.

Chronic Diseases

The three leading causes of death in the United States are heart disease, cancer and stroke. Heart disease and stroke continue to be major causes of disability and significant contributors to increases in health care costs in the United States.

Diabetes also poses a significant public health challenge for the United States. Some 800,000 new cases are diagnosed each year, or 2,200 per day.

Arthritis is the leading cause of disability in the United States. Activity limitation affects 27% of all persons who have arthritis.

Asthma is responsible for about 500,000 hospitalizations, 5,000 deaths, and 134 million days of restricted activity a year. Yet most of the problems caused by asthma could be averted if persons with asthma and their health care providers managed the disease according to established guidelines.

Healthy People 2010

Heart Disease and Stroke

Overview

According to the CDC, almost one in four persons in the U.S. has some form of cardiovascular disease (CVD), including heart disease and risk for stroke. 2003 BRFSS data show that 7% of surveyed adults living in the Houston-Baytown-Sugar Land MSA reported having been diagnosed with some form of heart disease, compared with 8.7% of U.S. adults.

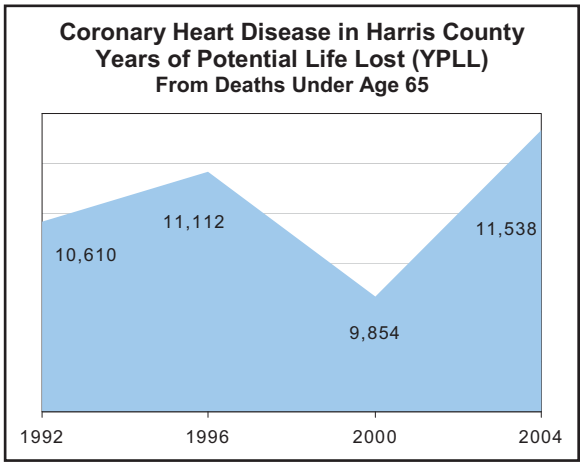
More white and black BRFSS respondents reported having been diagnosed with heart disease than Hispanic respondents—8.6% white respondents and 7.4% of black respondents compared to 2.9% of Hispanic respondents. One quarter of those over age 65 reported they had been given a diagnosis of some form of heart disease.

Heart disease is the leading cause and stroke is the third leading cause of death, both in the U.S. and in Houston/Harris County. Lowering cholesterol and blood pressure can reduce rates of CVD.

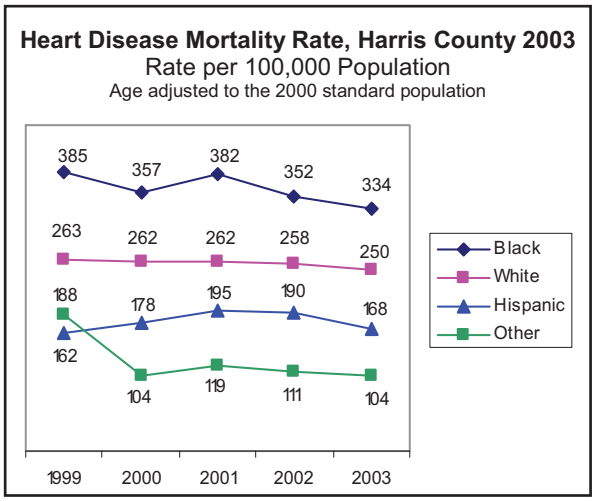
Trends: Houston/Harris County 1992-2004

2005 BRFSS data show that among adults surveyed in the Houston area MSA, 69.2% have had their cholesterol checked in the past five years, similar to 69.1% in 2003. In 2005, 65.9% of Texas and 64.1% of U.S. adults reported that they had their cholesterol checked in the past five years. Of Houston area MSA respondents, 32.8% had been told their blood cholesterol was high in 2005, compared to 34.0% in Texas and 35.9% nationwide.

Even modest elevations in blood pressure increase the risk of CVD. 2005 BRFSS data show that 23.8% of surveyed Houston area MSA adults had been told they have high blood pressure, compared with 24.5% of Texas adults and 26.2% of U.S. adults.



Source: TDSHS, with analysis by San Antonio Health Collaborative



Source: TDSHS

Population Differences

Mortality rates for heart disease vary widely among demographic groups in Harris County, with higher rates among males and black residents. The rate for men in 2003 was 306.0 compared to women at 209.4 per 100,000.

High blood pressure is often a component of heart disease. In the Houston-Baytown-Sugar Land MSA BFRSS survey, in 2005, Hispanics were least likely to report high blood pressure, at 17.7%, compared to 25.6% of blacks and 26.7% of whites. The percentage of those reporting high blood pressure rose with age. Only 3.0% of those in age group 18-29 reported high blood pressure, compared to 17.1% at age 30-44; 34.4% at age 45-64; and 57.2% at age 65+.

Exercise helps prevent heart disease

Economic Impact of Heart Disease and Stroke

In 2005, the national cost of cardiovascular disease was estimated at $394 billion—$242 billion in direct medical expenditures and $152 billion in costs of lost productivity from death and disability.[1] For 2006, the figure is $406 billion.[1] Further, in 2003, the government spent $31.6 billion on Medicare beneficiaries discharged from short stay hospitals with CVD as their principal diagnosis, with an average cost of $8,966 per discharge.[2]

In the case of a heart attack, the average years of life lost is 14.2 years.[3] Further, once a person has had a heart attack, he or she is 4 to 6 times more likely to suffer from sudden death.[4] Coronary heart disease alone accounted for approximately 12.2 million visits to the hospital in 2000.[5] The cost for coronary disease is estimated at $142 billion for 2006.[6]

The 2006 national cost for stroke is approximately $57.9 billion. Per patient, the average lifetime cost for ischemic stroke, including the costs of inpatient care, rehabilitation, and follow-ups is $140,048.[7] From Medicare 2003 data, an average cost for beneficiaries for short stay hospitals was $6,363 with an average of 5.2 days of care.

Current national guidelines recommend that adults check their blood pressure regularly and have their blood cholesterol checked every 5 years

Healthy People 2010

Objective 12-1: Reduce coronary heart disease deaths

Rate per 100,000 of Heart Disease Death
Age-Adjusted to the 2000 Standard Population

Area	Rate
National Baseline 1998	208
Target for 2010	166
Harris County 2003	245
State of Texas 2003	237
United States 2002	242

Public Health Actions

- Mobilize community partnerships through collaboration among public and private sector partners, such as managed care organizations, health insurers, federally funded health centers, businesses, schools and emergency response agencies.
- Link people to needed personal health services such as the Wisewoman program which provides low income, under-insured or uninsured women aged 40 to 64 with the knowledge, skills and opportunities to delay and control cardiovascular and other chronic diseases.
- Inform, educate and empower people about CVD, the signs and symptoms of heart disease and stroke and when to call 911.

For More Information

Texas DSHS: *www.dshs.state.tx.us/wellness/pdf/cvdrep.pdf*

CDC: *www.cdc.gov/DHDSP/index.htm*

CDC (Spanish): *www.cdc.gov/DHDSP/library/fs_heart_disease_spanish.htm*

American Heart Association: *www.americanheart.org*

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[1] American Heart Association. *Heart Disease and Stroke Statistics—2005 Update*. Dallas, Texas: American Heart Association; 2005.
[2] *Health Care Financing Review*, 2005 Medicare and Medicaid Statistical Supplement.
[3] National Heart, Lung, and Blood Institute. Available at http://www.nhlbi.nih.gov.
[4] Hurst W. *The Heart, Arteries and Veins*. 10th ed. New York, NY: McGraw-Hill; 2002.
[5] National Center for Health Statistics. *Vital Health Stat*. 2004;13:157.
[6] American Heart Association. *Heart Disease and Stroke Statistics—2006 Update*. Dallas, Texas: American Heart Association; 2006.
[7] Taylor TN, Davis PH, Torner JC, Holmes J, Meyer JW, Jacobson MF. Lifetime cost of stroke in the United States. *Stroke*.1996;27:1459–1466.

Cancer

Overview

Cancer is a disease of cells causing an abnormal growth of these cells. The cells tend to proliferate in an uncontrolled way and, in some cases, to metastasize or spread. Cancer is not one disease. It is a group of more than 100 different and distinctive diseases. Cancer can involve any tissue of the body and has many different forms in each body area. Most cancers are named for the type of cell or organ in which they start.

Cancer is the second leading cause of death in the United States and in Texas. TDSHS estimated that 13,015 new cases of cancer would be diagnosed, and 5,198 people would die of cancer in Harris County in 2006.

Many cancer deaths can be prevented through lifestyle changes, such as avoiding sun and tobacco, and better nutrition and exercise. Recommended cancer screening can lead to earlier detection and better likelihood of survival.

Trends: Harris County 1999-2003

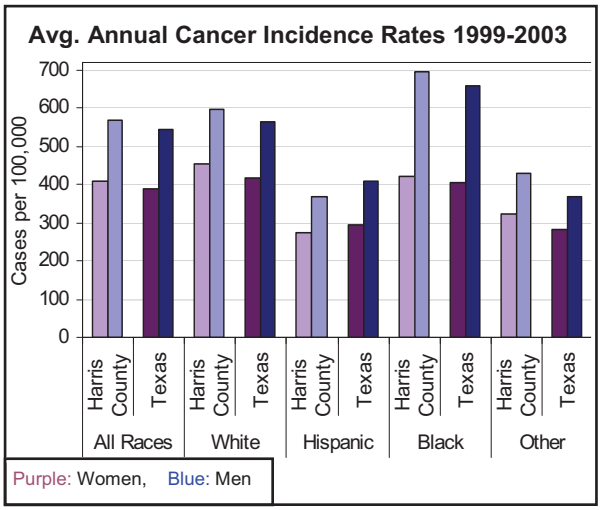
TDSHS statistics for 1999-2003 show the top three cancer diagnoses for men in Harris County were lung cancer, colorectal cancer and prostate cancer. For women, the top diagnoses were breast cancer, lung cancer, and colorectal cancer. Despite advances in treatment, death rates from all types of cancer have remained consistent in the past few years, around 4,500 deaths per year in Harris County.

Medical advances, such as the vaccine for the human papaloma virus (HPV) are bringing improvements in preventing and treating cancer. HPV is known to cause cervical cancer, which results in approximately 50 deaths per year in Harris County. (See following page for cervical cancer deaths.)

Deaths from Top Five Cancers in Harris County
Rate per 100,000 Population

Type of Cancer	1999	2000	2001	2002	2003
Lung	56.3	55.7	56.3	56.9	52.2
Colo-rectal	19.0	21.3	18.5	20.2	18.5
Breast	15.7	15.2	16.5	15.3	15.2
Pancreas	10.2	10.1	11.8	10.0	11.0
Prostate	11.3	10.4	11.4	11.1	10.9

Source: TDSHS



Population Differences

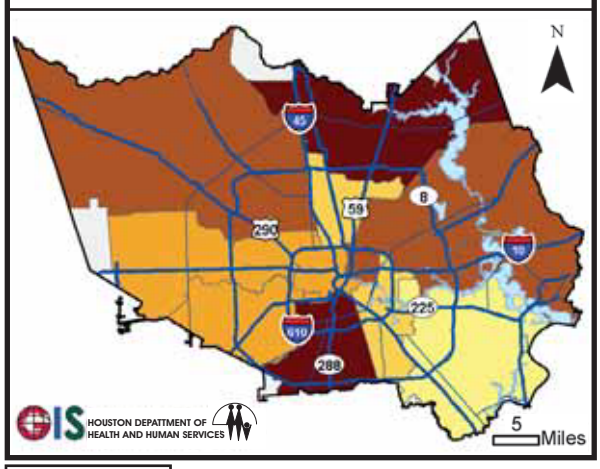
In 1999-2003, TDSHS reported 59,287 new diagnoses of cancer in Harris County, a rate of 473 cases per 100,000 population. Blacks were more frequently diagnosed with cancer, with a rate of 528. Whites were next with a rate of 511. Hispanics had a rate of 309.

Among men in Harris County, blacks had the highest rates of cancer diagnoses (694 per 100,000). However, among women, whites were more frequently diagnosed with cancer (454 per 100,000). For both men and women, Hispanics had the lowest rate of cancer diagnoses (370 per 100,000 for men, 273 for women).

Source: Cancer incidence data provided by the Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services, 1000 W. 49th St. Austin, TX 78756, http://www.dshs.state.tx.us/tcr/default.shtm, or (512)458-7523.

Geographic Distribution

New Cancer Cases, Harris County 1995-2003



Age-Adjusted Rates (Incident Cases Per 100,000 Population)

- 348.11
- 348.12 - 389.84
- 389.85 - 467.40
- 467.41 - 509.20
- 509.21 - 560.17

Data Source: TDSHS, Cancer Epidemiology and Surveillance Branch
Texas Cancer Registry, 1995-2003, Map by HDHHS Community Health Statistics.
Incidence File as of 12/23/2005
See appendix for additional notes

Economic Impact of Cancer

Estimates for 2005 predicted $210 billion would be spent in the U.S. on cancer, including $74 billion in direct medical costs and $136 billion in indirect costs and lost production.[1] In 2000, treatments for breast and cervical cancer cost patients $7 billion and cost the federal government $2 billion.[2]

Once diagnosed with cancer, an individual's expected life span decreases an average of fifteen years. Even with treatment providing a cure, the patient may be unable to work for an extended period, resulting in loss of wages and production.

In addition, cancer drugs are costly, an average of nearly $1,600 a month. With new developments in medications, the costs continue to rise. For example, Avastin, a drug used to treat colorectal cancer, costs approximately $50,000 a year. If this drug is approved to treat breast and lung cancer, which would require a higher dosage, Avastin could cost $100,000 a year.[3] Over the past year alone, the cost of cancer drugs has risen by 15.3% compared to 3.3% for other prescription medications.[4]

Healthy People 2010

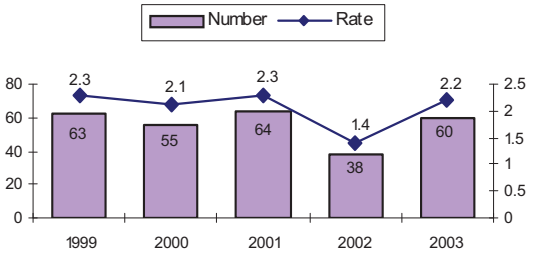
Objective 3-1: Reduce the cancer death rate

Overall Cancer Mortality Rates
Per 100,000 Population

Area	Rate*
National Baseline 1998	202.4
Target for 2010	159.9
Harris County 2003	190.0
State of Texas 2003	185.0
United States 2003	190.1

*Rate per 100,000 age-adjusted to the U.S. Standard Population.

Deaths from Cervical Cancer in Harris County



Rate per 100,000 population
Age adjusted to the 2000 standard population

Source: TDSHS

Public Health Actions

- Inform, educate, and empower people to develop techniques to prevent or to manage the symptoms of cancer, such as healthy living and cessation of smoking
- Mobilize partnerships with public health organizations, universities, medical centers, and other groups to address concerns such as racial disparities in cancer rates

For More Information

CDC: *www.cdc.gov/cancer*
Texas DSHS Cancer Registry: *www.dshs.state.tx.us/tcr/default.shtm*
Texas DSHS Breast and Cervical Cancer Control: *www.dshs.state.tx.us/bcccs/default.shtm*

[1]National Institute of Health. Fact Book, February 2005. Available at www.nhlbi.nih.gov/about/04fackbk.pdf.
[2]CDC. Screening to prevent cancer deaths. Available at www.cdc.gov. Accessed January 2007.
[3]Szabo, Liz. Prices soar for cancer drugs. *USA Today,* 10 July, 2006, sec. A:1. Available at http://www.usatoday.com. Accessed July 2006.
[4]CBS News. Cost of cancer drugs skyrocketing,12 July, 2006. Available at www.cbsnews.com. Accessed July 2006.

Diabetes

Testing blood glucose at home

Overview

Diabetes mellitus is characterized by persistent hyperglycemia or high blood sugar. It is a metabolic disease that requires medical diagnosis, treatment and lifestyle changes. The World Health Organization recognizes three main forms of diabetes: *type 1*, *type 2* and *type 3* or *gestational diabetes*, which occurs during pregnancy. These three "types" of diabetes are more accurately considered patterns of pancreatic failure rather than single diseases. Type 1 is due to autoimmune destruction of the insulin-producing cells, while type 2 and gestational diabetes are due to insulin resistance by tissues.[1]

The term 'diabetes' is from the Greek, meaning "passing through," or "siphon." This is a reference to one of diabetes' major symptoms: excessive urine production. In 1675, Thomas Willis added *mellitus* from the Latin word for honey because diabetics' urine becomes sweet.

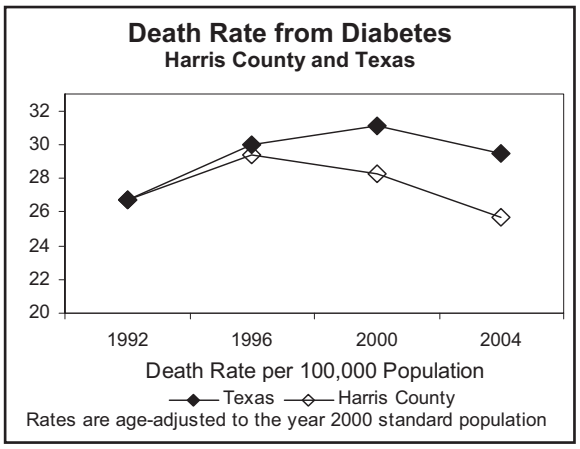
Since the first therapeutic use of insulin (1921), diabetes has been a treatable but chronic condition. Treatment has improved greatly over the years, but patients must be very diligent about maintaining appropriate blood-sugar levels. The main health risks are the long-term complications listed in the table to the right.

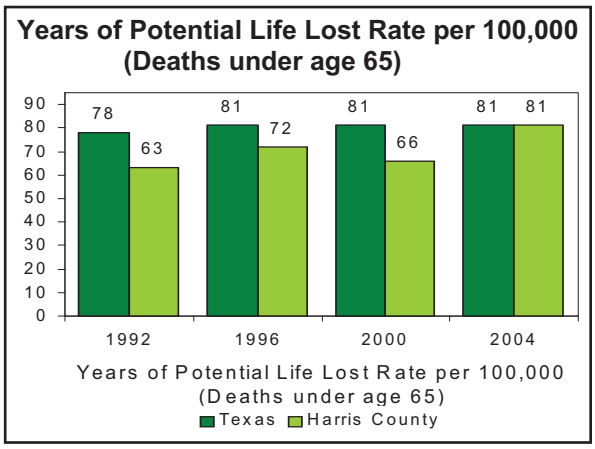
An estimated 17 million Americans have diabetes. The disease is the sixth leading cause of death in Texas. About one-third of cases remain undiagnosed. According to the 2005 Texas BRFSS, 7.3% of surveyed adults in the Houston-Baytown-Sugar Land MSA reported having ever been told by a physician that they have diabetes, lower than the 7.9% of Texas surveyed adults and 7.8% of U.S. adults.

Complications from Diabetes

Medical Condition	Impact
Heart Disease	Two to four times greater risk
Stroke	Two to four times greater risk
High Blood Pressure	60-65% of diabetic adults
Blindness	Leading cause in adults, age 20-74
Kidney Disease	Leading cause
Nervous System	60-70% of diabetic adults have damage
Amputations	Causes > 50% of lower limb amputations
Dental Disease	Greater frequency and severity in diabetics

Trends: Harris County 1992-2004

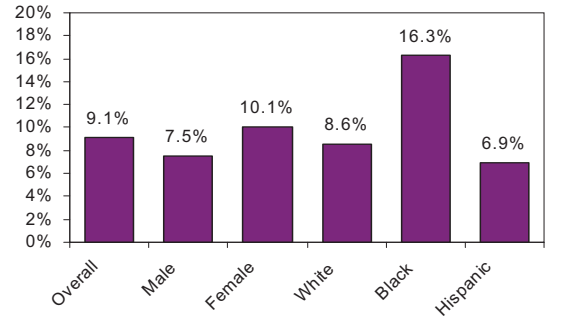




Source for charts: Bexar County Health Collaborative Assessment. Available at www.healthcollaborataive.net/assessment06/. Accessed October, 2006.

[1]Wikepedia. Available at www.wikipedia.com/wiki/Diabetes. Accessed December 12, 2006.

Population Differences



Percent of persons participating in the survey who have been told by a doctor they have diabetes. Excludes gestational diabetes.

Source: TDSHS, BRFSS survey

Economic Impact of Diabetes

In 2002, $132 billion was spent on diabetes in the U.S. Of that, $92 billion was spent on direct medical costs while $40 billion was attributed to lost productivity and disability payments.[1] Diabetes accounts for 88 million days of disability and costs $7.5 billion for permanent disability.[2] In Texas, diabetes expenses total $4 to $6 billion in annual medical costs.[3]

Nationally, 7-10% of diabetics are in their income producing age of life. In Texas, 17% of individuals affected by diabetes are between the ages of 18 to 65.[5] Diabetes also reduces the average lifespan by up to 15 years.[2]

The average annual health cost for a diabetic patient in 2002 was $13,243,[1] a five-fold increase over a healthy individual. Over a lifetime, diabetes costs $500,000 per person[4] and in 2002 led to 16.9 million days of hospitalization and 62.6 million outpatient doctor's visits.[1]

With over 175,000 reported diabetes patients in Harris County, $230 million is spent annually on diabetes care; however with many of the diabetes complications not credited to diabetes, the true economic effect is underestimated. Approximately 30,000 Texas children will have diabetes by 2025. Over their lifetimes, treatment for diabetes will cost Texas $15 billion dollars.[5]

Healthy People 2010

Objective 5-5: Reduce the diabetes death rate

Deaths From Diabetes Per 100,000 Population	
Area	**Rate**
National Baseline 1997	75
Target for 2010	45
Harris County 2004*	26
State of Texas 2004*	30
United States 2004	24

*Age adjusted to the 2000 standard population

Public Health Actions

- Monitor health and mortality of diabetics to identify and solve this community problem
- Inform people about the importance of healthy behaviors and lifestyle
- Educate diabetics and others through programs focusing on modest weight loss through increased physical activity
- Link people to needed health assessments and referrals for treatment. CDC recommends an approach called "opportunistic screening," which is a risk assessment conducted during a health care visit.

For More Information

Texas Diabetes Council:
www.dshs.state.tx.us/diabetes

CDC: *www.cdc.gov/diabetes*
www.cdc.gov/spanish

American Diabetes Association:
www.diabetes.org

National Library of Medicine:
www.nlm.nih.gov/medlineplus/diabetes.html

[1]American Diabetes Association (ADA) National Diabetes Fact Sheet, 2002. Available at http://www.diabetes.org/uedocuments/NationalDiabetesFactSheetRev.pdf. Accessed June 12, 2006.
[2]American Diabetes Association. Direct and Indirect Costs of Diabetes in the United States. Available at www.diabetes.org/diabetes-statistics/cost-of-diabetes-in-us.jsp. Accessed June 12, 2006.
[3]Warner DC, McCandless RR, De Nino LA, Cornell JE, Pugh JA, Marsh GM. Cost of Diabetes in Texas. *Diabetes Care.* 1992;19(12):1416-1419.
[4]Texas Pediatric Diabetes Research Advisory Committee. Pediatric diabetes research in Texas. December, 2002. Available at www.dshs.state.tx.us/diabetes/PDF/PRR4.pdf. Accessed June 12, 2006.
[5]Texas Diabetes Council. Texas Diabetes Fact Sheet 2005. Available at www.dshs.state.tx.us/diabetes/PDF/diabetesfacts.pdf. Accessed June 12, 2006.

Arthritis

Overview

According to the CDC, arthritis, a condition that results in joint pain, swelling, and stiffness, is the leading cause of disability in the U.S. adult population. The term arthritis includes over 100 different diseases and conditions that affect joints and the surrounding tissue. There are more than 100 different types of arthritis and the most common types are osteoarthritis and rheumatoid arthritis. Other arthritic diseases include gout, systemic lupus erythematosus and fibromyalgia.

The exact cause of most forms of arthritis is unknown. For osteoarthritis, the most common form of arthritis, symptoms begin with the breakdown of cartilage in the joints. As you age, you are more likely to develop symptoms of osteoarthritis. People who are more than ten pounds overweight have an increased risk of developing osteoarthritis. There is currently no cure for osteoarthritis and treatment focuses on relieving symptoms and maintaining or improving functions.

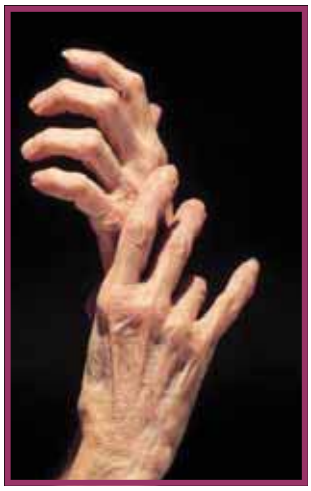
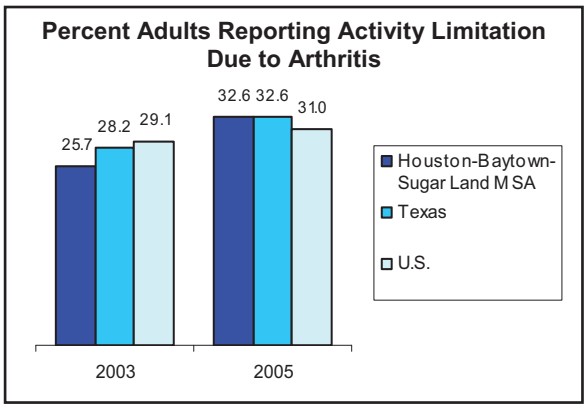


Photo: Used with permission, courtesy of ISIS Holistic Clinic www.isisboston.com

Trends: Houston/Harris County 2003-2005



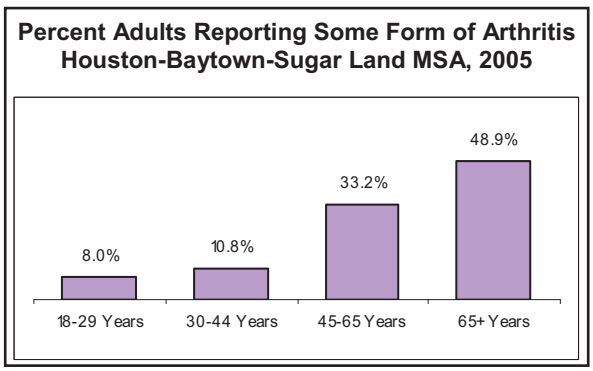
Source; TDSHS BRFSS

Despite the Healthy People 2010 objective of reducing the proportion of adults who experience activity limitations due to arthritis or joint symptoms, limitations due to arthritis are increasing. According to BRFSS data, the Houston MSA rate of persons reporting activity limitations due to arthritis or joint symptoms rose from 25.7% in 2003 to 32.6% in 2005. The state of Texas saw an increase from 28.2% 2003 to 31.1% in 2005. The 2003 CDC BRFSS estimated that 3.8 million people suffered from arthritis in Texas.

Population Differences

According to the 2005 BRFSS, in the Houston-Baytown-Sugar Land MSA, adult whites and blacks report higher rates of arthritis (26.8% and 22.3%, respectively) than Hispanics (9.0%). This pattern is also seen at the state and national levels.

Arthritis is more likely to be diagnosed as age increases. Nearly half of those over age 65 reported some form of arthritis, compared with only 8.0% for those aged 18-29 years.



Source: TDSHS BRFSS

Geographic Distribution

The BRFSS telephone survey, designed to track health conditions and risk behaviors, includes questions about arthritis in odd years. From 2003 to 2005, the percent of adults reporting some form of arthritis remained stable for both the Houston-Baytown-Sugarland MSA and Texas. In 2003, both areas reported a lower percent of adults with arthritis (25.7% for Houston MSA and 28.2% for Texas) when compared with the U.S. rate of 29.1% (U.S. data for 2005 not available).

To help prevent arthritis:

- ***Maintain a normal weight***
- ***Protect your joints from injury***
- ***Treat any infections that affect the joints***
- ***Avoid occupations and activities with overuse of joints, such as repetitive knee bending***

—CDC

Economic Impact of Arthritis

The CDC reports that the total costs attributable to arthritis and other rheumatic conditions in the United States in 2003 were approximately $128 billion. This equaled 1.2% of the 2003 U.S. gross domestic product. This figure includes $80.8 billion in direct medical expenditures and $47.0 billion in the indirect costs of lost earnings.

Total costs estimated by the CDC ranged by state from $226 million in the District of Columbia to $12.1 billion in California. Texas was estimated to have $8.6 billion in direct and indirect costs in 2003 related to arthritis and rheumatic conditions.

The CDC also reports that national medical costs attributable to these conditions grew by 24% between 1997 and 2003, an increase attributed to the increase in the number of people with arthritis and rheumatic conditions.

The CDC report notes that in 2003, the average annual cost per person ages 18 and older was estimated at $1,742 in direct medical costs and $1,590 in lost earnings.

Healthy People 2010

Objective 2-2: Reduce the proportion of adults with chronic joint symptoms who experience a limitation in activity due to arthritis

Adults with Activity Limited by Arthritis or Joint Symptoms

Area	Percent
National Baseline 1997	27
Target for 2010	21
Houston-Baytown-Sugar Land MSA 2005	33
State of Texas 2005	33
United States 2005	31

Public Health Actions

- Increase awareness of the use of physical activity to manage arthritis pain, ease arthritis symptoms, increase function, and prevent further physical disability
- Inform, educate, and empower people to develop techniques to address problems associated with chronic disease including the appropriate use of medications, communicating effectively with health professionals, and evaluating new treatments

The most common form of arthritis is osteoarthritis, which affects an estimated 21 million adults in the U.S. Other common arthritic conditions include gout, fibromyalgia and rheumatoid arthritis.

—CDC

For More Information

Centers for Disease Control and Prevention: *www.cdc.gov/arthritis/*

Texas Centers for Disease Control and Prevention: *www.cdc.gov/arthritis/Index.htm*

Texas Arthritis Program: *www.dshs.state.tx.us/arthritis/default.shtm*

Arthritis Foundation: *www.arthritis.org*

Asthma

Overview

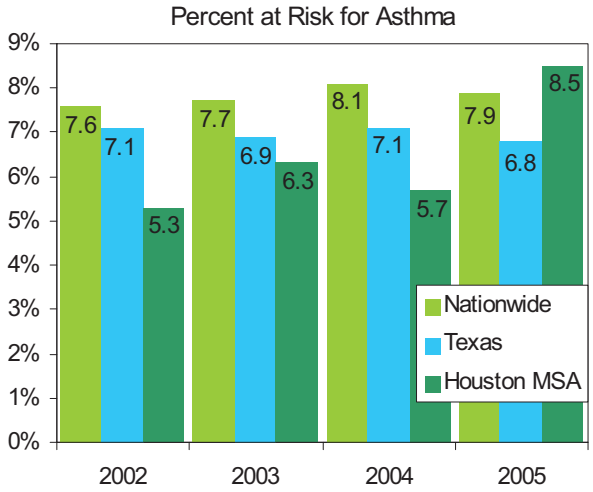
Asthma is a chronic (long-term) lung disease that affects both children and adults. When a person has asthma the airways, or inner tubes, that carry air in and out of the body are inflamed and swollen. This makes the airways very sensitive to any irritants or allergens, such as secondhand smoke, dust, furry pets, poor air quality or mold.

When the airways react to these unwanted substances, they get narrower, which causes episodes of wheezing, shortness of breath, and coughing. When symptoms are severe, the episode may be called an asthma attack.

The exact causes of asthma are unknown, but methods are available to treat and control the disease. The best ways to reduce the number of asthma attacks are to take medications as prescribed and avoid asthma triggers.

A telephone survey conducted by the American Lung Association estimated that over 85,000 children and 150,000 adults in Harris County have been diagnosed with asthma.[1]

Trends: Houston/Harris County 2002-2005

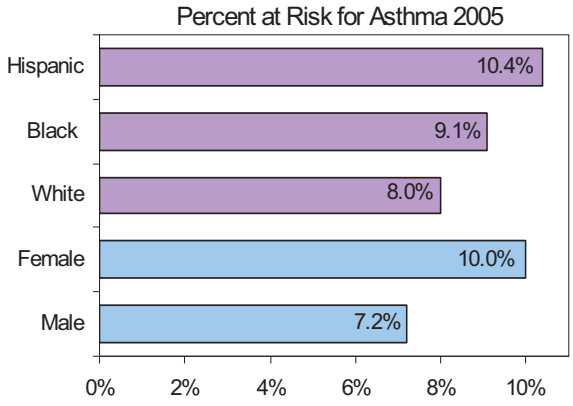


The TDSHS BRFSS telephone survey includes questions about the prevalence and severity of asthma. Participants are asked if they have ever been diagnosed with asthma, and if yes, they are asked if they still have asthma.

The percentage of adults who report current asthma locally has remained fairly constant, between 5.3% and 8.5% during years 2002 to 2005. From 2002 to 2004, Texas and the Houston MSA showed a lower percentage of adults who reported current asthma compared to the national percent. In 2005, the Houston MSA percentage was higher than the Texas or nationwide measure.

Population Differences

According to the 2005 BRFSS, in the Houston MSA, women are more likely than men to report current asthma (10% versus 7.2%). Blacks and Hispanics (9.1% and 10.4%) are more likely to report current asthma than whites (8%). At the state level, a similar pattern was observed—8.7% versus 4.9% for women and men, respectively; however, the overall rate for Hispanics (4.7%) is lower than the rates for blacks (8.7%) and whites (7.8%).



[1]American Lung Association. State of the air: 2004. New York, NY, 2004. Available at http://lungaction.org/reports/stateoftheair2004.html.

Geographic Distribution

Ozone is a common air pollutant in the Houston-Galveston area that can irritate the respiratory system. Adults and children with asthma or other respiratory conditions are especially sensitive to the damaging effects of ozone.

Over 80% of ozone warning days occur during the June–October period. Ozone warnings generally occur between 11 a.m. and 7 p.m. Ozone forms on warm, sunny afternoons when winds are light, a common condition in the Houston area. Ozone is the result of pollution from cars, trucks, industry and power plants.[3]

In the Houston/Galveston/Brazoria area, home to a large industrial complex, exposure to excessive ozone is a concern for the population, and in particular those with respiratory problems. In 2000, the local population exposed to 8-hour ozone exceedences was estimated at 4.6 million.[3]

Ozone in the upper atmosphere protects us from harmful ultraviolet radiation from the sun. Ozone formed at ground level, however, is a component of smog and can be harmful to health. Ozone is especially of concern to those with respiratory diseases such as asthma.

Economic Impact of Asthma

Direct medical costs and indirect costs due to asthma for Texans total more $1 billion annually. The average annual cost, per patient, is $4,900.[4] An asthma attack, however, can result in an emergency and/or critical care visit to the hospital, which can cost up to $46,000. In a few cases, medical bills generated by asthma can result in expenditures of $100,000 or more.[5]

A 2005 Health Costs Survey indicated that 44% of all people with asthma tried to reduce costs by skipping on doctor's visits and regular medication, increasing the risks of intense attacks requiring expensive emergency care.[6]

Further, asthma patients are often children. Productivity is lost for both the child and the caregiver, who must miss work. This results in a loss of income for days at a time.

Healthy People 2010

Objective 24-2: Reduce hospitalization for asthma

Hospitalization Rates per 10,000 People Ages 5-64
Adjusted to the 2000 standard population

Area	Rate
National Baseline 1998	12.5
Target for 2010	7.7
Harris County 2002	8.2
State of Texas 2002	8.8
United States 2002	17.0

Public Health Actions

- Monitor health status and disease prevalence to provide data for health planning to solve this community health problem
- Inform, educate, and empower people about asthma through publications, trainings, and other media
- Link people to needed personal health services through referrals

Asthma is the most common long-term disease of children. —CDC

For More Information

Centers for Disease Control: *www.cdc.gov/asthma/default.htm*
Facts about asthma in Spanish: *www.cdc.gov/asthma/es/faqs.htm*

TDSHS Center for Health Statistics: *www.dshs.state.tx.us/chronic/pdf/TAR.pdf*

American Lung Association: *www.lungusa.org*

National Asthma Education and Prevention Program: *www.nhlbi.nih.gov*

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[3]Texas Commission on Environmental Quality. New clean air rules proposed for DFW, Houston/Galveston/Brazoria area. November 21, 2006.
[4]Griffin RM. Lowering the cost of asthma treatment. Web MD feature, September 21, 2005.
[5]Cisternas M. Assessing the economic burden of asthma. *Journal of Allergy and Clinical Immunology*.2003;111:1212-1218.
[6]Urban Institute and University of Maryland, prepared for the Robert Woods Johnson Foundation. Uninsured Americans with chronic health conditions: key findings from the National Health Interview Survey, May 2005. Available at www.urban.org/uploadedpdf/411161_ uninsured_ameri cans.pdf.

Communicable Diseases

Infectious diseases remain major causes of illness, disability and death. Moreover, new infectious agents and diseases are being detected, and some diseases considered under control have reemerged in recent years. In addition, antimicrobial resistance is evolving rapidly in a variety of hospital- and community-acquired infections.

Between 1980 and 1992, the number of deaths from infectious diseases rose 58 percent in the United States. Even when human immunodeficiency virus (HIV)-associated diagnoses are removed, deaths from infectious diseases still increased 22 percent during this period. Considered as a group, three infectious diseases—pneumonia, influenza, and HIV infection—constituted the fifth leading cause of death in the United States in 1997.

Infectious diseases also must be considered in a global context. Increases in international travel, importation of foods, inappropriate use of antibiotics on humans and animals, and environmental changes multiply the potential for worldwide epidemics of all types of infectious diseases. International cooperation and collaboration on disease surveillance, response, research, and training are essential to prevent or control these epidemics. Actions taken to improve health in one country affect the health of people worldwide.

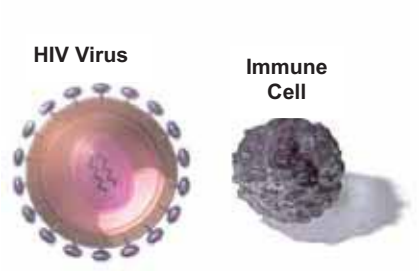
Healthy People 2010

HIV/AIDS

Overview

AIDS (Acquired Immunodeficiency Syndrome) was first reported in the United States in 1981 and has since become a major world wide epidemic. AIDS is caused by HIV (Human Immunodeficiency Virus), which attacks cells of the immune system and destroys the body's ability to fight off infections.

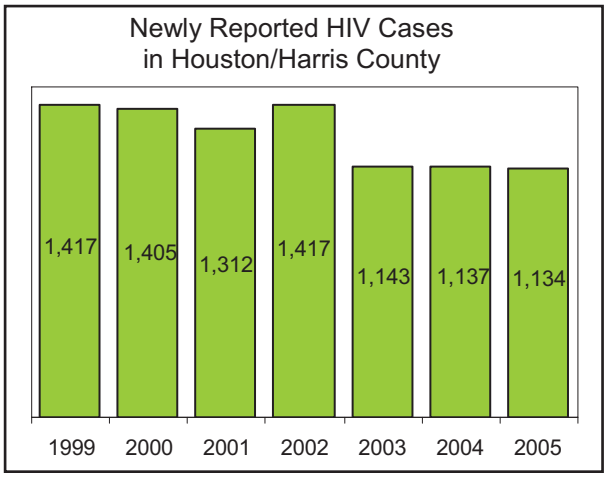
In the beginning of the epidemic, people died within about 10 years after becoming infected with HIV. In 1996, the introduction of HAART (highly active antiretroviral therapy), commonly known as triple cocktail, has significantly slowed the progression of HIV to AIDS and from AIDS to death.



The HIV virus can gradually destroy the immune system.
Photo courtesy of National Institutes of Health

HIV infection is most often spread by direct contact with blood, semen or vaginal fluid during unprotected sex with an infected partner. It is also spread among injection drug users by sharing needles contaminated with HIV. In addition, an infected mother can pass HIV to her baby during pregnancy or delivery, as well as through breast feeding.

Trends: Houston/Harris County 1999-2005



Source: TDSHS, HDHHS case files

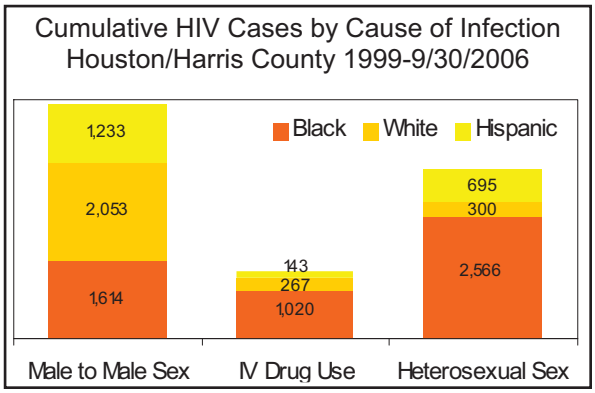
While AIDS has been a reportable condition in Texas since the 1980s, HIV infection did not become reportable until 1999. Reported new HIV cases in Houston/Harris County have fallen from 1,417 in 1999 to 1,134 in 2005. Reported AIDS cases and deaths have decreased from the high of 1,715 new cases and 1,412 deaths in 1992 to 860 cases and 251 deaths in 2005.

According to HDHHS, approximately 28,000 persons live with HIV or AIDS in Harris County. The CDC estimates that one quarter of HIV/AIDS infections are undiagnosed; therefore close to 7,000 persons in Harris County may be infected with HIV but do not know it.

Population Differences

As of January 2006 in the City of Houston, HDHHS reported that 51% of persons living with HIV/AIDS are black, 28% are white and 20% are Hispanic. Of all the persons living with HIV/AIDS, 26% are female, but among the black cases, 39% are female. Black women account for 20% of all persons living with HIV/AIDS.

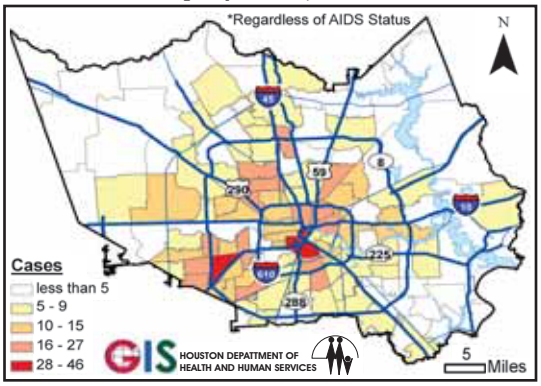
In the U.S., in 2004, AIDS was the leading cause of death among African American women between the ages of 21-44.



Source: HDHHS and TDSHS case files

Geographic Distribution

Houston/Harris County New HIV Diagnoses By Zip Code, 2005



Source: HDHHS case files

Economic Impact of HIV/AIDS

The lifetime cost of new HIV infections in the U.S. diagnosed in the span of one year, 2002, is estimated at $36.4 billion. This includes $6.7 billion in direct medical costs and $29.7 billion in productivity losses.[1] HIV/AIDS patients require professional attention, years of medication and a special diet. Income is lost when the individual is no longer strong enough to work. HIV/AIDS can reduce the average lifespan by 20 years.

HIV/AIDS is a highly mutable retrovirus, and treatment requires HAART. The average cost of HAART ranges from $13,000 to $17,000 per year.[2] Once diagnosed with AIDS, costs of therapy can exceed $30,000 per year.[2] These costs do not include consultations, laboratory tests, and hospitalizations due to complications. Over a lifetime, estimated treatment costs range from $150,000 to $200,000.[3]

A majority of the cost is covered by Medicare and Medicaid, which spent $8.5 billion nationally on AIDS care and drugs in 2005.[4] The remainder is paid by patients, private insurance, and nonprofit agencies. Local government administers and sets up programs to check for, treat, and prevent AIDS expansion. A report by the CDC suggests that for every dollar spent on HIV/AIDS counseling, testing, and referrals, approximately $20 are saved in future costs.[5]

Healthy People 2010

Objective 13-1: Reduce AIDS among adolescents and adults

Rate of New AIDS Cases per 100,000

Area	Rate
National Baseline 1998	19.5
Target for 2010	1.0
Houston 2000	36.7
State of Texas 2004	14.7
United States 2004	15.0

Public Health Actions

- Develop policies and plans that support individual and community healthy efforts such as incorporating HIV testing as a routine part of care in traditional medical settings
- Enforce laws and regulations that protect health and ensure safety and prevent new infections by working with people diagnosed with HIV and their partners
- Inform, educate and empower people about health issues to further decrease mother-to-child HIV transmission
- Provide care where otherwise not available for low-income persons with HIV/AIDS

For More Information

AIDS Infonet: *www.aidsinfonet.org*

AIDSinfo: *www.aidsmap.org*

CDC: *www.cdc.gov/hiv*

TDSHS: *www.dshs.state.tx.us/hivstd*

HCPHES: *www.hcphes.org*

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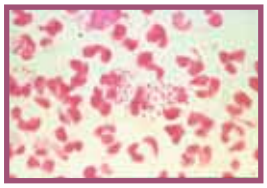
[1]Hutchinson AB, et al. The economic burden of HIV in the United States in the era of highly active antiretroviral therapy: evidence of continuing racial and ethnic differences. *J Acquir Immune Defic Syndr.* 2006;43(4).
[2]Pinkerton SD and Holtgrave RD. Economic Impact of Delaying or Preventing AIDS in persons with HIV. *Am J Managed Care*. 1999; 5; 289-298.
[3]Holtgrave RD and Pinkerton, SD. Updates of cost of illness and quality of life estimates for use in economic evaluations of HIV prevention programs. *J Acquir Immune Defic Syndr Hum Retrovirol*. 1997; Sep 1;16(1):54-62.
[4]*HIV/AIDS Policy Fact Sheet. Medicaid and HIV/AIDS*. Kaiser Family Foundation. September 2005.
[5]Holtgrave DR, Valdiserri RO, Gerber AR, Hinman AR. Human immunodeficiency virus counseling, testing, referral, and partner notification services: a cost-benefit analysis. *Arch Intern Med* .1993;153:1225–30.

Sexually Transmitted Diseases



Gram stain of discharge with gonorrhea bacteria
Photo courtesy of CDC

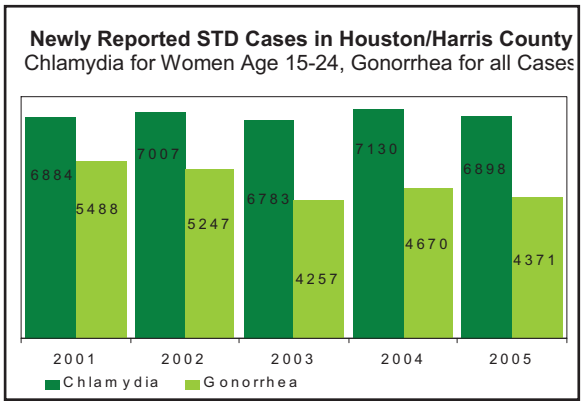
Overview-Sexually Transmitted Diseases

The occurrence of sexually transmitted diseases (STDs) such as Chlamydia, gonorrhea and syphilis is an indicator of unprotected sexual contact, a primary risk factor for HIV infection. The CDC reports that inflammations from STDs can facilitate the transmission of HIV.

STDs can cause infertility, adverse pregnancy outcomes, pelvic inflammatory disease and cancer. The CDC estimates that 19 million new infections occur each year. However, many cases of notifiable STDs are undiagnosed and some highly prevalent infections such as Human Papilloma Virus (HPV) are not reported.

Any sexually active person can be infected with gonorrhea, Chlamydia and/or syphilis. These diseases are spread through vaginal, anal, or oral sex. Some STDs can be passed from mother to child during pregnancy or birth.

Trends: Chlamydia and Gonorrhea in Houston/Harris County 2000-2005



Rates per 100,000 population for **Chlamydia, age 15-24**
2001=2,756; 2002=2,760, 2003=2,656; 2004=2,787, 2005=2,658
Rates per 100,000 population for **gonorrhea, all cases**
2001=159, 2002=150, 2003=119, 2004=129, 2005=118
Source: TDSHS and HDHHS case files

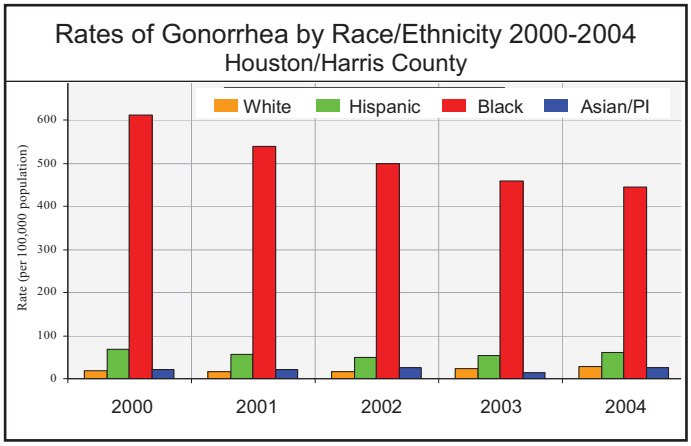
TDSHS reported 11,164 cases of Chlamydia in Harris County in 2005 with 6,898 of these cases among women in the 15-24 year-old age group. The number of total cases was down from 12,056 in 2004. The 2005 infection rate in Harris County for all age groups was 301 cases per 100,000 population, compared to the state rate of 311 and the 2004 national rate of 320.

The CDC reports that although national rates of gonorrhea infection have decreased almost 75% since the 1970's, it is still the second most reported notifiable condition. In Harris County, 4,371 cases of gonorrhea were reported to TDSHS in 2005, a rate of 118 per 100,000. The 2005 state rate was 113, and the 2004 national rate was 114 per 100,000.

Population Differences — Chlamydia and Gonorrhea

Chlamydia is the most commonly reported infectious disease in the United States, and gonorrhea is second most common. The highest reported rates of infection locally are among sexually active teenagers and young adults, and the poor and poorly educated. Gonorrhea rates for blacks are much higher than for the other races represented in Houston/Harris County, while blacks and Hispanics show similar rates of Chlamydia.[1]

Chlamydia is detected more often in women than in men, while gonorrhea rates are similar between the two sexes.



Source: TDSHS and HDHHS case files

Geographic Distribution

Chlamydia and Gonorrhea

Source for map: HDHHS and TDSHS case files

Population Differences, cont.

From 1991-2001, blacks, both men and women, had the highest rate of gonorrhea infection, followed by Hispanics and whites. For example, in 2001, 1,466 black women were diagnosed with gonorrhea, compared to 354 and 109 Hispanic and white women, respectively.[1]

Many more women are diagnosed with Chlamydia than men—9,492 versus 1,800 cases in 2001. Blacks and Hispanics show similar rates of infection from 1991-2001. Whites are diagnosed with the fewest number of cases. For example, in 2000, 2,773 black women and 2,774 Hispanic women were diagnosed with Chlamydia, compared to 456 white women.[1]

Healthy People 2010

Objective 25-2: Reduce new cases of gonorrhea

Rate of New Gonorrhea Cases per 100,000	
Area	**Rate**
National Baseline 1997	123
Target for 2010	19
Harris County 2005	118
State of Texas 2005	113
United States 2004	114

Economic Impact of Chlamydia and Gonorrhea

Acute care for Chlamydia, including the cost of exam, diagnosis and treatment ranged from $23 to $109. The disease often shows no physical symptoms, and these patients, along with 1-5% of treated individuals, can progress to secondary diseases, such as epididymitis in men and pelvic inflammatory disease (PID) in women. This infection is the leading cause of infertility in women. Treating epididymitis costs from $144 to $684 while treating PID costs from $1,060 to $3,626.[2]

The average cost of screening, diagnostic visits, and treatment for Gonorrhea is $69. Gonorrhea can also lead to epididymitis or PID.[2]

Genital Human Papillomavirus (HPV)

Genital HPV infection is a sexually transmitted disease caused by any of a group of more than 100 different strains of virus known as HPV. Most people who contract HPV will not have symptoms, and will clear the infection on their own. Some strains of the virus can cause abnormal pap smears as well as cancer of the cervix or other parts of the genital-rectal area. A new vaccine is recommended for girls to prevent HPV infection.[3]

Other STDs

Genital herpes is common in the United States, affecting roughly one out of five adolescents and adults. Most have no symptoms, but occasionally complications can occur. There is no cure, but treatment is available for symptoms.[3]

Among other STDs are bacterial vaginosis and trichomoniasis, which can be cured with antibiotics.[3]

[1]Houston Department of Health and Human Services. Epidemiology Reports, 2001.
[2]Chesson, HW, JM Blandford, GL Thomas, G Tao, and KL Irwin. The estimated direct medical cost of sexually transmitted diseases among American youth, 2000. *Perspective on Sexual and Reproductive Health.* January 2004;36.
[3]CDC Website. STD Fact Sheets. Available at http://www.cdc.gov/.

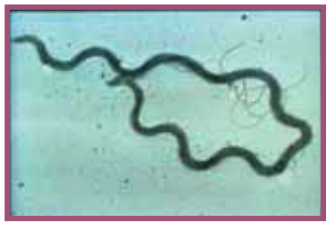
Sexually Transmitted Diseases, cont.

Overview-Syphilis

Syphilis is caused by the bacteria, *Treponema palidum*, that moves throughout the body and reproduces once a day. Once diagnosed, it can easily be treated with penicillin or other antibiotics.

Syphilis has been shown to facilitate the transmission of HIV and to increase the likelihood of poor pregnancy outcomes (i.e. fetal death, infants born with physical and mental developmental disabilities).

According to the National Institute of Allergy and Infectious Diseases, syphilis is sometimes called "the great imitator" because it has so many possible symptoms, and its symptoms are similar to those of many other diseases.

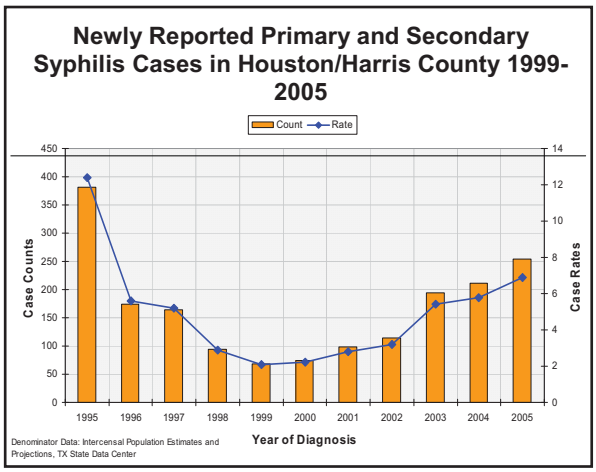


Syphilis causing bacteria
Treponema palidum
Photo courtesy of CDC

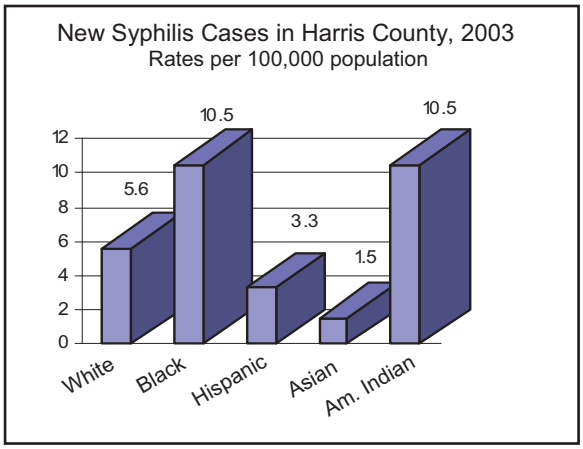
Trends: Syphilis in Houston/Harris County 1993-2005

The national rate of syphilis infections decreased during the 1990s. However, according to CDC it has increased recently. Houston/Harris County follows this national trend. In 2005, 252 cases were reported to TDSHS, more than a 100% increase in cases since 2002 and greater than 300% more than the number of cases in 2000.

The infection rate for 2005 in Harris County was 6.8 cases per 100,000 population, compared to the state rate of 3.8 and the 2004 U.S. rate of 2.7 per 100,000 persons.



Source: TDSHS and HDHHS case files



Source: CDC

Population Differences—Syphilis

The largest proportion of primary and secondary syphilis cases occurs among males. In 2003, the rate of new syphilis cases was 10/100,000 among Harris County males compared to 4.2/100,000 for women.

Blacks, by far, have more diagnosed cases of syphilis than either Hispanics or whites. This trend has held throughout the 1990s and into this decade.

Since 2002, Men Who Have Sex With Men (MSM) have accounted for at least 50% of primary and secondary syphilis cases in Houston/Harris County.

[1]Houston Department of Health and Human Services. Epidemiology Report. Available at http://www.houstontx.gov/health/Epidemiology/Epidemiology_epi_year.pdf

Geographic Distribution

Syphilis

Source: TDSHS and HDHHS case files

Syphilis Increasing

The CDC reports that nationwide, overall diagnoses of primary and secondary syphilis reached a low in 2000 and then increased from 2000-2004. The increase occurred primarily among men. During 2000-2004, one study found 60% of new cases were diagnosed among MSM.[1]

Having syphilis once does not prevent a person from getting it again.
Syphilis can infect the baby of a woman during her pregnancy.—CDC

Economic Impact of Syphilis

Sexually transmitted disease poses a substantial economic burden for patients. In 2000, the direct costs due to STDs was projected at $15.5 billion. These costs include treating the disease as well as treating secondary infections.

The cost of treating an adult with syphilis can be less than $20. The cost of treating an infant with congenital syphilis can reach as high as $120,000. If syphilis is left untreated and progresses into the latent phase, treatment will cost substantially higher. The average cost per case of syphilis, therefore, is $444.[2]

Healthy People 2010

Objective 25: Eliminate sustained domestic transmission of primary and secondary syphilis

Rate of Syphilis Infection per 100,000

Area	Rate
National Baseline 1997	3.2
Target for 2010	0.2
Harris County 2005	6.8
State of Texas 2005	3.8
United States 2004	2.7

Public Health Actions

- Inform and educate people about the risks of unprotected sex and the adverse outcomes associated with STDs
- Provide care where otherwise not available for low-income persons including education, counseling and testing, case management and clinical services for STD/HIV
- Develop policies and plans and mobilize community partnerships to support community health efforts through programs such as the National Plan to Eliminate Syphilis to enhance public health services, prioritize and target interventions to populations at greatest risk, and improve accountability of prevention efforts

For More Information

City of Houston HIV/STD: *www.houstontx.gov/health/HIV-STD/index.html*

TDSHS: *www.dshs.state.tx.us/hivstd*

CDC: *www.cdc.gov/std*

National Institute of Allergy and Infectious Diseases: *www.niaid.nih.gov/publications/stds.htm*

American Social Health Association: *www.ashastd.org*

Harris County Public Health and Environmental Services: *www.hcphes.org*

[1]Weinstock H, Heffelfinger J, Peterman T, Berman S, Fenton K. Increases in primary and secondary syphilis in men who have sex with men United States 2000-2004. Abstract #WP-069. Quoted in the CDC publication *Syphilis Surveillance Report,* December 2005.
[2]Chesson HW, Blandford JM, Thomas GL, Tao G, and Irwin, KL. The estimated direct medical cost of sexually transmitted diseases among American Youth, 2000. *Perspective on Sexual and Reproductive Health*. January,2004:36.

Tuberculosis

Overview

Tuberculosis (TB) is a bacterial disease primarily affecting the lungs. TB can take one of two forms—an active version (TB disease) or one that lays dormant within the body (latent TB infection or LTBI). Only patients with active disease can spread TB to others. Transmission occurs through the air when an infected individual with TB disease of the lungs or throat coughs, sneezes, laughs or sings. Transmission usually takes place only after prolonged close association with someone who has the disease. They require treatment with multiple drugs for six months or longer to cure, preferably by directly observed therapy (DOT).

Those with LTBI can develop active disease later in life. Individuals at higher risk for this include young children, patients with HIV, diabetics and cancer patients and those recently infected with TB. Progression to active disease can usually be prevented by taking a single drug for 4-9 months.

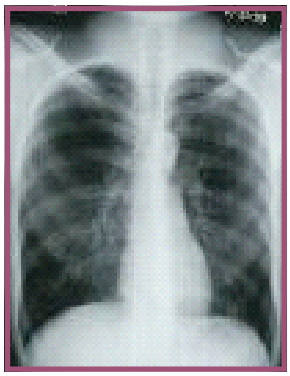
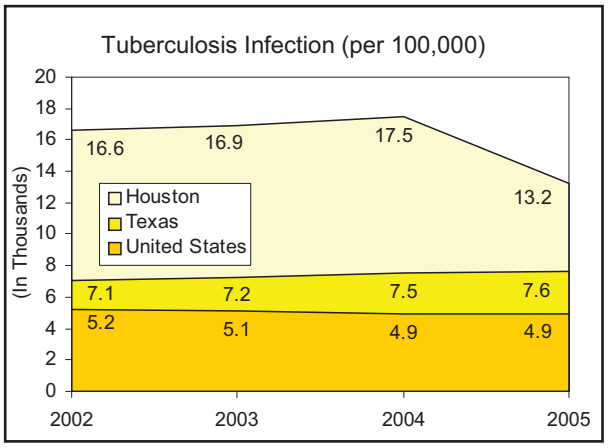


Photo courtesy of National Institutes of Health

TB was once the leading cause of death in the United States, but use of antibiotics greatly reduced the rates of infection and mortality. There has been a drastic increase, however, in strains of TB resistant to multiple forms of antibiotics, both in the U.S. and in other parts of the world. This results from misuse of the drugs, either inappropriately prescribed medication or patient failure to complete the treatment.

Trends: Houston/Harris County 2002-2005



According to TDSHS, 472 new cases of TB were diagnosed in Harris County in 2004. Most of these cases, 341, were in the City of Houston. The rate of TB infection within Houston is cause for concern. While rate of infection decreased from 2004 to 2005 (17.5 to 13.9 per 100,000 respectively), the rate is still more than twice the national rate of infection.

For the areas of Harris County outside the City of Houston, the infection rate is lower—8.2 per 100,000 persons in 2004 and 6.8 in 2005—half that of the City of Houston.

Population Differences

The rate of TB infection among blacks within Houston sharply decreased from 2004 to 2005, according to TDSHS and HDHHS records. This is in contrast to the national rate of infection for blacks, which has held constant around 11%. Despite this decrease, blacks continue to show a disproportionately high rate of infection. Other groups known to be at a higher risk are children, homeless persons, and prison inmates.

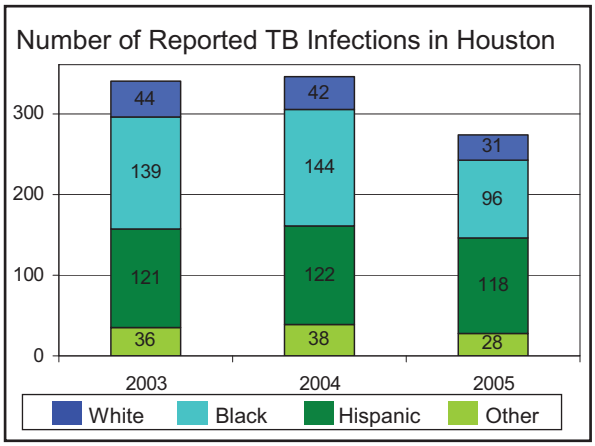
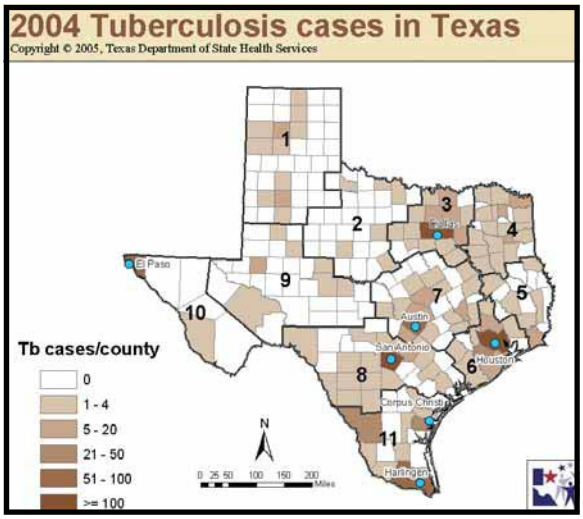


Chart Source: TDSHS and HDHHS case files

Geographic Distribution



Source: TDSHS

Nearly one-third of the global population is infected with TB. More than 90% of TB cases and deaths occur in the developing world; 75% of these cases are adults aged 15-54.[1] In the U.S. and locally, the TB rate is much higher among those who are foreign-born.[2]

Economic Impact of Tuberculosis

Tuberculosis has a substantial economic impact at the national level. Studies estimate the national cost of tuberculosis from $700 million to $1 billion per year in direct medical costs, including costs of inpatient care, outpatient care, screening, contact investigations, preventive therapy and surveillance investigations.[3]

At the individual level, tuberculosis treatment costs approximately $2,000.[4] However, if the patient has developed multi-drug resistant tuberculosis, the costs can up to 100 times greater, approximately $250,000 per patient.[5,6] In addition, the World Health Organization estimates the average TB patient loses three to four months of work and twenty to thirty percent of their income. Should the patient die from the disease, their family would lose on average 15 years of income from their premature death.[6]

Healthy People 2010

Objective 14-11: Reduce tuberculosis

Tuberculosis Rates
New Cases per 100,000

Area	Rate
National Baseline 1998	7
Target for 2010	1
Harris County including Houston 2005	10
State of Texas 2005	7
United States 2005	5

Public Health Actions

- Assure the provision of healthcare where otherwise unavailable by monitoring cases of TB and providing supervision of medication treatment
- Diagnose and investigate the problems and hazards of TB in the community
- Monitor TB rates and cases in Houston/ Harris County
- Educate those with TB or at risk of TB about needed health care

For More Information

CDC National Center for HIV, STD, and TB Prevention, Division of Tuberculosis Elimination: *www.cdc.gov/nchstp/tb*
TB Education and Training Resources: *www.findtbresources.org/scripts/index.cfm*
TDSHS: *www.TDSHS.state.tx.us/idcu/disease/tb/*
Heartland National TB Center: *www.heartlandntbc.org/*
International Union Against Tuberculosis and Lung Disease: *www.tbrieder.org/*
Harris County Public Health and Environmental Services: *www.hcphes.org*

[1]Ahlburg DA. *The economic impacts of tuberculosis*. World Health Organization, 2000.
[2]CDC; TDSHS and HDHHS case files.
[3]Brown RE, Miller B, and Taylor WR. Health-care expenditures for tuberculosis in the United States. *Archives of Internal Medicine.* 1995;155.
[4]2006 Basics: Global Health Campaign. *Combating the Disease of Poverty, Results*. Available at www.results.org/website/article.asp?id=1996. Accessed July 28, 2006.
[5]World Health Organization. *Tuberculosis.* WHO Fact Sheet No.104. Geneva, 1998a.
[6]Sawert H, Kongsin S, Payanandana V, et al. Costs and benefits of improving tuberculosis control: the case of Thailand. *Social Science and Medicine,* 1997; 44:1805–1816.

Vaccine Preventable Diseases

Overview

There are two reasons why people should receive immunizations: to protect themselves and to protect people around them. In the Houston/Harris County area, occurrences of once-common diseases such as measles, mumps and tetanus are at or near record lows due to the availability of safe and effective vaccines. Introduced in 1995, the use of the vaccine for chicken pox is still relatively new; therefore occurrences of chicken pox persist.

Within the past five years, however, reported cases of pertussis have increased. Pertussis, or whooping cough, is an infectious bacterial disease that can lead to complications such as pneumonia, seizures and death. In 2005, 36% of pertussis cases in Harris County were reported in infants under age one.

Seniors also benefit from recommended vaccinations, such as pneumonia and influenza. Influenza is a contagious viral disease that may cause a sudden onset of fever, chills, muscle aches, sore throat and headache, and can lead to severe pneumonia. Influenza/pneumonia is the 9th most common cause of death in Houston/Harris County.

While vaccine preventable diseases have decreased, the viruses and bacteria that cause these diseases still exist. Americans no longer worry about polio, diphtheria, and other killer diseases of the past, but they do exist in other parts of the world. Therefore, all recommended vaccinations are needed for good health.

Trends: Houston/Harris County 2001-2005

Most vaccine preventable diseases are rarely seen in Houston/Harris County. However, two diseases that once were common still infect dozens or even hundreds of local residents. Chicken pox, or varicella, has remained at a level between 913 to 1450 cases since 2001. As this relatively new vaccine is gradually introduced to a larger percentage of the population, the number of infections is likely to decrease, just as the cases of measles and mumps have.

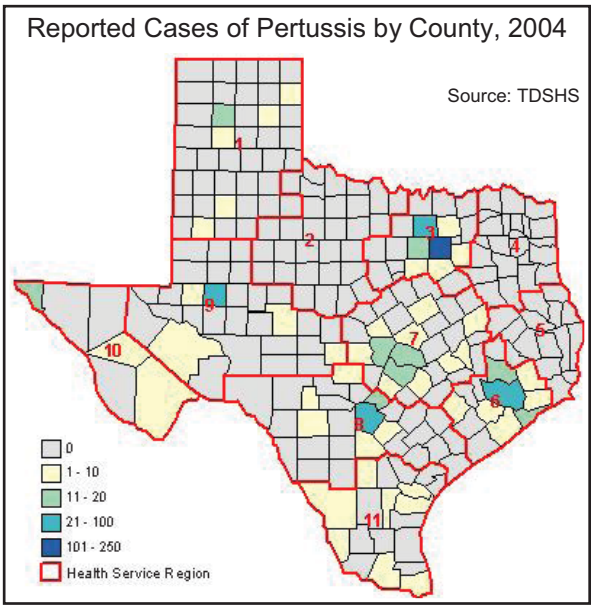
Since 2001, however, reported cases of pertussis in Houston/Harris County have increased from 52 in 2001 to 127 in 2005, up 144%. While this increase is in part due to improved diagnostic techniques in recent years, many cases are never diagnosed, thus contributing to the spread of the disease. The increase in pertussis cases underscores the importance of timely childhood immunizations.

Number of Reported Vaccine-Preventable Disease Cases and (Rate per 100,000) Houston/Harris County, 2001-2005

	2001	2002	2003	2004	2005
Chicken Pox	966 (27.5)	913 (25.5)	964 (26.5)	1450 (39.4)	975 (26.1)
Measles	0	0	0	0	<5
Rubella	0	0	0	0	0
Mumps	<5*	<5	<5	<5	<5
Pertussis	52 (1.5)	73 (2.0)	41 (1.1)	89 (2.4)	127 (3.4)
Tetanus	0	0	0	0	0

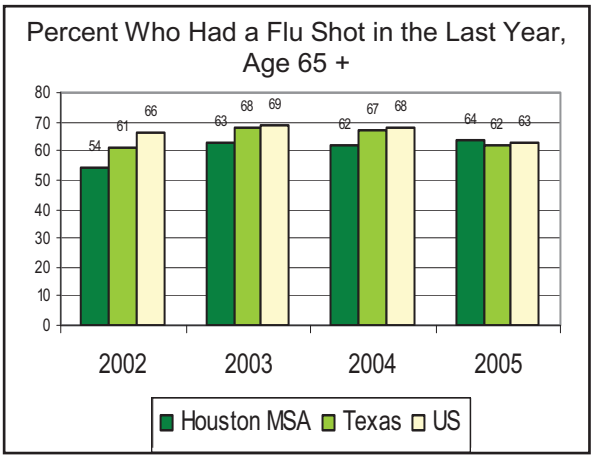
Source: HCPHES and HDHHS Epidemiology Case Files
*Data for totals less than five is not released due to the possibility of individual identification

Geographic Distribution



Population Differences

CDC reports that rates among ethnic groups for immunizations did not vary significantly.



Source:TDSHS BRFSS

Economic Impact of Vaccine Preventable Diseases

The CDC National Immunization Program reported that the seven routine vaccinations given to children born in one year would prevent 14 million cases of disease and 33,500 deaths. When comparing the costs of these diseases to the cost of vaccines to prevent them, $10 billion per year was saved. When additional costs such as lost productivity are included, the savings exceed $40 billion in the U.S.

Healthy People 2010 Objective

Objective 14-1k: Reduce or eliminate indigenous cases of vaccine-preventable varicella (chicken pox) in persons under 18 years of age

Cases of Varicella (Chicken Pox) in Children Under Age 18

Area	Number of Cases
National Baseline 1998	4 million
Target for 2010	400,000
Houston/Harris County 2003	964
State of Texas 2003	5,465
United States 2005	400,000

Public Health Actions

- Monitor health status to identify and solve community health through surveillance of cases and monitoring of immunization rates
- Assure the provision of healthcare when otherwise unavailable by providing immunizations to low-income persons
- Mobilize community partnerships and action to identify and solve health problems, with participation in community-wide efforts to increase awareness and immunization rates

For More Information

Texas DSHS Infectious Disease Control Unit: *www.dshs.state.tx.us/idcu/health/vaccine_preventable_diseases*

CDC National Immunization Program: *www.cdc.gov/nip/*

Immunization Action Coalition: *www.vaccineinformation.org*

Children's Disease Prevention Foundation: *www.childrensdiseasespreventions.org/home.asp*

World Health Organization: *www.who.int/immunization/en*

Meningitis

Photo courtesy of CDC

Overview

The CDC describes meningitis as an inflammation of the membranes that cover the brain and the spinal cord, usually caused by a viral, bacterial or fungal infection. Viral meningitis, also known as aseptic meningitis, is the most common type of meningitis. It is diagnosed by a history of characteristic symptoms and examination findings, and when a bacterial source is not found. During 2005, 345 cases of aseptic meningitis were reported in the City of Houston. This can be compared to the next most frequently diagnosed type, fungal meningitis, with 29 cases diagnosed in Houston in 2005.

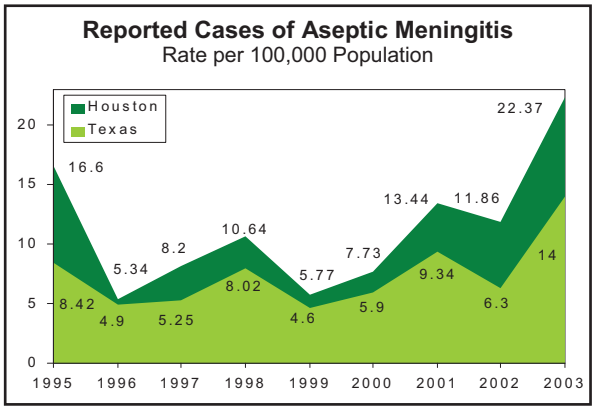
Viral meningitis is usually less severe and resolves without treatment, while bacterial meningitis can be quite severe, resulting in hearing loss, learning disability, brain damage or even death.

Transmission of many of the viruses and bacteria that cause meningitis occurs through direct contact with an infected person's fluids, such as those released during coughing or sneezing. This usually happens when a healthy person comes into contact with the infected person or touches a contaminated surface and then touches their eyes, nose or mouth.

According to the CDC, about 90% of all viral meningitis cases are caused by enteroviruses, which reproduce in the infected person's intestine and can be found in their stool. These viruses are thought to be spread among small children who are not yet toilet trained.

If an outbreak of bacterial meningitis occurs, people who are close contacts of the infected person should take antibiotics to prevent the spread of disease.

Trends: Houston/Texas 1995-2003



Source: TDSHS and HDHHS case files

Years with a high rate of aseptic meningitis infection in Houston correspond to years of high rates in Texas, suggesting that the causes of infection are shared. Each year, however, Houston had a higher rate than Texas.

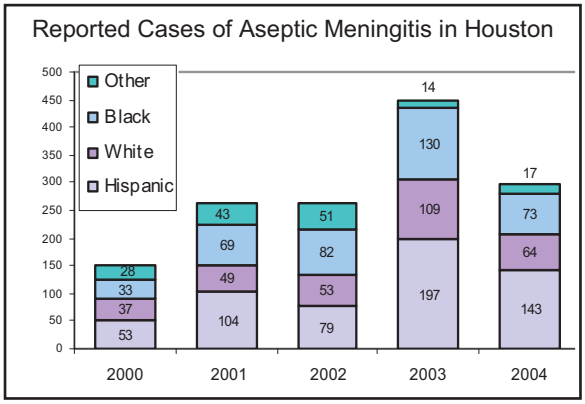
The 50-60% higher rate of meningitis infection for Houston compared to Texas could reflect either a greater risk of disease associated with a large urban area or a variation in reporting systems.

Rates per 100,000 vary greatly from year to year. Rates in 2003 were much higher for both Houston and Texas compared to other years.

Population Differences

The highest risk of aseptic meningitis is in children less than one year of age. Their immature immune system puts them at more than 100-fold greater risk compared with persons with a mature immune system. Among the school age population, there is much variation from year to year. Some years the risk is high among elementary aged children, other years it is not.

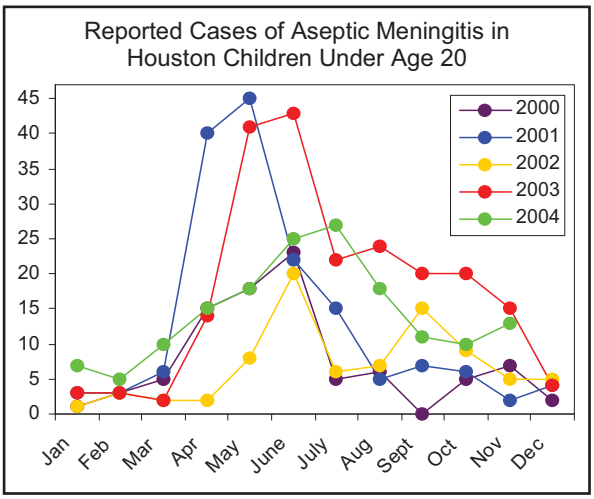
Divided by ethnic groups, Hispanics have the highest rate of infection, followed by blacks, whites, and Asians. Across gender lines, men have a higher rate of infection than women.



Source: TDSHS and HDHHS case files

Seasonal Distribution

Cases of aseptic meningitis in Houston peak in warmer months. Most years, this peak comes in May or June, but each year had its own pattern.



Source: HDHHS case files

Economic Impact of Meningitis

The severity and economic burden of meningitis depends on the type of infection. For patients with the less serious viral meningitis, the average cost is approximately $450 for outpatient care and $5000 for inpatient care. These reflect the costs of physician visits, emergency room visits, hospital admissions, diagnostic scans, and medication, depending on the necessary course of treatment. The patient will also bear the indirect costs of five to seven days of missed work and lost income due to restricted activity.[1]

Patients with the more severe bacterial meningitis must seek immediate attention and usually require hospitalization. The average hospital stay is nine days. The direct medical costs incurred average $20,000 to $30,000.[2]

Fortunately, vaccines are available to protect against many strains of bacterial meningitis. MPSV4 (Menomune) and MCV4 (MenactraT) protect against two of the three most common types of meningitis in the U.S.[3] The costs of vaccination vary between $70 and $120. Many universities subsidize up to two-thirds of the cost of the vaccine for their students.

Healthy People 2010

Objective 14-4: Reduce bacterial meningitis in young children

Rate of Bacterial Meningitis in Children 1-23 Months of Age (per 100,000)

Area	Rate
National Baseline 1998	13.0
Target for 2010	8.6
Houston 2005	13.3*
State of Texas 2005	7.6
United States	N/A

*Houston had only 13 cases in this age group in 2005.

Public Health Actions

- Inform, educate and empower people about health issues such as the importance of frequent hand washing, especially among those caring for infants and toddlers; and encourage use of the meningitis vaccine to reduce the number of at-risk individuals
- Diagnose and investigate health problems in the community in order to respond quickly to clusters of outbreaks and identify sources of infection

Pneumococcal vaccinations were approved in 2000 to prevent meningitis and other invasive diseases caused by this bacterium.

For More Information

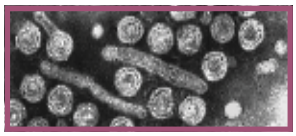
CDC Aseptic Meningitis: *www.cdc.gov/ncidod/*

CDC Bacterial Meningitis: *www.cdc.gov/ncidod/DBMD/diseaseinfo/meningococcal_g.htm*

TDSHS: *www.dshs.state.tx.us/idcu/disease/meningitis*

[1]Parasuraman TV, Frenia K, Romero J. Enteroviral meningitis. Cost of illness and considerations for the economic evaluation of potential therapies. *Pharmacoeconomics.* 2000;19:3-12.
[2]Caro JJ, Getsios D, O'Brien J. Managing meningococcal disease in the United States: hospital case characteristics and costs by age. *Value in Health.* 2006;9:236.
[3]Centers for Disease Control and Prevention. Meningococcal disease. Available at www.cdc.gov/ncidod/dbmd/diseaseinfo/meningococcal_g.htm #Can%20meningitis%20be%20treated. Accessed July 28, 2006.

Hepatitis B and C



Hepatitis B Virus
Photo courtesy: www. virology.net

Overview

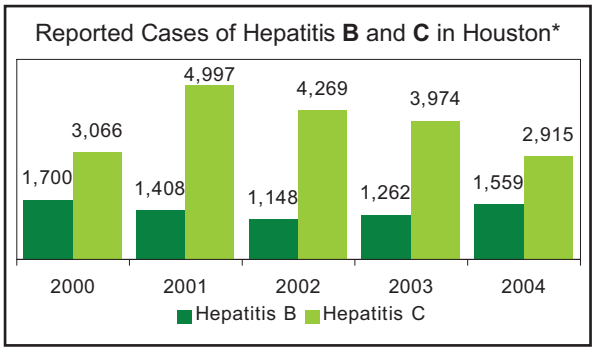
Hepatitis means inflammation of the liver and can be caused by drugs, toxic substances, and several infectious agents including different viruses labeled hepatitis A, B, C, D or E. Hepatitis B and C viruses are transmitted by blood and blood-derived body fluids. (The hepatitis A and E viruses are transmitted through the fecal-oral route.) Hepatitis B and C can cause fatigue, vomiting, diarrhea, abdominal pain, jaundice, dark urine and light-colored stool, and can eventually lead to liver cancer, cirrhosis of the liver and possibly death. Prevention and treatment for each virus type varies.

Hepatitis B and C are more common in Houston, with 709 and 1511 cases respectively in 2005, compared to 24 cases of Hepatitis A. Hepatitis B is a potentially serious infection, but in most cases, the immune system can overcome infection. Infected individuals may become chronic carriers of the virus, potentially infecting others.

Hepatitis C virus is often called the "silent epidemic" because approximately 80 percent of infected people do not clear the infection, and therefore become chronic carriers. According to the CDC, persons who inject street drugs with shared needles or are otherwise exposed to blood from infected persons are at risk of getting infected. An infection may also be passed from mother to child during birth.

In its early stages, the infection is usually mild. It is often not recognized until chronic stages when liver disease has occurred. Hepatitis C is the leading indication for liver transplant.

Trends: Houston/Harris County 2000-2004



Rate per 100,000 population for **Hepatitis B**
Year 2000=87.0; 2001=72.1; 2002=58.8; 2003=64.6; 2004=79.8
Rate per 100,000 population for **Hepatitis C**
Year 2000=156.3; 2001=252.5; 2002=213.2; 2003=188.8; 2004: 144.8

For hepatitis B, from 2000 to 2004, 7,077 cases were reported in the City of Houston. During the years 2003 and 2004, there was an upward trend in the number of HBV cases reported compared to the previous year (2002).

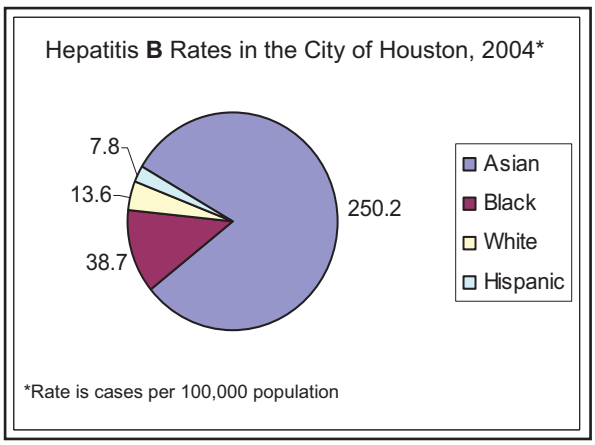
For hepatitis C, 19,041 new cases were reported in Houston in 2000-2004. Since the peak in 2001, both the number of reported cases and the rates of hepatitis C have declined steadily.

Nationally, the CDC reports that new hepatitis B infections have declined from an average of 260,000 per year in the 1980s to about 60,000 in 2004, largely due to routine hepatitis B vaccinations.

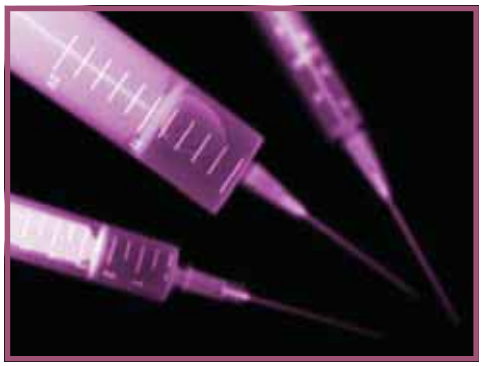
Population Differences

For hepatitis B, males (77.9 cases per 100,000 population) have a higher rate than females (65.0/100,000). Racial differences are illustrated in the chart to the right. Asians (250.2/100,000) had the highest reported rate in 2004, followed by blacks (38.7/100,000).

For hepatitis C, TDSHS and HDHHS case files for 2004 show that the rate of reported cases is also higher among males (231.7/100,000) than females (145.2/100,000). Hepatitis C average rates, however, are highest among blacks, followed by whites, Asians and Hispanics.



*Source for charts: TDSHS and HDHHS case files



Hepatitis C can be spread by shared needles.

Economic Impact of Hepatitis

Hepatitis B is the most common serious liver infection in the world. The most effective prevention for hepatitis B is the hepatitis B vaccine, given in a series of three vaccinations. The vaccine usually costs between $75 and $165. For children, insurance companies usually cover the cost of the vaccines. The cost of hepatitis B vaccine for adults is more expensive, usually a combination vaccine of hepatitis A and B.[1] Costs for a patient with chronic hepatitis B average $40,512 in a two year period for health care services and medication, according to a study of New England health care databases.[2]

There is no vaccine against hepatitis C. An infected individual can be treated with interferon, possibly in combination with ribavirin.[3] A combination therapy is usually used if interferon alone does not provide good results. The length of treatment varies on the person's genotype and response to the drugs, ranging from 6 months to 48 weeks.

A one-time 48-week treatment of interferon and ribavirin, including the cost of drugs, medical consultation fees, management of complications and diagnostic tests, is estimated to cost $10,000. If left untreated, hepatitis C could progress to liver cirrhosis, leading to costs for treatment estimated at $34,000 to $53,000 over the patient's lifetime.[4]

Beginning in 2000, all newly diagnosed, acute or chronic cases of hepatitis in Texas became reportable.

Healthy People 2010

Objective 14-22c: Achieve and maintain effective coverage levels for the hepatitis B vaccine

Percent of Children Receiving 3 Doses of the Hepatitis B Antigen*

Area	Percent
National Baseline 1998	87
Target for 2010	100
Houston 2005	91
State of Texas 2005	92
United States 2005	93

*Universal vaccination of infants at birth was first recommended by the CDC in 1991.

Public Health Actions

- Monitor health status and disease prevalence to provide data for health planning to solve this community health problem
- Inform, educate, and empower people about hepatitis B and C through publications, trainings, and other media
- Empower people to prevent and treat hepatitis through contacts with persons served directly by public health, such as those with HIV/AIDS
- Assure provision of health care when otherwise unavailable by providing immunizations to low-income residents and referring others to local medical providers

For More Information

CDC: *www.cdc.gov/ncidod/diseases/hepatitis*

TDSHS: *www.dshs.state.tx.us/idcu/disease/hepatitis*

Hepatitis Information Network: *www.hepnet.com*

Hepatitis Foundation International: *www.hepfi.org*

[1]Lavanchy, D. Hepatitis B viral epidemiology, disease burden, treatment, and current and emerging prevention and control measures. *Journal of Viral Hepatitis.* 2004;11(2):97-107.
[2]Hepatitis B Foundation. *Hepatitis B vaccine*. Available www.hepb.org/hepb/vaccine_information.htm. Accessed July 25, 2006.
[3]Centers for Disease Control and Prevention. *Viral hepatitis C fact sheet*. Available www.cdc.gov/ncidod/diseases/hepatitis/c/fact.htm. Accessed July 25, 2006.
[4]Wong J. *Hepatitis C: achieving maximum results putting combination therapy for HCV into practice*. Digestive Disease Annual Meeting, 1999.

Enteric Diseases

Raw oysters can be a source of food-borne illness
Photo courtesy of www.umassd.edu

Overview

Enteric diseases, such as salmonellosis and *Escherichia coli* (*E. coli*) infection, affect the gastrointestinal system and are usually associated with contaminated food or poor hygiene. Common symptoms of enteric diseases include diarrhea and vomiting, although in some cases, more serious illness or death may occur. According to the CDC, an estimated 76-million cases of foodborne illness and 5,000 associated deaths occur in the United States each year.

Most cases of enteric disease are relatively mild and go unreported, while other cases can cause severe problems. One infection that can lead to serious results is *Vibrio vulnificus*, a bacterial organism that thrives in warm coastal waters, such as Galveston Bay and the Gulf of Mexico, and is commonly found in fish and shellfish. Though rare, food-borne *Vibrio* infection in humans can cause life-threatening complications.

Trends: Houston/Harris County 2001-2004

Number of Reported* Enteric Disease Cases and (Rate per 100,000)
Houston/Harris County

	2001	2002	2003	2004
Salmonella	385 (10.97)	447 (12.50)	465 (12.80)	522 (14.17)
Shigella	269 (7.67)	368 (10.29)	272 (7.49)	352 (9.55)
Campylobactor	73 (2.08)	93 (2.60)	88 (2.42)	139 (3.77)
E.coli 0157:H7	10 (0.29)	<5*	<5	<5
Hepatitis A	171 (4.87)	151 (4.22)	107 (2.95)	92 (2.50)
Vibrio (Food-borne)	<5*	9 (0.25)	8 (0.22)	9 (0.24)

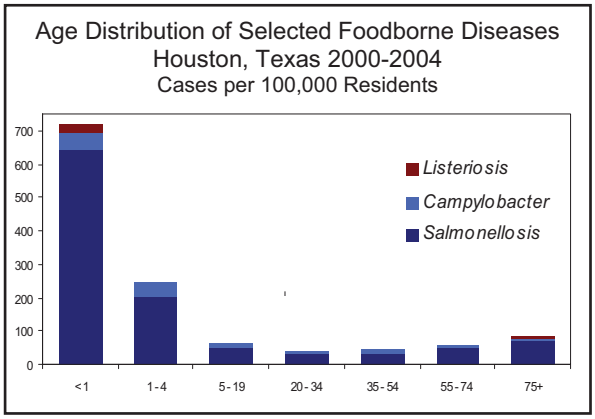
Note: Healthy People 2010 targets for many of these diseases can be seen on the following page
Sources: HCPHES Epidemiology Case Files
HDHHS Office of Surveillance and Public Health Preparedness
*Data for totals less than five are not released due to the possibility of individual identification

Population Differences

Males in Houston have a higher rate (174.8 per 100,000) of food-borne illness than females (158.5 per 100,000).

Among reported cases, those who did not identify with a specific race (other) had the highest case rate (919.0 per 100,000) followed by Hispanics (167.6 per 100,000), blacks (102.1 per 100,000), whites (88.7 per 100,000) and Asians (74.0 per 100,000).

Young children are also at greater risk of food-borne illness than adults. The chart shows the differences in the rate of four enteric diseases according to age group.



Source: TDSHS data, analysis by HDHHS Office of Surveillance and Public Health Preparedness

Seasonal Differences

During 2000-2004, the City of Houston reported that August had the highest food-borne disease rate (case rate: 22.5 cases per 100,000 population), followed by September (20.2 per 100,000), July (18.7 per 100,000), October (15.0 per 100,000), June (14.3 per 100,000), November (13.0 per 100,000) and December (12.5 per 100,000). March had the lowest food-borne disease rate (8.3 cases per 100,000).

Economic Impact of Enteric Diseases

Major causes of the food-borne illnesses are enteric diseases such as salmonellosis. Food-borne salmonellosis in the United States is estimated to cost $1 billion a year.[1] The most common effects of enteric disease are diarrhea and vomiting, which can lead to lost productivity and absenteeism. However, in some cases, such as infection by Vibrio vulnificus, which can be found in raw oysters, it can lead to life-threatening complications.

Healthy People 2010

Objective 10-1d: Reduction in infections caused by key food-borne pathogens (Salmonella species)

Food-borne Pathogen Salmonella Species	
Area	**Cases Per 100,000**
National Baseline 1997	13.70
Target for 2010	6.80
Harris County 2005	15.00
State of Texas 2005	13.70
United States 2005	14.60

Other 2010 Target Rates	
Food-borne Pathogen	**Cases Per 100,000**
Campylobacter	12.30
E. coli O157:H7	1.00
Listeria monocytogenes	0.25

Public Health Actions

- Educate people about enteric diseases and how to prevent them
- Monitor disease incidence through methods such as pulsed field gel electrophoresis and eFORS (electronic foodborne disease reporting system)
- Investigate health problems in the community through collaborative efforts between health agencies
- Enforce laws and regulations by licensing and inspecting facilities that serve food

For More Information

Centers for Disease Control and Prevention: *www.cdc.gov/foodborne; www.cdc.gov/ncidod/diseases/food/index.htm*

[1]Centers for Disease Control and Prevention. *Food-borne illness.* Available at www.cdc.gov/ncidod/dbmd/diseaseinfo/foodborneinfections_t.htm. Accessed 18 July 2006.

West Nile Virus

Photo courtesy of CDC

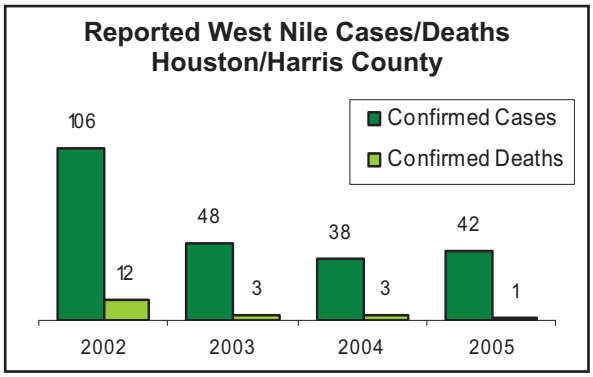
Overview

West Nile virus (WNV) is a mosquito-borne disease. WNV affects the central nervous system, ranging from asymptomatic to a very severe neurological disease. According to the CDC, approximately 80% of people infected with WNV will not show any symptoms at all. The remaining 20% of infected people will have symptoms including fever, headache, and body aches, nausea, vomiting, and sometimes swollen lymph glands or a skin rash on the chest, stomach or back.

About one in 150 people infected with WNV will develop a severe illness. The severe symptoms can include high fever, headache, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, vision loss, numbness and paralysis. These symptoms may last several weeks, and neurological effects may be permanent.

WNV is closely related to Japanese encephalitis virus. The virus is transmitted between birds by mosquito vectors. Some mosquito species bite both humans and birds and are able to transmit the virus to humans.

Trends: Rates and Cases in Houston and Texas 2002-2004



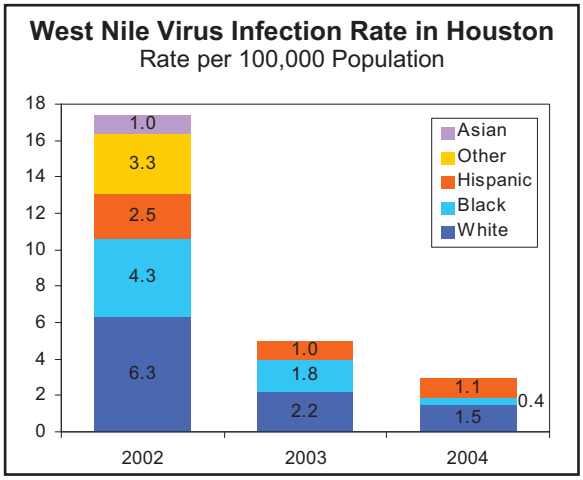
Source: HDHHS and TDSHS case files

The first human case of West Nile in Houston/Harris County occurred in 2002, and began with a severe form of the disease that caused 12 deaths that year. Since then the number of new cases of the disease in humans has decreased dramatically. This may be a reflection of increased public awareness about prevention of West Nile virus, enhanced mosquito control techniques, and better immunity within the population. The death rate for those who contract WNV has also decreased; one death was recorded in Houston/Harris County in 2005.

Population Differences

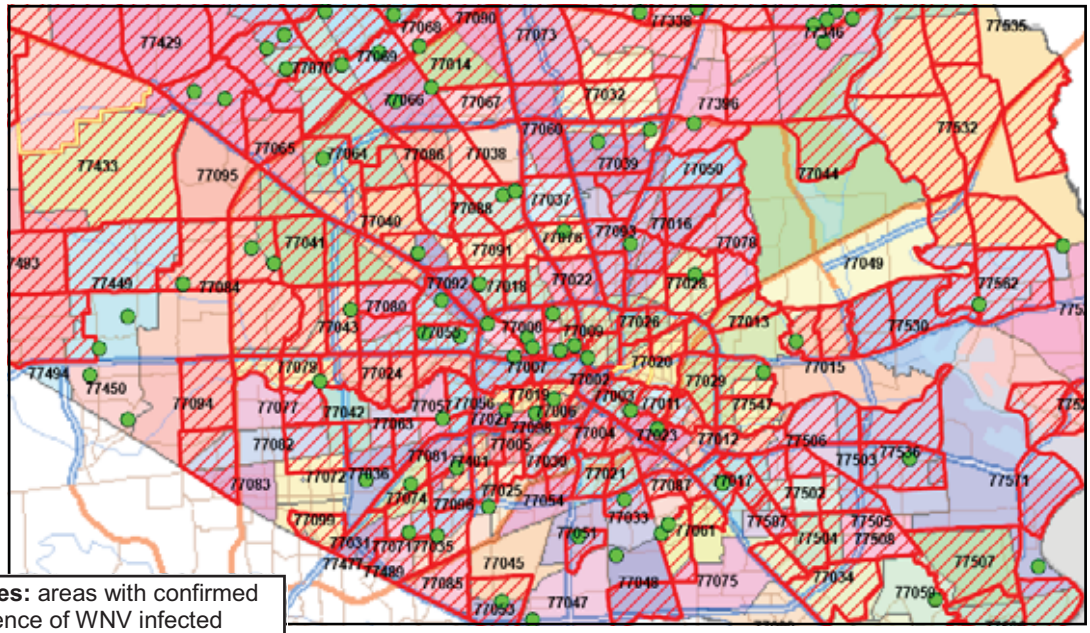
While a person of any age can be infected by West Nile, the incidence rates are higher among the elderly. An older person, perhaps with a less active immune system, is more likely to develop a severe West Nile infection than children and adults under the age of 55.

No particular racial group is more or less susceptible to a West Nile infection. Differences in infection rates between racial groups reflect differences in behavioral tendencies (exposure to mosquito bites) as well as propensities to seek medical attention. Many people believe they have the flu and do not seek medical help.



Source: HDHHS and TDSHS case files

WNV Geographic Distribution in Houston/Harris County by Zip Code, 2006



Stripes: areas with confirmed incidence of WNV infected mosquitoes
Green dots: dead birds testing positive for WNV

Map Source: HCPHES Mosquito Control Division. Available at http://www.hcphes.org/hcmosquitoctrl/dbInfoActivityMaps/dbdefault.html. Accessed November, 2006.

Use of repellant containing DEET is a key to protection from West Nile Virus

Economic Impact of West Nile Virus

The costs of West Nile virus peaked in 2002, when the estimated cost of related healthcare reached $140 million, and 4,156 cases with 284 fatalities were reported nationwide. Costs would have been higher if prevention and mosquito control were included.[1] Reported cases of West Nile have been steadily decreasing since that time. In Texas 439 cases were reported in 2003, decreasing to 125 in 2005.[2]

West Nile symptoms can last from a few days to several weeks. Headaches and fever can be mitigated with medical care and medication.[4] The most severe cases of West Nile result in encephalitis or meningitis. Medical costs for monitoring and possible complications in these cases can reach several thousand dollars.[3]

Public Health Actions

- Educate the public about the importance of using DEET-containing insect repellent
- Monitor health status and infection by use of geographical information system (GIS) software along with mosquito and avian data
- Educate physicians about mosquito-borne diseases and encourage reporting of fevers, rashes, encephalitis and other symptoms
- Provide mosquito spraying in high risk areas
- Inform the community about eliminating mosquito breeding grounds

For More Information

DEET Information at the EPA National Pesticide Information Center: *www.ace.orst.edu/info/nptn*

Centers for Disease Control: *www.cdc.gov/ncidod/dvbid/westnile*

City of Houston: *www.houstontx.gov/health/Epidemiology/westnile.html*

HCPHES: *www.hcphes.org*

National Biological Information Infrastructure: *www.westnilevirus.nbii.gov*

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[1]Zohrabian A, Meltzer M, Ratard R. West Nile virus economic impact, Louisiana, 2002. *Emerging Infectious Diseases.* 2004;10:1736-1744.
[2]Texas Department of State Health Services.
[3]Centers for Disease Control and Prevention. *West Nile Fact Sheet.* Available at www.cdc.gov/ncidod/dvbid/westnile/wnv_factsheet.htm. Accessed November 30, 2006.

Zoonotic Diseases, Animal Control

Overview

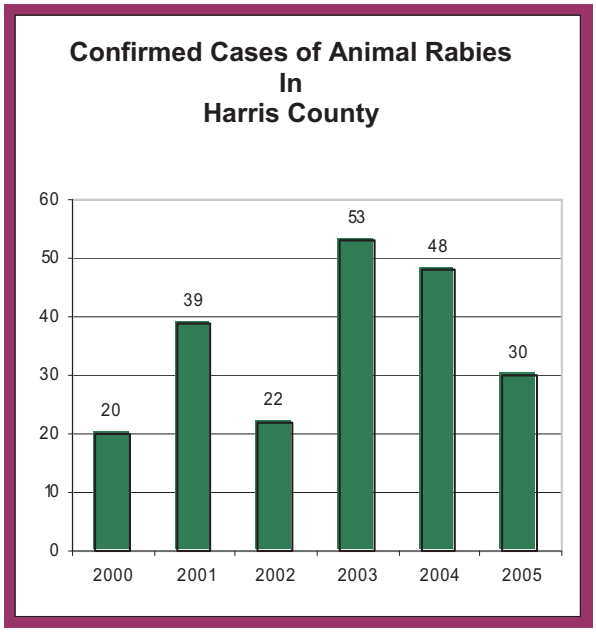
Rabies is a preventable disease transmitted to humans from the bite of rabid animals. Most reported rabies cases occur in wild animals such as bats, skunks and raccoons. Due to the widespread use of rabies vaccination, coupled with effective animal control measures, rabies in dogs and cats is rare. In addition, the availability of post-exposure prophylaxis, which is nearly 100% successful, has resulted in a decrease in the number of human cases in the U.S. to just one or two per year.

Prior to 2006, no locally acquired case of rabies had been diagnosed among humans in Houston/Harris County in several decades. Unfortunately, in 2006, a local 16-year-old was fatally bitten by a rabid bat.

Fatalities usually result from persons not being aware of their exposure. No dog or cat has tested positive for the rabies virus in the Houston/Harris County area in over twenty years. Local cases of rabies are primarily seen in bats.

During the evacuation prior to Hurricane Rita in 2005, HDHHS' Bureau of Animal Control and Regulation removed nearly 100 adoptable sheltered animals from the Houston area to Denver, Colorado.

Trends: Houston/Harris County 2002-2005



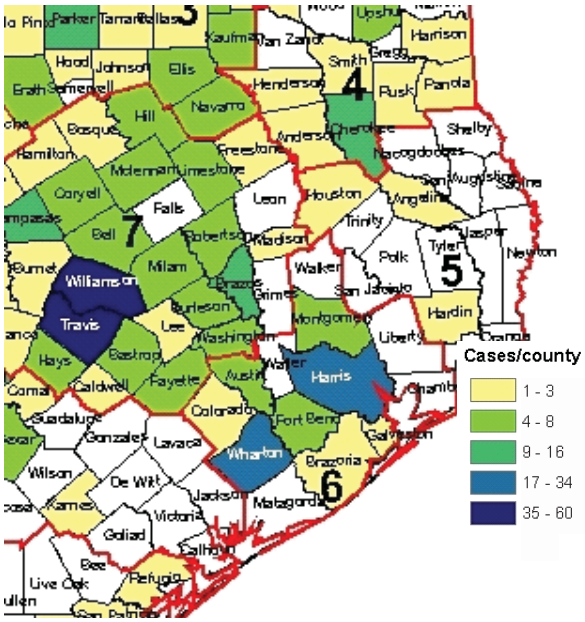
Source: TDSHS

In 2005, HDHHS investigated 2,875 bite cases, defined as bites or aggressive behavior by animals of all types. Children under age 10 were victims in 547 (19%) with infants under one year of age victimized in 142 (5%) cases. Unconfined animals were involved in 65% of the total. Bite cases resulting in injury totaled 2,284. Dog bites caused 1,850 (81%) of these injuries.

HCPHES completed investigations of 1,301 bite cases within its jurisdiction in 2005, which includes unincorporated Harris County and four municipalities within the county. HCPHES uses a different definition for a bite case: a bite or scratch that breaks the skin, causes bleeding and is known or suspected to be caused by an animal. Seventy-five percent of bite cases involved dogs and 20% were bites from cats. Many bite cases were caused by unconfined animals (56%), and 73% of biting animals had identifiable owners. Twenty-three percent of bite injuries were to children aged ten and under.

Geographic Distribution

Confirmed Cases of Rabies in Southeast Texas, 2005



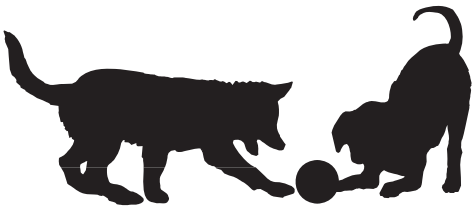
Source: TDSHS

Economic Impact of Zoonotic Diseases

Zoonotic diseases can take many forms including rabies, human brucellosis, echinococcosis, leishmaniasis and food borne infections. Foodborne parasitic infections are estimated to cost the United States more than $400 million in medical bills and indirect losses due to missed days at work.[1]

The most well known zoonotic disease is rabies, which is estimated to cost approximately $300 million a year nationally.[2] Although the number of human cases is low, this large cost is the result of post-exposure treatments and pet vaccinations. Post-exposure treatments, which usually include rabies vaccine and rabies immune globulin, are especially expensive, costing approximately $1,500 for the treatment series.[3]

Depending on the type of zoonotic disease, the costs vary. Typical costs would include lost income, hospitalization, doctor's consultation, and medication. In some cases, the cost of lost livestock must also be taken into account.



Fix 'em, tag 'em, love 'em

Public Health Actions

- Enforce laws and regulations that protect health and ensure safety when animal complaints are involved
- Diagnose and investigate health problems and health hazards in the community such as testing dead animals for rabies or confining aggressive animals to determine if they have rabies
- Inform, educate and empower people about health issues related to animals
- Mobilize community partnerships and action to provide animal spay and neuter services and adoptions

For More Information

HDHHS Bureau of Animal Regulation and Control (BARC): *www.houstontx.gov/health/BARC/index.html*

HCPHES: *www.hcphes.org*

Humane Society of the United States: *www.hsus.org*

Texas A&M University, Small Animal Clinic: *www.cvm.tamu.edu/vsam/*

American Society for the Prevention of Cruelty to Animals: *www.aspca.org*

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[1]Murrell, Kd. Economic losses resulting from food-borne parasitic zoonoses. *Southeast Asian J Trop Med Public Health.* 1991;22: 377-381.
[2]Kreindal SM, McGuill M, Meltzer M, Rupprecht C, DeMaria A. The cost of rabies postexposure prophylaxis: one state's experience. *Public Health Rep* 1998;113:247–51.
[3]Noah DL, Smith G, Gotthardt JC, Krebs JW, Green D, Childs JE. Mass human exposure to rabies in New Hampshire: exposure, treatment, and cost. *Am J Public Health.* 1996;86:1149–51.

Health Care Access

Prehospital emergency medical services (EMS), poison control centers (PCCs), and hospital-based emergency departments (EDs) are the most commonly sought sources of emergency care. Each year, they provide prompt first-contact care for millions of people regardless of their socioeconomic status, age, or special need.

For many severely ill and injured persons, these settings are a crucial link in the chain of survival between the onset of symptoms and treatment in a hospital. For persons whose health problems are less pressing but who believe they need urgent medical attention, emergency services are a gateway to additional health care.

Within the current health care delivery system, EDs are the only institutional providers required by Federal law to evaluate anyone seeking care. They are expected at least to stabilize the most severely ill and injured patients, and they provide walk-in care for vast numbers of persons who face financial or other barriers to receiving care elsewhere.

Healthy People 2010

Preventable Hospitalizations

Ben Taub Hospital

Overview

Preventable hospitalizations are conditions for which hospitalizations, complications, or more severe disease could potentially be prevented by good outpatient care and/or early interventions.[1] If a patient with a preventable condition had been seen and treated as needed in an outpatient clinic, then that patient would likely not have required hospitalization. Chronic conditions such as congestive heart failure and diabetes are particularly likely to lead to hospitalization if not cared for adequately in an outpatient setting.

The Patient Quality Indicators (PQI) from the Agency of Healthcare Research and Quality are measures that can be used with hospital inpatient discharge data to identify preventable conditions for adults.[2]

Even though PQIs are obtained from hospital discharge data, they represent the quality of health care system outside the hospitals. The PQIs provide a means to identify unmet community health care needs, and to compare performance of local health care system across communities. These measures point to potential areas for improvement of care; they do not serve as a definitive quality measure of the health care system in Harris County.

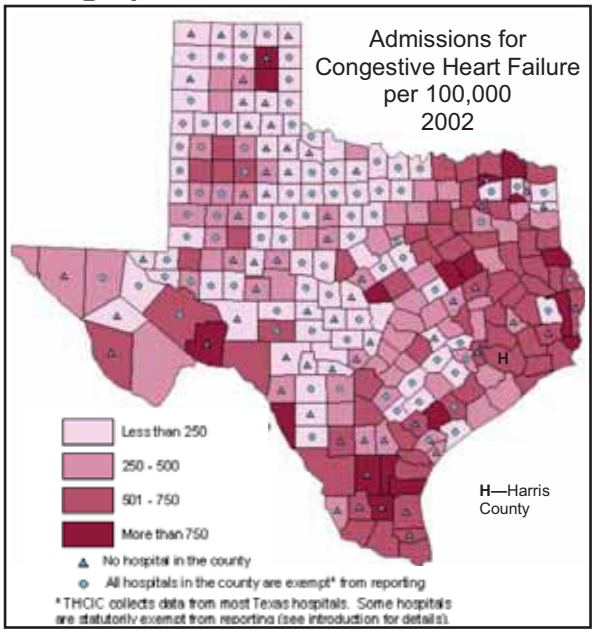
Trends: Harris County 2003-2005

Harris County Prevention Quality Indicators Number of hospital admissions per 100,00 that are considered to have been preventable	Rate per 100,000		
	2003	2004	2005
Congestive heart failure	384.8	401.2	375.9
Bacterial pneumonia	278.8	250.4	275.1
Chronic Obstructive Pulmonary Disease (COPD)	175.1	172.4	152.0
Urinary tract infection	159.3	160.3	159.8
Diabetes long-term complications	118.2	129.1	125.3
Dehydration	89.7	88.1	78.0
Adult asthma	81.7	79.0	78.7
Hypertension	64.7	67.2	56.9
Diabetes short-term complications	57.2	58.3	56.0
Angina without procedure	28.8	25.6	19.6
Amputation among patients with diabetes	23.8	25.2	24.3
Uncontrolled diabetes	15.2	16.8	16.0
Perforated appendix	*27.7	*28.5	*27.4
Low birth weight	**0.07	**0.05	**0.06

*Per 100 admissions for appendicitis; **Per 100 births

Source: Data from Solucient, a consulting firm. Contains hospital discharge data from 31 hospitals in Harris County. In 2004, reported hospital discharges represented 89% of reported hospital discharges in the Texas Health Care Information Collection for Harris County.

Geographic Distribution



Source: TDSHS, Texas Health Care Information Collection

Population Differences

Literature suggests that both individual and community characteristics are associated with the likelihood of being hospitalized for preventable conditions. Among individuals, low income, elder age, poor health, uninsurance, lower education, and living in a primary care shortage area are associated with a higher likelihood of preventable hospitalization after controlling for other factors.

At the community level, lower-area income is associated with a higher preventable hospitalization rate. One study suggested that populations in medically underserved areas (MUAs) served by a Federally Qualified Health Center or a free clinic had significantly lower preventable hospitalization rates than other MUA populations did, after controlling for other factors.[4]

Congestive heart failure occurs when the heart cannot pump enough blood to meet the needs of other body organs. The most common causes are coronary artery disease, hypertension (high blood pressure) and diabetes.
—CDC

Economic Impact of Preventable Hospitalizations

Preventable hospitalizations are expensive; prevention can yield substantial savings. The Agency for Health Care Research and Quality as part of its health care cost and utilization project,[4] estimated an average cost of a hospital admission at $5,300. If Harris County reduced the number of avoidable hospitalizations by a modest 5%, the health care system would save $12,306,335.

Public Health Actions

- Develop policies and plans to solve health problems, working with information such as several studies that suggest that either providing health insurance or increasing the local safety net capacity for primary care may improve access to care and reduce preventable hospitalization
- Monitor health status to identify and solve community health problems through efforts such as tracking local PQIs
- Mobilize community partnerships and action to solve health problems through support of new federally qualified health centers, which may help to reduce preventable hospitalizations by providing affordable primary care for low-income persons

For More Information

Agency For Health Care Research and Quality: *www.achq.gov/data/hcup/factbk5/factbk5a.htm*

Texas Health Care Information Council: *www.dshs.state.tx.us/thcic*

TDSHS Preventable Hospitalizations: *www.dshs.state.tx.us/THCIC/publications/hospitals/PQIReport2002/PreventableHospitalizations2002.shtm*

Prevention Quality Indicators: *www.qualityindicators.ahrg.gov/pqi_download.htm*

[1]AHRQ website. Available at http://www.qualityindicators.ahrq.gov/pqi_overview.htm.
[2]Dept. of Health and Human Services and Agency for Health Research and Quality, *Guide to Prevention Quality Indicators: Hospital Admission for Ambulatory Care Sensitive Conditions.* 2006.
[3]Agency for Healthcare Research and quality, *HCUP Fact Book No. 5 Preventable Hospitalizations: Window into Primary and Preventive Care, 2000.* Available at www.ahrq.gov/data/hcup/factbk5/.
[4]Epstein, AJ. The role of public clinics in preventable hospitalizations among vulnerable populations. *Health Serv Res*. 2001;36(2):405-20.

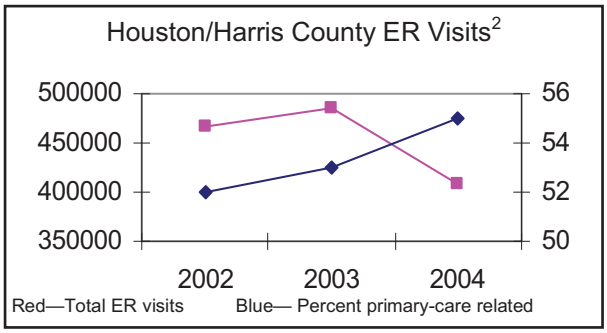
Emergency Room Visits

Overview

Primary Care-Related ER Visits

Primary care-related emergency room visits became a relevant indicator of primary care access with the 1986 enactment of the Emergency Medical Treatment and Active Labor Act (EMTALA). This federal law mandated that hospital ERs must screen and treat patients with emergency medical problems even if the patients are not able to pay for care. As a consequence, ER use for minor emergencies and non-emergencies have risen throughout the country and in Harris County. The volume of primary care-related ER visits is considered to reflect problems or dissatisfaction with the performance or availability of primary care in a community. High rates of primary care-related ER visits have been shown to be correlated with poverty, uninsurance, medical underservice, and ER overcrowding. Primary care-related ER visits are estimated from routine billing data obtained from hospital ERs. Such visits are not necessarily inappropriate, unnecessary, or unwarranted but suggest use of hospital ERs for conditions that are better dealt with in primary care settings.[1]

Trends: Houston/Harris County 2002-2005

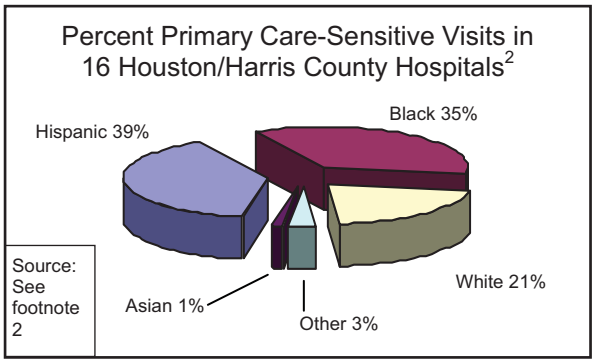


Source: See footnote 2

A growing majority of emergency department visits are for primary care-related conditions. While the total number of ER visits in 11 Houston hospitals declined from 465,909 in 2002 to 408,199 in 2004, the percentage of visits that were primary-care related rose from 52.1% to 54.8%. Most of the increase in primary care-related visits occurred in the non-emergent category.[1]

Population Differences

Blacks and Hispanics accounted for a higher percentage of primary care-related ER visits than did whites, children had a higher percentage than did adults (ages 18-64), and males had a slightly higher percentage than did females. From 2002-2004, the proportion of primary care-related ER visits by blacks has remained stable, whereas the proportion of those by Hispanics has increased.[1]

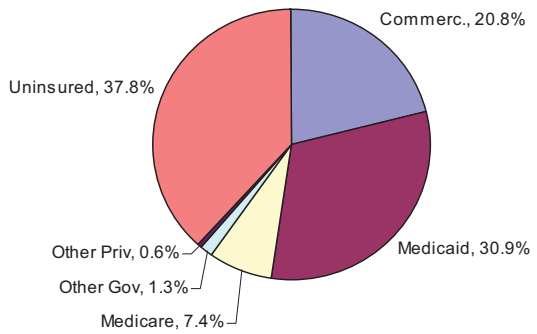


[1]Begley CE, Westheimer Vojvodic R, Seo M, Burau K. Emergency room use and access to primary care: evidence from Houston, Texas. *J Healthcare for the Poor and Underserved*. 2006;17:610-624.
[2]Begley C, Aggarwal, M, Burau K, Dang H. *Houston hospitals emergency department use study, January 1, 2004 through December 31, 2004.* University of Texas Health Science Center at Houston, School of Public Health, prepared for Gateway to Care, January 2006. Available at ww.sph.uth.tmc.edu/hsrc/default.asp?id=2272.

How We Pay for ER Use

From 2002-2004, the payment source for patients making primary care-related ER visits has shifted away from commercial insurance and towards Medicaid and the uninsured. In 2004, just over two-thirds of all primary care-related ER visits fell into one of these latter two groups.

Payment Sources for ER Visits
16 Hospitals in Houston/Harris County, 2004[1]



ER Utilization

Emergency room utilization is increasing nationally and in Houston. In 2003, the national rate was 39.9 visits per 100 persons compared to 35.3 visits per 100 persons in 1993. The emergency department saw 113.9 million people in 2003 compared to 90.3 million people in 1993. ER visits in 2003 averaged 312,000 emergency department visits daily. However, compared to 1993,12.3% fewer ERs were available, resulting in a substantially larger volume of visits to each remaining emergency department.

In Harris County, during the first six months of 2006, emergency departments were on drive-by, meaning ambulances are diverted because the department has exceeded its capacity limits, 25% of the time. Ben Taub General and Memorial Hermann Hospitals, the two hospitals that serve as major trauma centers, were on drive by for 40% of all days.[2]

Emergency Room Visits in Houston/Harris County

ER Visits
16 Harris County Hospitals, 2004

Type of Visit	Percent
Non-emergency	23
Emergency care needed, but could have been treated in a primary care setting	23
Emergency care needed, but primary care could have prevented or avoided the problem.	8
Total Primary Care Related	**55**
Emergency care needed– NOT preventable/avoidable	11
Injury	23
Mental health related	2
Alcohol or drug related	1
Unclassified	10
Total All Visits	**100**

Primary care-related ER visits are estimated from routine billing data obtained from hospital ERs.

In 2004, 585,328 non-admitted ER visits were made to 16 major Houston hospitals, representing about 50% of all non-admitted ER visits to all hospitals in the county. Of those visits, 55% were considered most likely to be primary care-related, categories 1-3. Categories 4 and 5, considered least likely to be primary care-related accounted for 44% of all non-admitted visits. Most primary care-related visits occur between 8 am and 5 pm. The most frequent diagnoses for primary care-related ER visits were acute upper respiratory infection, otitis media, fever, gastroenteritis, and urinary tract infection. From 2002 through 2004, there has been a steady increase in the percentage of primary care-related ER visits in the hospitals monitored in the county.[1]

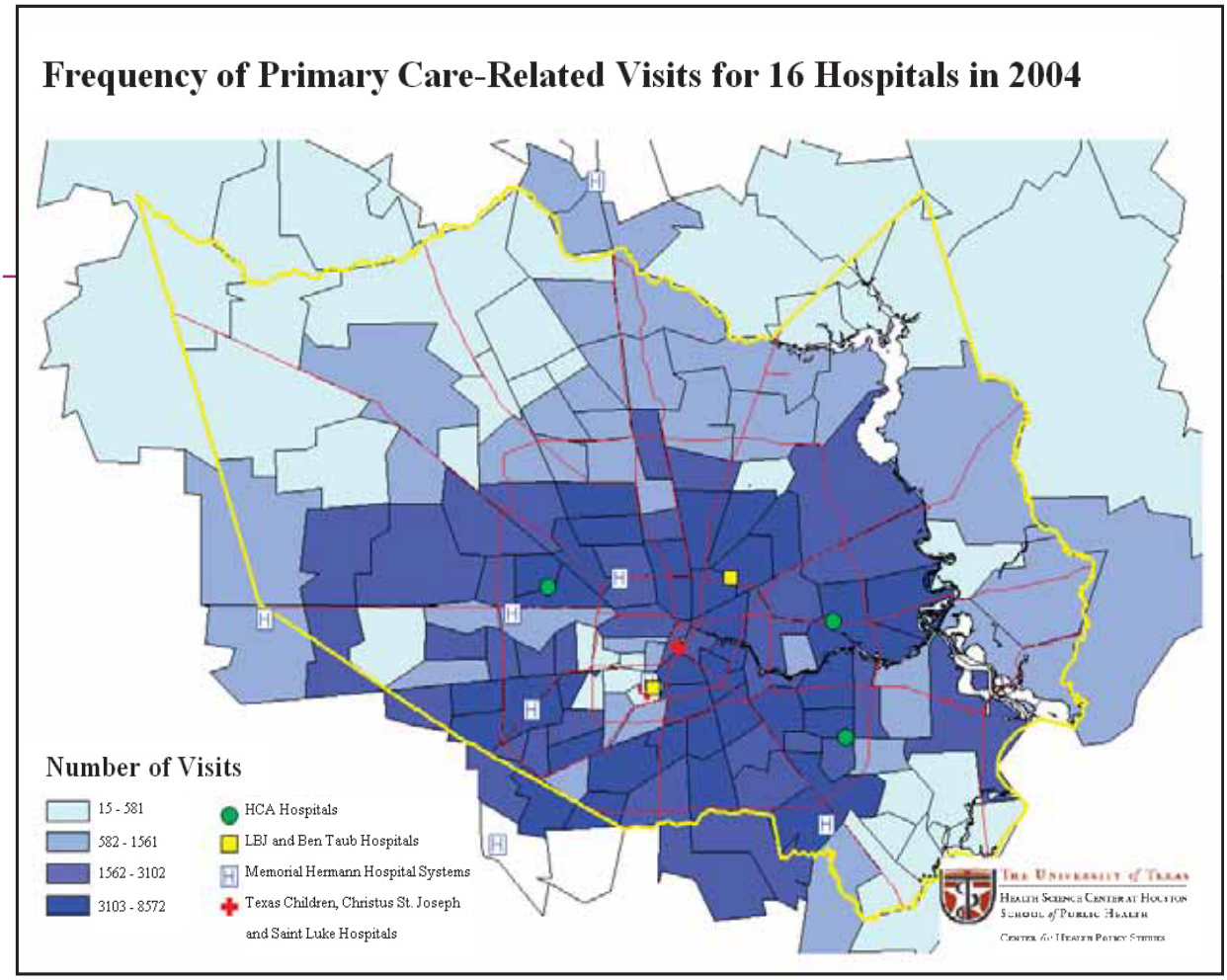
Under the sponsorship of Gateway to Care, the University of Texas School of Public Health has been collecting and analyzing emergency department visit data in major Harris County hospitals to monitor primary care-related use of the emergency room.

[1]Begley CE, Westheimer Vojvodic R, Seo M, Burau K. Emergency room use and access to primary care: evidence from Houston, Texas. *J Healthcare for the Poor and Underserved*. 2006;17:610-624.
[2]Houston-Galveston Area Council, EMS/Trauma Policy Council. Data Committee Report. July 28, 2006.

Emergency Room Visits, cont.

Geographic Distribution

Residents in ZIP codes nearest the hospitals have the highest frequency of primary care-related ER visits. Among the uninsured, the highest rate of primary care-related ER visits are patients from inner city ZIP codes, particularly in the northeast and south. From 2002-2004, primary care-related ER visits continued to vary by ZIP code. In 2004, primary care-related ER visits for the uninsured came predominantly from the central, southern, and northeastern ZIP codes.



Primary care-related ER visits are estimated from routine billing data obtained from hospital ERs.
Source : Begley C, Aggarwal M, Burau K, Dang H. *Houston hospitals emergency department use study, January 1, 2004 through December 31, 2004.* University of Texas Health Science Center at Houston, School of Public Health, prepared for Gateway to Care, January 2006. Available at http://www.sph.uth.tmc.edu/hsrc/default.asp?id=2272.

Economic Impact of Emergency Room Visits

The emergency department is an essential tool to society, providing timely care for those individuals in dire need of help. Nevertheless, utilizing the emergency department is an expensive procedure, usually more costly than other ambulatory settings such as hospital outpatient departments and physicians' offices.[1] The emergency department must see all individuals in need of help: insured, uninsured, in need of urgent care and in need of non-urgent care. In addition, patients must be seen at all times of the day or night, leading to high healthcare costs in the emergency department.

In 2003, approximately 10% of ambulatory care expenditures were due to emergency department visits. From the data collected in the Household Component Medical Expenditure Panel Survey, the Agency on Healthcare Research and Quality estimates the average of an emergency department visit without hospitalization to be $560 for 2003. Costs may range from under $42 for the bottom 10% of the study to more than $1,200 for the top 10%. The median amount spent on medical care in an ER visit without hospitalization was $299 for 2003.[1]

Costs of an emergency room visit also vary based on procedures. For example, visits in which surgery was performed cost 42% more than visits in which non-surgical procedures, such as diagnostic X-Rays, were performed. Age also makes a difference. Treating individuals between the ages of 45-64 was most expensive ($832) while treating children under 18 was least expensive ($423).

Patients with non-urgent problems can visit hospital outpatient departments or physician's offices, which may offer better services than the emergency department at two-to-three times less cost. In 1993, the national expenditure from non-urgent visits was estimated between $5 to $7 billion.[2] Today, non-urgent care accounts for approximately 10% of all emergency department visits.[3] In Houston, the figure is above 20% (see ER Visits, Total Primary Care-Related).

Healthy People 2010

Objective 1-1: Increase the proportion of persons with health insurance

Persons Under Age 65 Covered by Health Insurance

Area	Percent
National Baseline 1997	83
Target for 2010	100
Houston-Baytown-Sugar Land MSA 2005	75
State of Texas 2005	71
United States 2005	84

Public Health Actions

- Mobilize community partnerships through actions such as support of federally qualified health centers, which significantly expand health care capacity
- Educate people about health issues, the importance of a medical home, and resources such as the Harris County Hospital District's 24-hour nurse advice line to assist in determining the need for ER care; the RightCare program to redirect ER patients who don't have urgent symptoms; and Medicaid and CHIP insurance

For More Information

Houston Health Services Research Collaborative (three years of detailed reports on ED utilization): www.sph.uth. tmc.edu/hsrc/content.asp?id=2272

National Health Care Disparities Report: Emergency Department Visits: www.qualitytools.ahrq.gov/disparitiesreport/2005/browse/browse.aspx?id=9143

National Center for Health Statistics: Emergency Department Visit Data: www.cdc.gov/nchs/about/major/ahcd/ercharts.htm

New York University ED Algorithm: www.nyu.edu/wagner/chpsr/

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[1]Machlin, S. R. *Expenses for a hospital emergency room visit, 2003.* Statistical Brief #111. January 2006. Agency for Healthcare Research and Quality, Rockville, Md. Available at www.meps.ahrq.gov/papers/st111/stat111.pdf. Accessed July, 2006.
[2]Baker L, Baker L. Excess cost of emergency department visits for nonurgent care. *Health Affairs*, Winter 1994. Pages 163-171.
[3]McCaig L, et al. National ambulatory medical care survey: 2003 emergency department summary. *Advance Data from Vital and Health Statistics.* May 26, 2005. Number 358.

Appendices

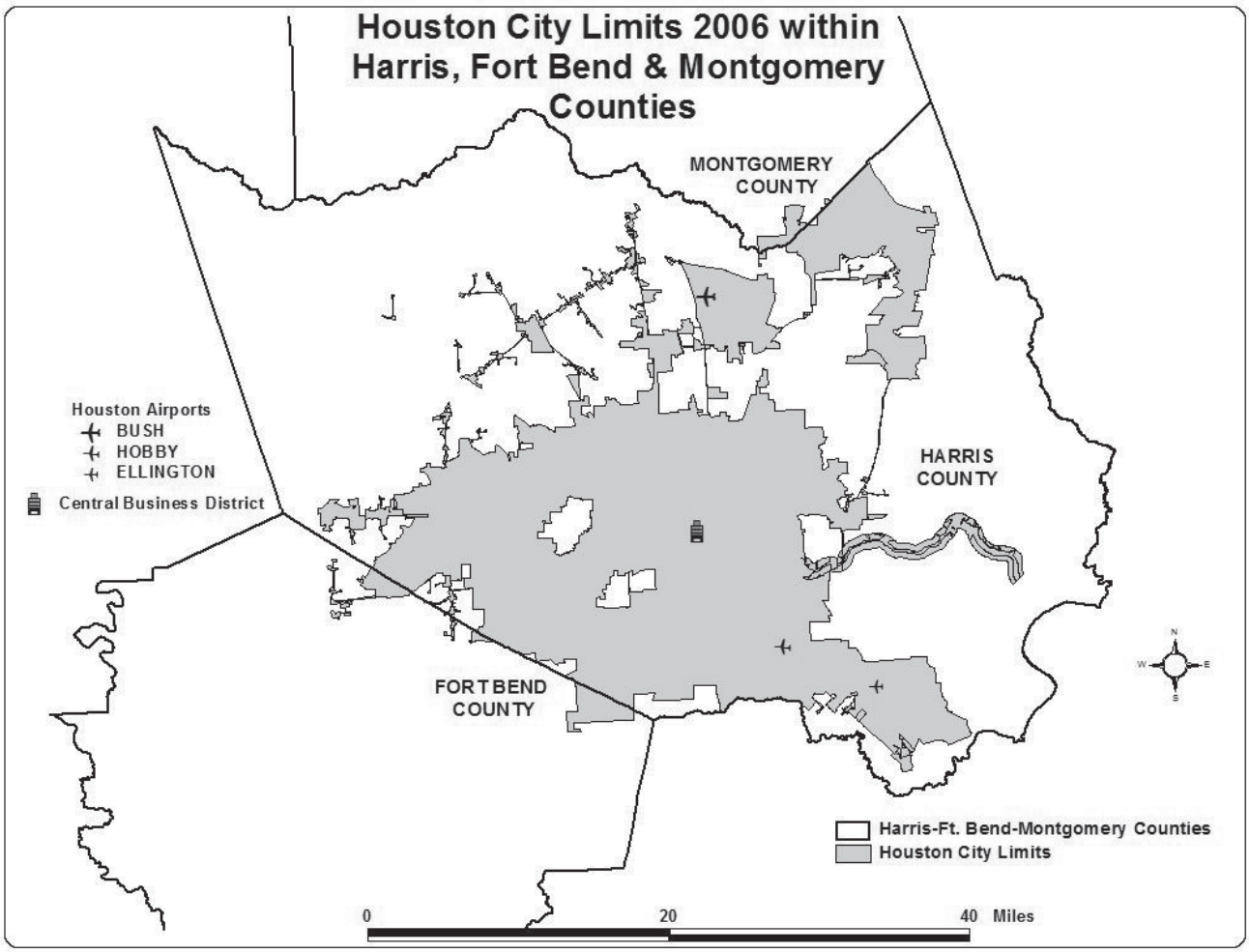
Appendix A—Demographic Tables

DEMOGRAPHIC TABLES 2005	Home Page: http://factfinder.census.gov			
Annual Estimates of the Population: April 1, 2000 to July 1, 2005 Source: Population Division, U.S. Census Bureau	**City of Houston**	**Harris County**	**State of Texas**	**United States**
April 1, 2000 Census 100% Count	1,953,631	3,400,578	20,851,820	281,421,906
April 1, 2000 estimates base	1,957,018	3,400,580	20,851,792	281,424,602
July 1, 2005 Annual Census Population Estimate	2,016,582	3,693,050	22,859,968	296,410,404
Percent Change, 2000 to 2005	3.0	8.6	9.6	5.3
Percent Change, 2004 to 2005	0.3	1.4	1.7	0.9
Factfinder Home Page > Population Estimates Program				
2005 American Community Survey Source: U.S. Census Bureau	***All Percentages based on Population in Households***			
2005 Household Population Sample Total	**1,941,430**	**3,647,656**	**22,270,165**	**288,378,137**
* Data are limited to household population and exclude population living in institutions, college dormitories, and other group quarters.				
Factfinder Home Page > American Community Survey				
Race/Ethnicity: 2005	**City of Houston**	**Harris County**	**State of Texas**	**United States**
Hispanic ethnicity (of any race)	42.3%	37.8%	35.5%	14.5%
Non-Hispanic ethnicity by race:				
White	27.8%	37.9%	48.9%	66.8%
African American	23.2%	17.6%	10.8%	11.9%
Asian	5.7%	5.5%	3.2%	4.3%
American Indian/Alaska Native/	0.2%	0.2%	0.3%	0.7%
Native Hawaiian/Pacific Islander	0.1%	0.1%	0.04%	0.1%
Other/Two or more races	0.8%	1.0%	1.2%	1.7%
Age Group: 2005	**City of Houston**	**Harris County**	**State of Texas**	**United States**
Residents under age 18	27.6%	29.2%	28.3%	25.4%
Residents age 65 and over	8.4%	7.4%	9.6%	12.1%
Educational Attainment: 2005	**City of Houston**	**Harris County**	**State of Texas**	**United States**
Population 25 years and over	**1,207,777**	**2,237,887**	**13,771,855**	**188,950,759**
High-school graduates or higher	72.2%	76.5%	78.8%	84.2%
Bachelor's degree or higher	27.8%	27.4%	25.1%	27.2%
Foreign-born: 2005	**City of Houston**	**Harris County**	**State of Texas**	**United States**
Foreign-born Residents	29.1%	24.6%	15.9%	12.4%
Place of birth for foreign-born:	**564,175**	**895,936**	**3,542,513**	**35,689,467**
Latin America	74.9%	73.3%	75.5%	53.3%
Asia	16.8%	18.2%	16.2%	26.7%
Europe	4.5%	4.5%	4.4%	13.6%
Africa	3.2%	2.9%	2.6%	3.5%
Language spoken at home: 2005	**City of Houston**	**Harris County**	**State of Texas**	**United States**
Population 5 years and over	**1,768,156**	**3,321,823**	**20,403,745**	**268,110,961**
Number speaking language other than English	**830,033**	**1,359,830**	**6,846,759**	**51,934,850**
Language other than English	46.9%	40.9%	33.6%	19.4%
Speak English less than "very well"	54.5%	51.6%	44.0%	44.6%
Spanish	81.8%	81.4%	86.5%	62.0%
Asian and Pacific Islander languages	7.2%	9.4%	6.6%	15.0%
Other Indo-European languages	8.6%	7.1%	5.5%	19.1%
Other languages	2.4%	2.2%	1.4%	4.0%

Income & Poverty: 2005 * INCOME IN THE PAST 12 MONTHS	**City of Houston**	**Harris County**	**State of Texas**	**United States**
Median household income	$36,894	$44,002	$42,139	$46,242
All people below poverty	22.9%	17.9%	17.6%	13.3%
Individuals age 15 and over below poverty	22.8%	22.0%	25.5%	23.1%
Children under age 18 below poverty	35.0%	26.4%	24.9%	18.5%
Adults age 65 and over below poverty	14.5%	12.1%	12.7%	9.9%
* Poverty Threshold for 2005: One person (unrelated individual)....$9,973; Four persons….$19,97				
Source: U.S. Census Bureau, Housing & Household Economic Statistics Division				
http://www.census.gov/hhes/www/poverty/threshld/thresh05.html				
Households: 2005	**City of Houston**	**Harris County**	**State of Texas**	**United States**
Total households: (in 2005 sample)	**733,101**	**1,300,321**	**7,978,095**	**111,090,617**
Family households (families)	62.5%	68.8%	70.2%	66.9%
Percent of **families** with own children < 18	52.3%	53.9%	51.0%	47.2%
Married-couple families	66.2%	70.9%	73.7%	74.3%
% of **Married-couple** families with own children < 18	50.4%	52.2%	48.3%	43.7%
Male householder, no wife present	8.8%	8.3%	6.9%	6.9%
% of **Male-headed** families with own children < 18	47.6%	48.2%	48.7%	49.6%
Female householder, no husband present	24.9%	20.8%	19.4%	18.9%
% of **Female-headed** families with own children < 18	58.8%	61.9%	62.2%	60.1%
Non-family households	37.5%	31.2%	29.8%	33.1%
Householder living alone	85.3%	83.4%	82.9%	81.8%
65 years & older	20.8%	21.5%	28.2%	33.4%
Grandparents: 2005	**City of Houston**	**Harris County**	**State of Texas**	**United States**
Number of grandparents living with own grandchildren under 18 years in households	**53,584**	**97,807**	**584,885**	**5,742,583**
Responsible for grandchildren	44.3%	44.6%	47.8%	42.8%
VETERAN STATUS: 2005	**City of Houston**	**Harris County**	**State of Texas**	**United States**
Civilian population 18 years and over	**1,405,767**	**2,582,698**	**15,899,260**	**214,524,444**
Civilian veterans	6.5%	7.5%	10.1%	10.9%
DISABILITY STATUS OF THE CIVILIAN NONINSTITUTIONALIZED POPULATION: 2005	**City of Houston**	**Harris County**	**State of Texas**	**United States**
Population 5 years and over with a disability	**214,181**	**377,269**	**2,885,141**	**39,740,709**
Population 5 years and over with a disability	12.1%	11.4%	14.2%	14.9%
Population 5 to 15 years with a disability	5.6%	5.6%	6.7%	6.5%
Population 16 to 64 years with a disability	9.9%	9.5%	11.7%	12.1%
Population 65 years and over with a disability	42.0%	41.2%	44.3%	40.5%

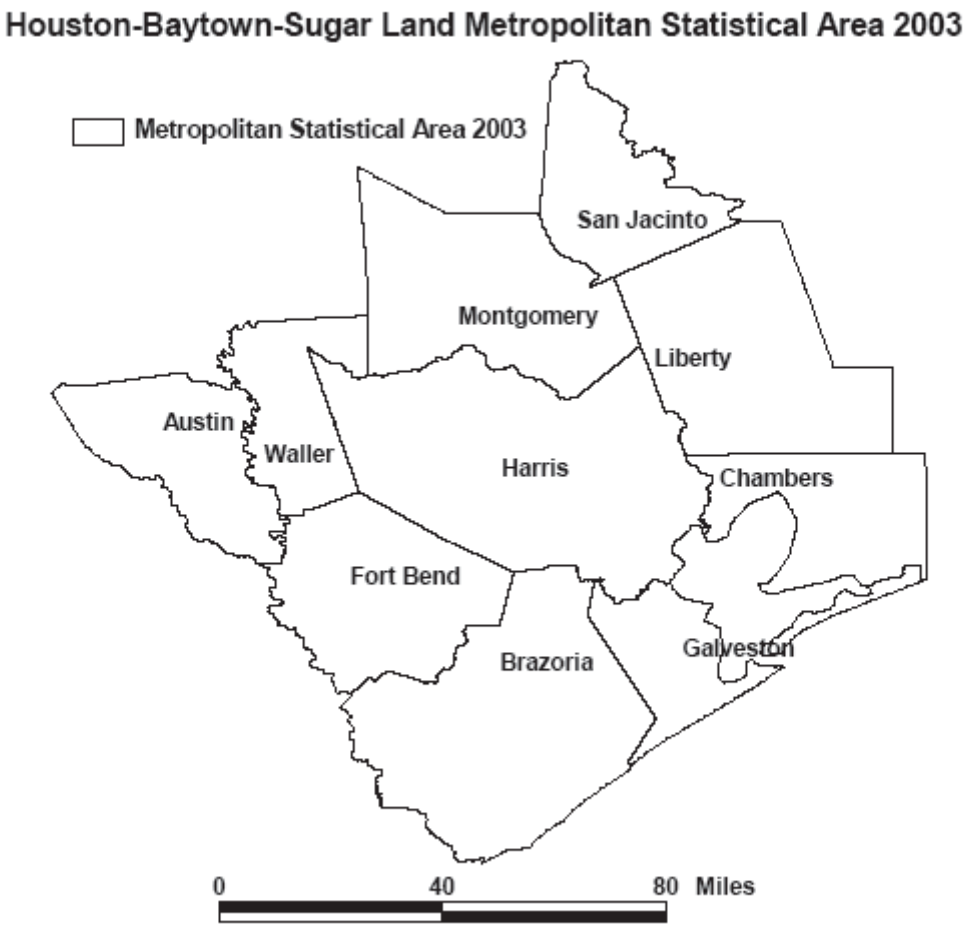
Appendix B—Maps

Map of Houston/Harris County



Map Date: August 3, 2006
Map developed by HDHHS Office of Health Planning and Evaluation

Map of Houston-Baytown-Sugar Land MSA



Map Date: September 22, 2006

June 6, 2003
Office of Management and Budget Definition / Statistical and Science Policy Branch / Office of Information and Regulatory Affairs

http://www.whitehouse.gov/omb/bulletins/b03-04_attach.pdf

Appendix C—Frequently Used Websites

U.S. Census Bureau: www.census.gov
American FactFinder, for local data: http://factfinder.census.gov
Texas State Data Center (a state level liaison to the U.S. Bureau of the Census)
www.txsdc.utsa.edu
Texas Department of State Health Services
Home page: www.dshs.state.tx.us
BRFSS survey data: www.dshs.state.tx.us/chs/brfss/
Birth and death certificate data, population, trauma data: http://soupfin.tdh.state.tx.us/
Centers for Disease Prevention and Control
Home page: www.cdc.gov/
SMART BRFSS local reports: http://apps.nccd.cdc.gov/brfss-smart/SelMMSAPrevData.asp
Healthy People 2010: www.healthypeople.gov
Bexar County Community Health Collaborative, Health Assessment Data Tables:
www.healthcollaborative.net/assessment06/assessmentData.php

Appendix D —Healthy People 2010 Sources

The first two measures on each table, the National Baseline and the Target for 2010 are from the Healthy People website, available at www.healthypeople.gov. Most of the following measures, for the Houston-Galveston-Sugar Land MSA, Texas and the United States, are from the Texas Department of State Health Services, Behavioral Risk Factor Surveillance System, available at http://www.dshs.state.tx.us/chs/brfss/. In some cases, the BRFSS results are taken from the CDC SMART BRFSS website. Results from BRFSS are age adjusted to the 2000 standard population. When other sources are used, they are noted below:

Obesity in Youth: Houston rate from TDSHS Youth Risk Behavior Survey, U.S. rate from National Health and Nutrition Examination Survey
Injury Risk: Harris County data from the Bexas County Community Health Collaborative website at www.healthcollaborative.net, Texas rate from TDSHS, national rate from CDC
Child Abuse: Local and Texas Statistics from the CPS in Harris County 2005 Annual Report. The U.S. rate for 2003 is from the National Association of Counsel for Children
Alcohol and Drug Abuse: Local and Texas data from TDSHS Texas Commission on Alcohol and Drug Abuse, national data from CDC
Prenatal Care, Pregnancy/Infant Outcomes, Adolescent Pregnancy: Local and Texas data from TDSHS, national data from CDC
Immunizations: Data from the CDC National Immunization Survey
Air Quality: Measures from the EPA
Surface Water: Measures from HDHHS and HCPHES records
Food Safety, Lead Poisoning: Local measures from HDHHS and HCPHES case files. Texas measures from TDSHS, Infectious Disease Control Unit. National measures from CDC.
Mental Health: Harris County and Texas data from TDSHS, national data from CDC
Heart Disease, Cancer, Diabetes: Harris County and Texas data from TDSHS or Bexar County Community Health Collaborative websites, national rates from CDC National Vital Statistics System.
Asthma: Harris County and Texas hospital discharge data from TDSHS Center for Health Statistics Texas Health Care Information Collection, Preventable Hospitalizations, 2002
Communicable Diseases: Local and Texas data are from HDHHS and HCPHES case files and TDSHS. National data from CDC.

Appendix E—Acronyms

AAFP	American Academy of Family Physicians
ACIP	Advisory Committee on Immunization Practices
ACSC	Ambulatory Care Sensitive Conditions
AIDS	Acquired Immunodeficiency Syndrome
AMI	Annual Median Income
BRFSS	Behavioral Risk Factor Surveillance System
BMI	Body Mass Index
CDC	U.S. Centers for Disease Control and Prevention
CFRT	Child Fatality Review Team
CHIP	Children's Health Insurance Program
CPS	Harris County Child Protective Service
CVD	Cardiovascular Disease
DHHS	U.S. Department of Health and Human Services
DOT	Directly Observed Therapy
E. coli	Escherichia coli
ED	Hospital-based Emergency Department
EMS	Prehospital Emergency Medical Services
EMTALA	Emergency Medical Treatment and Active Labor Act
EPA	U.S. Environmental Protection Agency
ER	Emergency Room
ETS	Environmental Tobacco Smoke
FDA	Federal Drug Administration
FPL	Federal Poverty Level
HCHA	Harris County Healthcare Alliance
HCHD	Harris County Hospital District
HCPHES	Harris County Public Health and Environmental Services
HDHHS	City of Houston Department of Health and Human Services
HHCCFRT	Houston/Harris County Child Fatality Review Team
HHSC	Health and Human Services Commission
HISD	Houston Independent School District
HIV	Human Immunodeficiency Virus
HSR	Health Service Region
HUD	Department of Housing and Urban Development
LBW	Low Birth Weight
LTBI	Latent TB Infection
MHMRA	Mental Health Mental Retardation Authority of Harris County
MMR	Measles, Mumps, Rubella
MSA	Metropolitan Statistical Area
MSM	Men Who Have Sex With Men
MUA	Medically Underserved Area
MUP	Medically Underserved Population
NAAQS	National Ambient Air Quality Standard
NCHS	National Center for Health Statistics
NHANES	National Health and Nutrition Examination Survey
NIH	National Institute of Health
NIS	National Immunization Survey
PCC	Poison Control Center
PCP	Primary Care Physician
PM 2.5	Fine Particulate Matter
PQI	Patient Quality Indicators
RIS	Retrospective Immunization Survey
SIDS	Sudden Infant Death Syndrome
SPAN	School Physical Activity and Nutrition Project

Appendix E—Acronyms, cont.

STD	Sexually Transmitted Disease
TB	Tuberculosis
TCADA	Texas Commission on Alcohol and Drug Abuse
TDADS	Texas Department of Aging and Disability Services
TDSHS	Texas Department of State Health Services
U.S.	United States
USDA	United States Department of Agriculture
USPSTF	U.S. Preventive Services Task Force
VLBW	Very Low Birth Weight
YPLL	Years of Potential Life Lost. Premature mortality is measured by the Years of Potential Life Lost statistic, which is simply the sum of the years of life lost annually by persons who suffered early death. Premature death is defined in this document as death occurring before the age of 65.
YRBS	Youth Risk Behavior Survey
WIC	Federal Women, Infants and Children Supplemental Nutrition Program
WNV	West Nile Virus

Appendix F—Additional Information

Map Disclaimer: Many of the maps showing health measures in Houston/Harris County were prepared by the HDHHS Office of Surveillance and Public Health Preparedness, Community Services section. These maps represent the best information available to the City. The City does not warrant their accuracy or completeness. Field verifications should be done as necessary.

Notes